The Practice of Social Research

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What You'll Learn in This Chapter

You'll see what distinguishes scientific theory from everyday reasoning and how scientific research is linked to theory. This chapter will lay a groundwork for your understanding of the specific research techniques discussed throughout the rest of the book.

Introduction

There are restaurants in the United States that are fond of conducting political polls among their diners whenever an election is in the offing. These polls are taken very seriously by some because of their uncanny history of predicting winners. By the same token, there are movie theaters that have achieved similar success by offering popcorn in bags picturing either donkeys or elephants. Years ago, granaries in the Midwest offered farmers a chance to indicate their political preferences through the bags of grain they selected.

Such oddities are of some interest to all of us. All have the same pattern over time, however. They work for awhile, and then they fail. Moreover, you can't predict in advance when or why they will fail.

These unusual polling techniques point to the shortcoming of "research findings" based only on the observation of patterns. Unless we can offer logical explanations for the existence of such patterns, there is a danger that the regularities we've observed are merely flukes, chance occurrences. If you flip coins long enough, you'll get ten heads in a row. Scientists might adapt a street expression and describe this situation as "patterns happen."

Theory has three functions for research. First, it prevents our being taken in by flukes. If we can't explain *why* Ma's Diner has been so successful in predicting elections, we run the risk that its past successes are merely chance occurrences. If we know why it has happened, we can anticipate whether it will be successful in the future.

Second, theories make sense out of observed patterns so as to suggest other possibilities. If we understand the reasons why broken homes produce more juvenile delinquency than intact homes—lack of supervision, for example—we are in a position to take more effective action, such as after-school youth programs in this case.

Finally, theories can shape and direct research efforts, pointing in the direction of likely discoveries through empirical observation. If you were looking for your lost keys on a dark street, you could whip your flashlight around in a random fashion, hoping to chance upon the errant keys—or you could use your memory of where you had been to limit your search to more likely areas. Theory, by analogy, directs researchers' flashlights into areas where they are more likely to observe interesting patterns of social life.

In this chapter, we are going to explore some of the more specific ways in which theory and research work hand in hand in the adventure of inquiry into social life. We'll begin with a brief introduction to some theoretical **paradigms**.

Some Social Science Paradigms

If theories organize our observations and make sense of them, it must be noted that there is usually more than one way to make sense of things. Different points of view are likely to yield different explanations. This is true in daily life: Liberals and conservatives, for example, often explain the same phenomena quite differently; so do atheists and fundamentalists.

We begin our examination, then, with some of the major points of view social scientists have taken in the search for meaning. Thomas Kuhn (1970) referred to the fundamental points of view characterizing a science as its *paradigms*. In the history of the natural sciences, major paradigms include Newtonian mechanics, Einsteinian relativism, Darwin's evolutionary theory, and Copernicus's heliocentric theory of heavenly motion, to name just a few.

While we sometimes think of science as developing gradually over time, marked by important discoveries and inventions, Kuhn said it was typical for one paradigm to become

entrenched, resisting any substantial change. Eventually, however, as the shortcomings of that paradigm became obvious, a new paradigm would emerge and supplant the old one. Thus, the view that the sun revolved around the earth was supplanted by the view that the earth revolved around the sun. Kuhn's classic book on this subject is titled, appropriately enough, *The Structure of Scientific Revolutions.*

Social scientists have developed a number of paradigms for use in understanding social behavior. The fate of supplanted paradigms in the social sciences has differed from what Kuhn observed in the natural sciences, however. Natural scientists generally believe that the succession from one paradigm to another represents progress from a false view to a true one. No modern astronomer believes that the sun revolves around the earth, for example.

In the social sciences, on the other hand, theoretical paradigms may gain or lose popularity, but they are seldom discarded altogether. As we'll see shortly, the paradigms of the social sciences offer a variety of views, each of which offers insights that others lack—but ignores aspects of social life that other paradigms reveal.

Macro-Level and Micro-Level Theory

Let's begin with a difference of focus that stretches across many of the paradigms to be discussed. Some theorists focus their attention on society at large or at least on large portions of it. Topics of study for what is called macro-theory include the struggle between economic classes in a society, international relations among countries, or the interrelations among major institutions in society, such as government, religion, and family. Macro-theory deals with large, aggregate entities of society or even whole societies.

Some scholars have taken a more intimate view of social life. Micro-theory deals with issues of social life at the level of individuals and small groups. Dating behavior, jury deliberations, and student-faculty interactions are apt subjects for a micro-theory perspective. As you may have anticipated, such studies often come close to the realm of psychology, but whereas psychologists typically focus on what goes on inside humans, social scientists study what goes on *between* them.

The distinction between macro- and micro-theory crosscuts the paradigms we'll examine below. While some of them, such as symbolic interactionism and ethnomethodology, are more often limited to the micro level, others, such as conflict theory, can be pursued at either the micro or macro level.

Early Positivism

When the French philosopher Auguste Comte (1798–1857) coined the term *sociologie* in 1822, he launched an intellectual adventure that is still unfolding today. Most important, Comte identified society as a phenomenon that can be studied scientifically. (Initially, he wanted to label his enterprise "social physics," but that term was co-opted by another scholar.)

Prior to Comte's time, society simply *was*. To the extent that people recognized different kinds of societies or changes in society over time, religious paradigms generally predominated in explanations of the differences. The state of social affairs was often seen as a reflection of God's will. Or, alternatively, people were challenged to create a "City of God" on earth to replace sin and godlessness.

Comte separated his inquiry from religion. He felt that society could be studied scientifically, replacing religious belief with scientific objectivity. His "positive philosophy" postulated three stages of history. A "theological stage" predominated throughout the world until about 1300. During the next five hundred years, a "metaphysical stage" replaced God with philosophical notions such as "nature" and "natural law."

Finally, Comte felt he was launching the third stage of history, in which science would replace religion and metaphysics—basing knowledge on

observations through the five senses rather than basing it on belief. Comte felt that society could be studied and understood logically and rationally, that sociology could be as scientific as biology or physics.

Comte's basic view that society could be studied logically and rationally was to form the basic foundation for the subsequent development of the social sciences. In his optimism for the future, he coined the term positivism to describe this scientific approach[2]—in contrast to what he regarded as negative elements in the Enlightenment. Only in recent decades has the idea of positivism come under serious challenge, as we'll see later in this discussion.

Social Darwinism

Comte's major work on his positivist philosophy was published between 1830 and 1842. One year after the publication of the first volume in that series, a young British naturalist set sail with the HMS *Beagle* on a cruise that would profoundly affect the way we have come to think of ourselves and our place within the world.

In 1858, when Charles Darwin published his *Origin of the Species*,[3] he set forth the idea of *evolution* through the process of *natural selection*. Simply put, as a species coped with its environment, those individuals most suited to success would be the most likely to survive long enough to reproduce.[4] Those less well suited would perish, with the result that the former group would come to dominate the species.

As scholars began the analytical study of society, it was perhaps inevitable that Darwin's notions would be applied to the changes that had taken place in the structure of human affairs. The journey from simple hunting-and-gathering tribes to large, industrial civilizations was easily seen as the evolution of progressively "fitter" forms of society.

Herbert Spencer (1820–1903) was one of those who concluded that society was getting better and better. Indeed, his native England had profited greatly from the development of industrial capitalism, and Spencer favored a system of free competition, which he felt would ensure continued progress and improvement. Spencer may have coined the phrase, "the survival of the fittest." In any event, he believed it was a primary force in shaping the nature of society. *Social Darwinism* or *social evolution* was a popular view in Spencer's time, although it was not universally accepted.

Conflict Theory

One of Spencer's contemporaries took a very different view of the evolution of capitalism. Karl Marx (1818–1883) suggested that social behavior could best be seen as the process of conflict: the attempt to dominate others and to avoid being dominated. Marx's primary focus was on the struggle between different economic classes. More specifically, he was interested in the way capitalism produced the oppression of workers by the owners of industry. As you know, Marx's interest in this topic did not end with analytical study: He was also ideologically committed to restructuring economic relations to end the oppression he observed.[5]

The contrast in the views set forth by Spencer and Marx indicates the influence that paradigms have on research. These fundamental viewpoints shape the kinds of observations we are likely to make, the facts we will seek to discover, and the conclusions we draw from those facts. Whereas economic classes were essential to Marx's analysis, for example, Spencer was more interested in the relationship between individuals and society—particularly, the amount of freedom individuals had to surrender for society to work.

