

Tenth Edition

# Empirical Political Analysis

Quantitative and Qualitative Research Methods

Richard C. Rich and Samuel Brazys



# Empirical Political Analysis

*Empirical Political Analysis* introduces readers to the foundations of social science research. Organized around the stages of the research process, this textbook prepares readers to conduct both quantitative and qualitative research, from the formation of theory through the design of research projects, to the collection and analysis of data.

The book offers a clear and concise presentation of basic concepts and tools that can be applied in a wide range of research settings and highlights ethical conduct in the research process. It will help you both to achieve sound results in your own research and to critically evaluate research presented by others.

Key features:

- Offers comprehensive coverage of quantitative and qualitative research methods in political science – this book has been one of the key texts in the field of political research methods since it was first published over 25 years ago
- Covers the research process from start to finish – hypothesis formation, literature review, research design, data gathering, data analysis, and research report writing. Includes in-depth examples of political science research to give discipline-specific instruction on political analysis
- Features a “Practical Research Ethics” box in every chapter to make students aware of common ethical dilemmas and potential solutions to them. Includes learning goals, key terms, and research examples to help students engage and explore the most important concepts

New to this edition:

- Updated directions for conducting a literature review
- Updated and international case studies
- New material on understanding research design – what constitutes a sound research design and how this contributes to being able to justify research findings

This is the ideal introductory resource for advanced undergraduate and postgraduate students, researchers, and instructors in political science, sociology, public administration, and related fields.

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# Contents

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1	Research as a Process	1
2	Building Theories and Hypotheses	11
3	Developing Your Literature Review	29
4	Designing Your Research and Choosing Your Methods	45
5	From Abstract to Concrete: Operationalization and Measurement	57
6	Creating Complex Indicators: Using Scaling Techniques	82
7	Research Design: Attributing Causation Through Control	93
8	Who, What, Where, When: The Problem of Sampling	108
9	Survey Research: Characterizing a Broader Population	125
10	Experimental Methods: Experimental Methods in Political Science	148
11	Content and Quantitative Text Analysis: Researching Textual Material	158
12	Comparative Methods: Research Across Populations	172
13	Data: Studying Individuals and Groups	183
14	Open Science and Data Wrangling: Preparing Observations for Analysis	197
15	Describing and Visualizing One Variable: Univariate Distributions and Statistics	217
16	Evaluating and Visualizing Relationships Between Two Variables: Bivariate Analysis	233

## Contents

17	Causal Inference with Multivariate Observational Data: Relationships Among Several Variables	254
18	Direct Observation: Systematically Watching Behavior	271
19	Focus Group Research	290
20	Elite and Specialized Interviewing	305
21	The Research Report: Diagramming a Sample Article	315
22	Summary: Overview of a Research Process	332
	<i>Appendix A: Statistical Tables</i>	339
	<i>Appendix B: Ethical Standards in Empirical Research</i>	346
	<i>Glossary</i>	349
	<i>Index</i>	359

# Research as a Process

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## In this chapter, you will learn:

- How research methods can be important to you
- How and why we formulate and test theories
- How scientific research differs from other approaches to knowledge
- The six stages of the social science research process

Many observers of recent social and political events argue that we now live in a “post-fact” or “post-truth” era in which people will believe and base their actions on almost any claim, even when there is no reliable evidence that it is true. One problem with believing things without sound evidence is that it is the actual facts – the realities – that will determine what impact our actions have. If our perceptions of reality don’t line up with the way the world actually works, we will be unable to avoid problems or reach the goals we truly value. Moreover, taking a “post-fact” position opens you to manipulation by anyone who might want to influence your behavior by providing misinformation.

The purpose of this book is to give you the intellectual tools to independently evaluate factual claims so that you are not misled by unsound arguments. We present the most basic elements of scientific research so that any reader can apply them to gather valid information about important relationships and to assess the claims that others make about how things work. Social scientific research is often used as a basis for public policy and legal decisions. It is, therefore, important that you be able to judge the merits of research and factual claims in order to discharge the responsibilities of citizenship in a democratic society. Knowledge is empowering and knowledge of how to produce knowledge – real knowledge that can be verified in the world – is especially valuable.

## Making Scientific Theories

To most people the word “theory” seems abstract and even intimidating. In fact, we all instinctively find our way through the world by formulating miniature “theories” about how things work. We observe patterns, draw conclusions about cause-and-effect relationships, and then act on those conclusions. Science offers a way to formalize the process of drawing conclusions from observation so that we can avoid reaching incorrect conclusions. It also allows others to confirm, reject, or expand on our conclusions by evaluating the steps we followed to reach those conclusions.

## ***Empirical versus Normative Analysis***

Social scientists distinguish between obtaining knowledge and using knowledge. Dealing with factual realities is termed *empirical* analysis. Dealing with how we should use our knowledge of the world is termed *normative* analysis.

**Empirical** analysis is concerned with developing and using a common, objective language to *describe* and *explain* reality. It can be quantitative or qualitative. **Quantitative** analyses are based on math-based comparisons of the characteristics of the various objects or events that we study. **Qualitative** analyses are based on the researcher's informed and contextual understanding of observed behaviors or events.

**Normative** analysis is concerned with developing ethical rules to guide us in *judging and applying* what we have learned about reality. Although the emphasis in this book is on empirical analysis, we also seek to develop an appreciation of the larger, normative perspective within which knowledge is acquired, interpreted, and applied through discussions of *the ethics of research*.

Normative analysis without an empirical foundation can lead to value judgments that are out of touch with reality. Empirical analysis in the absence of sensitivity to normative concerns, on the other hand, can lead to the collection of observations whose significance we do not understand fully. The most successful political inquiry draws upon *both* types of analysis – empirical and normative – so as to maximize not only our factual knowledge but also our ability to make ethical use of the facts we discover.

## **Practical Research Ethics**

### ***Ethics in Research and in Life***

As you conduct research, you should keep the potential consequences of your actions in mind. Throughout this book, you will detect the tension that exists between our interest in learning about human behavior and our concern that we may be negatively affecting people through our research. Sometimes your research may directly affect a person, as when you ask survey questions that arouse fears or stir powerful memories in those interviewed. Your research may also influence people more indirectly, such as when your findings are utilized by judges as they apply the law, or policy makers deciding things that will affect people's lives.

As you evaluate your behavior, consider the weight that others in society and government give to the importance of ethical conduct. In class, unethical use of others' research in your writings is called plagiarism and may cause you to receive a failing grade in the course, or even to be expelled by your college. In academic research, failing to obtain prior permission to carry out research or not fully protecting human or animal research subjects can lead to sanctions against you and may harm your career. In business, using others' copyrighted material without permission may be punishable with fines amounting to many thousands of dollars.

This text seeks to promote ethical conduct at each stage of the research process by suggesting specific strategies you can use to foster and develop your ethical compass.

## ***Scientific Knowledge***

Scientific research is a way of gaining valid knowledge that provides a *common language* for discussing realities. Scientific research is not the only way of knowing, but it is for many purposes *the most practically effective*. People can know things through experience, but not everyone shares the same experience. People can know things by unstructured observation, but they may not note all relevant aspects of events or see them in the same way that others do. Some people can “know” things by having

visions, but not everyone can be trained in visionary methods or will accept others' visions as valid. None of these other ways of knowing allows for the sharing of facts or the understanding of how those facts were obtained as well as the scientific approach does. As a result, the scientific method has become the most widely accepted path to material progress.

### ***Defining the Scientific Method***

Scientific research is *explicit, systematic, and controlled*. It is explicit in that all the rules for defining and examining reality are clearly stated. Scientific research is systematic in that it follows a widely agreed-upon set of procedures so that there are clear rules for determining what is known and for explaining how it came to be. It is controlled in that the phenomena (objects and events) under analysis are observed in as rigorous a manner as is possible with existing technology, resources, and knowledge. Generalized conclusions are reached only after thorough and critical assessment. In science, caution (in the larger sense of exercising great care and attention to detail) is a governing principle.

Because it is done in this constrained way, scientific research allows people from different places and backgrounds to communicate effectively about reality and to agree on what has been established as fact. It is for this reason that the scientific method is widely applied to the study of politics and society.

Scientific research is a self-correcting, continuously developing way of knowing in which each piece of research builds on previous work and conclusions can be reconsidered as new information is developed. This is possible because the rules for doing research are commonly understood by those trained in scientific inquiry.

**Scientific research** involves *testing theories and hypotheses by applying certain rules of analysis to the observation and interpretation of reality under strictly defined circumstances*. These are the rules and constraints that we must learn in order to gain and communicate empirical knowledge in the social sciences.

### ***Six Stages in the Research Process***

Social science research generally follows a standard progression of six distinct but highly interrelated stages. These are the following:

- 1 The formation of a theory
- 2 The operationalization of that theory
- 3 The selection of research techniques and development of a research plan
- 4 The observation of behavior and collection of data
- 5 The analysis of data
- 6 The interpretation of the results

The rest of the book is organized around these six stages, but it is useful to review them in this chapter to put each of the elements you will encounter into the context of a full research project. It also begins to establish *the vocabulary of research* by introducing some of the terms you will encounter in subsequent chapters.

### **The Formation of Theory**

The objective of scientific research is to be able *to explain and predict events in the world*. The first step in this process is to decide what to study by selecting an appropriate **research question**. This stage of the process is guided by both normative and empirical considerations. A question is generally considered to be worthy of research either because it fulfills a scientific need – in that its answer will further our theoretical or empirical understanding of some phenomenon – or because it fulfills a societal need – as its answer may help us to deal with one or more of the problems faced by society.

These two types of research questions are frequently termed **basic research** and **applied research**. Although some research questions can serve both purposes, we frequently have to choose which goal we want to pursue. For example, should we study the determinants of aggression under conditions of stress in order to develop a predictive model of human behavior, or should we instead focus on discovering the reasons ethnic conflicts occur in a specific nation and investigate ways to prevent them?

Because there are too few scientific resources (money, time, and trained personnel) to study all important research questions, there is often a conflict between the need to perform basic research – whose practical payoffs, however great, are almost always felt only indirectly and well into the future – and the need to apply scientific knowledge for the immediate benefit of humanity, even though this may delay the further development of our scientific understanding. This choice must be made by individual researchers in accordance with their own values and opportunities, and by funding agencies deciding what research projects to support.

