

Chapter Two

Sociologists Doing Research



OUTLINE

Sociological Imagination
Sources of Knowledge
Causation and the Logic of Science
Quantitative Research Methods
Qualitative Research Methods

Doing Research: Emile Durkheim—The Study of Suicide

A Model for Doing Research
Ethics in Social Research

Sociology in the News: Research in Advertising

A Final Note

LEARNING OBJECTIVES

After careful study of this chapter, you will be able to:

- Identify major nonscientific sources of knowledge and explain why science is a superior source of knowledge.
- Apply the concept of causation and the controlled experiment to the logic of science.
- Differentiate the major quantitative research methods used by sociologists.
- Describe the major qualitative research methods used by sociologists.
- Explain the steps in the model sociologists use to guide their research.
- Describe the place of ethics in research.
- State the place of concern for reliability, validity, and replication in social research.

SOCIOLOGICAL IMAGINATION

What is the relationship between church attendance and juvenile delinquency? The finding of a statistical link between church attendance and delinquency (delinquency increases as church attendance decreases) meets the test of common sense. One can easily speculate on why this would be the case. An observed relationship between these two events, however, should not lead us to conclude that one causes the other. In fact, delinquency increases as church attendance decreases because of a third factor—age. Age is related to both delinquency and church attendance. Older adolescents both go to church less often and are more likely to be delinquents. The apparent relationship between church attendance and delinquency, then, is actually produced by a third factor—age—that affects both of the original two factors.

Such mistaken ideas as a causal relationship between lower church attendance and juvenile delinquency can survive in large part because people so often rely on sources of knowledge not grounded in the use of reason and the search for reality. One of the major benefits of sociological research lies in its challenge of commonly held false beliefs and its attempt to replace such beliefs with more accurate knowledge. Before turning to the logic of scientific research and the methods of sociological research, it will be helpful to examine some major nonscientific sources of knowledge. This will provide a context for the appreciation of the utility of a scientific approach.

SOURCES OF KNOWLEDGE

How do we know what we know? Four major nonscientific sources of knowledge are intuition, common sense, authority, and tradition.

Nonscientific Sources of Knowledge

Intuition is quick and ready insight that is not based on rational thought. To intuit is to have the feeling of immediately understanding something because of insight from an unknown inner source. For example, the decision against buying a particular house because “it feels wrong” is a decision based on intuition.

Common sense refers to opinions that are widely held because they seem so obviously correct. The problem with commonsense ideas is that they are often wrong. Some claim common sense tells us, for example, that property values almost always decline when African Americans move into a white, middle-class neighborhood. Research demonstrating that property values do not necessarily decline when African Americans move in is hard for many people to accept because it goes against common sense. As philosopher Alasdair MacIntyre writes, “because common sense is never more than an inherited amalgam of past clarities and past confusions, the defenders of common sense are unlikely to enlighten us” (MacIntyre, 1997: 117).

An *authority* is someone who is supposed to have special knowledge that we do not have. A king believed to be ruling by divine right is an example of an authority. Reliance on authority is often appropriate. It is more reasonable to accept a doctor’s diagnosis of an illness than to rely on information from a neighbor whose friend had the same symptoms (although even a single doctor’s diagnosis should not be accepted uncritically). In other instances, however, authority can obscure the truth. Astrologers who advise people to guide their lives by the stars are an example of a misleading authority.

The fourth major nonscientific source of knowledge is *tradition*. It is traditional to believe that only children are all self-centered and socially inept. Despite evidence to the contrary, Americans generally still wish to have two or more children in order to avoid these alleged personality traits (Sifford, 1989). Barriers to equal opportunity for women persist in industrial societies despite evidence that traditional negative ideas about the capabilities of women are fallacious.

What is the major problem with nonscientific sources of knowledge? The major problem with nonscientific sources of knowledge is that they often provide misleading or false information. In fact, nonscientific sources can lead to completely opposite conclusions. One person's intuition tells her to buy oil stocks, whereas another person's intuition tells him to avoid all energy stocks. One person's commonsense conclusion may be that the Equal Rights Amendment will destroy most sexual differences, although it seems perfectly obvious to someone else that this will not be the case.

Because these sources of knowledge are often accepted at face value, most people seldom challenge the information obtained through them. Consequently, reality can be distorted for a long time. Science is a more reliable method for obtaining knowledge because it is based on the principles of objectivity and verifiability.

Science as a Source of Knowledge

What is objectivity? According to the principle of **objectivity**, scientists are expected to prevent their personal biases from influencing their results and their interpretation of those results. A male, antifeminist biologist investigating the intelligence levels of males and females, for example, is supposed to guard against any unwarranted tendency to conclude that males are more intelligent than females. Researchers must interpret their data solely on the basis of merit; the outcome they personally prefer is supposed to be irrelevant. This is what Max Weber (1946b, originally published in 1918) meant by value-free research. (Refer to Chapter 1, "The Sociological Perspective.")

Can scientists really be objective? Inevitably, scientists' personal views do affect their work. In exceptional cases, this is deliberate. A promising young Harvard Medical School physician, John R. Darsee, admitted faking data in an experiment on heart attack prevention ("Harvard Delays in Reporting Fraud," 1982). A National Institute of Mental Health investigatory panel ruled that Stephen Breuning, an assistant professor of child psychiatry, deliberately and repeatedly engaged in deceptive research practices (Brand, 1987).

Sometimes scientists unintentionally let their personal biases influence their work. For example, pioneering sex researcher, Alfred Kinsey, has been accused of being both a homosexual and a masochist, characteristics said to unduly influence his research. In his recent book, James Jones (1997) makes this charge and presents evidence that Kinsey, who revolutionized popular thinking about sex in America in the 1950s, was a man with an ideological agenda whose research methods undermine his claim to objectivity. Jones refers to scientific critics who point out that Kinsey generalized about



When forming opinions about the risk of AIDS, many Americans rely on nonscientific sources. The protestors in this picture are concerned about the harm done to children in an environment void of scientifically based knowledge.

the American population on the basis of data gathered largely from volunteers, including disproportionate numbers of male prostitutes, gays, and prison inmates.

Scientists cannot possibly be completely objective. But if subjectivity in research cannot be eliminated, it can be reduced.

How can subjectivity be reduced? If researchers are aware of their biases, they can consciously take them into account. They can be more careful in designing research instruments, selecting samples, choosing statistical techniques, and interpreting results. According to Swedish economist Gunnar Myrdal (1969), personal recognition of biases is insufficient; public exposure of them is essential. Personal values, Myrdal contends, should be explicitly stated so that those who read a research report can be aware of the author's biases.

What is verifiability? **Verifiability** means that any study can be duplicated by other scientists. This is possible because scientists report in detail how they conducted their research. Verifiability is important because it exposes a piece of research to scientists' critical examination, retesting, and revision by colleagues. If researchers repeating a study produce results at odds with the original study, the original findings will be questioned. Erroneous theories, findings, and conclusions cannot survive in the long run in this type of system (Begley, 1997).

1. Intuition is quick and ready insight based on rational thought. *T or F?*
2. The major problem with nonscientific sources of knowledge is that such sources often provide erroneous information. *T or F?*
3. Define *objectivity* and *verifiability* as used in science.
4. According to Gunnar Myrdal, it is enough that scientists themselves recognize their biases. *T or F?*

Answers: 1. F 2. T 3. Objectivity exists when an effort is made to prevent personal biases from distorting research. Verifiability means that any given piece of scientific research done by one scientist can be duplicated by other scientists. 4. F

CAUSATION AND THE LOGIC OF SCIENCE

The Nature of Causation

In science it is assumed that an event occurs for a reason. According to the concept of **causation**, events occur in predictable, nonrandom ways, and one event leads to another. Why does this book remain stationary rather than slowly rising off your desk, past your eyes, to rest against the ceiling? Why does a ball thrown into the air return to the ground? Why do the planets stay in orbit around the sun? According to Aristotle, heavier objects fall faster than lighter ones. In the late 1500s, Galileo contended that all objects fall with the same acceleration (change of speed) unless slowed down by air resistance or some other force. It was not until the late 1600s that Isaac Newton developed the theory of gravity. We now know that objects fall because the earth has a gravitational attraction for objects near it. The planets remain in orbit around the sun because of the gravitational force that the sun creates.

In sociology, religious affiliation, political preference, educational achievement, child-rearing practices, and divorce rates can be predicted, in large part, on the basis of social class membership. Because science is based on causation, one of its main goals is to discover cause-and-effect relationships. Scientists attempt to discover the factors—there is usually more than one—that cause events to happen.

Why multiple causation? Leo Rosten, noted author and political scientist, once wrote, “If an explanation relies on a single cause, it is surely wrong.” Events in the physical or social world are generally too complex to be explained by any single factor. For this reason, scientists are guided by the principle of **multiple causation**, which states that an event occurs as a result of several factors operating in combination. What, for example, causes crime? Cesare Lombroso, a nineteenth-century Italian criminologist, believed that the predisposition to crime was inherited and that criminals could be identified by certain primitive physical traits (large jaws, receding foreheads). Modern criminologists reject Lombroso’s (or anyone’s) one-factor explanation

of crime. They now cite numerous factors that contribute to crime, including subcultures of violence turned against society; rapid social change and economic development; excessive materialism; hopeless poverty in slums; and overly lax, overly strict, or erratic child-rearing practices.