The conflict paradigm is not limited to economic analyses. Georg Simmel (1858–1918) was particularly interested in small-scale conflict, in contrast to the class struggle that interested Marx. Simmel noted, for example, that conflicts among members of a tightly knit group tended to be more intense than those among people who did not share feelings of belonging and intimacy.

Where it is perhaps natural to see conflict as a threat to organized society, Lewis Coser

(1956) pointed out that conflict can sometimes promote social solidarity. Conflict between two groups tends to increase cohesion within each. Or, the expression of conflict within a group can often serve the function of "letting off steam" before stresses become too great to be resolved.

These few examples should illustrate some of the ways you might view social life if you were taking your lead from the conflict paradigm. To explore the applicability of this paradigm, you might take a minute to skim through a daily newspaper or news magazine and identify events that could be interpreted in terms of individuals and groups attempting to dominate each other and avoid being dominated. Some of the theoretical concepts and premises of the conflict paradigm might help you make sense out of the events you have read about.

Symbolic Interactionism

In his overall focus, Georg Simmel differed from both Spencer and Marx. Whereas they were chiefly concerned with macro-theoretical issues—large institutions and whole societies in their evolution through the course of history—Simmel, by contrast, was more interested in the ways in which individuals interacted with one another. He began by examining dyads (two people) and triads (three people), for example. Similarly, he wrote about the "The Web of Group Affiliations."

Simmel was one of the first European sociologists to influence the development of American sociology. His focus on the nature of interactions was particularly influential on George Herbert Mead (1863–1931), Charles Horton Cooley (1864–1929), and others who took up the cause and developed it into a powerful paradigm for research.

Cooley, for example, introduced the notion of the "primary group," those intimate associates with whom we share a "we-feeling," such as our family, friendship cliques, and so forth. Cooley also wrote of the "looking-glass self" we form by looking into the reactions of people around us. If everyone treats us as beautiful, for example, we conclude that we are. See how fundamentally this paradigm differs from the society-level concerns of Spencer and Marx.

George Herbert Mead emphasized the importance of our human ability to "take the role of the other," imagining how others felt and how they might behave in certain circumstances. As we gained an idea of how people in general saw things, we developed a sense of what Mead called the "generalized other." See how this relates to Cooley's "looking-glass self."

Mead also had a special interest in the role of communications in human affairs. A major part of interactions, he felt, revolved around the process of individuals reaching common understanding through the use of language and other symbol systems: hence the term *symbolic* interactionism.

Here's an example of how you might apply this paradigm to an examination of your own life. The next time you meet someone new, pay attention to how you get to know each other. To begin, what assumptions do you make about the other person just based on how they look, how they talk, and the circumstances under which you've met. ("What's someone like you doing in a place like this?") Then watch how your knowledge of each other unfolds through the process of interaction. Notice also any attempts you may make to manage the image you are creating in the other person's mind.

Role Theory

In his play, *As You Like It*, Shakespeare penned some very social scientific lines:

> All the world's a stage
> And all the men and women merely players:
> They have their exits and their entrances;
> And one man in his time plays many parts.
>
> (Act 2, Scene 7)

The insights of Mead, Cooley, and others regarding the nature of interaction yielded some fundamental social scientific concepts. Ralph Linton (1895–1953) specified the ideas of *status* and *role*. Statuses are the positions we

occupy in society (e.g., daughter, lawyer, Republican, American), and roles are the behaviors expected of us because of those roles. When a professor and student meet to discuss a term paper assignment, there are numerous expectations about the way each will behave in the interaction: e.g., the student will plead for an extension; the professor will heartlessly refuse, etc.

Some social scientists have focused their analysis of society on the ways in which people deal with their various role expectations. This approach yields a variety of new concepts, such as "role strain" (too many expectations for one person to manage) and "role conflict" (my role as professor calls for one thing, the fact that the student is also my mother calls for another).

To get a better idea of this paradigm, you might pay special attention to the ways you and others present yourselves in different situations. Is there a difference in the language you use in speaking with your professors, in contrast to the language you use in speaking with friends? When you need to deal with the college administration, what kind of role do you assume for the purpose of that interaction? How about the roles you assume at worship services, in a supermarket, at a sports event, at a party? After reflecting on your repertory of roles, you might want to consider how they relate to who you "really" are. What would *you* be like if you weren't acting out any social role?

Ethnomethodology

While some social scientific paradigms emphasize the impact of social structure (e.g., norms, values, control agents) on human behavior, others do not. Thus, while our social statuses establish expectations for our behavior, everyone deals with those expectations somewhat differently.

Harold Garfinkel, a contemporary sociologist, takes the point of view that people are continually creating social structure through their actions and interactions—that they are, in fact, creating their realities. Thus, when you and I meet to discuss your term paper, even though there are myriad expectations about how we should act, our conversation will be somewhat different from any of those that have occurred before, and how we act will somewhat modify our expectations in the future. Since you will therefore deal somewhat differently with other professors and I with other students, that time we discussed your term paper will have an impact on the interactions of other professors and other students in the future.

Given the tentativeness of reality in this view, Garfinkel suggests that people are continually trying to make sense of the life they experience. In a sense, he suggests that everyone is acting like a social scientist: hence the term *ethnomethodology*, or "methodology of the people."

How would you go about learning about people's expectations and how they make sense out of their world? One technique used by ethnomethodologists is to *break the rules*, to violate people's expectations. Thus, if you try to talk to me about your term paper and I keep talking about football, that might reveal the expectations you had for my behavior. We might also see how you make sense out of my behavior. ("Maybe he's using football as an analogy for understanding social systems theory.")

As an example of ethnomethodology, John Heritage and David Greatbatch (1986) examined the role of applause in British political speeches: How did the speakers evoke applause and what function did it serve (e.g., to complete a topic)? Communications have often been the focus of research within the ethnomethodological paradigm.

There is no end to the opportunities you have for trying on the ethnomethodological paradigm. Here's just one *example*. The next time you get on an elevator, spend your ride facing the rear of the elevator. Don't face front and watch the floor numbers whip by (that's the norm). Just stand quietly facing the rear. See how others react to this behavior. Just as important, notice how *you* feel about it. Do this experiment a few times, and you should begin

to develop a feel for the ethnomethodological paradigm.[1]

Structural Functionalism

Structural functionalism, sometimes also known as "social systems theory," grows out of a notion introduced by Comte and Spencer: that a social entity, such as an organization or a whole society, can be viewed as an *organism*. Like other organisms, a social system is made up of parts, each of which contributes to the functioning of the whole.

By analogy, consider the human body. Each component—such as the heart, lungs, kidneys, skin, and brain—has a particular job to do. The body as a whole cannot survive unless each of these parts does its job, and none of the parts can survive except as a part of the whole body. Or consider an automobile as a different kind of system. It is composed of the tires, the steering wheel, the gas tank, the spark plugs, and so forth. Each of the parts serves a function for the whole automobile, and, taken together, that system *can* get us across town. None of the individual parts would be of much use to us by itself, however.

The view of society as a social system, then, looks for the "functions" served by its various components. We might consider a football team as a social system—one in which the quarterback, running backs, offensive linemen, and others each have their jobs to do for the team as a whole. Or, we could look at a symphony orchestra and examine the functions served by the conductor, the first violinist, and the other musicians.

Social scientists using the structural functional paradigm might note that the function of the police, for example, is to exercise social control—encouraging people to abide by the norms of society and bringing to justice those who do not. We could just as reasonably ask what functions criminals serve in society, however. Within the functionalist paradigm, for example, we'd see that criminals serve as job security for the police. In a related observation, Emile Durkheim (1858–1917) suggested that crimes and their punishment provided an opportunity for the reaffirmation of a society's values. By catching and punishing a thief, we reaffirm our collective respect for private property.

To get a sense of the structural-functional paradigm, you might thumb through your college or university catalog and begin assembling a list of the administrators (e.g., president, deans, registrar, campus security, maintenance personnel, etc.). Figure out what each of them *does*. To what extent do the roles of each administrator relate to the chief functions of your college or university: e.g., teaching, research, etc. Suppose you were studying some other kind of organization: How many of the school administrators' functions would also be needed in, say, an insurance company?