Once you have identified the problem you want to address and the type of contribution you wish to make, you need to frame a more specific *research question*. First, it is crucial to recognize that important social phenomena are highly complex. No single research project can fully examine any major political question. The purpose of a research question is to guide you in focusing on a *clearly defined portion* of the events you want to explain in order to reach well-supported conclusions.

Second, you must formulate your research question in light of *prior research* on the subject so that you are not investigating a question that has already been adequately answered and so you can build on that research in designing your project rather than “reinventing the wheel”. If the issue you want to study has not been extensively examined by other researchers, you will want to look for research on similar events and to draw on your own powers of observation and reasoning to identify the most important elements of the behavior you are seeking to understand.

### ***Research Questions Must Be Highly Focused***

In the real world, virtually every event is the result of many causal influences. Because no one has the resources to measure every possible variable, we must choose, from among the thousands of human (or institutional and environmental) characteristics that might influence actions, to observe those few that we expect will most help us to explain the behavior that interests us. Our research question identifies those factors.

In so narrowing our focus, we are not pre-judging our results, but rather refining our thinking about the research problem to identify those avenues of inquiry most likely to lead to successful explanation of the events we want to understand. This process of refining our research question through informed selection is a central part of *the formation of theory*.

### **The Operationalization of Theory**

Once we have arrived at a research question and the theory needed to direct our search for answers, we must progress to the next step. **Operationalization** is the conversion of our relatively abstract theoretical ideas into concrete terms that will allow us actually to measure the concepts that are of interest to us. Operationalization involves moving from the conceptual level of thinking about a problem to the practical level of making the observations we need to solve it. It requires *highly concrete and specific* thinking.

### ***Defining Terms***

Suppose we have a hypothesis – a statement of the answer we expect to find for our research question – that people of higher socioeconomic status (or SES) are more likely than those of lower SES to vote Republican in the next presidential election. But how do we find out if this prediction is accurate? We cannot simply ask people, “Are you of higher or lower socioeconomic status?” To begin with, the person we are interviewing may not understand what we are talking about, because *SES* is

a specialized term that will have no meaning for many people. And second, even if we get an answer, we will probably not be able to interpret it because we would not know how that person defines SES or whether it meant the same thing to the respondent as it did to the researcher.

The point of this example is that once we have an abstract concept in mind, we must find a way to *define explicitly what we mean by that concept* and then we must form our definition into a question that will measure what we intend.

The problem here is to specify clear meaning for an abstract concept that may have many possible meanings. When we use the variable SES, we could be thinking about respondents' level of income, occupation, or their subjective notions of which social class they belong to. Each might be a component of SES, but each has a somewhat different meaning, and each must be measured differently.

In other words, once we reach a hypothesis, we have to decide just what it is that we mean by each phrase we use, and we have to translate that more precise definition into measurable indicators. In doing this we seek the most commonly recognized and effectively communicated meaning that is true to the concept we are trying to operationalize. In this case, that might mean asking people to tell us their total family income in U.S. dollars. This is because, although not everyone would assign the same meaning to the term *SES*, almost everyone will understand "total annual family income in U.S. dollars." So to measure respondents' SES, we might ask, "What was the total income of your family last year in U.S. dollars?"

In this process our concepts are narrowed and shades of meaning are lost. However, our ability to communicate in clear, unambiguous terms what we have done and to accurately interpret the results is greatly enhanced. This process of translation and simplification of complex concepts, which we term *operationalization*, is *the single most important key to conducting meaningful research*.

## The Selection of Appropriate Research Techniques

Once we have decided what we want to measure, we must devise a research strategy for measuring it. Three considerations are of primary importance here.

First, we must select *appropriate measures* and we must take these measurements in ways that are consistent with the concepts we are investigating. We cannot, for example, measure public opinion by analyzing newspaper coverage of a given event, because newspaper content may reflect the views of an editor or of those few people whose letters to that editor are published, without necessarily reflecting the views of most citizens. Moreover, analyzing news or editorial content does not permit us to differentiate among different types of people. Thus, content analysis would not allow us to test our hypothesis or answer our research question related to public opinion. A survey in which we ask questions directly of citizens would be far more useful. The point is that the appropriateness of a given measurement technique is, in large part, determined by the particular problem we have selected for study.

Second, we must choose the most appropriate *type of data* to study our theory. Sometimes we obtain numerical data and other times we gather non-numerical data. *Quantitative* and *qualitative* data each have different uses in scientific research. [Chapter 4](#) explores this in much more detail, but as a general rule when we want greater breadth, we count, and when we want greater depth we do not simply count, but seek more complex information.

Third, we must consider the *feasibility* of different options. Before we go out into the field to take measurements, we must be sure that whatever method or technique we select can be employed properly under the particular set of conditions we are likely to face. For example, the most direct way to measure the level of tension between the leaders of Iraq and those of Turkey might be through a series of personal interviews with the leaders themselves, but such interviews are very difficult to arrange. In such cases, we may have to find less-than-ideal ways of measuring key variables. A feasible technique is one that is practical within the constraints of the research situation.

For student and professional researchers alike, feasibility is most often determined by time and resource constraints. The length of a given grant or the years of funding for research assistants are time

limits. Resource limits include money to fund fieldwork or to hire personnel to code thousands of pages of text. Ultimately, researchers must choose techniques that fit within their available time and resources.

To summarize, we must find a way to measure those variables we wish to measure that will be (1) consistent with our working definitions of the variables and (2) practicable.

### The Observation of Behavior and Collection of Data

The fourth stage of the research process involves actually carrying out the research strategy developed in third stage. Many factors must be taken into account here, but two are especially noteworthy. The first is generalizability, the second is reactivity, and the third is comparability.

**Generalizability** refers to the logical justification for extending our conclusions from the observed behavior of a few cases to the presumed behavior of an entire population. It is a concern we must take into account in selecting the particular cases (people, organizations, nations, etc.) that we wish to study. The problem here is basically one of scale and resources.

If there are only a few occurrences of an event or few subjects in a group we wish to study, we can examine each of those occurrences or subjects individually and make general statements about them with reasonable confidence that our conclusions will apply to all the cases. However, if we have hundreds or thousands or millions of cases, it is impossible to examine each firsthand. But we still want to have confidence that a study of a relative few of these cases will allow us to make accurate statements about the entire group. In such circumstances we must develop a strategy, often termed a *sampling procedure*, by which we can select a few cases to study and come to conclusions that are likely to apply to the entire population. In doing so, we must decide how many cases to study and how these cases should be selected to ensure that they accurately represent the larger set.

Once we have selected our cases for analysis, we must avoid measuring behaviors in ways that encourage **reactivity** – a situation in which either the person who is doing a study or the methods used in the study somehow alter the way those under observation behave or think. In other words, a danger exists that the act of observation may itself cause those being observed to change their behavior or perceptions so that the results of the observation are misleading.

The classic case of reactive observation was a study of the effects that changes in working conditions at a particular factory had on worker productivity. During the 1920s and early 1930s, such factors as hours of work, rest periods, lighting, and methods of pay were varied for a small group of workers in a factory. Regardless of what conditions they worked under, whether long or short hours, few or frequent rest periods, this group of workers continually outproduced all other workers in the same factory. The most influential factor in their productivity, it turned out, was an unusually high level of morale associated with the fact that members of this group knew they were being observed (Roethlisberger and Dickson 1939). This so-called **Hawthorne effect**, named for the location of the factory where it was first observed, meant that no conclusion could be drawn regarding the relationship between working conditions and productivity because the act of observation changed the behavior researchers were trying to measure.

Similar examples of reactivity are sometimes found in social science research. An overbearing interviewer can inappropriately influence respondents' answers so that no confidence can be placed in the resulting data. Often, however, the process is more subtle. We might, for example, properly train the perfect interviewer and still incur reactivity if our questions are not well formed. For example, if we ask, "Do you favor or oppose the president's approach to foreign policy?," we might get an answer, but would have no idea of whether or not our respondent has really given any thought to the president's approach to foreign policy before being interviewed. It is possible that the interview itself created an "opinion" where none had previously existed by encouraging respondents to give an answer to a question to which they had given no thought. This, too, is reactivity, but of a type that is much more difficult to detect and to avoid. This is why we put a great deal of thought into formulating questions and pretesting them before actually collecting data.

**Comparability** has to be a concern because essentially all scientific research involves *comparisons*. In order to determine what effect any factor has on the behavior of people or institutions, we have to compare behaviors in the absence of the factor with behaviors in the presence of the factor (or behaviors at low levels of the factor with behaviors at higher levels of the factor). In designing our research we have to create conditions that allow valid comparisons.

## Data Analysis

The bits of information about each case that we gather during our observations are called **data**. Once we have our data in hand, we can ascertain what answer we have found to our research question. This may be done in many instances by answering three questions. First, is there a relationship between the behavior we are hoping to explain and the factors we think will help us to do so? Second, what is the nature of any relationship we discover? Third, how sure can we be that this relationship is real?

### *Is There a Relationship?*

Suppose, for example, that we expect to find that people who differ in their level of formal education will differ systematically in the likelihood that they will vote. Our first question must be the following: Does this happen? Do people who differ from one another on one of these variables tend to differ consistently on the other as well? We might find in examining our data, for instance, that less educated people tend to vote about as often as more educated people and that knowing a person's level of education does not help us to predict or explain differences in the likelihood of voting. If this is the case, we say that there is *no association* between the two variables. If, on the other hand, we discover that seven times out of ten, knowing the level of education does allow us to predict accurately the likelihood that a person will vote, this constitutes evidence supporting our expectation that the two variables are related. It tells us that more educated people are *systematically different* from less educated people when it comes to voting. The first thing to look for in assessing a hypothesis, then, is whether the two variables are *statistically related*.

### *What Type of Relationship?*

*How* are the two variables related? Are more educated people more likely or less likely than less educated people to vote? Or is the relationship between the variables even more complex? If we have thought through our hypothesis so that we have some reasons to expect the level of education to be related to voting, we might argue, for example, that having more formal education increases the likelihood of someone having the skills and information needed to support an interest in politics. Accordingly, a more educated person is more likely to vote than is a less educated person. This type of relationship is illustrated in [Figure 1.1\(a\)](#), where points on the line represent corresponding values on the two variables.