How does the concept of variable fit into a discussion of causation? A **variable** is a characteristic (age, education, social class) that occurs in different degrees. Some materials have a greater specific gravity than others; some people have higher incomes than others; the average level of education is higher in developed countries than in developing countries. Each of these is a *quantitative* variable, a variable numerically measured. Because differences can be measured numerically, individuals, groups, objects, or events can be pinpointed at some specific point along a continuum. A *qualitative* variable consists of categories rather than numerical units; it measures differences in kind rather than numerical degree. Sex, marital status, and group membership are three qualitative variables often used by sociologists: People are male or female; they are single, married, widowed, separated, or divorced; they are sorority members or they are not.

Variables that cause something to occur are **independent variables**. Variables in which a change (or effect) can be observed are **dependent variables**. Marital infidelity is an independent variable (although, of course, not the only one) that can cause the dependent variable of divorce. The independent variable of poverty is one of several independent variables that can produce change in the dependent variable of hunger. Whether a variable is dependent or independent varies with the context. The extent of hunger may be a dependent variable in a study of poverty; it may be an independent variable in a study of crime.

If a causal relationship exists between an independent variable and a dependent variable, the variables must be correlated. A **correlation** exists when a change in one variable is associated with a change (either positively or negatively) in the other. Establishment of causation, however, is much more complicated than establishment of a correlation between two variables.

What are the criteria for establishing a causal relationship? Three standards are commonly used for establishing causality (Lazarsfeld, 1955; Hirschi and Selvin, 1973). These standards can be illustrated using the mistaken assumption that lower church attendance causes higher juvenile delinquency discussed at the beginning of this chapter (see “Sociological Imagination”).

1. *Two variables must be correlated.* Some researchers found that juvenile delinquency increases as church attendance declines (Stark, Kent, and Doyle, 1982). Does the existence of this negative correlation mean that lower church attendance causes higher delinquency? To answer this question, the second criterion of causality must be met.
2. *All possible contaminating factors must be controlled.* Although all cause-and-effect relationships involve a correlation, the existence of a correlation does not necessarily indicate a causal relationship. Just because two events vary together does not mean that one causes the other. Two totally unrelated variables may have a high correlation. In fact, the correlation between lower church attendance and delinquency is known as a **spurious correlation**—an apparent relationship between two variables that is actually produced by a third variable that affects both of the original two variables.

The negative relationship between church attendance and delinquency occurs because age is related to both church attendance (older adolescents attend church less frequently) and delinquency (older adolescents are more likely to be delinquents). Thus, before we could be sure that a causal relationship exists between church attendance and delinquency, we would need to control for all variables relevant to the relationship. In this instance, controlling for age revealed that the relationship between church attendance and delinquency is not a causal one.

A major problem in establishing causality lies in the control of all relevant variables. Normally, such control is impossible. Researchers are usually not aware of all possible factors that might affect the relationship between an independent variable and a dependent variable, and even if they were, it is often not feasible to control for all of them. Discovering and controlling for contaminating factors is one of the greatest challenges in science.

3. *A change in the independent variable must occur before a change in the dependent variable can occur.* Does lack of church attendance precede delinquency, or vice versa? Logically, either one could precede the other, or they could occur simultane-

ously. Thus, if the original correlation between church attendance and delinquency was maintained after controlling for possible contaminating factors, causality between these two variables could not be established, because it cannot be said which is temporally prior to the other.

Although the successful use of these criteria of causation is not always complete, the criteria are important standards for which scientists continue to strive. Moreover, research results—even if they meet these criteria of causation—require theory to make empirical data meaningful.

The Controlled Experiment as a Model

A description of the controlled experiment provides an excellent means to illustrate causation. Though used infrequently by sociologists, the controlled experiment provides insight into the nature of all scientific research because it is grounded in the concept of causation.

A **controlled experiment** takes place in a laboratory and attempts to eliminate all possible contaminating influences on the variables being studied. The basic idea of the controlled experiment is to rule out the effects of extraneous factors to see the effects (if any) of an independent variable on a dependent variable. According to the logic of the controlled experiment, if the dependent variable changes when the experimental (independent) variable is introduced but does not change when it is absent, the change must have been caused by the independent variable.

The basic ingredients of a controlled experiment are a pretest, a posttest, an experimental (independent) variable, an experimental group, and a control group. Suppose a researcher wants to study experimentally the effects of providing information on drug use to junior high school students. After selecting a class of eighth graders, the researcher could first measure the teenagers' attitudes toward drug use (pretest). Then, at a later time a film demonstrating the harmful effects of drug use might be shown to the class (experimental variable). After the movie, the students could again be questioned about their attitudes toward drug use (posttest). Any changes in their attitudes toward drug use that took place between the pretest and the posttest could be attributed to the experimental variable. Such a conclusion might be wrong, however, because the change could have been due to factors other than the experimental variable—a student in the school might have died from an overdose of drugs, a nationally known rock singer might have publicly endorsed drug use, or a pusher might have begun selling drugs to the students.

The conventional method for controlling the influence of contaminating variables is to select a control group as well as an experimental group. In the preceding

example, half of the eighth-grade class could have been assigned to the **experimental group**—the group exposed to the experimental variable—and half to the **control group**—the group not exposed to the experimental variable. Assuming that the members of each group had similar characteristics and that their experiences between the pretest and the posttest had been the same, any difference in attitudes toward drug use between the two groups could safely be attributed to the students' exposure or lack of exposure to the film.

How can experimental and control groups be made comparable? The standard ways of making experimental and control groups comparable in all respects except for exposure to the experimental variable are

through *matching* or *randomization*. In matching, participants in an experiment are matched in pairs according to all factors thought to affect the relationship being investigated and members of each pair are then assigned to one group or the other. In randomization, which is preferable to matching, subjects are assigned to the experimental and control groups on a random or chance basis. Assignment to one group or the other can be determined by flipping a coin or by having subjects draw numbers from a container. Whether matching or randomization is used, the goal is the same: to form experimental and control groups that are alike with respect to all relevant characteristics except the experimental variable. If this requirement has been met, any significant change in the experimental group as

BASIC STATISTICAL MEASURES

The trend in sociology today is toward more complicated and sophisticated statistical measures. However, the statistics you will encounter in this textbook and in the sources you are likely to read later, such as *The Wall Street Journal*, *Time*, *Newsweek*, and *The Economist*, are easily comprehended. Among the most basic statistical measures are averages (modes, means, medians) and correlations.

An *average*—a measure of central tendency—provides a single number representing the way numerical values are distributed. Consider the following hypothetical salary figures for the nine highest-paid Major League baseball players by position:

\$3,300,000 (Catcher)	\$4,500,000 (First Base)
\$3,600,000 (Second Base)	\$4,900,000 (Starting Pitcher)
\$3,600,000 (Third Base)	\$5,300,000 (Left Field)
\$4,200,000 (Center Field)	\$6,100,000 (Right Field)
\$4,300,000 (Shortstop)	

There are three averages that can be used to make these numerical values more manageable and meaningful. Each of these three measures of central tendency gives a different picture. When any one measure of central tendency is misleading, researchers usually present two or more.

The *mode*—in this case \$3,600,000—is the numerical value that occurs most frequently. If a researcher were to rely on the mode alone in a report of these Major League salaries, readers would be misled, because no mention is made of the wide range of salaries (\$3,300,000 to \$6,100,000). The mode is appropriate only when the objective is to indicate the most popular value.

In common usage, something that is average lies somewhere in the middle of a range. The *mean* is the measure of central tendency closest to the everyday meaning of the term *average*. The mean of the salary figures above—

\$4,422,222—is calculated by adding all of the figures together and dividing by the number of figures (\$39,800,000 ÷ 9). The mean, unlike the mode, takes all of the figures into account, but it is distorted by the extreme figure of \$6,100,000. Although one player earns \$6,100,000, most players make considerably less—the highest-paid player earns nearly twice as much as the lowest-paid player in this elite category. The mean distorts when there are extreme values at either the high or low end of a scale; it is more accurate when extremes are not widely separated.

The *median* is the number that divides a series of values in half; half of the values lie above it, half below. In this example, the median is \$4,300,000—half of the salaries are above \$4,300,000, half are below. Should there be an even number of values in a series, the median would be the mean of the two middle figures. The advantage of the median is that it is not distorted by extremes.

Measures of central tendency describe a single set of values, whereas a *correlation coefficient* indicates the strength of the relationship between two variables. A correlation coefficient of zero indicates that two variables are absolutely unrelated, as in the death rate in South Africa and the number of victories in a Los Angeles Dodgers's season. A perfect *positive correlation*—as in the case of the rate of descent of a parachutist and the earth's gravitational pull—has a value of +1.0. A perfect *negative correlation*, expressed numerically as -1.0, exists when the occurrence of one variable always leads to the absence of another. A perfect negative correlation exists between sunlight and darkness. Because correlations in sociological research are seldom perfect, judgments must be made about the strength of relationships. Correlation coefficients of plus or minus 0.4 and up are considered respectable in most sociological research, although sociologists have much more confidence in correlation coefficients above 0.6.