Feminist Theory

When Ralph Linton concluded his anthropological classic, *The Study of Man* (1937), speaking of "a store of knowledge that promises to give man a better life than any he has known" (Linton, 1937:490), no one complained that he had left *women* out. Linton was using the linguistic conventions of his time; he implicitly included women in all his references to men. Or did he?

When feminists (of both genders) first began questioning the use of the third-person masculine whenever gender was ambiguous, their concerns were often viewed as petty, even silly. At most, many felt the issue was one of women having their feelings hurt, having their egos bruised.

In fact, what has become *feminist theory* has come to represent an important theoretical paradigm. In part it has focused on gender differences and how they relate to the rest of social organization. This paradigm has drawn

[1] I am grateful to my colleague, Bernard McGrane, for this experiment. Barney also has his students eat dinner with their hands, watch TV without turning it on, and engage in other strangely enlightening behavior.

attention to the oppression of women in a great many societies, and this has shed light on the phenomenon of oppression more generally.

Because men and women have had very different social experiences throughout history, they have come to see things differently, with the result that their conclusions about social life differ in many ways. As perhaps the most general example, feminist theory has challenged the prevailing notions concerning consensus in society. Most descriptions of the predominant beliefs, values, and norms of a society are written by people representing only portions of society. In the United States, for example, such analyses have typically been written by middle-class white men—and, not surprisingly, they have written about the beliefs, values, and norms they themselves share. While George Herbert Mead spoke of the "generalized other" that each of us becomes aware of and can "take the role of," feminist theory questions whether such a *generalized* other even exists.

Where Mead used the example of learning to play baseball to illustrate how we learn about the generalized other, Janet Lever's research suggests that understanding the game experience of boys may tell us little about girls.

> Girls' play and games are very different. They are mostly spontaneous, imaginative, and free of structure or rules. Turn-taking activities like jump-rope may be played without setting explicit goals. Girls have far less experience with interpersonal competition. The style of their competition is indirect, rather than face to face, individual rather than team affiliated. Leadership roles are either missing or randomly filled.
>
> (Lever 1986:86)

To try out the feminist paradigm, you might want to look into the possibility of discrimination against women at your college or university. Are the top administrative positions held about equally by men and women? How about secretarial and clerical positions? Are men's and women's sports supported equally, for example? Read through the official history of your school; is it a history of men and women equally? (If you attend an all-male or all-female school, of course, some of these questions won't apply.)

Exchange Theory

George Homans, a contemporary social scientist, has suggested that all human behavior can be seen to reflect the actors' calculations of costs and benefits. More than any of the previously mentioned theorists, Homans was very conscious about stating his views in the form of explicit propositions, such as:

> . . . the more often a particular action of a person is rewarded, the more likely the person is to perform that action.
>
> (Homans 1974:16)

> The more valuable to a person is the result of his action, the more likely he is to perform the action.
>
> (Homans 1974:25)

> The more often in the recent past a person has received a particular reward, the less valuable any further unit of that reward becomes for him.
>
> (Homans 1974:29)

Notice that Homans, a sociologist, approaches *social* relations from a fundamentally *psychological* starting point, grounded in how individuals see things, how they reason, and how they draw conclusions. Other theorists, such as Peter Blau (1975), have shown that the basic notion of *exchange*, however, can also be applied to corporate actors: companies, departments within companies, or countries dealing with one another.

To get a sense of this paradigm, you might review your decision to attend the college or university you are now attending. Did you have alternative schools to choose from? At the very least, you had the alternative of not attending college. What were the pluses and minuses of each possible choice? Can you see any ways in which your deliberations were affected by any of Homans's principles presented above?

Notice that exchange theory makes an implicit assumption that human beings are basically *rational* in their life choices. For this reason, the exchange paradigm is often included within a larger paradigm, labeled *rational-choice paradigm*. Some contemporary scholars, however, question the links between rationality and social science.

Post-Positivism

We began with Comte's assertion that society can be studied rationally and scientifically. Since his time, the growth of science, the relative decline of superstition, and the rise of bureaucratic structures all seem to put rationality more and more in the center of social life. As fundamental as rationality is to most of us, however, some contemporary scholars have raised questions about it.

For example, positivistic social scientists have sometimes erred in assuming that humans will always act rationally. I'm sure there is ample evidence in your own experience to indicate that this is not the case. And yet many modern economic models fundamentally assume that people will make rational choices in the economic sector: They will choose the highest paying job, pay the lowest price, etc. However, this assumption ignores the power of such matters as tradition, loyalty, image, and many other qualities that compete with reason in the determination of human behavior.

A more sophisticated positivism would assert that we can rationally understand even irrational human behavior. Here's an example. In the famous "Asch Experiment" (Asch 1955), a group of subjects is presented with a set of lines on a screen and asked to identify the two equal-length lines. If you were a subject in such an experiment, you would find the correct answer pretty obvious in each set of lines. To your surprise, however, you might find that the other subjects all agreed on a different answer!

As it turns out, of course, you would be the only subject in the experiment—all the others were working with the experimenter—and the purpose was to see whether you would be swayed by public pressure and go along with the incorrect answer. In one-third of the initial experiments, Asch found his subjects did just that.

Giving in to public pressure like this is an example of nonrational behavior. Nonetheless, notice that it is possible to study such behavior scientifically. Experimenters have examined the various circumstances that lead more or fewer subjects to go along with the incorrect answer. Thus, it is possible to study nonrational behavior rationally.

The contemporary challenge to positivism, however, goes beyond the question of whether humans behave rationally. In part, the criticism of positivism challenges the idea that scientists can be as objective as the ideal image of science assumes. Most scientists would agree that personal feelings can and do influence the problems scientists choose to study, what they choose to observe, and the conclusions they draw from those observations.

The more radical criticism questions whether social life abides by rational principles at all. In the physical sciences, developments such as *chaos theory* have suggested there may be a need to fundamentally rethink the orderliness of events on our planet.

These brief remarks on post-positivism are intended merely to illustrate the rich variety of theoretical perspectives that can be brought to bear on the study of human social life. Now let's look more closely into what constitutes a formal theory.

The Structure of Social Theory

Whereas the terms "paradigm" and "theory" are sometimes used interchangeably, I want to distinguish them in this chapter. Paradigms are general frameworks or viewpoints: literally

"points from which to view." Paradigms provide ways of looking at life. A theory is a systematic set of interrelated statements that intends to explain some aspect of social life. Thus, theories flesh out and specify paradigms. In the earlier discussion of the exchange paradigm, we saw some examples of the statements that might make up a theory of interaction.

Let's look a little more deliberately now at some of the elements in a theory.

Terms Used in Theory Construction

In this section, I will discuss some of the terms used in connection with the creation of scientific theories. I've already been using some of these terms, because I know you have a general idea of what they mean in normal language. Now, however, it is important to examine their meanings.

Reality This seems as good a place as any to begin. One of the fundamental questions that has engaged philosophers is whether anything exists independent of our experience. Is the book you are holding real, or is it only a product of your mind? Your mind tells you that your hands feel the book, but then your mind has lied to you before.

Unable ultimately to prove whether there is *really* a reality independent of our experience, we all—laypeople and scientists alike—operate as though there were something out there. As you'll see, however, this sticky issue will keep recurring.

Objectivity and Subjectivity Another way of stating the issue of reality is in terms of objectivity and subjectivity. We recognize that some things fall in the realm of attitudes, opinions, and points of view: We say that the question of whether Beethoven or Mozart was the better composer is a *subjective* matter, dependent on the experiences of the person making such a judgment. But we feel that the existence of the book in your hands is an *objective* matter, independent of your experience of it. But whereas *objective* is typically defined as "independent of mind," our awareness of what might objectively exist comes to us through our minds. As a working principle, we substitute intersubjectivity for objectivity. If several of us agree that something exists, we treat that thing as though it had objective existence. This book can be seen as a discussion of the logic and procedures by which social scientists come to agree on what's real.

Observation In the previous discussions, the "experience" of whatever may or may not really exist typically refers to the operation of the human senses. In the case of social research, this is typically limited to seeing, hearing, and—less commonly—touching. The term *observation* is generally used in reference to such information gathering. (Part 3 of this book is devoted to the many modes of observation employed by social scientists.)