However, our study of the literature on voting may lead us to argue that the more educated one becomes, the more one comes to believe that political activity is futile. Education, in this view, gives rise to disillusionment, which in turn reduces the inclination to vote. Here we expect voting to be more frequent among the less educated of our subjects. This type of relationship is illustrated in [Figure 1.1\(b\)](#).

Or, we might even argue that education contributes to skills and interests to a point, but that those who are educated beyond that point (for example, those who graduate from college) become increasingly disillusioned and less interested in politics. Here we expect voting to be most frequent among those of moderate educational attainment, with lower levels of voting at either extreme. This more complex relationship is illustrated in [Figure 1.1\(c\)](#).

In each instance a relationship exists between a person's level of education and their likelihood of voting, but clearly the implications of these varying relationships are different.

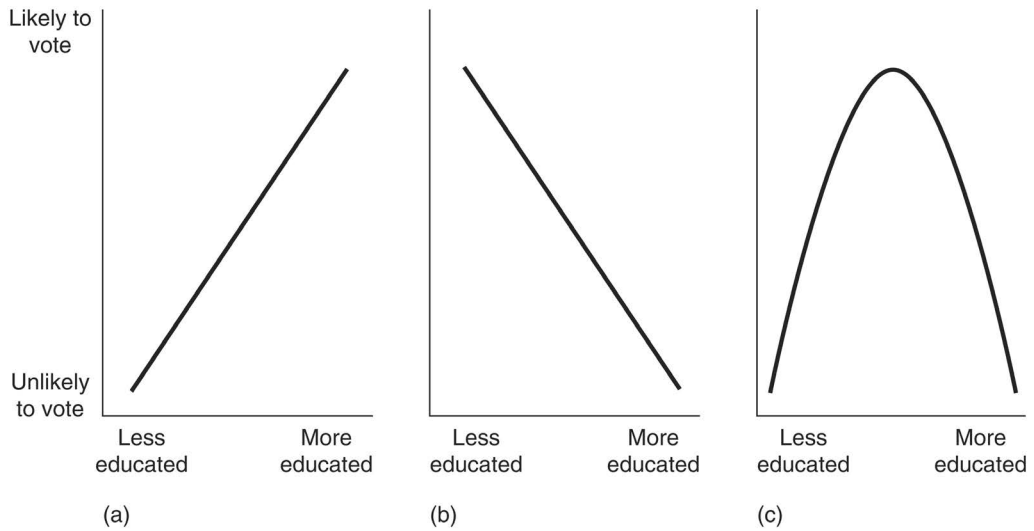


Figure 1.1 Possible relationships between individuals' level of education and their likelihood of voting

### Confidence in Findings?

How likely is it that the relationships we find in a sample also occur in the population from which those cases were drawn? This is simply a statistical way of asking how good a job we have done in ensuring that our small sample is representative, or typical, of the larger population. If we have properly selected the cases to be studied, then we can say with confidence that our conclusions, though based on only a few cases, may be applied to all cases. If we have made errors, we may be less confident. Of course, as will be emphasized in [Chapter 8](#), when conclusions are based on a sample of the population, we can never be *totally* certain of them. You will see later in this book, however, that there are ways to assign a number to how sure we are that our results can be generalized.

### Interpretation of the Results

Finally, we reach a point where we must put all the pieces together. Have we succeeded in actually asking the research question that we set out to ask? What answer have we discovered? How much confidence do we have that this is a factually accurate answer? What is the substantive importance or practical utility of our findings? In essence, we have reduced some aspect of political behavior to a set of detailed qualitative data, or to numerical quantitative data. Now, though, we must decide what our data tell us about our research question and the real-world events they represent.

But there is more: We must also look back with a critical eye on our research itself. Have we managed to keep a close relationship between our theory and our research, on the one hand, and the reality of political activity, on the other? Can we credit any of our apparent findings about the real world to the things we have done (or have failed to do) in our research, rather than to actual events? These are difficult questions to answer, but you must address these issues before your others will know how much confidence to place in the product of the research. Later in this book, we will describe ways to determine the chances that your results are valid.

## Do I Need to Know About Research Methods?

Students may wonder if studying research methods will help them in their future life and career. For the following reasons, the answer is clearly “yes”!

- 1 Yes, because within your social science major, you will be doing research and reading research. Learning how research is conducted through hands-on experience prepares you to read research efficiently and analytically in other courses.
- 2 Yes, because many of you will attend graduate school at some point. Graduate programs in management, public administration, medicine, and many others require students to use the skills taught in this book to interpret or conduct scientific research.
- 3 Yes, if you become a lawyer. Federal judges frequently apply social science data to rulings. As [Watson \(2009\)](#) notes, lawyers who have a strong command of research skills have an advantage in arguing their cases. In *Daubert v. Merrell Dow Pharmaceuticals* (1993), the Court found that judges must determine whether scientific evidence is gathered following appropriate methodologies. Thus, both judges and the lawyers arguing before the judges must be well versed in the relevant research methods.
- 4 Yes, because we use research skills in daily life. An understanding of scientific research can be used in a variety of ways, from analyzing school quality in certain neighborhoods, to gathering information to help you choose which candidate to support in an election.

### Research Exercise

#### *Evaluating Research Evidence: Health Advice from Talk Shows*

Every day we’re confronted with a flood of information. We constantly make choices about this information based upon our evaluation of its plausibility, how well it conforms to our current understandings, or its source. Similarly, in science we filter information but we evaluate the evidence more systematically.

To learn scientific information processing and to get used to evaluating information’s trustworthiness engage in the following exercise:

- 1 Watch enough episodes of one of the talk shows on one of the major television networks to encounter someone giving health advice.
- 2 Write a one- or two-sentence description of two products or techniques about which medical or health claims are made.
- 3 Answer these questions about each health suggestion or claim that you noted:
  - a Who made each claim? What are their qualifications in this area?
  - b What evidence was offered to support the claim?
    - I Were these anecdotes (isolated stories) or reports of larger studies?
    - II Were the claims systematically evaluated? If so, by whom?
    - III Was “science” mentioned? If so, was the reference favorable or derisive?
  - c Did the host seem to favor systematic or anecdotal studies or evaluations?
- 4 Tell why you find the presented evidence persuasive or not persuasive and what you would need to see or hear to make the evidence more persuasive.

## Conclusion

This book will introduce you to a systematic way to begin to understand your world and to evaluate others' understanding of it. You will learn how to frame questions more precisely, conduct research to find answers, and present your findings in an effective and professional way. This chapter's brief overview of the six stages of the research process will give you an idea of what social scientific research is like and what this book is about. The same skills that go into creating quality research may also be applied to developing critical skills in evaluating "factual" claims made by others. This is an ability that anyone with an interest in important issues in politics and society should possess.

## Key Terms

empirical 2  
quantitative 2  
normative 2  
qualitative 2  
scientific research 3  
basic research 4  
applied research 4  
operationalization 4  
generalizability 6  
reactivity 6  
data 7

## Research Example

Rarely is every part of the research process described in great detail in published work, because most authors reserve scarce printed space for their findings. However, explicitly identifying each of the components of a published research report may serve to guide the reader through the work and make it accessible to a wider audience. For example, in their article on the relationship between who sits (e.g., elected officials or managers) on metropolitan planning organizations and whether they pursue local or regional goals in their distribution of federal transportation funding, Elisabeth Gerber and Clark C. Gibson (2009) begin by noting each component of the research at the end of the article's introduction. Throughout the article, the authors clearly explain each step in the development of the project, from building the theory from the existing literature, to data coding and merging, to sample selection, to interpreting the results.

## References

- Gerber, Elisabeth R., and Clark C. Gibson. 2009. "Balancing Regionalism and Localism: Institutions and Incentives Shape American Transportation Policy." *American Journal of Political Science* 53(3): 633–48.
- Roethlisberger, Fritz J., and William J. Dickson. 1939. *Management and the Worker: An Account of a Research Program Conducted by the Western Electric Company, Hawthorne Works, Chicago*. Cambridge, MA: Harvard University Press.
- Watson, Wendy. 2009. "Teaching Research Methods to Pre-Law Students." Paper presented at the annual meeting of the Teaching and Learning Conference of the American Political Science Association, Renaissance Baltimore Harborplace Hotel, Baltimore, MD, February 6.

# Building Theories and Hypotheses

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## In this chapter, you will learn:

- Why we use theories to guide our research
- The difference between descriptive and explanatory research
- The roles of induction and deduction in developing theory
- The characteristics of useful theories
- The distinction between covariation and causation
- How to state a hypothesis
- How we elaborate theories using hypotheses

Theory building may sound like an alien concept, but you already regularly develop and use your own informal theories to interpret your world and to operate better within it. For example, as a college student, you might make note of the kind of questions that show up on the exams in a given course and develop a set of expectations about what material will and will not be covered on future tests. In doing this, you are devising an informal “theory” of the instructor’s behavior that will help you predict how to study for upcoming exams.

This chapter teaches you how to take your informal theory-making skills and direct them toward building explanatory theories to guide research. It also shows you how to derive testable hypotheses from your theories so you can see if your explanations of events hold up when applied to the real world.

## Descriptive versus Explanatory Research

It is crucial to begin with a distinction between research that is done to *describe* reality and research that aims to *explain* it. Science is based on facts. To know what the facts about any phenomenon actually are, it is usually necessary to do systematic research rather than depending on informal accounts, which may be inaccurate or incomplete. This involves carefully defining what we are trying to measure (the value of industrial exports from a nation, the rate of violent crime in a city, the number of displaced persons in a war-torn country, etc.) and developing a system for obtaining complete and accurate measures of it. When our goal is simply to gather valuable facts, we are doing **descriptive research**.

Descriptive research can be essential to developing an understanding of the world because it can provide accurate information about what is and what is not. These facts alone, however, *do not explain why things are as they are*. For that, we must engage in **explanatory research** aimed at testing theories

of cause and effect in the world. The rest of this book will focus on doing explanatory research because that is how scientific progress is made. If we want to know what will happen to some variable (like the rate of homelessness or the amount of foreign investment in a nation) in the future, we will need to understand not only existing facts, but the processes that influence the variable.

