

## CHAPTER 2

# Social Sciences and the Scientific Method

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### ▣ LEARNING OBJECTIVES

After reading this chapter, students will be able to:

- Explain the purpose of the scientific method.
- Describe some of the difficulties that social scientists from each discipline face in applying the scientific method to the study of social problems.
- Describe methods that social scientists use to conduct research.

### ▣ SUMMARY OVERVIEW

Regardless of the discipline in social science, social scientists employ strategies and research techniques that are grounded in the scientific method. The scientific method provides researchers with systematic principles and procedures to guide them as they seek to address social issues and problems. The scientific method involves the recognition and formulation of a problem and the collection of data through interviews, observations, and/or experiments. Social scientists might formulate a hypothesis, taking a best guess at what the answer to the problem is, or they may choose a method of inquiry that is better suited to discover patterns that emerge when the data is collected. Using the scientific method, social scientists strive to develop systematic theories based on empirical evidence to answer questions about the relationships between social phenomenon and the contexts in which they occur. This chapter emphasizes the difference between empirical and normative theory. The chapter explores a variety of research designs to gain a better understanding of how different research designs invite different challenges and limitations. As you read through this chapter, consider what makes one research design better than another as well as the sometimes paradoxical effects of research in the social sciences.

## CHAPTER OUTLINE

### I. Science and the Scientific Method

A. Explaining Relationships

 FOCUS *The Vocabulary of Social Science*

B. Deductive and Inductive Reasoning

C. Developing and Testing Hypotheses

 RESEARCH *THIS!*

D. Dealing with Observable Phenomena


E. Developing Theory

F. Maintaining a Scientific Attitude

 CONTROVERSIES IN SOCIAL SCIENCE *Can Social Science Be Scientific*

G. What Is a “Fact”?

### II. The Classic Scientific Research Design

 CASE STUDY *Scientific Research Design: An Experiment in Preventing PTSD*

### III. Gathering Data: Survey Research

A. Survey Research

 INTERNATIONAL PERSPECTIVE *Polling the World*

B. Problems in Survey Research

C. Assessing Public Opinion

D. Field Research

### IV. Chapter Summary

## CRITICAL THINKING QUESTIONS

1. How do the social sciences differ from the physical sciences, especially in their use of the scientific method?
2. Why is it important for the social sciences to use scientific methods in research? What are the goals of using scientific methods in social science research?
3. Considering the subject matter social scientists are studying, is it possible for social science researchers to be completely unbiased and should they be completely unbiased?
4. What is the difference between normative and empirical theory, and is there a place for normative theory in social science research?

## ▣ LECTURE LAUNCHERS

1. In Chapter One, students explained what they believed were the most important social problems facing us in the twenty-first century. Ask them to discuss the pros and cons of using two different research methods (experimental, survey, observation, ethnography, case studies, or secondary source data) to address the problem they chose in Chapter 1.
2. Clarify the focus of research in the social sciences as the quest for knowledge about relationships. Include the idea that a hypothesis is a tentative statement between observable facts or events and is not an answer to a question that we seek verification for, but rather the hub that guides the research. Social science researchers strive to maintain an attitude of curiosity rather than certainty.
3. Give examples of how research is funded and supported in universities and in the private sector. Does it make a difference if the research is from a university, a think tank, a political party, an interest group, or a business? Use this to stimulate discussion of bias in research in terms of who is paying for it, and who is conducting it?
4. Ask students to describe any poll or surveys in which they have participated. Critique the methods used in these surveys.
5. Discuss with students the differences between lay and scientific (normative and empirical) theories and the usefulness of each.
6. Social scientists often research sensitive issues involving human subjects, such as income, crime, family relations, sexual behavior, and pain. Give examples of how social science research has and may abuse human subjects and discuss with the class how the social science researcher can avoid this problem.

## ▣ IN-CLASS ACTIVITIES

1. Have students work in groups. Each group will develop a simple research question e.g.: “Which flavor of ice cream is more popular, vanilla or chocolate” and then choose one data gathering method (survey, interview, etc). Each group will do an informal experiment using their chosen method and then report their findings back to the class. This activity can stimulate discussions about the invitations and restraints of each data collection method, the findings, issues of bias, ethics, and other areas pertinent to social science research. Work to have each group use a different data collection method.
2. Have students work in groups to write a public opinion survey questionnaire. Each group will write 10–20 survey questions concerning a specific research topic. Students can share their questionnaire with the class, which will critique the group’s questions.
3. Ask each student to write down a hypothesis designed to answer a social science research question. Students can read their hypotheses to the class so the class can critique and discuss possible research methods.