Fact Although the notion of a *fact* is as complex for philosophers as the notion of reality, it is generally used in the context of social scientific research to mean some phenomenon that has been observed. It is a fact, for example, that Bill Clinton defeated George Bush in the 1992 presidential election.

Law Abraham Kaplan (1964:91) defines laws as universal generalizations about classes of facts. The law of gravity is a classic example: Bodies are attracted to each other in proportion to their masses and inversely proportionate to the distance separating them.

Laws must be truly universal, however, and not merely accidental patterns found among a specific set of facts. It is a fact, Kaplan points out (1964:92), that in each of the U.S. presidential elections from 1920 to 1960, the major candidate with the longest name won. That is not a law, however, as was shown by the next three elections. The earlier pattern was a coincidence.

Laws are sometimes also called *principles* and are important statements about what is so.

We speak of them as being "discovered." Laws are not created by scientists. Also, laws in and of themselves do not explain anything. They just summarize the way things are. Explanation is a function of theory, and theories are created, as we'll see shortly.

There are no social scientific laws that have the universal certainty of those of the natural sciences. In fact, as I've hinted above, social scientists debate among themselves as to whether we will ever discover such laws. Perhaps social life, in its essential nature, does not abide by invariant laws. This does not mean that social life is so chaotic as to defy prediction and explanation. As we saw in Chapter 1, social behavior falls into patterns, and those patterns very often make perfect sense, although you may have to look below the surface to find the logic.

Theory A *theory* is a systematic explanation for the observations that relate to a particular aspect of life: juvenile delinquency, for example, or perhaps social stratification, political revolution, or the like.

Concepts Jonathon Turner (1986:5) calls *concepts* the "basic building blocks of theory." They are abstract elements representing classes of phenomena within the field of study. The concepts relevant to a theory of juvenile delinquency, for example, include *juvenile* and *delinquency* for starters. A *peer group*—the people you hang around with and identify with—is another relevant concept. *Social class* and *ethnicity* are undoubtedly relevant concepts in a theory of juvenile delinquency. *School performance* might also be relevant to a theory of juvenile delinquency.

Variables A *variable* is a special kind of concept, as we saw in Chapter 1. Each variable comprises a set of attributes: thus, delinquency, in the simplest case, is made up of "delinquent" and "not delinquent." A theory of delinquency would aim at explaining why some juveniles are delinquent and others are not.

Axioms or *postulates* are fundamental assertions—taken to be true—upon which a theory is grounded. In a theory of juvenile delinquency, we might begin with axioms such as "Everyone desires material comforts" and "The ability to obtain material comforts legally is greater for the wealthy than for the poor."

Propositions are conclusions drawn about the relationships among concepts, derived from the axiomatic groundwork. From our beginning axioms about juvenile delinquency, for example, we might reasonably conclude that poor youths are more likely to break the law to gain material comforts than rich youths.

This proposition, incidentally, accords with Robert Merton's classic attempt to account for deviance in society. Merton (1957:139–57) spoke of the agreed-on *means* and *ends* of a society. In Merton's model, nondeviants were those who shared the societal agreement as to desired ends (e.g., a new car) and the means prescribed for achieving them (e.g., buy it). One type of deviant—whom Merton called the "innovator"—agreed on the desired end but did not have access to the prescribed means for achieving it. That person found another method of getting the desired end—and crime was one method.

Hypotheses are specified expectations about empirical reality, derived from propositions. Pursuing our present example, a theory might contain the hypothesis: Poor youths have higher delinquency rates than rich youths. Such a hypothesis could then be tested through research.

Let's look now at how theory and research come together.

Two Logical Systems

The Traditional Model of Science

In my experience as a teacher, I've found that university instruction in "the scientific method"—especially in the physical sciences—tends to

create in students' minds a particular picture of how science operates. Although this traditional model of science tells only a part of the story, it is important that you understand the basic logic of that model.

There are three main elements in the traditional model of science, and they are typically presented in a chronological order of execution. They are *theory, operationalization,* and *observation*. Let's look at each in turn.

Theory According to the traditional model of science, scientists begin with an interest in some aspect of the real world. As we've just discussed, they might be interested in the causes of juvenile delinquency. Let's assume they have arrived at a hypothesis about social class and delinquency.

Operationalization To test any hypothesis, we must specify the meanings of all the variables involved in it: social class and delinquency in the present case. For example, *delinquency* might be specified as "being arrested for a crime," "being convicted of a crime," or some other meaning. Wealth (rich vs. poor) might be specified as family income for the purposes of this particular study.

Moving beyond the specific definition, we need to specify how we will measure it. The term *operationalization* literally means the *operations* involved in measuring a variable. There are many ways we can pursue this topic, each of which allows for different ways of measuring our variables.

For simplicity, let's assume we are planning to conduct a survey of high school students. We might operationalize delinquency in the form of the question: "Have you ever stolen anything?" Those who answer "yes" will be classified as delinquents in our study; those who say "no" will be classified as nondelinquents. Similarly, we might operationalize family income by asking respondents, "What was your family's income last year?" and providing them with a set of family income categories: under $10,000, $10,000–$24,999, $25,000–$49,999, and $50,000 and above.

Notice that the way we have operationalized our variables in this simplistic example may cause problems. Perhaps some respondents will lie about stealing; in those cases, we'll misclassify them as nondelinquent when they should be classified as delinquent. Some respondents will not know their family incomes and will give mistaken answers; others may be embarrassed and lie. Chapters 5, 6, and 7 will deal with such issues in some depth. For purposes of this introductory example, let's use the operationalizations described here.

Our operationalized hypothesis now is that highest incidence of delinquents will be found among respondents who select the lowest family income category (under $10,000); a lower percentage of delinquents will be found in the $10,000–$24,999 income category; still fewer delinquents will be found in the $25,000–$49,999 income category; and the lowest percentage of delinquents will be found in the richest income category ($50,000 and above).

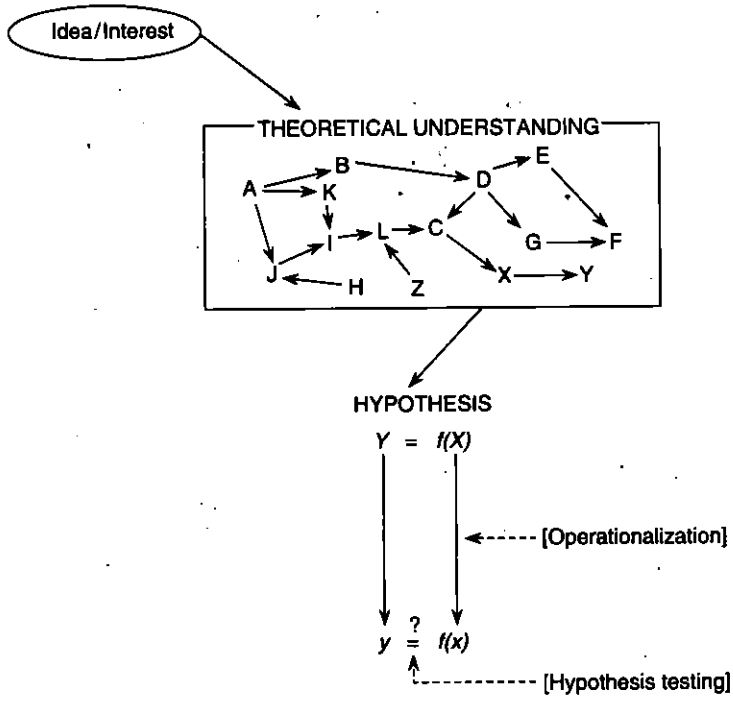
Observation The final step in the traditional model of science involves actual observation, looking at the world and making measurements of what is seen. Having developed theoretical clarity and expectations and having created a strategy for looking, all that remains is to look at the way things are.

Let's suppose our survey produced the following data:

	Percentage delinquent
Under $10,000	20
$10,000–$24,999	15
$25,000–$49,999	10
$50,000 and above	5

Observations producing data like those above would confirm our hypothesis. But suppose our findings were as follows:

Figure 2-1 The Traditional Image of Science



	Percentage delinquent
Under $10,000	15
$10,000–$24,999	15
$25,000–$49,999	15
$50,000 and above	15

These findings would disconfirm our hypothesis regarding family income and delinquency. *Disconfirmability* is an essential quality in any hypothesis.