### The Purpose of Theory

Transforming a general **research question** into a specific one requires developing some plausible explanations for what we observe. To illustrate, if we begin with the very broad research question of “Why do some people support environmental protection measures, while others oppose them?” we might reason that people’s position on environmental protection is influenced by how they think these measures will affect their income. Some industries benefit from environmental protection measures, while others are constrained by them (at least in the short run). So the impact of environmental protection on a person’s income may be determined by where they work and how that firm is likely to be impacted by environmental protection policies.

This kind of reasoning helps put us in a position to begin scientific inquiry. We can apply logic and information that we already have about empirical relationships to reason out a set of things we expect to be true if our tentative explanation is valid. We can then devise ways to make observations that will allow us to answer these questions and, when we have explored enough specific questions, to answer our initial research question.

When we attempt to *create possible explanations for events*, we are **theorizing**, or developing a theory. Theories direct the research we do to determine if our understanding of events is correct. This is why theory building is the first stage in the research process and why it is essential that we understand the relationship between theory and research if we are to conduct sound research and produce useful knowledge.

### Theories Guide Interpretation

Without a sound theory, we will not be able to tell why our research results provide an answer to the research question we have posed. Suppose we begin research with only the general question stated earlier. If we ask a properly selected sample of Americans about their position on environmental protection and a series of questions about their personal characteristics, we can use our results to *describe* the kinds of people who support and oppose environmental legislation, but we cannot tell *why* they support or oppose it. If, on the other hand, we start with a theory that offers an explanation of why people support or oppose environmental protection policies and ask questions to check on the accuracy of the expectations that logically follow from this theory, our results will contribute to our understanding of why people take the positions they do.

To illustrate, say that we theorize that people’s first concern is their immediate economic well-being and that their position on public policies is determined primarily by their perception of how proposed legislation will affect their income. One expectation or prediction that logically follows from this line of reasoning is that people who expect to be financially hurt by environmental protection laws will oppose them, whereas those who expect to be helped by these laws will support them. If our theory is an adequate explanation of how people develop attitudes about environmental protection, this prediction should accurately describe real-world relationships.

We can then get an idea of the usefulness of our theory by asking people about their position on environmental protection and their perception of its effect on their income to find out whether the prediction is consistent with what we learn about actual relationships. If the research is correctly done and the prediction is supported, we are encouraged to believe that we have developed a sound theory of the behavior in question. If the prediction is shown to be wrong, we have reason to believe that this is not likely to be a useful theory, and we can begin to explore other possible explanations.

Whether we start our research with a theory or without a theory, it may produce the same facts. But the facts will contribute to our understanding of how the world works *only* if we can tie them together through a theory. Theories provide sets of reasons why facts should be connected in given ways. Therefore, *theories make facts useful by providing us with a framework for interpreting them and seeing their relationships to one another.*

This chapter is designed to help you understand how theories are developed and how they are used to guide research. When you have finished the chapter, you should be able to begin thinking about political and social questions in ways that will prepare you to undertake systematic empirical research in order to find valid answers to those questions.

## The Nature of Social Science Theory

**Theories** are *sets of logically related symbols that represent what we think happens in the world.* They are simply intellectual tools. Understanding this is important because it helps us realize that theories are neither true nor false in any absolute sense, but only more or less *useful.* You cannot expect to discover a theory the way an explorer discovers a new island. Why? Because theories do not exist “out there” waiting to be discovered. They are the products of human imagination, hard work, and sometimes good fortune.

Theories help simplify reality so that we might understand it in order to control it or adapt to it. Theories do this by providing a logical basis for expectations or predictions about the world that can be compared with reality through research. When our predictions are supported by evidence, the theory that provides a basis for those predictions is also supported, and our confidence that we have a grasp of the way things work is increased. When our predictions are inaccurate, we have to question our understanding of events and look for ways to improve it.

If theories are essential to sound research but cannot be discovered by simply looking at accumulated data, how can we go about building a theory to guide our quest for an understanding of some aspect of political life? The answer is not simple, because theories are developed in a variety of ways. There is no specific set of procedures to produce a useful theory in the same way that there are a set of steps to follow in building a functional doorway. We can, however, explain the major ideas and stages commonly involved in theory construction. The first of these stages is the *conceptualization of the problem.*

## The Logic of Theory Building

Beginning with the event or behavior we want to understand, we must first ask ourselves what we know about the phenomenon that might help us explain it. Insights might be gained from personal experience, informal observation, or creative thinking. More often we will need to investigate systematically *what other researchers have found about the subject* in what is referred to as a literature review. Without such knowledge, we might fail to understand what is to be explained, or we might not have a clue where to begin looking for relationships that can be used to explain the events. An example might highlight the importance of having a thorough knowledge of the facts to aid our research conceptualization.

## An Example of Theory Building

The massive riots that took place in many U.S. cities in the late 1960s deeply worried many Americans. Social scientists were asked to investigate the causes of the riots. When the riots first occurred, many public officials said they were the acts of a group of poor citizens without stable ties to society. If we had accepted this interpretation and sought to understand the riots, we would have defined our task as one of explaining why so many of these “riffraff”, as they were called, were concentrated in our cities and how they were moved to riot.

As social scientists conducted interviews in riot-torn cities, however, they learned that rioting was not restricted to “riffraff”. In fact, as a group, rioters differed very little from the general black population of those cities (Fogelson and Hill 1986). This fact presented a very different research task from that suggested by the “riffraff” interpretation. We had to try to understand how average citizens with jobs, families, and other ties to society were moved to riot. Subsequent explanations have focused on variables such as African Americans’ reaction to their economic circumstances and perceptions of white racism.

In this case, an inadequate knowledge of the facts could have fundamentally misdirected our theory-building efforts. This shows why *descriptive research* designed to establish the facts is important. It also demonstrates why we must search the literature for information on the phenomena we seek to explain if we hope to develop sound theories.

Once we have the actual facts about an event, how do we construct a theory to explain these observations? We generally begin by searching for *patterns* in the facts that can account for the observed events. For example, we might want to know what causes political protests on college campuses. Answering this question involves explaining what leads students to take part in protests. Having personally known student protesters might provide us with some insights into their motivation, but to develop an explanation of why students at different institutions demonstrate would require information on a much larger number of people. We would be wise to seek data on the characteristics and motives of student protesters *in general* in order to frame our explanation. If we found among a large number of protesters commonalities that set them apart from non-protesters, we might reason that these characteristics led to their participation in demonstrations. The prominence of these characteristics among college students then becomes part of our explanation of why protests occur.

### **Induction**

The process of generalizing from what we have observed to what we have not observed is called **induction**. Theories built through inductions from observations are considered to be *empirically grounded* because they are based on observed reality.

In the process of induction, we reason from what we know to be the case in some situations to what might be the case in other, similar situations. That is, we make a logical leap from what we have seen to a prediction about what we have not seen, based on the assumption that there is some constant underlying pattern to events in the world.

We all use induction in our daily lives. For example, if we observe that an elevator door opens shortly after we push a button on the wall, we will quickly draw the conclusion that pushing wall-mounted buttons *causes* elevator doors to open. This is an inductive generalization from the few cases we have observed (pushing a specific button outside a particular elevator) to cases we have not observed (pushing a button on the wall outside of elevators in other buildings). The process of induction is diagrammed in [Figure 2.1\(a\)](#). This diagram suggests how inductively constructed theories are grounded in facts.

There is more to theory building than induction, however, because pointing out facts does not provide an explanation unless we can show *why* those facts have led to the observed results. We must be able to identify *the mechanisms of causal linkage*.

To return to the example of student protest, suppose we find that protesters tend to be more dissatisfied with public policies than non-protesters and that protesters also tend to have far less faith in the effectiveness of conventional politics in getting policies changed. Stating these facts constitutes an explanation of protest only if we are able to show how such attitudes could lead to protesting. Showing this might involve making some *assumptions* about political behavior. Specifically, it might involve assuming that people will act to change policies they strongly oppose and that they will resort

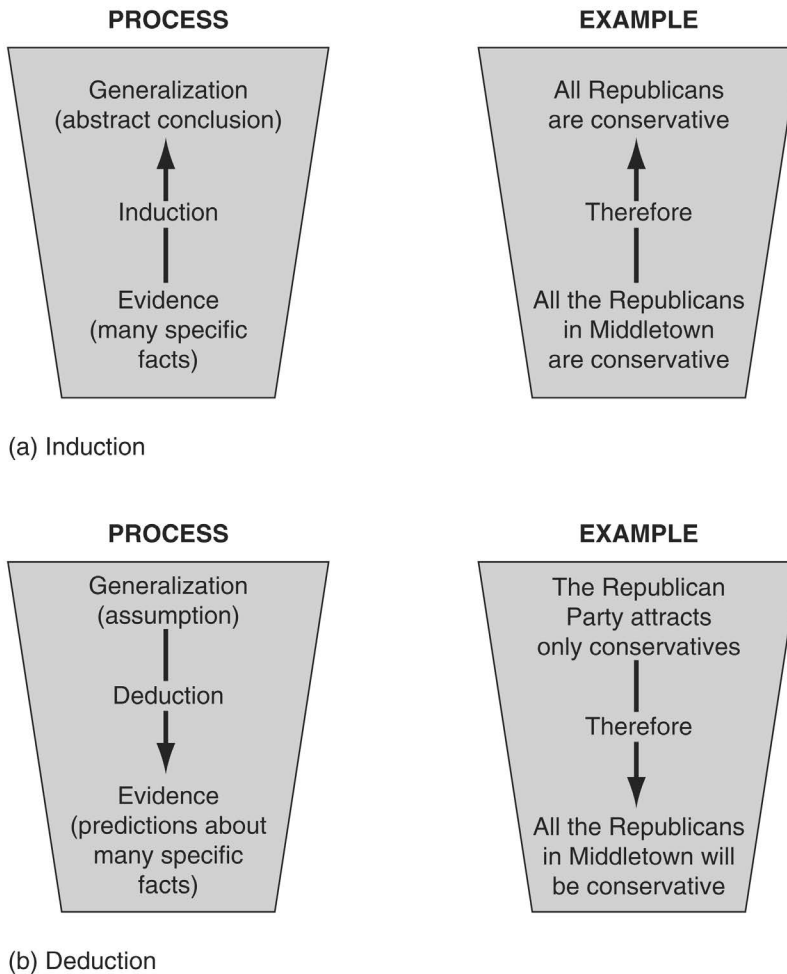


Figure 2.1 Diagrammatic representation of inductive and deductive reasoning

to protest behavior if they feel that conventional political participation (voting, letter writing, etc.) will not alter those policies.