1. Match the following concepts and statements:

- | | |
|------------------------------|---|
| ___ a. causation | (1) something that occurs in varying degrees |
| ___ b. multiple causation | (2) the variable in which a change or effect is observed |
| ___ c. variable | (3) a change in one variable associated with a change in another variable |
| ___ d. quantitative variable | (4) the idea that an event occurs as a result of several factors operating in combination |
| ___ e. qualitative variable | (5) a factor that causes something to happen |
| ___ f. independent variable | (6) the idea that the occurrence of one event leads to the occurrence of another event |
| ___ g. dependent variable | (7) a factor consisting of categories |
| ___ h. correlation | (8) when a relationship between two variables is actually the result of a third variable |
| ___ i. spurious correlation | (9) a variable consisting of numerical units |

2. A _____ attempts to eliminate all possible contaminating influences on the variables being studied.

3. The group in an experiment that is not exposed to the experimental variable is the _____ group.

4. Experimental and control groups are made comparable in all respects except for exposure to the experimental variable through _____ or _____.

Answers: 1. a.(6) b.(4) c.(1) d.(9) e.(7) f.(5) g.(2) h.(3) i.(8) 2. controlled experiment 3. control 4. matching or randomization

compared to the control group can be attributed with considerable confidence to the experimental variable. That is, a causal link will have been established between the independent and dependent variables.

QUANTITATIVE RESEARCH METHODS

Because sociologists find it difficult to create controlled situations, they tend to rely more on other research methods, classified either as quantitative or qualitative. About 90 percent of the research published in major sociological journals is based on surveys, so this approach is discussed first among major sociological research methods.

Survey Research

A **survey**, in which people are asked to answer a series of questions, is the most widely used research method among sociologists because it is ideal for studying large numbers of people. In survey research, care must be taken in the selection of respondents and in formulating the questions to be asked (Weisberg and Krosnick, 1996).

A **population** consists of all those people with the characteristics a researcher wants to study. A population could be all college sophomores in the United States, all former drug addicts now living in Connecticut, or all current inmates of the Ohio State Penitentiary. Most populations are too large and inaccessible to permit the collection of information on all members. For this reason, for example, the U.S. Bureau

of the Census has asked Congress for approval to change its method from an attempted survey of the entire American population to some limited use of scientific sampling (McAllister, 1997). A **sample**, of course, is a limited number of cases drawn from the larger population. A sample must be selected carefully if it is to have the same basic characteristics as the population. If a sample is not representative of the population from which it is drawn, the survey findings cannot be used to make generalizations about the entire population (Winship and Mare, 1992).

How can a representative sample be drawn? A **random sample**—a sample selected on the basis of chance so that each member of a population has an equal opportunity of being selected—is the standard way of selecting a representative sample. A random sample can be selected by assigning each member of the population a number and then drawing numbers from a container after they have been thoroughly scrambled. An easier and more practical method, particularly with large samples, involves the use of a table of random numbers in which numbers appear without pattern. After each member of the population has been assigned a number, the researcher begins with any number in the table and goes down the list until enough subjects have been selected.

If greater precision is desired, a *stratified random sample* can be drawn. This is accomplished by dividing the population into strata (categories such as sex, race, age, or any other relevant variable) and then selecting a random sample from each category. The proportion of persons in a given category, or stratum, should equal their proportion in the population at large.

CLOSED-ENDED AND OPEN-ENDED QUESTIONS

Closed-ended Questions

Please tell me whether you strongly agree, agree, disagree, or strongly disagree with each of the following statements:

	Strongly Agree	Agree	Disagree	Strongly Disagree
a. Most school teachers really don't know what they are talking about.	1	2	3	4
b. To get ahead in life, you have to get a good education.	1	2	3	4
c. My parents encouraged me to get a good education.	1	2	3	4
d. By the time children are sixteen years old, they should be ready to leave school.	1	2	3	4
e. Too much emphasis is put on education these days.	1	2	3	4
f. My parents thought that going to school was a waste of time.	1	2	3	4

Open-ended Question

In your own words, please describe your views on the education of your children.

How is information gathered in surveys? In surveys, information is obtained either through a questionnaire or an interview. A *questionnaire* is a written set of questions that survey participants fill out by themselves; in an *interview*, a trained interviewer asks questions and records answers. Questionnaires or interviews may be composed of either closed-ended or open-ended questions. (See “Closed-Ended and Open-Ended Questions.”) Closed-ended questions are those for which a limited, predetermined set of answers is possible. Because participants must choose from rigidly predetermined answers, closed-ended questions sometimes fail to elicit the participants’ real attitudes and opinions. On the positive side, closed-ended questions make answers easier to quantify and compare. Open-ended questions ask for answers in the respondents’ own words. Answers to open-ended questions, however, are not easy to quantify. And interviewers make the comparison of answers even more difficult when they change the meaning of questions by rephrasing them.

What are the advantages and disadvantages of survey research? Surveys—especially those based on structured questions—have the advantage of precision and comparability of responses. They permit the use of statistical techniques, a feature they have in common with experiments. Statistical techniques can be used because of still other advantages in survey research. Surveys per-

mit the collection of large samples, which in turn permit more detailed analysis; surveys include a large number of variables; variables in surveys can be quantified.



These employees of the U.S. Census Bureau are entering data from one of this government agency’s many surveys. The results of these surveys, considered to be representative of the United States population, are widely utilized for decision making by private individuals, business organizations, and political leaders.



The survey is the most widely used research method for collecting data in sociology. Surveys are usually conducted in person, although use of the telephone is becoming much more common. One of the advantages of the survey is that it permits the gathering of information on a large number of people.

The survey research method has several disadvantages, however. First, surveys tend to be expensive because of the large samples that are usually involved. Second, because survey questions are predetermined, interviewers cannot always include important unanticipated information, although they are encouraged to write such information in the margin or on the back of the interview form. Third, the response rate—particularly in mailed questionnaires—is often low. A respectable return rate is about 50 percent, although researchers make an effort to obtain a return rate of 80 percent or higher. Even in interviews, some people are not available and some refuse to answer the questions. Because nonresponses can make the sample unrepresentative, surveys may be biased. Fourth, the phrasing of survey questions may also introduce bias. For example, negatively phrased questions are more likely to receive a no answer than neutrally phrased questions. It is better to ask, “Are you in favor of abortion?” than “You aren’t in favor of abortion, are you?” Respondents also interpret the same question differently. If asked about the extent of their drug use, some respondents may include alcohol in their answers, others may not. As in experiments, there is a tendency for respondents

to give answers that they think the interviewer wants to hear or that they think are socially acceptable. Fifth, surveys cannot probe deeply into the context of the social behavior being studied; they draw specific bits of information from respondents, but they cannot capture the total social situation. Finally, survey researchers must be on guard for the **Hawthorne effect**—when unintentional behavior on the part of researchers influences the results they obtain from those they are studying (Roethlisberger and Dickson, 1964, originally published in 1939). As researchers and survey participants interact, participants detect cues regarding what the researchers are trying to find. The participants, depending on the circumstances, may subsequently attempt to please the researcher or frustrate the researcher’s goals.

Precollected Data

The use of information already collected by someone else for another purpose is a well-respected method among sociologists, known as **secondary analysis**. In fact, the first sociologist to use statistics in a sociological study—Emile Durkheim—relied on precollected data. (See *Doing Research*.)

What are the major types of precollected data? The sources for precollected data are as varied as government data, company records, voting records, prison records, and reports of research done by other social scientists.

One of the most important sources of precollected data for sociologists is the census bureau. Countries collect various types of information from their populations. The U.S. Bureau of the Census collects a wealth of information on the total population every ten years and conducts countless specific surveys each year. Because of this, detailed information exists on such topics as income, education, race, sex, age, marital status, occupation, and death and birth rates. Other government agencies collect additional information. The U.S. Department of Labor regularly collects information on the nation’s income and unemployment levels across a variety of jobs. The U.S. Department of Commerce issues monthly reports on various aspects of the economy’s health.

What are the advantages and disadvantages of precollected data? Precollected data provide sociologists with inexpensive, quality information. Existing sources of information also permit the study of a topic over a long period of time. With census data, for example, we can trace changes in the relative income levels of blacks and whites since the war on poverty began in the 1960s. Also, because the data have been collected by others, the researcher cannot influence answers to questions he or she is using.

SCRUTINIZING POPULAR REPORTS OF SOCIAL SCIENCE RESEARCH

We are being bombarded daily with such a mass of new information that it is difficult to process it adequately. Consequently, becoming a critical, selective, and informed consumer of information is increasingly important. Discussed below are several means for better evaluating reports on social science research that you may encounter in the media.

Maintain a Skeptical Attitude Be skeptical, because the media have a tendency to sensationalize and distort. For example, the media may report that a university researcher spent \$500,000 to find out that love keeps families together when, in fact, this was only one small aspect of the larger research project. Moreover, chances are the media have oversimplified even this part of the researcher's conclusions.