Figure 2-1 provides a schematic diagram of the traditional model of scientific inquiry. In it we see the researcher beginning with an interest in something or an idea about it. Next comes the development of a theoretical understanding. The theoretical considerations result in a hypothesis, or an expectation about the way things ought to be in the world if the theoretical expectations are correct. The notation $Y = f(X)$ is a conventional way of saying that Y (for example, delinquency) is a function of (is in some way caused by) X (for example, poverty). At that level, however, X and Y have general rather than specific meanings.

In the operationalization process, general concepts are translated into specific indicators and procedures. The lowercase x, for example, is a concrete indicator of capital X. This operationalization process results in the formation of a testable hypothesis: for example, increasing family income reduces self-reported theft. Observations aimed at finding out are part of what is typically called **hypothesis testing**.

The traditional model of science discussed previously uses what is called *deductive logic* (see **deduction** in the glossary). In this section, I will examine deductive logic as it fits into social scientific research and, particularly, contrast it

with *inductive logic* (see induction in the glossary). W. I. B. Beveridge, a philosopher of science, describes these two systems of logic as follows:

> Logicians distinguish between inductive reasoning (from particular instances to general principles, from facts to theories) and deductive reasoning (from the general to the particular, applying a theory to a particular case). In induction one starts from observed data and develops a generalization which explains the relationships between the objects observed. On the other hand, in deductive reasoning one starts from some general law and applies it to a particular instance.
>
> (Beveridge, 1950: 113)

The classical illustration of deductive logic is the familiar syllogism "All men are mortal; Socrates is a man; therefore Socrates is mortal." This syllogism presents a theory and its operationalization. To prove it, you might then perform an empirical test of Socrates' mortality. That is essentially the approach discussed as the traditional model.

Using inductive logic, you might begin by noting that Socrates is mortal and observing a number of other men as well. You might then note that all the observed men were mortals, thereby arriving at the tentative conclusion that all men are mortal.

Now let's consider a real research example as a vehicle for comparing the deductive and inductive linkages between theory and research.

A Deductive Illustration Years ago, Charles Glock, Benjamin Ringer, and I set out to discover what caused differing levels of church involvement among American Episcopalians (Glock et al., 1967). A number of theoretical or quasi-theoretical positions suggested possible answers. I'll focus on only one here: what we came to call the "Comfort Hypothesis."

In part, we took our lead from the Christian injunction to care for "the halt, the lame, and the blind" and those who are "weary and heavy laden." At the same time, ironically, we noted the Marxian assertion that religion is an "opiate for the masses." On both bases, then, it made sense to expect that "Parishioners whose life situations most deprive them of satisfaction and fulfillment in the secular society turn to the church for comfort and substitute rewards" (Glock et al., 1967: 107–108). This is an example of a hypothesis.

Having framed this general hypothesis, we next set about testing it. Were those deprived of satisfaction in the secular society in fact more religious than those who got more satisfaction from the secular society? To answer this, we needed to distinguish who was deprived. The questionnaire, which was constructed for the purpose of testing the Comfort Hypothesis, included items that seemed to offer indicators of whether parishioners were relatively deprived or gratified in the secular society.

To start, we reasoned that men enjoyed more status than women in our generally male-dominated society. This was hardly a shocking conclusion in itself, but it laid the groundwork for testing the Comfort Hypothesis. If we were correct in our hypothesis, women should appear more religious than men. Once the survey data had been collected and analyzed, our expectation about sex and religion was clearly confirmed. On three separate measures of religious involvement—*ritual* (for example, church attendance), *organizational* (for example, belonging to church organizations), and *intellectual* (for example, reading church publications)—women were more religious than men. On our overall measure, women scored 50 percent higher than men.

In another test of the Comfort Hypothesis, we reasoned that in a youth-oriented society, old people would be more deprived of secular gratification than the younger parishioners. Once again, our expectation was confirmed by the data. The oldest parishioners were more religious than the middle-aged, who were more religious than the young adults.

Social class—measured by education and income—afforded another test of the Comfort Hypothesis. Once again, the test was successful. Those with low social status were more

involved in the church than those with high social status.

The hypothesis was even confirmed in a test that went against everyone's common-sense expectations. Despite church posters showing worshipful young families and bearing the slogan, "The Family that Prays Together Stays Together," the Comfort Hypothesis suggested that parishioners who were married, with children—the clear American ideal at that time—would enjoy secular gratification in that regard and, hence, should be *less* religious than those who lacked one or both family components. Thus, it was hypothesized that parishioners who were both single and childless should be the most religious; those with either spouse or child should be somewhat less religious; and those married with children should be least religious of all. That's exactly what we found!

Finally, the Comfort Hypothesis would suggest that the various kinds of secular deprivation should be cumulative: Those with all the characteristics associated with deprivation should be the most religious; those with none should be the least religious. When we combined the four individual measures of deprivation into a composite measure (see Chapter 7 for methods of doing this), the theoretical expectation was exactly confirmed. Comparing the two extremes, we found that single, childless, old, and lower-class female parishioners scored more than three times as high on the measure of church involvement than did young, married, upper-class fathers. Thus was the Comfort Hypothesis confirmed.

I like this research example because it so clearly illustrates the deductive model. Beginning with general, theoretical expectations about the impact of social deprivation on church involvement, I've shown how it was possible to derive concrete hypotheses linking specific measurable variables, such as age and church attendance. The actual empirical data could then be analyzed to determine whether the deductive expectations were supported by empirical reality. I say it was *possible* to do it that way, but, alas, I may have fibbed just a little bit previously.

An Inductive Illustration To tell the truth, although we began with an interest in discovering what caused variations in church involvement among Episcopalians, we didn't begin with a Comfort Hypothesis, or any other hypothesis for that matter. (In the interest of further honesty, Glock and Ringer initiated the study, and I joined it years after the data had been collected.)

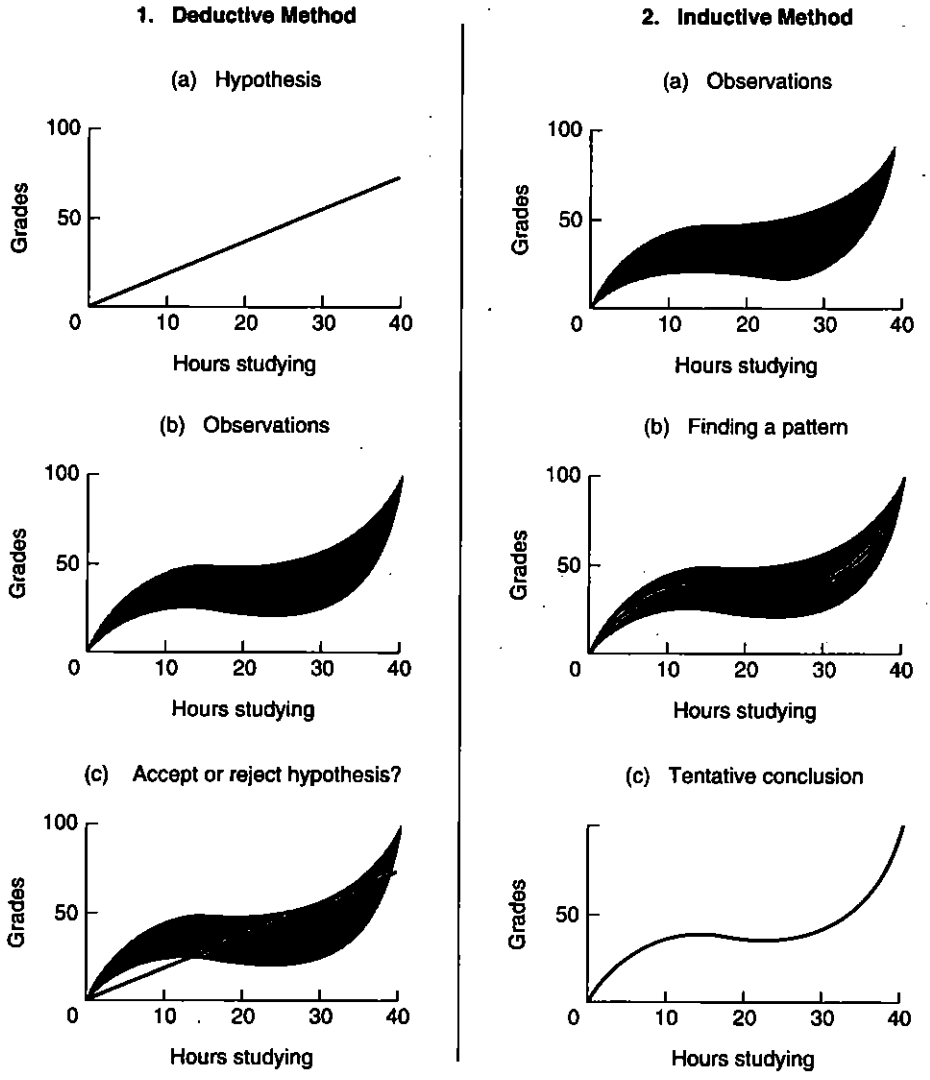
A questionnaire was designed to collect information from parishioners that *might* shed some light on why some participated in the church more than others, but questionnaire construction was not guided by any precise, deductive theory. Once the data were collected, the task of explaining differences in religiosity began with an analysis of variables that have a wide impact on people's lives, including sex, age, social class, and family status. Each of these four variables was found to relate strongly to church involvement—in the ways I described previously. Indeed, they had a cumulative effect—also as I've already described. Rather than being good news, this presented a dilemma.