These **assumptions** (sometimes called *axioms* or *postulates*) describe the conditions under which we expect the tentative explanation we have reached to be supported by evidence. They explain why we expect student protests from what we know about students on college campuses by making general statements about political behavior under certain conditions. We can now explain a specific behavior (protest) by showing that it *follows logically from a set of theoretical assumptions*.

### Deduction

Deductive reasoning is the reverse of inductive reasoning. **Deduction** moves *from abstract statements about general relationships to concrete statements about specific behaviors*. Most of us routinely use deductive logic. If, for instance, we have developed a general idea that pushing a button next to elevators causes the door to open, then when confronted with an elevator and a button on the wall, we will deduce that the way to enter the elevator is to push the button. We have moved from a generalization

(that elevators respond to wall-mounted buttons) to the prediction of a specific event (that a given elevator will open when a specific wall-mounted button is pushed) by deduction. This process is diagramed in [Figure 2.1\(b\)](#).

*Deduction is the process that enables us to use theories to explain real-world events.* If we can show through deduction that some observed event can logically be predicted from the set of assumptions that constitute our theory, then the theory provides an *explanation* for the observed event. The theory helps us to understand the event by *giving a reason why it occurred* in the way it did. The role of deduction is to provide this link between the theory and our observations. It is what makes research explanatory rather than simply descriptive.

### **Theory Construction**

The process of theory construction involves the interaction of both inductive and deductive logic in the following stages: (1) We use induction to translate what we have observed into assumptions; (2) we employ deduction to derive predictions about things not yet observed from those assumptions; (3) we test these predictions against new observations; and, if necessary, (4) we revise our assumptions to make them consistent with the results of our observations and we make new predictions based on the revised assumptions. Then we test the new predictions in an effort to make the theory increasingly useful as a tool for understanding events.

We can generally come up with many possible theories to explain a given event. The question we must ask is: Which of these theories is most useful in helping us understand the world? Which theory leads to the most accurate predictions? Answering these questions will require that we test alternative theories against reality.

Before we can discuss *theory testing*, it is important to understand two things. First, we have to know what features make a theory useful so that we can know how to go about building valuable theories. Second, we must know how the components of a theory are related to each other and to empirical research.

### **Characteristics of Useful Theories**

For a theory to be useful in explaining observations, it must satisfy several criteria:

- 1 It must be *testable*. Can we reason from the theory to expectations about reality that are *concrete and specific* enough for us to make real-world observations that are either consistent or inconsistent with the expectations?
- 2 It must be *logically sound*. Is the theory internally consistent? Are its assumptions compatible with each other, and are the terms it contains unambiguous?
- 3 It must be *communicable*. Can other, properly trained people understand the theory in ways that allow them to use it to explain events and to test hypotheses derived from it?
- 4 It must be *general*. Is it possible to use it to explain a variety of events in different times and places? Can we deduce predictions from it that can be tested in different circumstances, or is it tied too closely to a single set of observations?
- 5 It must be *parsimonious*. Is it simple enough to be readily applied and understood, or is it so complex, so filled with conditions and exceptions, that it is difficult to derive explicit expectations about real-world events from it?

Theories can have each of these desirable characteristics to different degrees, and sometimes we have to choose among them in developing a particular theory. For instance, we may have to sacrifice some parsimony in order to obtain more generality or testability. However, we have to keep

all these desirable features in mind when formulating theories if the products of our labors are to be truly useful.

## Components of Social Science Theory

Theories are composed of sets of *concepts* that are related by *propositions* logically derived from a set of *assumptions*. This is the **logical structure** of a theory. It is this structure that allows us to use the theory to explain events, because it allows us to give reasons why we can expect things to be as they are.

### Defining Concepts

The quest for useful theory begins with the building blocks of theories: Concepts. A **concept** is merely *a word or symbol that represents some idea*. There is nothing mystical about concepts. We use them every day to help us cope with the complexity of reality by categorizing the things we encounter according to some of their properties that are relevant to us. Assigning a name to something allows us to predict certain things about it, because the name is a symbol for particular combinations of properties. For example, we expect very different things from a creature called a cow than we expect from a creature called a dog.

Social science concepts serve the same purpose. They point to the properties of objects (voters, political systems, armed conflicts, etc.) that are relevant to a particular inquiry. One researcher might be interested in a person's personality structure, another in their partisan identification, and a third in the person's level of political activism. The person has all of these properties (a personality, a party identification, and an amount of activism) and many more, but only certain of the properties are relevant to any given piece of research. All three observers are dealing with the same reality; they simply choose to organize their perceptions of it differently.

### Making Concepts Useful

Concepts, like theories, are tools that we create for specific purposes. They cannot be labeled as true or false, but only as more or less useful. What makes a concept useful? There are three major considerations.

First, because we are involved in *empirical* inquiry, the concept must refer to phenomena that are at least potentially *observable*. In medieval times, the concept of "divine will" played an important role in explanations of events. We cannot empirically verify such explanations, however, because we cannot observe divine will to tell whether it is present or absent in any given case. If it is to have any scientific value, a concept must refer to something that can be *measured with our ordinary senses*.

This does not mean that all concepts must refer to *directly* observable things. Some of the most useful concepts in the social sciences refer to properties we cannot observe directly. For example, nations do not have authoritarian or democratic political systems in the way that they have mountains or deserts, but we can *infer* the degree of democracy that exists in a nation by observing certain things about its political life (the nature of elections and legal provisions for civil liberties, for instance).

We have to ask if we can devise a set of procedures for using our senses to gather information that will allow us to judge the presence or absence or the magnitude in the real world of the thing to which a concept refers. If we can do this for a concept, it is said to have **empirical referents** because it refers to something that is directly or indirectly observable.

Second, in addition to having empirical referents, concepts must be *precise*. They must refer to one and only one set of properties of some phenomenon. We must be able to know exactly what we are talking about when using a concept to describe an object. For instance, is the degree of inequality in

the distribution of wealth in a nation part of what we are referring to when describing a nation's political system as democratic or authoritarian, or is the nature of the political system determined exclusively by other factors? Precision is important because it tells us what to observe in order to see how a concept is manifest in any given case. Only if we can determine this can we use the concept in empirically grounded explanations.

### Practical Research Ethics

#### *How Will Your Work Be Used?*

Responsible professionals should always consider how their research might be used. Although scientific theory is inherently value-free, you should be concerned about whether the knowledge you generate will be used for positive or negative purposes.

Implicitly or explicitly, social science always involves humans. Thus, it is unrealistic to pretend that people's lives could never be affected by your research, whether it explores media messages, interest groups, or executive power. How would you feel if someone used your research to manipulate voters through the media during a political campaign? What if a government in a developing nation realized, through your research findings, that human rights groups could be silenced without provoking a popular backlash, as long as the government maintains economic prosperity? You cannot assume that your research cannot have consequences for real people's lives, and you should choose your research focus with the understanding that knowledge can be used for both good and vile ends.

Precision also helps us identify our empirical referents and make distinctions among observed phenomena. If democracy means *only* the presence or absence of regular elections for public officials, then the former Soviet Union and the United States were both technically democracies during the Cold War. Do we want to treat these two nations as examples of the same kind of political system for purposes of our research? If not, then we need to refine the concept, making it more precise, so that we can draw a distinction in our study between the two nations.

Finally, useful concepts have **theoretical import**. A concept has *theoretical import* when it is related to enough other concepts in the theory that it plays an essential role in the explanation of observed events. In our hypothetical explanation of student protest, we employed two concepts. One was the *intensity of public policy preferences*, and the other was the *perception of the effectiveness of conventional political action in changing public policies*. These two concepts were tied together by the assumptions that people will act to change policies with which they strongly disagree and that they will turn to protest when they feel that other means of influence will not bring results. Given these assumptions, finding the particular combination of attitudes we have referred to among a group will lead us to expect protest behavior. Each concept is essential to the explanation and is linked both to the theoretical assumptions and to the other concepts. Each concept has *theoretical import* because it plays a necessary role in our explanation.

### Relationships in Social Science Theory

Theory makes concepts useful by positing relationships between them. These statements take the form of **propositions** derived from our assumptions. Propositions generally posit one of two major types of relationships among concepts. These are *covariation* and *causation*.

**Covariational relationships** indicate that two or more concepts tend to change together: As one increases (or decreases), the other increases (or decreases). Covariational relationships tell us nothing about what causes the two concepts to change together. For instance, we might predict that the level of political information and the likelihood of voting covary, so that as one increases, so does the other. But are people more likely to vote because they have more information, or do they gain information because they intend to vote and want to make a sound decision? Alternatively, are both the information level and the likelihood of voting the products of some third factor, such as a perceived civic duty to participate in elections? The covariational proposition does not tell us.

**Causal relationships** exist when changes in one concept lead to or cause changes in another concept. For example, the stronger one's party identification, we might argue, the more likely one is to vote. Feeling oneself to be a member of a party can lead one to vote, but the likelihood of voting logically cannot create one's party identification.

In scientific research, it is often very difficult to identify the causes or consequences of human behaviors because of the complexity of social events. Moreover, the more important the event, the more difficult it usually is to isolate its causes since larger phenomena are more complex. What factors, for example, bring on a war, cause a social movement to form, or lead to the creation of a new political party?

### **Testing Causation**

Because of such complexities, we must be careful to postulate causal relationships *only when four conditions are simultaneously met*. First, the postulated cause and effect must change together, or covary. Second, the cause must precede the effect. Third, we must be able to identify a *causal linkage* between the supposed cause and effect, meaning that we must be able to identify the *process* or *mechanism* by which changes in one factor cause changes in another. Fourth, the covariance of the cause-and-effect phenomena must not be due to their simultaneous relationship to some third factor.