## ▣ KEY TERMS

**case study** an in-depth investigation of a particular event in order to understand it as fully as possible

**control group** a group, similar to the experimental group, that does not undergo treatment; used for comparison

**correlation** a significant statistical relationship

**deductive reasoning** to infer from a general theory to a particular case

**empirical** referring to observable facts and events; what is

**ethnography** systematic description of a society's customary behaviors, beliefs, and attitudes

**experiment** a scientific test controlled by the researcher to observe effects of a specific program or treatment

**experimental group** the group that will participate in the program or undergo the treatment under study

**field research** directly observing social behavior

**halo effect** the tendency of respondents to give "good-citizen" responses to pollsters

**hypothesis** a tentative statement about a relationship between observable facts or events

**inductive reasoning** to observe one phenomenon or series of phenomena and make general assertions based on that observation

**normative** referring to values or norms; what should be

**null hypothesis** a statement that the program or treatment has no effect

**participant observation** researchers both observe and participate in the behavior being studied

**probabilistic statement** a statement that applies to some proportion of circumstances

**public opinion** the aggregate of opinions of individuals on topics in survey research

**push poll** a survey that asks leading questions in order to sway opinion for a particular candidate or position

**random sample** a subset of the population in which there is an equal chance of each person in the universe being selected in the sample for interviewing

**salient issue** an issue about which most people have thoughts about and hold strong and stable opinions

**sample** in survey research, the people chosen to represent the opinions of a larger group

**sampling error** the range of responses in which a 95 percent chance exists that the sample reflects the universe

**science** broadly defined, any organized body of knowledge

**scientific attitude** doubt or skepticism about theories until they have been scientifically tested

**scientific method** a method of explanation that develops and tests theories about how observable facts or events are related

**significant** not likely to have occurred by chance

**theory** verifiable statements about relationships among facts and events

**universal statement** a statement that applies to every circumstance

**universe** the whole group about which information is desired

## ▣ WEB LINKS

The Gallup Poll (<http://www.gallup.com/Home.aspx>).

Link TV Web Site (<http://www.linktv.org>). Broadcast programs that engage, educate, and activate viewers to become involved in the world.

National Opinion Research Center at the University of Chicago  
(<http://www.norc.org/homepage.htm>).

Power and Society ([www.cengage.com/politicalscience/harrison/powerandsociety12e](http://www.cengage.com/politicalscience/harrison/powerandsociety12e)).

The Public Broadcasting System (<http://www.pbs.org>).

Research Methods Knowledge Base (<http://www.socialresearchmethods.net/kb/intres.php>), a web-based textbook on social science research methods.

U.S. Census Bureau, 2012 Statistical Abstract (<http://www.census.gov/compendia/statab/>).  
Official portal to the U.S. Census Bureau.

U.S. Department of Defense (<http://www.defense.gov>). Official portal to the U.S. Department of Defense.

U.S. Department of State (<http://www.state.gov>). Official portal to the U.S. State Department.

U.S. Government (<http://www.usa.gov/>). Official web portal for the U.S. Government.

## ▣ INSTRUCTOR RESOURCES

The Cornell Institute for Social and Economic Research

(<http://www.ciser.cornell.edu/info/datasource.shtml>) provides links to several data sources.

“Doing Sociological Research” ([http://films.com/id/16328/Doing\\_Sociological\\_Research.htm](http://films.com/id/16328/Doing_Sociological_Research.htm)) examines aspects of how to conduct sociological research. (37-minute educational film)

“Effective Internet Search: Basic Tools and Advanced Strategies”

([http://films.com/id/20147/Effective\\_Internet\\_Search\\_Basic\\_Tools\\_and\\_Advanced\\_Strategies.htm](http://films.com/id/20147/Effective_Internet_Search_Basic_Tools_and_Advanced_Strategies.htm)) provides students with hints on how to conduct social science research on the Internet. (22-minute educational film).

Krathwohl, David R. *Methods of Educational and Social Science Research*. Long Grove, IL: Waveland Press, 2009. (<http://www.amazon.com/Methods-Educational-Social-Science-Research/dp/1577665767>) examines different social science research methods and associated issues in some detail.

“Magic Town” (<http://www.imdb.com/title/tt0039595/>). “In the film an opinion pollster finds a town that is a perfect mirror of U.S. opinions.” Although dated (1947), this film gives an entertaining example of the Hawthorne Effect.

Research Methods knowledge Base (<http://www.socialresearchmethods.net/kb/intres.php>). This is an excellent web-based textbook on social science research methods. It covers topics of research foundations, sampling, measurement, design, analysis, and write-up.

The Social Science Research and Instructional Center (<http://www.ssrlic.org/tr>) provides modules, data sets, exercises, and instructional handouts.