Glock recalls discussing his findings with colleagues over lunch at the Columbia faculty club. Once he had displayed the tables illustrating the impact of each individual variable as well as their powerful composite effect, Glock was at a loss when one colleague asked, "What does it all mean, Charlie?" Why were those variables so strongly related to church involvement?

That question launched a process of reasoning about what the several variables had in common, aside from their impact on religiosity. (The composite index was originally labeled "Predisposition to Church Involvement.") Eventually we saw that each of the four variables also reflected differential status in the secular society and had the thought that perhaps the issue of comfort was involved. Thus, the inductive process had moved from concrete observations to a general theoretical explanation.

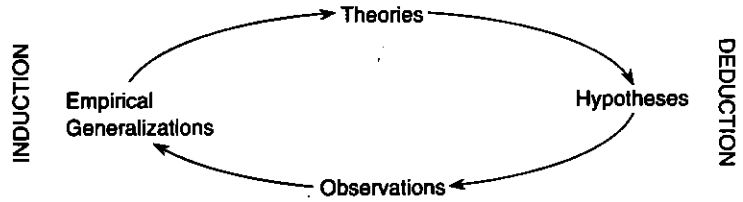
A Graphic Contrast Figure 2-2 shows a graphic comparison of the deductive and inductive methods. In both cases, we are interested

Figure 2-2 Deductive and Inductive Methods



in the relationship between the number of hours spent studying for an exam and the grade earned on that exam. Using the deductive method, we would begin by examining the matter logically. Doing well on an exam reflects a student's ability to recall and manipulate information. Both of these abilities should be increased by exposure to the information before the exam. In this sort of fashion, we would arrive at a *hypothesis* suggesting a positive relationship between the number of hours spent studying and the grade earned on the exam. We say *positive* because we expect grades to increase as the hours of studying increase. If increased hours produced decreased grades, that would be called a negative relationship. The hypothesis is represented by the line in Part 1(a) of Figure 2-2.

Figure 2-3 The Wheel of Science



Source: Adapted from Walter Wallace. *The Logic of Science in Sociology* (Chicago: Aldine-Atherton, 1971). Copyright © 1971 by Walter L. Wallace. Used by permission.

Our next step, using the deductive method, would be to make observations relevant to testing our hypothesis. The shaded area in Part 1(b) of the figure represents perhaps hundreds of observations of different students, noting how many hours they studied and what grades they got. Finally, in Part 1(c) of the figure, we compare the hypothesis and the observations. Because observations in the real world seldom if ever match our expectations perfectly, we must decide whether the match is close enough to consider the hypothesis confirmed. Put differently, can we conclude that the hypothesis describes the general pattern that exists, granting some variations in real life?

Now let's turn to addressing the same research question, using the inductive method. In this case, we would begin—as in Part 2(a) of the figure—with a set of observations. Curious about the relationship between hours spent studying and grades earned, we might simply arrange to collect some relevant data. Then we'd look for a pattern that best represented or summarized our observations. In Part 2(b) of the figure, the pattern is shown as a curved line running through the center of the curving mass of points.

The pattern found among the points in this case suggests that with 1 to 15 hours of studying, each additional hour generally produces a higher grade on the exam. With 15 to about 25 hours, however, more study seems to slightly lower the grade. Studying more than 25 hours, on the other hand, results in a return to the initial pattern: More hours produce higher grades. Using the inductive method, then, we end up with a *tentative* conclusion about the pattern of the relationship between the two variables. The conclusion is tentative because the observations we have made cannot be taken as a test of the pattern—those observations are the *source* of the pattern we've created.

In actual practice, theory and research interact through a never-ending alternation of deduction, induction, deduction, and so forth. Walter Wallace (1971) has represented this process nicely as a circle, which is presented in a modified form in Figure 2-3.

When Emile Durkheim (1897) looked at suicide, he pored through table after table of official statistics on suicide rates in different areas, and he was struck by the fact that Protestant countries consistently had higher suicide rates than Catholic ones. Why should that be the case? His initial observations led him to create a theory of religion, social integration, anomie, and suicide. His theoretical explanations led to further hypotheses and further observations.

In summary, the scientific norm of logical reasoning provides a bridge between theory and research—a two-way bridge. Scientific inquiry in practice typically involves an alternation between deduction and induction. During the deductive phase, we reason *toward* observations; during the inductive phase, we reason *from* observations. Both logic and observation are essential. In practice, both deduction and induction are routes to the construction of social theories. Let's look a little more closely at how each of the two methods operates in that regard.

While both inductive and deductive methods are valid in scientific inquiry, individuals may feel more comfortable with one approach than the other. Consider this exchange in Sir Arthur Conan Doyle's "A Scandal in Bohemia," as Sherlock Holmes answers Dr. Watson's inquiry (Doyle 1891:13):

"What do you imagine that it means?"

"I have no data yet. It is a capital mistake to theorise before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts."

Some social scientists would more or less agree with this inductive position, while others would take a deductive stance. Most, however, concede the legitimacy of both approaches. Having gotten an overview of the deductive and inductive linkages between theory and research, let's look just a little deeper into how theories are constructed, using these two different approaches.

Deductive Theory Construction

What's involved in deductive theory construction and hypothesis testing? To begin, here's an overview of some of the terminology associated with deductive theory construction. Then we'll look at how you might go about constructing a deductive theory.

Getting Started

The first step in deductive theory construction is to pick a topic that interests you. It can be broad, such as "What's the structure of society?" or narrower, as in "Why do people support or oppose a woman's right to an abortion?" Whatever the topic, it should be something you're interested in understanding and explaining.

Once you've picked your topic, you should undertake an inventory of what is known or thought about it. In part, this means writing down your own observations and ideas about it. Beyond that, you'll want to learn what other scholars have said about it. You can talk to other people, and you'll want to read what others have written about it. Appendix B of this book provides guidelines for using the library, and you'll probably spend a lot of time there.

By the same token, your preliminary research will probably uncover consistent patterns discovered by prior scholars. For example, religious and political variables will stand out as important determinants of attitudes about abortion. Findings such as these will be very useful to you in creating your own theory.

In this context, I want to say a word or two on the value of introspection. If you are able to look at your own personal processes—including reactions, fears, and prejudices you aren't especially proud of—you may be able to gain important insights into human behavior in general. I don't mean to say that everyone thinks like you, but introspection can be a useful source of insights.

Constructing Your Theory

Although theory construction is not a lockstep affair, the following list of elements in theory construction should organize the activity for you.

1. Specify the topic.
2. Specify the range of phenomena your theory addresses. Will your theory apply to all of human social life, will it apply only to Americans, only to young people, or what?
3. Identify and specify your major concepts and variables.
4. Find out what is known (propositions) about the relationships among those variables.
5. Reason logically from those propositions to the specific topic you are examining.