**Spurious relationships** occur when two events (let's call them A and B) vary together only because they are both caused by a third event (which we can call C). If they would not covary in the absence of C, the apparent relationship between A and B is termed *spurious*. We must carefully examine the assumptions we are making in an effort to uncover possible spuriousness in relationships before we build them into our theories as a causal interaction.

A hypothetical instance of spuriousness is a case in which an investigator first finds that the price of imported rum and the salaries of ministers in the U.S. fluctuate together and then reasons that changes in the price of rum cause changes in ministers' salaries. It is more likely that both rum prices and ministers' salaries change in response to changes in general economic conditions and overall price levels. The relationship between the first two variables is covariational, but it is not causal.

It is important to recognize two other features of social causation. First, one phenomenon may cause another either *directly* or *indirectly*. For example, X may cause Z only in that it is the cause of Y, which directly causes Z in what is known as a *causal chain*. We must be alert to the role of **indirect causation** in attempting to make our theories as complete as possible.

Second, we must be sensitive to the fact that human behavior generally has more than one cause. In theorizing, we should avoid oversimplifying and recognize the role of **multiple causation**. This simply means that any one event may have several different causes and that many events sometimes must come together to cause a given occurrence. To illustrate, in the student protest example earlier, at least two attitudes (strong feelings about public policy and a lack of faith in the effectiveness of conventional political action) had to come together to cause students to protest. Holding either of these two opinions alone would not lead someone to protest.

To cope with all of these complexities, it is generally a good idea to draw a **causal model** of the theory. This is simply a diagram that clearly specifies all the relationships posited in the theory

so that it is easier to see the implications of our arguments. [Figure 2.2](#) presents an example of such a model. Each arrow in the model represents a causal influence, and the direction in which it is pointing indicates which variable is theorized as dependent and which as independent. The theory diagrammed in [Figure 2.2](#) asserts that a variety of factors influence a representative's decision to vote for or against welfare legislation in both direct and indirect ways. For instance, the size of the poor population in the representative's congressional district is depicted as influencing welfare voting both directly and indirectly through the electoral competitiveness of the district and the seniority level of the representative.

Although our theories typically specify a causal relationship between our concepts, we rarely encounter social science data that can establish definite causation. Research designs and data analysis techniques that can help to identify causal relationships are covered later in this text.

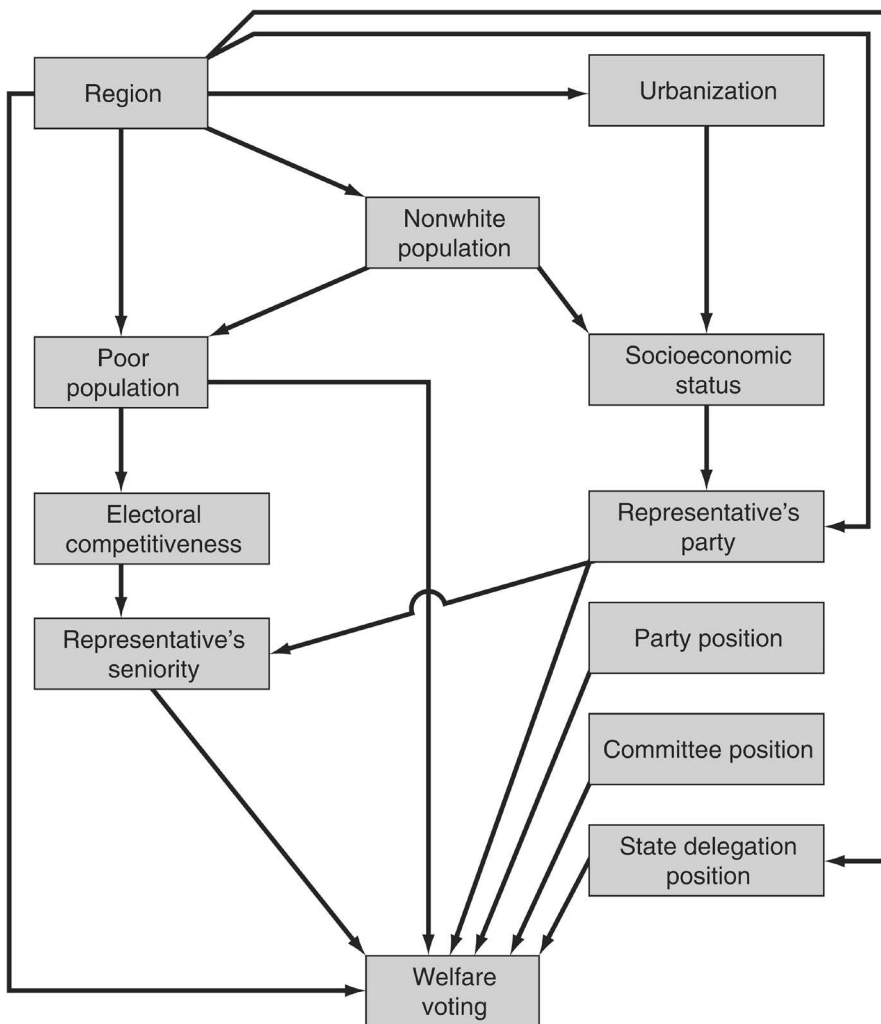


Figure 2.2 Causal model of the determinants of representatives' support for welfare legislation in the U.S. Congress

Source: Rich (1984, 135). Reprinted with permission.

### ***Positive and Negative Relationships***

Both covariational and causal relationships can be either *positive* or *negative*. This means that the values of the two concepts can change either in the same direction or in opposite directions, respectively. An example of a **positive relationship** is as follows: The *higher* the relative deprivation of minority groups within a society, the *higher* the likelihood of political violence in that society. The two factors move in the *same* direction. A **negative relationship** may be posited as follows: The *higher* the degree of political alienation one feels, the *lower* the likelihood that one will take part in conventional political activities. The two factors move in different directions. Our theories must specify whether we expect positive or negative relationships among concepts. This information can be added to causal diagrams by placing a plus (+) or minus (−) sign on each arrow in order to indicate whether the relationship is thought to be positive or negative.

### **Theory Testing and Elaboration**

Theories must never be regarded as finished products, but always as tools that should occasionally be inspected and can often be improved. We start with a research question that asks for an explanation of observed events. We select concepts that promise to be useful in explaining those events, and we relate the concepts through propositions logically derived from a set of assumptions we make in order to secure an explanation. Now we must ask if this lovely structure is of any use? We must test its utility to know how much confidence to place in it and to persuade others of its value.

**Theory testing** is *at the center of the research process*. Because our theories are generally developed from bits of knowledge about actual relationships, the task of theory testing is essentially to use the theory to formulate some expectations about other relationships we have not observed and then to see whether actual observations are consistent with what we expect to find.

In the elevator example, after observing the elevators in one building, we will be quite confident that the elevators in that building operate in response to a system of wall-mounted buttons. We might generalize from our observations to the prediction that all elevators work this way. We can check the validity of that conclusion only by actually trying it out in other buildings.

We can never actually prove that our theory of elevator operation is correct because we can never observe all the elevators in the world. If we see more and more elevators that do work this way and we don't encounter any that do not, our confidence in the validity of our generalization will increase. If we cannot find other elevators that work by wall-mounted buttons, however, we will quickly conclude that we have been mistaken in generalizing from the initial observations to all other elevators. Theory testing in the social sciences works by the same principle. We must move from what we have observed in devising the theory to what we have not observed in order to discover whether or not the theory provides us with an accurate set of expectations about the world.

Suppose, for example, that we want to construct a theory to explain voting behavior. We review previous research on the subject and discover that, for citizens of the United States, higher education is positively related to the propensity to vote. On the basis of these observations, we include in our theory an assumption that higher educational levels lead to a greater likelihood of voting. We know that these factors are related in the United States, but what about in other nations? Could there be something unique to the educational system or the complexity of voting in the United States that causes this relationship? The only way we can find out if this is *a general rule of human behavior* is to observe the behavior of people in other nations.

The more often we find evidence consistent with the prediction, the more confident we will be that our theory is useful in predicting human behavior. We can never be absolutely certain that the theory is "true" because we can neither observe all cases nor be sure how the empirical relationships

might change with time. But we can acquire more or less confidence in the utility of the theory by comparing the predictions derived from it with observations. If it allows us to accurately predict things we have not previously observed, then it is useful. Alternatively, our confidence diminishes as we accumulate observations that are inconsistent with theoretically derived hypotheses.

## Research Exercise

### *Developing an Explanatory Theory*

An explanatory theory includes a relationship between at least two concepts and offers at least one plausible explanation of that relationship. For this exercise, you will write a very brief explanatory theory:

- 1 Find a news story that discusses changes in at least two concepts, such as food shortages and political unrest.
- 2 Following the guidelines in this chapter, write a one-sentence “theory” that states a relationship between the two concepts from the news story.
- 3 Write another one-sentence “theory” that uses a third concept to explain the relationship between the first two concepts (showing that the initial relationship is spurious).

## The Role of Hypotheses

**Theory elaboration** is based largely on a process of comparing hypothesized conditions with reality and, once we have the results, modifying our theory so that the hypotheses that can be derived from it are more and more consistent with what we actually observe. To understand this, we must consider how theories are translated into hypotheses that can guide empirical investigations and provide us with clues to the adequacy of our theoretical explanations.

### *Hypotheses Defined*

Hypotheses are essentially statements that tell what we *expect* to find when we make properly organized observations of reality. A **hypothesis** is a *declarative statement* that identifies a *directional relationship* between *variables*. Hypotheses are usually stated in the following *general form*:

The higher (lower, larger, slower, less frequent, more intense, etc.) the \_\_\_\_\_, the higher (lower, larger, slower, less frequent, more intense, etc.) the \_\_\_\_\_.

The blanks above are to be filled in with the names of the phenomena that we expect to change together. For example, let’s say we have a theory that U.S. voters who have a more conservative ideology are more likely to be Republicans, because the Grand Old Party (GOP) is known to promote conservative ideas. From this theory, we might construct the following hypothesis. This is a covariational hypothesis. It does not tell us how partisan identification is determined, but it does point us to

something that we can observe in an effort to acquire some evidence on the fit between our theory and reality.

People who self-identify as politically conservative are more likely to self-identify as a Republican.