Consider the Source of Information For example, find out whether a study on the relationship between cancer and smoking has been sponsored by the tobacco industry or by the American Cancer Society. Representatives of tobacco companies deny the existence of any research linking throat and mouth cancer with dipping snuff. A medical researcher contended that putting a "pinch between your cheek and gum" has, in the long run, led to cancer in humans. Whom do you believe? At the very least you want to know the background of the source of information before making a judgment about scientific conclusions. This caution is especially relevant to the Internet, which is now a new major source of information. Because this information varies

widely in its accuracy and reliability, sources must be evaluated with particular care.

Determine Whether a Control Group Has Been Used

Knowing whether a control group has been used in the research may be important. For instance, increases in self-esteem and physical energy may be reported in a study of participants in a meditation program. Was this because of the respect and attention they were given during the training period or because of the meditation techniques themselves? Or a study may report that the productivity of a group of workers in an office increased dramatically because the workers were allowed to participate in work-related decisions. Was the productivity increase due to the employees' being involved in something new and exciting or because of the participation in decision making itself? Without one or more control groups, you cannot be certain of what caused the changes in the meditation participants or in the office workers.

Do Not Mistake Correlation for Causation A correlation between two variables does not necessarily mean that one caused the other. For example, at one time the percentage of Americans who smoked was increasing at the same time life expectancy was increasing. Did this mean that smoking caused people to live longer? Actually, a third factor—improved health care—accounts for the increased life expectancy. Do not assume that two events are related causally just because they occur together.

The use of precollected data also has disadvantages. The existing information may not exactly suit the researcher's needs, because it was collected for different purposes. Also, those people who collected the data may have been biased. Finally, sometimes precollected data are too old to be currently valid.

QUALITATIVE RESEARCH METHODS

Surveys and analysis of precollected data have been adopted by sociology in an attempt to emulate the quantification of the physical sciences. Another

FEEDBACK

1. Match the following terms and statements:

- | | |
|------------------------------|--|
| ___ a. population | (1) selected on the basis of chance so that each member of a population has an equal opportunity of being selected |
| ___ b. representative sample | (2) all those people with the characteristics the researcher wants to study within the context of a particular research question |
| ___ c. random sample | (3) a limited number of cases drawn from the larger population |
| ___ d. sample | (4) a sample that has basically the same relevant characteristics as the population |
| ___ e. survey | (5) the research method in which people are asked to answer a series of questions |

2. Use of company records would be an example of using _____ data.

Answers: 1. a. (2) b. (4) c. (1) d. (3) e. (5) 2. precollected

DOING RESEARCH



Emile Durkheim— The Study of Suicide

Emile Durkheim, the first person to be formally recognized as a sociologist and the most scientific of the pioneers, conducted a study that stands as a research model for sociologists today. His investigation of suicide was, in fact, the first sociological study to use statistics. In *Suicide* (1964, originally published in 1897), Durkheim documented his contention that some aspects of human behavior—even something as allegedly individualistic as suicide—can be explained without reference to individuals.

Like all of Durkheim's work, *Suicide* must be viewed within the context of his concern for social integration (Collins, 1994). Durkheim wanted to see whether suicide rates within a social entity (for example, a group, organiza-

tion, or society) are related to the degree to which individuals are socially involved (integrated and regulated). Durkheim described three types of suicide: egoistic, altruistic, and anomic. *Egoistic* suicide is promoted when individuals do not have sufficient social ties. Because single (never married) adults, for example, are not heavily involved with family life, they are more likely to commit suicide than are married adults. *Altruistic* suicide, on the other hand, is more likely to occur when social integration is too strong. The ritual suicide of Hindu widows on their husbands' funeral pyres is one example. Military personnel, trained to lay down their lives for their country, provide another illustration.

Durkheim's third type of suicide—*anomic* suicide—increases when the social regulation of individuals is disrupted. For example, suicide rates increase during economic depressions. People suddenly without jobs or hope of finding them are more prone to kill themselves. Suicide may also increase during periods of prosperity. People may loosen their social

ties by taking new jobs, moving to new communities, or finding new mates.

Using data from the government population reports of several countries (much of it from the French government statistical office), Durkheim found strong support for his line of reasoning. Suicide rates were higher among single than married people, among military personnel than civilians, among divorced than married people, and among people involved in nationwide economic crises.

Durkheim's primary interest, however, was not in the empirical (observable) indicators he used, such as suicide rates among military personnel, married people, and so forth. Rather, Durkheim used the following indicators to support several of his contentions: (1) social behavior can be explained by social rather than psychological factors; (2) suicide is affected by the degree of integration and regulation within social entities; and (3) because society can be studied scientifically, sociology is worthy of recognition in the academic world (Ritzer, 1996).

research approach assumes that some aspects of social reality can be reached only by using qualitative, or non-quantitative, research methods. Qualitative research methods include *field research* and the *subjective approach* (Schwandt, 1997).

Field Research

Field research is used for studying aspects of social life that cannot be measured quantitatively and that are best understood within a natural setting. The world of prostitution, the inner workings of a Mafia family, and events during a riot are examples of field research.

The most often used approach to field research is the **case study**—a thorough investigation of a small group, an incident, or a community. Case studies are accomplished primarily through intensive observation, information obtained from informants, and informal interviews. Newspaper files, formal interviews, official

records, and surveys can be used to supplement these techniques.

This method assumes that the findings in one case can be generalized to other situations of the same type. The conclusions of a study on prostitution in Chicago, for example, should apply to other large cities as well. It is the researcher's responsibility to indicate factors that might make one situation different from similar situations in other places. Researchers conducting case studies often use the technique of *participant observation*.

What is participant observation? In **participant observation**, a researcher becomes a member of the group being studied. A researcher may join a group with or without informing its members that he or she is a sociologist. A compelling account of the use of covert participant observation appears in *Black Like Me*, a book written by John Howard Griffin (1961), a white journalist who dyed his skin to study the life of blacks in



The self-inflicted burning on the part of the Reverend Quang Duc, a Vietnamese Buddhist monk, is a prime example of altruistic suicide.

Durkheim was successful on all three counts. If Auguste Comte told us that sociology *could* be a science, Durkheim showed us *how* it could be a science.

Critical feedback

1. Do you believe that Durkheim's study of suicide supported his idea that much social behavior

cannot be explained psychologically? State why or why not.

2. Durkheim used precollected data in researching suicide. Referring to the other major methods discussed in this chapter, indicate one or more other ways this problem could be studied.

3. The functionalist, conflict, and symbolic interactionist perspectives were discussed in Chapter 1. In which of these theoretical traditions does Durkheim seem to belong? Support your choice by relating his study to the assumptions of one of the perspectives.

the South. Although he had visited the South as a white man, the behavior of southern whites looked quite different to him through the eyes of a black man.

Sociologists sometimes identify themselves as researchers who want to observe firsthand a group's way of life. Elliot Liebow's study of two dozen lower-class black men who hung around a corner in Washington, D.C., illustrates the open approach to participant observation. Even though he was a white outsider, Liebow was allowed to participate in the daily activities of the men: "The people I was observing knew that I was observing them, yet they allowed me to participate in their activities and take part in their lives to a degree that continues to surprise me" (Liebow, 1967:253).

What are the advantages and disadvantages of field studies? Field studies can produce a depth and breadth of understanding unattainable with experi-

ments and surveys. They cannot be matched in their ability to reveal the meanings of a social situation from the angle of the people involved. Adaptability is another advantage. Once a survey has begun, it is not practical to make significant changes when new insights or oversights are discovered. But because it is unstructured, a field study can easily be altered. Field studies are especially valuable for situations in which quantitative research either is impossible or would yield biased results, as in a study of skid-row derelicts or organized crime. Because of these advantages, field studies may produce insights and explanations not likely to be unearthed through quantitative research.

Disadvantages do exist, however. The findings from one case may not be generalizable to similar situations. One mental hospital or community may be quite unlike any other mental hospital or community. If the possible bias of the sample is a major problem, so is the potential bias of the researcher. In the absence of more

READING TABLES AND GRAPHS

Tables and graphs are often confusing even though they are intended to present information concisely and unambiguously. Because of an inability to read tables and graphs, many people either misinterpret them or rely on an author's summary of what the data mean. However, another person's interpretation of a table or graph may be deliberately biased, accidentally misleading, or incomplete. Tables and graphs have a lot of information packed into them, but if they have been properly organized, you can easily understand them by following certain steps (Wallis and Roberts, 1962:195–207). The steps outlined below are keyed to Table 2.1 and Figure 2.1.