We've already discussed items (1) through (3), so let's focus now on (4) and (5). As you identify the relevant concepts and discover what has already been learned about them, you can

begin creating a propositional structure that explains the topic under study. For the most part, social scientists have not created formal, propositional theories. Still, it is useful to look at a well-reasoned example.

That's enough discussion of the pieces of deductive theory construction. Let's look now at an example of how those pieces fit together in deductive theory construction and empirical research.

An Example of Deductive Theory

A topic of central interest to scholars using the exchange paradigm (discussed earlier) is that of *distributive justice*, your perception of whether you're being treated fairly by life, whether you are getting "your share." Guillermina Jasso describes the theory of distributive justice more formally, as follows:

> The theory provides a mathematical description of the process whereby individuals, reflecting on their holdings of the goods they value (such as beauty, intelligence, or wealth), compare themselves to others, experiencing a fundamental instantaneous magnitude of the justice evaluation *(J)*, which captures their sense of being fairly or unfairly treated in the distributions of natural and social goods.
>
> (Jasso 1988:11)

Notice that Jasso has assigned a symbolic representation for her key variable: *J* will stand for distributive justice. She does this to support her intention of stating her theory in mathematical formulas. Theories are often expressed mathematically, though we will not delve too deeply into that aspect here.

Jasso indicates there are three kinds of postulates in her theory. "The first makes explicit the fundamental axiom which represents the substantive point of departure for the theory." She elaborates on it as follows:

> The theory begins with the received *Axiom of Comparison*, which formalizes the long-held view that a wide class of phenomena, including happiness, self-esteem, and the sense of distributive justice, may be understood as the product of a comparison process.
>
> (Jasso 1988:11)

Thus, your sense of whether you are receiving a "fair" share of the good things of life comes from comparing yourself with others. If this seems obvious to you, that's not a shortcoming for the axiom. Remember, axioms are the take-for-granted beginnings of theory.

Jasso continues to lay out the groundwork for her theory. First, she indicates that our sense of distributive justice is a function of "Actual Holding (A)" and "Comparison Holdings (C)" of some good. Let's consider money, for example. My sense of justice in this regard is a function of how much I actually have in comparison with how much others have. By specifying the two components of the comparison, Jasso makes it possible to use them as variables in her theory.

Jasso then offers a "measurement rule" that further specifies how the two variables, *A* and *C*, will be conceptualized. This step is necessitated by the realization that some of the goods to be examined are concrete and commonly measured (e.g., money) whereas others are less tangible (e.g., respect). The former kind, she says, will be measured conventionally, whereas the latter will be measured "by the individual's relative rank . . . within a specially selected comparison group" and provide a formula for making that measurement (Jasso 1988:13).

Jasso continues in this fashion to introduce additional elements, weaving them into mathematical formulas to be used in deriving predictions about the workings of distributive justice in a variety of social settings. Here is just a sampling of where her theorizing takes her.

> 1. Persons who are blind or deaf have fewer dimensions of self-evaluation, per unit of time, than otherwise comparable persons. . . .
>
> 3. Other things the same, a person will prefer to steal from a fellow group member rather than from an outsider.
>
> 4. The preference to steal from a fellow group member is more pronounced in poor groups than in rich groups.

5. In the case of theft, informants arise only in cross-group theft, in which case they are members of the thief's group . . . .

9. Persons who arrive a week late at summer camp or for freshman year of college are more likely to become friends of persons who play games of chance than of persons who play games of skill.

10. An immigrant's propensity to learn the language of the host country is an increasing function of the ratio of the origin-country's per capita GNP to the host-country's per capita GNP . . . .

12. If both spouses work full-time, marital cohesiveness increases with the ratio of the smaller to the larger earnings . . . .

14. In wartime, the favorite leisure-time activity of soldiers is playing games of chance . . . .

17. A society becomes more vulnerable to deficit spending as its wealth increases . . . .

22. Societies in which population growth is welcomed must be societies in which the set of valued goods includes at least one quantity-good, such as wealth.

(Jasso 1988: 14–15)

These propositions should provide a good sense of where deductive theorizing can take you. While we aren't going to trace all the theoretical and mathematical reasoning that produced each of the propositions shown, let's look briefly at the logic involved in the propositions relating to theft within and outside one's group, specifically Propositions 3 and 5 above.

Beginning with the assumption that thieves want to maximize their relative wealth, take a minute to ask whether that goal would be best served by stealing from those you compare yourself with or from outsiders. In each case, stealing will increase your Actual Holdings, but what about your Comparison Holdings? If you think about it, you'll see that stealing from people in your comparison group will *lower* their holdings, further increasing your *relative* wealth.

To simplify, imagine there are only two people in your comparison group: you and me. Suppose we each have $100. If you steal $50 from someone outside our group, you will have increased your relative wealth by 50 percent in comparison with me: $150 versus $100. But if you steal $50 from me, you will have increased your relative wealth 200 percent: You'll have $150 to my $50. Thus your goal is best served by stealing from within the comparison group: hence, Proposition 3 above.

As regards Proposition 5, can you see why it would make sense (a) for informants to arise only in the case of cross-group theft and (b) for the informants to come from the thief's comparison group? To understand this, we must consider the fundamental assumption that everyone wants to increase his or her relative standing. Suppose you and I are in the same comparison group, which in this instance contains additional people.

If you steal from someone else in our comparison group, my relative standing does not change. While your wealth has increased, the average wealth in the group remains the same (since someone else's wealth has decreased by the same amount), so my relative standing remains the same.

If you steal from someone outside our comparison group, your nefarious income increases the total wealth in our group, so my own wealth relative to that total is diminished. Since my relative wealth has suffered, I am more likely to bring an end to your stealing.

This latest deduction also begins to explain why informants are more likely to arrive from within the thief's comparison group. We've just seen how my relative standing was decreased by your theft. How about other members of the other group? Each of them would actually profit from the theft, since you would have reduced the total they compared themselves to. Hence, the theory of distributive justice predicts that informants arise from the thief's comparison group.

This brief and selective peek into Jasso's derivations should give you some sense of the enterprise of deductive theory. Realize, of course, that none of the predictions above are guaranteed by the theory. The role of research is to test

each of them empirically to determine whether what makes sense (theory) occurs in practice (research).

There are two important elements in science, then: logical integrity and empirical verification. Both are essential to scientific inquiry and discovery. Logic alone is not enough, but on the other hand, the mere observation and collection of empirical facts does not provide understanding—the telephone directory, for example, is not a scientific conclusion. Observation, however, can be the jumping-off point for the construction of a social scientific theory, as we now see in the case of inductive theory.

Inductive Theory Construction

Very often, social scientists begin constructing a theory through the inductive method by observing aspects of social life, and then seeking to discover patterns that may point to more-or-less universal principles. Barney Glaser and Anselm Strauss (1967) coined the term *grounded theory* in reference to this method of theory construction that begins inductively.

Field research, involving direct observation in natural settings, is frequently used to develop theories through observation. A long and rich anthropological tradition has seen this method used to good advantage. (We are going to examine field research in depth in Chapter 10.)

Field research is not the only method of observation appropriate to the development of inductive theory, as we saw in the earlier discussion of the survey of religiosity, utilizing mailed questionnaires. Here's another example from survey research.

Why Do People Smoke Marijuana?

During the 1960s and 1970s, marijuana use on America's college campuses was a subject of considerable discussion in the popular press. Some people were troubled by marijuana's popularity; others welcomed it. What interests us here is why some students smoked marijuana and others didn't. A survey of students at the University of Hawaii (Takeuchi, 1974) provided the data needed to answer that question.

At the time of the study, countless explanations were being offered for drug use. People who opposed drug use, for example, often suggested that marijuana smokers were academic failures who turned to drugs rather than face the rigors of college life. Those in favor of marijuana, on the other hand, often spoke of the search for new values: Marijuana smokers, they said, were people who had seen through the hypocrisy of middle-class values.

David Takeuchi's (1974) analysis of the data gathered from University of Hawaii students, however, did not support any of the explanations being offered. Those who reported smoking marijuana had essentially the same academic records as those who didn't smoke it, and both groups were equally involved in traditional "school spirit" activities. Both groups seemed to feel equally well integrated into campus life.