Acquiring that evidence through empirical observation requires that we move from the very general level of theory to the more specific level of observations. In doing this, we have to begin to think in terms of *variables*. A **variable** is *an empirically observable characteristic of some phenomenon that can take on more than one value*. Nationality is a variable that can take on only a limited number of values and can be “measured” only qualitatively by designations such as “Polish” or “Indonesian”. Age and gross domestic product are two variables that can take on a much wider range of values; they can be measured quantitatively by counting years and the value of products.

### **Concepts into Variables**

To facilitate empirical testing, abstract concepts must be translated into more precisely defined variables. For instance, the concept of *political pluralism* is important in political science. In order to test the empirical accuracy of any statement relating political pluralism to anything else, we have to translate the concept into some variable or set of variables with clear empirical referents. For example, we might use *the number of organized interest groups active in a nation* as a variable to represent the concept of political pluralism in our research. We can then reason backward from our observation of relationships among variables to evaluate the empirical validity of statements about relationships between concepts. If we are willing to assume that the variable *number of organized interest groups* captures the essential meaning of the concept of *political pluralism*, we will be willing to take evidence that this variable is related to some other variable (such as the level of government expenditures on domestic programs) as evidence that the concept of political pluralism is also related to that other variable and the concept it represents.

### **Independent and Dependent Variables**

Variables have a central place in the research process for two reasons. First, they help us identify what we will have to observe to test our theory by providing more precise empirical referents. Second, we can organize our observations by knowing the role variables play in hypotheses. Variables that are thought to change value in response to changes in the value of other variables are referred to as **dependent variables (DVs)**. Variables that influence the value of other variables through changes in their own values are referred to as **independent variables (IVs)**.

### **An Example**

Whether a variable is dependent or independent is determined by the relationship asserted by the hypotheses containing it. The same variable might be dependent in one study and independent in another.

For example, a theorist observing the lobbying efforts of interest groups might reason that the larger the number of organized interest groups in a nation, the higher the level of government expenditures will be. In this case, the number of groups is the IV and the level of governmental expenditure is the DV. This relationship is described in [Figure 2.3](#).

An IV's change in value must precede changes in the DV. For example, we might observe an increase in government spending between 2000 and 2010 and also see a positive change in the

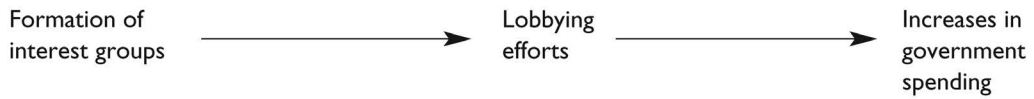


Figure 2.3 Interest group activity (independent variable) leads to higher government spending levels (dependent variable)

number of organized groups between 2010 and 2020. Logically, this subsequent surge in interest group formation cannot have been responsible for a change in the level of expenditures that preceded it. In fact, these observed data should prompt a reconsideration of our hypothesis in Figure 2.3, and (perhaps) a theoretical reformulation that accounts for this phenomenon.

### Intervening Variables

A close look at Figure 2.3 alerts us to another type of variable important in social analysis. In the theory summarized by the diagram in Figure 2.3, lobbying activity is an intervening variable because it comes into play *between* the number of organized interest groups and the level of government spending. **Intervening variables**, also called mediator variables, provide a link between independent variable and DVs. In this case, interest groups would not affect the level of government spending if they did not engage in lobbying to get funds appropriated to their causes.

Intervening variables *condition* the relationships between other variables. This means that the value attained by intervening variables can affect the strength and direction of relationships between other variables. If lobbying activity is slight in Figure 2.3, then the relationship of interest group organization to public spending is weak. If lobbying is extensive, the relationship between the other variables will be strong.

Because intervening variables condition relationships between other variables, our knowledge of the role they play will affect our expectations about relationships between variables. If we are theorizing that lobbying intervenes between group organization and increases in spending, then we can make the following predictions:

Interest group organization will be positively related to increases in government spending when lobbying activity is vigorous.

Interest group organization will be related only weakly to increases in government spending when lobbying activity is highly limited.

We will not be satisfied to predict simply that interest group organization will be related to increases in government spending, because we believe that how strongly the two variables are related depends on the value of the intervening variable – lobbying. For this reason, we must specify the order of relationships and the role played by each variable in our theories.

### Antecedent Variables

Whereas intervening variables come *between* independent and DVs, antecedent variables come into play *before* the IV does. For instance, we know from studies of voting behavior in the United States that people who identify strongly with a political party are more likely to vote than those who do

not. We might then want to theorize that party identification causes voting frequency. But what causes some people to identify strongly with a party, whereas others do not? Past research has shown that the strength of their parents' party identification plays an important role in people's development of party identification. The strength of parents' party identification then is an **antecedent variable** in the causal chain that produces voting frequency.

Using both intervening and antecedent variables in our theories helps to clarify the *causal chains* at work in creating the phenomena we want to explain. It gives us more of a basis for deriving hypotheses through which we can test the utility of our theories. The more numerous and the more detailed the relationships we postulate, the more predictions we can make about the world, and therefore the more potential tests we have of our theory.

This leads to the question of how we decide what relationships to assert in the form of hypotheses around which to build research projects. We will discuss a more advanced technique for considering the relationships between variables, known as *directed acyclic graphs*, in [Chapter 17](#).

## Formulating Hypotheses

We arrive at hypotheses by either inductive or deductive reasoning. Which one we use depends on the stage we have reached in the research process. If we are still using trial and error to construct a theory, we might develop hypotheses by a process of *inductive generalization*. For example, we might observe that among the states in the United States, the level of popular political participation varies directly with the extent of industrialization, and we might generalize that this relationship between variables is also found when comparing nations. Until we have a theory that shows *why* industrialization and participation are related, however, we cannot use the fact of their relationship as an explanation of political participation.

Hypotheses arrived at inductively can be important in *exploratory research*, which helps us construct theories, but they do not help us explain phenomena. Once we have stated a theory relating our variables in a logically coherent system, we can derive hypotheses from that theory by *deductive reasoning*. Because these hypotheses are predictions about the world that are logically implied by the theory with which we are working, finding support for them helps us explain events. This is because such findings reflect the validity of the theoretical system from which the hypotheses have been derived.

We cannot learn anything new about relationships from deduction alone. Deductive logic is a process by which the information contained in a set of statements can be made explicit. We use deduction to *clarify the implications of our assumptions*, and it is that clarification that produces hypotheses.

The deduction contained in [Figure 2.1\(b\)](#) shows this. If the assumption stated there is correct – that is, if the Republican Party attracts *only* conservatives, then any subset of the members of that party will be conservative also, and because the Republicans in Middletown are members of that party, they, too, will be conservative. The conclusion that all Republicans in Middletown will be conservative is logically implied in the assumption that the Republican Party attracts only conservatives. This is the kind of reasoning referred to when we say that one conclusion “logically follows” from another.

Because hypotheses are derived from theories, in testing hypotheses, we are indirectly testing our theories. Returning to our example, if we interview a properly drawn sample of Middletown Republicans and find that not all are conservative, we will have good reason to question the validity of our assumption. Finding liberals among Middletown Republicans shows that the party does not attract *only* conservatives. We will then want to modify our assumption so that the theory can more closely reflect reality. We may want to change it to read, “The Republican Party tends to attract more conservatives than liberals”. From this assumption, we can derive the prediction “There will be more conservatives than liberals among the members of the Middletown Republican Party”.

If we find a few liberals and many conservatives among Middletown Republicans, we can say that the evidence is consistent with the hypothesis and the modified assumption from which it has been drawn. We still cannot put much faith in the general accuracy of the assumption until it is supported by evidence about the conservative or liberal character of a larger sample of the national Republican Party. After all, Middletown may be unique in some way. Perhaps, for example, there are only a very few liberals in the entire city, and the fact that only a few of the Republican Party's members are liberal is a result of this more than of the relative attractiveness of the party to liberals and conservatives.

The important point here is that evidence about the accuracy of hypotheses represents evidence about the accuracy of a theory *only when the hypotheses are linked to the theory by deductive logic*. Only when this is the case can we safely reason backward from evidence of the validity of a hypothesis to any judgment about the parent theory. Theories are developed, expanded, and improved by this process of logically deriving hypotheses, checking them against reality, and evaluating the theory in light of the results.

### **Alternative Rival Hypotheses**

One type of hypothesis that plays an especially crucial role in theory testing is the **alternative rival hypothesis (ARH)**. There are many possible explanations for any event. Some of these explanations are fully consistent with one another. In some cases, however, the explanations are opposed to one another so that if one is correct, the other cannot be. Hypotheses that predict the same observation (or outcome) as our main hypothesis but are logically inconsistent with that hypothesis are termed *alternative rival hypotheses*. They are alternatives because they provide different ways of understanding the event to be explained. They are rivals because they cannot be valid if the main hypothesis is valid. If one is accurate, the other has to be inaccurate. We cannot test and compare all possible alternative rival hypotheses relating to any event, but if we are to have faith in the accuracy of any one hypothesis, we must attempt to test the most obvious rival hypotheses to be sure that we are not being misled by our observations.

One common form of ARH is that which states that the relationship between any two variables is *spurious* and that changes in both variables are in fact due to some third factor. This type of ARH is especially useful in theory testing because it suggests a research finding that gives us a solid basis for judging which of the two hypotheses in question is more accurate.

### **An Example**

In our previous illustration inferring a causal relationship between rum prices and ministers' salaries, one major ARH is that fluctuations in both measures are caused by changes in general economic conditions, as represented by overall price levels. If this hypothesis is correct, then the relationship between rum prices and ministers' salaries will *disappear* when we "control for" (that is, hold constant) the effect of overall prices on each of these variables. If the statistical association between rum prices and ministers' salaries vanishes when we control for the general price level, we will have a basis for rejecting the original hypothesis in favor of its rival. If the relationship between rum prices and salaries remains even after our imposition of controls for the general price level, we have more confidence in the hypothesis that these variables are genuinely related. This is part of the process of theory elaboration.