1. **Begin by reading the title of the table or graph carefully; it will tell you what information is being presented.** Table 2.1 shows median annual incomes in the United States by sex, race, and education.
2. **Find out the source of the information.** You will want to know whether the source is reliable, whether its techniques for gathering and presenting data are sound. The figures originated from the U.S. Bureau of the Census, a highly trusted source. If you know the source of data, you can investigate further on your own.
3. **Read any notes accompanying the table or graph.** Not all tables and graphs have notes, but if they do, the notes should be read for further information about the data. The notes in Table 2.1 and in Figure 2.1 explain that all the data refer to the total money income of full-time and part-time workers, ages 25 and over, in a March 1995 survey.
4. **Examine any footnotes.** Footnotes in Table 2.1 and Figure 2.1 indicate that the data are categorized by the highest grade actually completed. Although you may have assumed this correctly, years of schooling could have referred to the total number of years in school, regardless of the grade level attained.
5. **Look at the headings across the top and down the left-hand side of the table or graph.** To observe any pattern in the data, it is usually necessary to keep both types of headings in mind. Table 2.1 and Figure 2.1 show the median annual income of black and white males and females for several levels of education.
6. **Find out what units are being used.** Data can be expressed in percentages, hundreds, thousands, millions, billions, means, and so forth. In Table 2.1 and Figure 2.1, the units are dollars and years of schooling.
7. **Check for trends in the data.** For tables, look down the columns (vertically) and across the rows (horizontally) for the highest figures, lowest figures, trends, irregularities, and sudden shifts. If you read Table 2.1 vertically, you would be able to see how income varies by race and sex within each level of education. If you read the table horizontally, you could see how income varies with educational attainment for white males, black males, white females, and black females. A major advantage of graphs is that the sudden shifts, trends, irregularities, and extremes are easier to spot than they are in tables.
8. **Draw conclusions from your own observations.** Table 2.1 and Figure 2.1 show that although income tends to rise with educational level for both blacks and whites, it increases much less for black men and for women of both races than for white men. At each level of schooling, black men earn less than white men. In fact, white male high school dropouts have incomes only \$485 below black male high school graduates; white male high school graduates earn nearly \$2,000 more than black males with some college but no degree. White women appear to improve their earning power through college education to a greater extent than do black women.

precise measuring devices, the researcher has to rely on personal judgment and interpretation. Because of personal blind spots or because of emotional attachment to the people being studied, the researcher may not accurately see what is actually happening. Moreover, the lack of objectivity and standardized research procedures makes it difficult for another researcher to duplicate or replicate a field study. Because of these disadvantages, many sociologists regard the results of field studies as insights to be investigated further with more precise methods.

The Subjective Approach

The subjective approach to research has a long and honorable place in sociology. Recall from Chapter 1 Max Weber's method of *verstehen*, in which the subjective intentions of people are to be discovered by an attempt to imagine ourselves in their place. The **subjective approach**, then, studies some aspect of social structure through an attempt to ascertain the interpretations of the participants themselves. A prominent example of the subjective approach is *eth-*

TABLE 2.1 Median Annual Income by Sex, Race, and Education

Demographic Group	Overall Median Income	Years of Schooling*				
		Less than 9	9–11	12	13–15	16 or More
White males	\$30,409	\$13,995	\$18,403	\$26,135	\$30,293	\$45,228
Black males	\$21,531	\$11,791	\$16,323	\$18,888	\$24,161	\$35,122
White females	\$17,784	\$9,338	\$9,883	\$15,133	\$17,385	\$28,492
Black females	\$16,754	\$9,730	\$9,416	\$14,017	\$17,757	\$27,280

Note: These figures include the total money income of full-time and part-time workers, ages 25 and over, as of March 1995.

* In terms of highest grade completed.

Source: U.S. Bureau of the Census, unpublished data: "Table 15. Educational Attainment—Total Money Earnings in 1995 of Persons 25 Years Old and Over, by Age, Race, Hispanic Origin, Sex, and Work Experience in 1995."

nomethodology, a relatively recent development in microsociology that attempts to uncover taken-for-granted social routines.

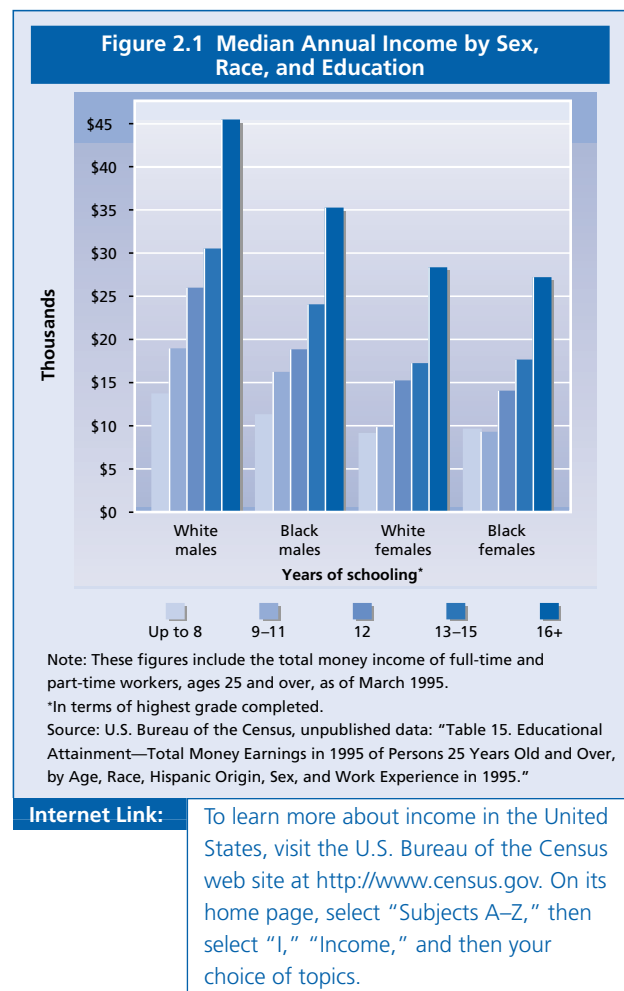
How does ethnomethodology work?

Ethnomethodology is the study of processes people develop and use in understanding the routine behaviors expected of themselves and others in everyday life. Ethnomethodologists assume that people share the meanings that underlie much of their everyday behavior. Through observing others and a process of trial and error in social situations, people develop a sense of appropriate ways of behaving. This understanding prevents them from making silly or serious social errors and saves them from having to decide constantly how they should behave in particular situations. Predictable, patterned behavior is a product of this process (Handel, 1982; Sharrock and Anderson, 1986; Livingston, 1987; Atkinson, 1988; Hilbert, 1990; Pollner, 1991).

How can ethnomethodologists discover what is going on in the minds of individuals as they construct a mental sense of social reality? Because they are not mind readers, ethnomethodologists have had to seek other solutions. Harold Garfinkel, a prominent advocate of ethnomethodology, believes that the best way to understand how people construct social reality is to deprive them momentarily of their mental maps of daily routines. If people are deprived of their previous definitions of expected behaviors, they reconstruct a coherent picture of social reality. Ethnomethodologists can then learn by observing this process of reconstruction.

Garfinkel writes of situations that his students have created in order to observe what people do when

deprived of their taken-for-granted social routines. The following passage describes a situation in which an



experimenter (E) is attempting to deprive a subject (S) of his sense of expected routine by asking for more detailed information than is normally required in everyday situations. In the context of watching television, the experimenter first asks, “How are you tired? Physically, mentally, or just bored?”

(S): *I don't know, I guess physically, mainly.*

(E): *You mean that your muscles ache or your bones?*

(S): *I guess so. Don't be so technical.*

(After more watching)

(S): *All these old movies have the same kind of old iron bedstead in them.*

(E): *What do you mean? Do you mean all old movies, or some of them, or just the ones you have seen?*

(S): *What's the matter with you? You know what I mean.*

(E): *I wish you would be more specific.*

(S): *You know what I mean! Drop dead! (Garfinkel, 1984:43).*

The researcher continues this type of conversation until the subject is disoriented and can no longer respond within a previously developed frame of reference. The researcher can then observe the subject creating a new definition of what the expected or “normal” pattern of social interaction should be.

FEEDBACK

1. Field studies are best suited for situations in which _____ measurement cannot be used.
2. A _____ is a thorough investigation of a small group, an incident, or a community.
3. In _____, a researcher becomes a member of the group being studied.
4. According to the _____ approach, some aspect of social structure is best studied through an attempt to ascertain the interpretations of the participants themselves.
5. _____ is the study of the processes people develop and use in understanding the routine behaviors expected of themselves and others in everyday life.

Answers: 1. quantitative 2. case study 3. participant observation 4. subjective 5. Ethnomethodology

A MODEL FOR DOING RESEARCH

In an effort to obtain accurate knowledge, sociologists, like other scientists, use a model that involves the application of several distinct steps to any research problem. These steps, regularly referred to as the “scientific method,” include identifying a problem, reviewing the literature, formulating hypotheses, developing a research design, collecting data, analyzing data, and stating conclusions (Hoover and Donovan, 1995).

Identify the Problem

Research begins with determining the object of investigation. A research question may be chosen because it interests the researcher. Or it may be pursued because it addresses a current social problem, attempts to test a major theory, or responds to a government agency wishing to support the research.