There were differences, however:

1. Women were less likely than men to smoke marijuana.

2. Asian students (a large proportion of the UH student body) were less likely to smoke marijuana than non-Asians.

3. Students living at home were less likely to smoke marijuana than those living in apartments.

As in the case of religiosity, the three variables independently affected the likelihood of a student's smoking marijuana. About 10 percent of the Asian women living at home had smoked marijuana, as contrasted with about 80 percent of the non-Asian men living in apartments. And, as in the religiosity study, the researchers discovered a powerful pattern of drug use before they had an explanation for that pattern.

In this instance, the explanation took a peculiar turn. Instead of explaining why some students smoked marijuana, the researchers explained why some *didn't*. Assuming that all students had some motivation for trying drugs, the researchers suggested that students differed in the degree of "social constraints" preventing them from following through on that motivation.

American society is, on the whole, more permissive with men than with women when it comes to deviant behavior. Consider, for example, a group of men getting drunk and boisterous. We tend to dismiss such behavior with references to "camaraderie" and "having a good time," whereas a group of women behaving similarly would probably be regarded with great disapproval. We have an idiom "Boys will be boys," but no comparable idiom for girls. The researchers reasoned, therefore, that women would have more to lose by smoking marijuana than men would. Being female, then, provided a constraint against smoking marijuana.

Students living at home had obvious constraints against smoking marijuana in comparison with students living on their own. Quite aside from differences in opportunity, those living at home were seen as being more dependent on their parents—hence more vulnerable to additional punishment for breaking the law.

Finally, the Asian subculture in Hawaii has traditionally placed a higher premium on obedience to the law than other subcultures; so Asian students would have more to lose if they were caught violating the law by smoking marijuana.

Overall, then, a "social constraints" theory was offered as the explanation for observed differences in the likelihood of smoking marijuana. The more constraints a student had, the less likely he or she would be to smoke marijuana. It bears repeating that the researchers had no thoughts about such a theory when their research began. The theory was developed out of an examination of the data.

The Links between Theory and Research

Throughout this chapter, we have seen various aspects of the links between theory and research in social scientific inquiry. In the deductive model, research is used to test theories. And in the inductive model, theories are developed from the analysis of research data. In this final section, we look more closely into the ways theory and research are related in actual social scientific inquiry.

Whereas we have discussed two logical models for the linking of theory and research, actual social scientific inquiries have developed a great many variations on these themes. Sometimes theoretical issues are introduced merely as a background for empirical analyses. Other studies cite selected empirical data to bolster theoretical arguments. In neither case is there really an interaction between theory and research for the purpose of developing new explanations. And some studies make no use of theory at all.

Rather than simply discuss the possible relationships between theory and research, let's take a look at the ways social scientists have actually linked them in their studies. To do this, we're going to examine four decades of articles published in the *American Sociological Review* (ASR), the main research journal for American sociologists.

To find out how theory has figured in sociological research, Richard H. Wells and J. Steven Picou (1981) conducted a content analysis—the rigorous examination of communications (see Chapter 11)—of a sample of 707 articles from the 2,619 published in the ASR between 1936 and 1978. One of the first things Wells and Picou discovered was that sociologists have increasingly employed theory in their research articles. Between 1936 and 1949, only 34 percent of the ASR articles included any use of theory, with the percentage increasing to 66 percent in the period from 1965 to 1978 (1981:103).

Table 2-1 How Theory Was Utilized in the ASR, 1936–78

Primary Theory Utilization	Percent
No theoretically related research	35.8%
Theory used to support author's idea	1.9
Theory used to focus research problem	3.3
Concepts used to discuss and interpret findings	20.8
Theory used to discuss and interpret findings	0.9
Modification or extension of existing theory	4.5
Development of theory	2.1
Theory used to develop testable hypotheses and findings support the hypotheses	22.5
Theory used to develop testable hypotheses and findings refute the hypotheses	2.0
Unfavorable discussion of theory	2.7
Favorable discussion of theory	3.8
TOTAL	**100.0**
	(707)

Source: Richard H. Wells and J. Steven Picou, *American Sociology: Theoretical and Methodological Structures* (Washington, D.C.: University Press of America, 1981), p. 105. Used by permission.

Table 2-1 reports the various uses made of theory during the entire period from 1936 to 1978.

Among the many different uses made of theory in connection with sociological research, notice that only 24.5 percent of the articles involved the testing of theoretically derived hypotheses: the traditional model of scientific inquiry. Of these, 22.5 percent presented findings in support of the hypotheses, and 2 percent refuted the hypotheses. Taken together, these two items amounted to 38 percent of those articles that used theory at all.

When Wells and Picou examined the uses of theory over time, they found a substantial increase in the traditional hypothesis-testing model. During the period 1936–49, this model was used for only 16 percent of the articles making any use of theory; 36 percent used it during the period 1950–64; and 54 percent used it during 1965–78 (1981 : 106).

The data we've seen in this section should make you realize that there is no simple cookbook recipe for conducting social science research. It is far more open-ended than the traditional view of science would suggest. Ultimately, science rests on two pillars: logic and observation. As we'll see throughout this book, they can be fit together in many patterns.

Main Points

- Whether human social behavior can be studied "scientifically" has been debated for some time. It can.
- A paradigm is a fundamental model or scheme that organizes our view of something.
- The social sciences utilize a variety of paradigms to organize their understanding of and inquiry into social life.
- The traditional image of science includes theory, operationalization, and observation.
- The traditional image of science is not a very accurate picture of how scientific research is actually done.
- Social scientific theory and research are linked through two logical methods:
  —*Deduction* involves the derivation of expectations or hypotheses from theories.
  —*Induction* involves the development of generalizations from specific observations.
- Science is a process involving an alternation of deduction and induction.
- Although people speak of science as being "objective," that quality is difficult to define and demonstrate. More accurately, intersubjectivity means that different scientists—even with different points of view—can agree in their observations and conclusions.
- A fact usually refers to something that has been observed.

- A law is a universal generalization about a class of facts.
- A theory is a systematic explanation for a set of facts and laws.
- Grounded theory is a term used in reference to the creation of theory based *on observation* more than on deduction.

Review Questions and Exercises

1. Consider the possible relationship between education and prejudice (mentioned in Chapter 1). Describe how that relationship might be examined through (a) deductive and (b) inductive methods.

2. Review the relationships between theory and research described in Table 2-1. Select a research article in some academic journal and classify the relationship between theory and research in that article.

Additional Readings

Berger, Joseph, Morris Zelditch, Jr., and Bo Anderson, eds., ***Sociological Theories in Progress*** (Newbury Park, CA: Sage, 1989). Several authors develop parts of a theory of social interaction, of which many focus on how we create expectations for each other's behavior.

Chavetz, Janet, ***A Primer on the Construction and Testing of Theories in Sociology*** (Itasca, IL: Peacock, 1978). One of few books on theory construction written expressly for undergraduates. Chavetz provides a rudimentary understanding of the philosophy of science through simple language and everyday examples. She describes the nature of explanation, the role of assumptions and concepts, and the building and testing of theories.

Kuhn, Thomas, ***The Structure of Scientific Revolutions*** (Chicago: University of Chicago Press, 1970). An exciting and innovative recasting of the nature of scientific development. Kuhn disputes the notion of gradual change and modification in science, arguing instead that established "paradigms" tend to persist until the weight of contradictory evidence brings their rejection and replacement by new paradigms. This short book is at once stimulating and informative.

Reinharz, Shulamit, ***Feminist Methods in Social Research*** (New York: Oxford University Press, 1992). This book explores a number of social research techniques (e.g., interviewing, experiments, and content analysis) from a feminist perspective.

Ritzer, George, ***Sociological Theory*** (New York: Alfred A. Knopf, 1988). This is an excellent overview of the major theoretical traditions in sociology.

Turner, Jonathan H., ed., ***Theory Building in Sociology: Assessing Theoretical Cumulation*** (Newbury Park, CA: Sage, 1989). This collection of essays on sociological theory construction focuses specifically on the question posed by Turner's introductory chapter, "Can Sociology Be a Cumulative Science?"

Turner, Stephen Park and Jonathan H. Turner, ***The Impossible Science: An Institutional Analysis of American Sociology*** (Newbury Park, CA: Sage, 1990). Two authors bring two very different points of view to the history of American sociologists' attempt to establish a *science* of society.