Review the Literature

Once the object of study has been identified, it is then defined within the context of relevant theories and previous research findings. For example, a sociologist investigating suicide will probably develop an approach by relating it to the classic study of suicide by Emile Durkheim (see *Doing Research* in this chapter) and to other sociologists who have done research on the topic.

Formulate Hypotheses

From a careful examination of relevant theory and previous findings, a sociologist is able to state one or more **hypotheses**—tentative, testable statements of relationships among variables. These variables must be defined precisely enough to be measurable. One hypothesis might be “The longer couples are married, the less likely they are to divorce.” The independent variable (length of marriage) and the dependent variable (divorce) must be defined and measured. Scientists measure variables through the use of **operational definitions**—definitions of abstract concepts in terms of simpler, observable procedures. Divorce could be defined operationally as the legal termination of marriage. Measurement of divorce would be qualitative—the couple is either legally married or not. Length of marriage would be measured quantitatively—for example, the number of years a couple has been legally married. Other operational definitions may involve defining poverty for a family of four at some dollar level (\$16,183 in 1996) or determining social class level by a combination of occupational, educational, and income levels.

Develop a Research Design

A research design defines the procedures for collecting and analyzing data. Will the study be a survey or a case study? If it is a survey, will data be collected from a cross section of an entire population, such as the Harris and

Gallup polls, or will a sample be selected from only one city? Will simple percentages or more sophisticated statistical methods be used? These and many other questions must be answered while the research design is being developed.

Collect Data

There are three basic ways of gathering data in sociological research: asking people questions, observing behavior, and analyzing existing materials and records. Sociologists interested in studying the harmony in interracial marriages could question couples directly about how well they get along. They could locate an organization with a large number of interracial married couples and observe the couples' behavior. Or they could compare the divorce rate among interracial married couples to the divorce rate of the population as a whole.

Analyze Data

Once the data have been collected and classified, they can be analyzed to determine whether the hypotheses were supported. This is not as easy or automatic as it sounds, because results are not always obvious. Because the same data can be interpreted in several ways, judgments have to be made. Guarding against personal biases is especially important in this phase of research.

State Conclusions

After analyzing the data, a researcher is ready to state the conclusions of the study. It is during this phase that the hypotheses are formally accepted, rejected, or modified. The conclusions of the study are related to the theory or research findings on which the hypotheses are based, and directions for further research are suggested. Depending on the findings, the original theory itself may have to be altered. Whether the statement of conclusions appears in a scientific journal, a book, or a mimeographed report, it includes a description of the methods used. By making the research procedures public, scientists make it possible for others either to duplicate the research, conduct a slightly different study, or go in a very different direction.

Some sociologists believe that this model is too rigid to capture spontaneous, subjective, and changeable social behavior. They prefer to discover what exists rather than to bias their observations with preconceived hypotheses and an inflexible research design. Even sociologists who generally follow the steps outlined above usually do not do so mechanically. They may conduct exploratory studies prior to stating hypotheses and developing research designs. Or they may alter their hypotheses and research designs as their investigations proceed.

FEEDBACK

1. Listed below are the steps in the research model. Beside these steps are some concrete examples related to the sociability of the only child. Indicate the appropriate example for each step number.

- | | |
|---------------------------------------|--|
| ___ Step 1: identify the problem | a. Read past theory and research on the sociability of only children. |
| ___ Step 2: review the literature | b. From previous research and existing theory, a researcher states that only children appear to be more intelligent than children with siblings. |
| ___ Step 3: formulate hypotheses | c. A researcher collects data on only children from a high school in a large city. |
| ___ Step 4: develop a research design | d. A researcher writes a report giving evidence that only children are more intelligent than children with brothers or sisters. |
| ___ Step 5: collect data | e. A researcher decides to study the intelligence level of only children. |
| ___ Step 6: analyze data | f. A researcher classifies and processes the data collected in order to test a hypothesis. |
| ___ Step 7: state conclusions | g. A researcher decides on the data needed to test a hypothesis, the methods for data collection, and the techniques for data analysis. |

Answers: 1. Step 1: c. Step 2: a. Step 3: b. Step 4: g. Step 5: f. Step 6: e. Step 7: d.

ETHICS IN SOCIAL RESEARCH

The Issue of Ethics

Sociological research is a distinctly human endeavor. Although there are canons for conducting research,

such as objectivity and verifiability, scientists don't always live up to them. As for people in other occupations, among scientists there is sometimes a discrepancy between the rules of work and the actual performance of work. Conducting scientific research requires ethical values as surely as it requires theoretical and methodological skills (Kuznik, 1991; Hessler, 1992).

Unfortunately, there is a long list of examples that call into question the ethical standards of researchers. During the Nuremberg trials, twenty Nazi doctors were convicted of conducting sadistic experiments on concentration camp inmates. From 1932 to 1972, the Public Health Service of the U.S. government deliberately did not treat approximately four hundred syphilitic black sharecroppers and day laborers so that biomedical researchers could study the full evolution of the disease (Jones, 1993). Ethical questions have been raised upon disclosure that researchers at Germany's University of Heidelberg had, for twenty years, used human corpses, including children, in high-speed automobile crash tests (Fedarko, 1993). Federal investigators in the United States have documented over ten years of fraud in some of the most important breast cancer research ever done, including a study that sanctioned lumpectomy as a safe operation (Crewdson, 1994).

Several social scientists have been criticized for conducting what many scientists view as unethical research. In each case, subjects were placed in stressful situations without being informed of the true nature of the experiments (Milgram, 1963, 1965, 1974; Zimbardo, Anderson, and Kabat, 1981). These and other studies have created great interest in a code of ethics. There is, in fact, a formal code of ethics for professional sociologists (American Sociological Association, 1997).

A Code of Ethics in Sociological Research

The formal code of ethics for sociologists covers a variety of important areas beyond research, including relationships with students, employees, and employers (American Sociological Association, 1997). In broad terms, the code of ethics is generally concerned with maximizing the benefits of sociology to society and minimizing the harm sociological work might create. Of importance in the present context are the research-related aspects of the code.

In this regard, sociologists are committed to objectivity, adherence to the highest technical research standards, accurate public exposure of their findings and methods, and protection of the rights, privacy, integrity, dignity, and autonomy of the subjects of their research. Because most of these topics have already been covered in this chapter, the focus in the present section is on the rights, privacy, integrity, dignity, and autonomy of participants in sociological research.

Sociologists routinely protect the rights of participants and avoid deceiving or harming them, so it is normally only the violators of the code of ethics that are publicized. Occasionally, adherence to the code is documented. Mario Brajuha, a graduate student at a major American university, kept detailed field notes while engaging in a participant observation study of

restaurant work (Brajuha and Hallowell, 1986). Because of suspected arson after a fire at the restaurant where he was employed as a waiter, his field notes became the object of interest of the police, the district attorney, the courts, and some suspects. By refusing to reveal the contents of his field notes, Brajuha protected the rights of those individuals described in his notes. He did so in the face of a subpoena, threats of imprisonment, and the specter of personal harm to himself, his wife, and his children. The case was finally dropped after two difficult years.

Though infinitely rarer, much can be learned about ethics in sociological research from examination of a negative case. A case study of homosexuals conducted by sociologist Laud Humphreys (1979) provides a background against which to examine further the code of ethics.

Humphreys studied homosexual activities in men's public bathrooms ("tearooms"). By acting as a lookout to warn the homosexuals of approaching police officers, he was able to observe their activities closely. After the men left the tearooms, Humphreys recorded their license plate numbers to obtain their addresses for subsequent personal interviews. Humphreys waited a year so that any memory the men had of him would have faded, and then he falsely presented himself to them as a survey researcher to obtain additional information.

Did Humphreys violate the code of ethics as a covert participant observer? Yes, Humphreys violated the privacy of these people. Most did not want their sexual activities known, and Humphreys did not give them the opportunity to refuse to participate in the study. Humphreys also deceived the men by misrepresenting himself in both the tearooms and their homes. Finally, by recording his observations, Humphreys placed these people in jeopardy of public exposure, arrest, or loss of employment. (Actually, because of his precautions, none of the subjects was injured as a result of his research. In fact, to protect their identities, Humphreys even allowed himself to be arrested.)

Good scientific research is difficult from both a financial and a technical viewpoint. Ethical concerns make it even harder. Still, it is the researcher's responsibility to decide when a particular action crosses an ethical line—a decision not always easy to make, because moral lines are often blurred. Moreover, the researcher must balance a concern for the rights and protection of those being studied with the need to use certain methods to obtain knowledge. Kai Erikson is one of the most sensitive and outspoken critics of disguised observation, but he has defended it on the grounds that it is sometimes the only way to obtain information.

Some of the richest material in the social sciences has been gathered by sociologists who were true participants in the group under study but who did not announce to other members that they were employing this opportunity to collect research data. . . . It would be absurd, then, to insist as a point of ethics that sociologists should always introduce themselves as investigators everywhere they go and should

inform every person who figures in their thinking exactly what their research is about (Erikson, 1967:368).

Balance is the key to the issue of ethics. Subjects—whether in experiments, surveys, or field studies—above all should be protected from social, financial, psychological, or legal damage.

FEEDBACK

- Three situations involving ethics in social research are cited below (Babbie, 1995:475). Match each situation with the appropriate aspects of the social science code of ethics for research on human subjects.
 - ___ (1) concern for participants' privacy
 - ___ (2) avoidance of deception
 - ___ (3) obligation not to harm participants
 - a. After a field study of deviant behavior during a riot, law enforcement officials demand that the researcher identify those people who were observed looting. Rather than risk arrest as an accomplice after the fact, the researcher complies.
 - b. A research questionnaire is circulated among students as part of their university registration packet. Although students are not told they must complete the questionnaire, the hope is that they will believe they must—thus ensuring a higher completion rate.
 - c. Researchers obtain a list of right-wing radicals they wish to study. They contact the radicals with the explanation that each has been selected “at random” from among the general population to take a sampling of “public opinion.”
- Match the concepts on the left side with the definitions on the right side.
 - ___ a. reliability
 - ___ b. validity
 - ___ c. replication
 - (1) when a measurement technique yields consistent results on repeated applications
 - (2) the duplication of the same study to ascertain its accuracy
 - (3) when a measurement technique actually measures what it is designed to measure

Answers: 1. a. (3) b. (2) c. (1) 2. a. (1) b. (3) c. (2)

SOCIOLOGY IN THE NEWS



Research in Advertising

This CNN report illustrates the role research now plays in the retail industry. For example, studies of women and men reveal that their patterns of shopping behavior are quite different. This information is used by business to encourage more purchasing by both genders. Such market research strikes some sociologists as deceptive and manipulative.

- Name research methods that would be suitable to explore this area of human behavior.

- Do you see any ethical issues for a sociologist conducting market research on shopping behavior? Why or why not?



Suppose that you were sent to a department store to investigate the attitudes of men and women about shopping. What questions would you ask to determine any differences between the genders?

A FINAL NOTE

Reliability, Validity, and Replication

Researchers can be guided by all the important research considerations we have discussed in this chapter and still not conduct a good study. They can be mindful of objectivity, sensitive to the criteria of causation, careful in the selection of the most appropriate method (survey, precollected data, field study), and still fail to produce knowledge superior to that yielded by intuition, common sense, authority, or tradition.

What else must a researcher do? To practice good social science, sociologists must pay careful attention to the quality of measurement (Babbie, 1995). Consequently, they must emphasize *reliability* and *validity* in the creation and evaluation of the measuring devices they use for the variables they wish to investigate.

What is reliability? **Reliability** exists when a measurement technique yields consistent results on repeated applications. Reliability is tested by repeated administration of a measurement technique, such as a questionnaire, to the same subjects to ascertain whether the same results occur each time. Suppose a researcher, after deciding to study satisfaction with day care among parents, designed a questionnaire. If, on repeated applications, the level of satisfaction with day care on the part of the sample of parents remained consistent, then confidence in the reliability of the measurement device rises. Should, on the other hand, the level of satisfaction from one administration of the questionnaire to the next vary over a period of time, then we would doubt that satisfaction with child care is actually being measured.

The problem of reliability is involved in qualitative research also. Suppose that our researcher is also interested in satisfaction with day care among the children. If different conclusions about the level of satisfaction among the children, arrived at by asking them questions or observing their behavior, seemed different each day to the researcher, then doubt is raised about the reliability of the measurement technique being used.

Although a measurement technique may be reliable when used in a study, it still may not produce scientifically sound results. This is because a measurement technique must be not only reliable, but also valid.

What is validity? **Validity** exists when a measurement technique actually measures what it is designed to measure. Thus, a technique intended to measure parental satisfaction with day care may yield consistent results on repeated applications to a sample of parents,

but not really be measuring satisfaction at all. The measurement device might be tapping parental need to view day care positively in order to mask guilt feelings about permitting someone else to be the care-provider during working hours. Children at a day-care center may appear satisfied to the visiting researcher because they are neglected during the day and welcome his or her attention or because the children have been coached by the day-care provider to appear satisfied. A measurement technique, in short, may be consistently measuring something very different from what it purports to measure.

What is the relationship among reliability, validity, and replication? In the first part of this chapter, attention was drawn to the importance of verifiability in science. Verifiability, we stated, is crucial to science as a superior source of knowledge due to its contribution to the self-corrective nature of research. Verifiability depends on the process of **replication**—the duplication of the same study to ascertain its accuracy. Replication is closely linked to both reliability and validity in that reliability and validity problems unknown to original researchers are likely to be revealed as subsequent social scientists repeat their research. It is partially through replication that scientific knowledge accumulates and changes over time.

A major goal of scientific research is to generate knowledge that is more reliable than can be obtained from such nonscientific sources as intuition, common sense, authority, and tradition. Through efforts to be objective and to make their research subject to replication by others, researchers attempt to portray reality as accurately as possible. The methods of research presented in this chapter are the specific tools sociologists use to create knowledge of social life that is as accurate as possible at the time.

However, empirical results obtained through the use of research methods are not the final goal of science. As Gerhard Lenski has stated, “Science is more than method: *its ultimate aim is the development of a body of ‘verified’ general theory*” (Lenski, 1988: 163). For this reason, there is constant interaction between sociological theory and research methods. Theory is used to develop hypotheses capable of being supported or falsified through testing. These results, in turn, may support existing theory, alter it, or lead to its ultimate rejection and the creation of a new theory. One of Lenski’s major points is that, divorced from research methods, “sociological theory has more in common with seminary instruction in theology and biblical studies” (1988:165) than it does with the natural sciences model that sociology is emulating. Theory is trustworthy and useful only to the extent that it has been tested and found to be valid.

SUMMARY

1. People tend to get information from such nonscientific sources as intuition, common sense, authority, and tradition. Generally speaking, these sources are inadequate for obtaining accurate knowledge about social life. The advantage of scientific knowledge is its grounding on the principles of objectivity and verifiability.
2. Complete objectivity is impossible because sociologists, like all scientists, have values, beliefs, attitudes, and prejudices that affect their work to some extent. Subjectivity can be minimized, however, if researchers make themselves aware of their biases and make their biases public when presenting their findings.
3. The concept of causation—the idea that the occurrence of one event leads to the occurrence of another event—is central to science. All events have causes, and scientists attempt to discover the factors causing the events.
4. Three criteria must be met before a cause-and-effect relationship can be said to exist. First, two variables must be correlated. That is, change in the independent variable (the causal factor) must be associated with a change in the dependent variable (effect). Second, the correlation must not be spurious, that is, due to the effects of a third variable. Third, it must be shown that the independent variable always occurs *before* the dependent variable. Scientists think in terms of multiple causation because events are usually caused by several factors, not simply by a single factor.
5. Although sociologists rarely use the controlled experiment, they must understand this research method because it is based on the idea of causation. Sociologists generally employ nonexperimental research methods in attempting to establish causality. This is dictated by the difficulty of controlling relevant variables in the world outside the laboratory.
6. Two major quantitative research methods in sociology are the survey and precollected data. Surveys can draw on large samples, are quantitative, include many variables, are relatively precise, and permit the comparison of responses, but this method must take care to collect representative samples. Use of precollected data permits sociologists to do high-quality research at reasonably low cost and to trace changes in variables over an extended period of time.
7. Field studies are best used when some aspect of social structure cannot be measured quantitatively, when interaction should be observed in a natural setting, and when in-depth analysis is needed. The case study is the popular approach to field research. Some sociologists have adopted a subjective approach in which emphasis is on ascertaining the subjective interpretations of the participants themselves.
8. A research model involves several distinct steps: identifying the problem, reviewing the literature, formulating hypotheses, developing a research design, collecting data, analyzing data, and stating conclusions. These steps are a model for scientific research, but it is not necessary that they always be strictly followed.
9. Researchers have an ethical obligation to protect participants' privacy and to avoid deceiving or harming participants. Preserving the rights of subjects is sometimes weighed against the value of the knowledge to be gained. Most of the time these compromises are harmless, but they sometimes place the subjects in jeopardy.

LEARNING OBJECTIVES REVIEW

After careful study of this chapter, you will be able to:

- Identify major nonscientific sources of knowledge and explain why science is a superior source of knowledge.
- Apply the concept of causation and the controlled experiment to the logic of science.
- Differentiate the major quantitative research methods used by sociologists.
- Describe the major qualitative research methods used by sociologists.
- Explain the steps in the model sociologists use to guide their research.
- Describe the place of ethics in research.
- State the place of a concern for reliability, validity, and replication in social research.

CONCEPT REVIEW

Match the following concepts with the definitions listed below them:

- | | | |
|--------------------------------|-----------------------------|-----------------------|
| ___ a. participant observation | ___ f. independent variable | ___ k. field research |
| ___ b. controlled experiment | ___ g. objectivity | ___ l. case study |
| ___ c. verifiability | ___ h. correlation | ___ m. survey |
| ___ d. subjective approach | ___ i. population | ___ n. replication |
| ___ e. experimental group | ___ j. sample | |

1. The group in an experiment exposed to the experimental variable.
2. A statistical measure in which a change in one variable is associated with change in another variable.
3. A research approach for studying aspects of social life that cannot be measured quantitatively and that are best understood within a natural setting.
4. A thorough, recorded investigation of a small group, incident, or community.
5. All those people with the characteristics a researcher wants to study within the context of a particular research question.
6. The principle of science stating that scientists are expected to prevent their personal biases from influencing their results and their interpretation of the results.
7. A variable that causes something to happen.
8. The type of field research technique in which a researcher becomes a member of the group being studied.
9. A principle of science by which any given piece of research can be duplicated (replicated) by other scientists.
10. A research method in which people are asked to answer a series of questions.
11. The duplication of the same study to ascertain its accuracy.
12. A limited number of cases drawn from a population.
13. A laboratory experiment that attempts to eliminate all possible contaminating influences on the variables being studied.
14. A research method in which the aim is to understand some aspect of social reality through the study of the subjective interpretations of the participants themselves.

CRITICAL THINKING QUESTIONS

1. Suppose that on a break from college you return home and a noncollege friend insists that you are wasting your time because the experience gained from the “university of hard knocks” is all she needs to know the truth. What arguments would you use to defend science as a better source of knowledge?

2. In class, your sociology professor reports on his recent study showing that men are generally better managers in business than women. If you were concerned about a possible lack of objectivity on his part, what questions would you ask him in order for you to place more confidence in his results?

3. The controlled experiment is the research model for investigating causal relationships. What is there about the nature of causation and the design of experiments that supports this claim?

4. Do you think that selecting a sample of three thousand individuals would produce an accurate picture of the U.S. population? Why or why not?

5. Pretend that you are a sociologist studying the relationship between the receipt of welfare payments and commitment to working. Describe the research method you would use and show why it is the most appropriate to this topic.

MULTIPLE CHOICE QUESTIONS

1. **The concept of intuition refers to**
 - a. quick and ready insight that is not based on rational thought.
 - b. opinions that are widely held because they seem so obviously correct.
 - c. someone who is supposed to have special knowledge that we do not have.
 - d. the fourth major nonscientific source of knowledge.
 - e. a variable that causes something to happen.
2. **According to your text, causation can be asserted when**
 - a. going from particular instances to general principles.
 - b. there are only a limited number of cases taken from society.
 - c. events occur in a predictable, nonrandom way, and one event leads to another.
 - d. people develop and use routine behaviors expected of themselves and others in everyday life.
 - e. a change in one variable is often accompanied by a change in another variable.
3. **Several factors have been shown to influence crime rates in poor neighborhoods. This illustrates the principle of**
 - a. the poverty/crime hypothesis.
 - b. multiple causation.
 - c. verifiability.
 - d. criminology.
 - e. variance.
4. **A variable that causes something else to occur is a/an**
 - a. dependent variable.
 - b. correlation variable.
 - c. causation variable.
 - d. independent variable.
 - e. qualitative variable.
5. **The term *correlation* is defined as**
 - a. a change in one variable associated with a change in the other.
 - b. an apparent relationship between two variables that is actually produced by a third variable that affects both of the original two variables.
 - c. an event that occurs as a result of several factors operating in combination.
 - d. something that occurs in different degrees among individuals, groups, objects, and events.
 - e. a research method in which people are asked to answer a series of questions.
6. **All of the following are criteria for establishing a causal relationship *except*:**
 - a. All possible contaminating factors must be controlled.
 - b. A relationship representing a spurious relationship must exist.
 - c. The independent variable must occur before the dependent variable.
 - d. Two variables must be correlated.
7. **All of the following statements about controlled experiments are true *except*:**
 - a. A description of the controlled experiment provides an excellent means to illustrate causation.
 - b. A controlled experiment provides insight into the nature of all scientific research.
 - c. Controlled experiments take place in a laboratory.
 - d. The basic idea of the controlled experiment is to rule out the effect of extraneous factors to see the effects of an independent variable on a dependent variable.
 - e. Controlled experiments do not need a control group because of the controlled atmosphere the laboratory provides.
8. **The experimental group is exposed to the experimental variable; the group that is not exposed to the experimental variable is a/an**
 - a. natural group.
 - b. experiential group.
 - c. control group.
 - d. dependent group.
 - e. independent group.
9. **The standard ways of making experimental and control groups comparable in all respects except for exposure to the experimental variable are through**
 - a. qualifying or quantifying.
 - b. matching or randomizing.
 - c. pretesting or posttesting.
 - d. testing or retesting.
 - e. verification or replication.
10. **What do we call a written set of questions that survey participants are asked to fill out by themselves?**
 - a. survey
 - b. interview
 - c. questionnaire
 - d. survey research
 - e. independent variable
11. **Use of data from the U.S. Bureau of the Census is an example of**
 - a. primary analysis.
 - b. population sampling.
 - c. the Hawthorne effect.
 - d. secondary analysis.
 - e. a case study.
12. **What type of research is used for studying aspects of social life that cannot be measured quantitatively and that are best understood in a natural setting?**
 - a. field research
 - b. survey research
 - c. participant observation
 - d. analysis of precollected data
 - e. content analysis

13. **Ethnomethodologists assume that**
- the subjective approach relies too much on intuition.
 - the behavior of people is random.
 - the underlying factor explaining human behavior is ethnicity.
 - questionnaires need to be tightly structured.
 - people share the meanings underlying much of their everyday behavior.
14. **What is defined as a tentative, testable statement of a relationship among variables?**
- hypothesis
 - operational definition
 - formal argument
 - correlation
 - conclusion
15. **In Laud Humphreys's study of homosexual activities occurring in men's public bathrooms ("tearooms"), what ethical standard did he violate?**
- He studied homosexuals.
 - He acted as a participant observer.
 - He violated the privacy of the participants.
 - He used the research to become famous.
 - He did not violate any ethical standards.

FEEDBACK REVIEW

True-False

- The major problem with nonscientific sources of knowledge is that such sources often provide erroneous information. *T or F?*
- According to Gunnar Myrdal, it is enough that scientists themselves recognize their biases. *T or F?*

Fill in the Blank

- The group in an experiment that is not exposed to the experimental variable is the _____ group.
- Field studies are best suited for situations in which _____ measurement cannot be used.
- In _____, a researcher becomes a member of the group being studied.
- A _____ attempts to eliminate all possible contaminating influences on the variables being studied.
- Use of company records would be an example of using _____ data.
- According to the _____ approach, some aspects of social structure are best studied through an attempt to ascertain the interpretations of the participants themselves.

Matching

9. Listed below are the steps in the research model. Beside these steps are some concrete examples related to the sociability of the only child. Indicate the appropriate example for each step number.
- | | |
|---------------------------------------|--|
| ___ Step 1: identify the problem | a. Read past theory and research on the sociability of only children. |
| ___ Step 2: review the literature | b. From previous research and existing theory, a researcher states that only children appear to be more intelligent than children with siblings. |
| ___ Step 3: formulate hypotheses | c. A researcher collects data on only children from a high school in a large city. |
| ___ Step 4: develop a research design | d. A researcher writes a report giving evidence that only children are more intelligent than children with brothers or sisters. |
| ___ Step 5: collect data | e. A researcher decides to study the intelligence level of only children. |
| ___ Step 6: analyze data | f. A researcher classifies and processes the data collected in order to test a hypothesis. |
| ___ Step 7: state conclusions | g. A researcher decides on the data needed to test a hypothesis, the methods for data collection, and the techniques for data analysis. |
10. Three situations involving ethics in social research are cited below. Match each situation with the appropriate aspect of the social science code of ethics for research on human subjects.
- | | |
|---|--|
| ___ (1) concern for participants' privacy | a. After a field study of deviant behavior during a riot, law enforcement officials demand that the researcher identify those people who were observed looting. Rather than risk arrest as an accomplice after the fact, the researcher complies. |
| ___ (2) avoidance of deception | b. A research questionnaire is circulated among students as part of their university registration packet. Although students are not told they must complete the questionnaire, the hope is that they will believe they must, thus ensuring a higher completion rate. |
| ___ (3) obligation not to harm participants | c. Researchers obtain a list of right-wing radicals they wish to study. They contact the radicals with the explanation that each has been selected "at random" from among the general population to take a sampling of "public opinion." |

GRAPHIC REVIEW

Table 2.1 displays the median annual income in the United States by sex, race, and education. Demonstrate your understanding of the information in this table by answering the following questions:

1. State briefly what this table tells us about the relationship among sex, race, and education in the United States.

2. Identify the demographic group that enjoys the greatest economic benefits of education.

3. Identify the demographic group that benefits the least economically from higher levels of education.

ANSWER KEY

Concept Review

- 8
- 13
- 9
- 14
- 1
- 7
- 6
- 2
- 5
- 12
- 3
- 4
- 10
- 11

Multiple Choice

- a
- c
- b
- d
- a
- b
- e
- c
- b
- c
- d
- a
- e
- a
- c

Feedback Review

- T
- F
- control
- quantitative
- participant observation
- controlled experiment
- precollected
- subjective
- Step 1: e
Step 2: a
Step 3: b
Step 4: g
Step 5: c
Step 6: f
Step 7: d
1. c
2. b
3. a