### **Other Types of Hypotheses**

Please note that not every hypothesis about a relationship is an ARH. A true ARH predicts *the same relationship* as the main hypothesis that is being tested. In the case of our silly example, an ARH must

predict that ministers' salaries will go up when the price of rum increases and down when that price falls (just as the main hypothesis did), regardless of what it presents as the underlying cause of this relationship.

A hypothesis saying that there will not be any relationship between ministers' salaries and rum prices is a *null hypothesis* (claiming that the main hypothesis was false).

A hypothesis saying that ministers' salaries will fall when rum prices rise is a *reverse hypothesis* (claiming that the main hypothesis got the relationship backward).

A hypothesis saying that ministers' salaries will rise when the number of people in their congregations increases in an *other hypothesis*. It says nothing about the validity of our main hypothesis, but simply points to another possible cause of changes in the DV.

While these types of hypotheses may be worth testing, they do not have the same value in elaborating (more fully developing) a theory as ARHs do. Be careful not to confuse them.

## Conclusion

Theories demonstrate their usefulness as we find evidence supporting the hypotheses we derive from them and eliminate alternative rival hypotheses. We must keep in mind, though, that future research may produce evidence undermining our theory. We must always be open to contrary findings and willing to return to induction to build new evidence into more useful theories. Theory building is a process of constant interaction between conjecture and evidence and between reasoning and research. It calls for both creativity and hardheaded empiricism. If you approach research with the right attitude, the pleasure you find in discovering the truth about your world will prove to be rewarding enough to keep you engaged.

## Key Terms

descriptive research 11  
 explanatory research 11  
 research question 12  
 theorizing 12  
 theories 13  
 induction 14  
 assumptions 15  
 deduction 15  
 concept 17  
 empirical referents 17  
 theoretical import 18  
 propositions 18  
 covariational relationships 19  
 causal relationships 19  
 spurious relationships 19  
 indirect causation 19  
 multiple causation 19  
 causal model 19  
 positive relationship 21  
 negative relationship 21  
 theory testing 21  
 theory elaboration 22  
 hypothesis 22

- variable 23
- dependent variables 23
- independent variables 23
- intervening variables 24
- antecedent variable 25
- alternative rival hypothesis 26
- null hypothesis 27
- reverse hypothesis 27
- other hypothesis 27

### **Research Examples**

There are a great many examples of research built on a solid foundation of theory and grounded in the relevant literature. Here are a few to illustrate:

A study of the relationship between presidential comments on international crises and domestic economic performance develops a theory that predicts declines in consumer confidence in the presence of fears of international conflict (Wood 2009). Brown and Mobarak (2009) compare electrical consumption by industry, agriculture, and residential users in democratic and nondemocratic countries in order to test theories postulating that elected politicians maximize their utility by offering legislation that benefits large proportions of society. Ish-Shalom (2009) argues that theorists have a moral responsibility to inject themselves into public social and political debates, particularly when their research is being utilized incorrectly.

### **References**

- Brown, David S., and Ahmed Mushfiq Mobarak. 2009. "The Transforming Power of Democracy: Regime Type and the Distribution of Electricity." *American Political Science Review* 103(2): 193–213.
- Fogelson, Robert M., and Robert Bernard Hill. 1986. "Who Riots? A Study of Participation in the 1967 Riots." In *Supplemental Studies for the National Advisory Commission on Civil Disorders*. Washington, DC: U.S. Government Printing Office.
- Ish-Shalom, Piki. 2009. "Theorizing Politics, Politicizing Theory, and the Responsibility That Runs between." *Perspectives on Politics* 7(2): 303–16.
- Rich, Richard. 1984. "The Representation of the Poor in the Policy Process: Changes in Congressional Support for Welfare." In *Public Policy Formation*, edited by Robert Eyestone. Greenwich, CT: JAI Press.
- Wood, B. Dan. 2009. "Presidential Saber Rattling and the Economy." *American Journal of Political Science* 53(3): 695–709.

# Developing Your Literature Review

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## In this chapter, you will learn:

- How you can build your search skills to systematically gather scholarly research
- The value of having a search plan that builds on your theory or research plan
- A four-step scholarly research discovery process called *word mining*
- How to utilize search skills in scholarly databases and on the Internet
- The searching and research report-writing benefits of taking accurate notes
- How to approach writing a literature review

You already use research skills to gather information about many topics. Whether you Google the name of your city and the words “voter registration” or read this week’s issue of a news magazine to learn about North Korea’s military capabilities, you’re gathering information to improve your understanding of how the world operates. This chapter builds on your current skills to show you a more systematic way to gather and sort information and introduces you to some time-saving tools and techniques to make your literature search more comprehensive and faster.

## What a Literature Review Is and Isn’t

All human knowledge builds on what we’ve previously known. Most often knowledge builds incrementally, with new scientific discoveries pushing the boundaries of our existing understandings. For example, Immanuel Kant first laid the conceptual foundations for the “Democratic Peace Theory” – the idea that democracies are unlikely to fight each other – in his 1795 essay *Perpetual Peace: A Philosophical Sketch*. Since then, thousands of scholars have worked to further refine, critique, and attempt to empirically validate this idea. Other times, new scientific discoveries may overturn or invalidate existing understandings, such as Nicolaus Copernicus’s 1543 work *De revolutionibus orbium coelestium*, which controversially challenged the long-held belief that the Sun revolved around the Earth. As Sir Isaac Newton put it in a letter to his contemporary scientist Robert Hooke, scientific advancement is made possible “standing on the shoulders of giants”, the knowledge produced by those who came before.

Developing any new research requires a **literature review**. A literature review is a written section of your research that shows how your research situates itself in the existing state of knowledge on your topic. To your audience, a literature review should demonstrate that your particular research question is *open* – that is, has not yet been (satisfactorily) addressed by other researchers – and that

it is *interesting* – that is, that it contributes to the literature which will help push the boundaries of collective scientific understanding. For you, writing a literature review can be an opportunity to educate yourself on the state of knowledge on your topic, which can help you both refine your research question and also spur your thinking about the theoretical mechanisms behind your theory and hypotheses. A literature review *is not* a “laundry list” of summaries of research on your topic. Instead, a good literature review synthesizes existing research into theoretical or empirical contributions that demonstrate the openness and interest of your question and provide support for the theoretical arguments that you make. We’ll return to writing a literature review at the end of the chapter, but we will first grapple with how to find relevant literature in the first place.

### Searching and Researching

This chapter will walk through the steps necessary to develop the literature review utilized in the research article presented in [Chapter 21](#). That article, “Discourse wars and ‘mask diplomacy’: China’s global image management in times of crisis” explores a research question which asks if China’s use of “mask diplomacy” – donating medical supplies and sending medical personnel to countries impacted by the COVID-19 pandemic – reduced the reputational costs to China’s international image which may have occurred due to the pandemic originating in Wuhan, China.

The first step in developing a literature review is to find the appropriate academic literature. Literature searching – or simply **searching** – in many ways parallels the empirical research techniques presented throughout this book. Sound research and effective searching both require that you clarify and focus the question you intend to address, rather than simply acquiring bits of information that are broadly related to a topic. Thus, just as meaningful research requires a research design, efficiently finding relevant information to guide your research requires a *search design*. Your search design should be a strategy for finding both what information you need and a plan for how to access that information. Just as different methods of analysis are more appropriate for some questions than for others, some information resources will provide access to more relevant literature than others and offer different tools to get you quickly to the specific information you need.

Searching is not something you do only at the outset of your research. You are likely to search for relevant literature during each phase of your project. For example, at the beginning you will look for information with which to refine and focus your research question and theory, in the middle of your study you will seek information on alternative explanations that should be considered (see [Chapter 9](#)), and toward the end of your project you will situate your findings in the context of what previous researchers have published as you prepare your *literature review*.

### Using a Search Grid

Your initial searches are referred to as scanning the **information environment** in order to get a sense of what is “out there” in published knowledge that might speak to your story and theory. It may sound paradoxical, but when you are doing original research, not just training exercises, you really *don’t* want to find large numbers of scholarly publications that are squarely about your theory or empirics. If you do, someone else has probably already done your research, and your research question is not “open”! This means that you will have to rethink your project if you are to make a fresh contribution to knowledge. Perhaps you can apply the same theory or methodology, but to a different population, or use a new approach to gathering data on the subject.

This is a *creative* stage in your research, so cast your net very broadly to get your thinking started. You may find an inspiring idea in a comment on TV news or in a blog post. Scan both traditional print sources and online tools like Internet search engines, social networking sites, and image/video sharing.

At the beginning of your research, you probably won’t have a clear idea of how your concepts will fit together, and you might not yet have a set of established ideas to frame the information you

Theoretical Concept: <i>Foreign Aid</i>		Theoretical Concept: <i>Image Management</i>	
Search	Related Terms:	Link (and/or)	Related Terms:
1	Official Development Assistance		Soft Power
2	Development Aid		Public Diplomacy
3	Development Assistance		Information Warfare
4	Humanitarian Aid		Image Propoganda
5	ODA		State Branding

Figure 3.1 Sample concept search grid

come across. On virtually any interesting topic, there will be too many information sources and too many terms generally referring to your concepts for you to remember them all. Write them down as you go along. Add notations about where the terms appear and how they are used. The lists of nouns, verbs, and author names you generate in this way will help you unlock information sources during the more focused phases of your search.

In line with the objectives of a literature review, your literature search should seek to uncover research that is both empirically and theoretically relevant. In our example above, this would include articles both on the use of “mark diplomacy” during COVID-19 but also articles on how governments try to manage their images. A systematic way for beginning your search is to use a **concept search grid** to organize your searches. During this preliminary phase, the grid begins with a sentence that lays out your hunch about what your research will demonstrate – your story – followed by several columns corresponding to a primary concept in that hunch. Figure 3.1 presents a sample concept search grid. In each column, write down a few words that describe or represent that concept. These might be synonyms, broader terms, or more specific terms. (For example, if the concept is “political unrest” you might include phrases like “demonstrations”, “protests”, or “civil disobedience”.) As your search gets more focused, the hunch you began with will turn into a statement of your theory, and your concepts will distill into your variables.

### An Example: The Concept Search Grid

Suppose we theorize that *news outlets* in countries that have received COVID-19 assistance from the *People’s Republic of China* will present the PRC in more positive terms than news outlets in countries that have not received that assistance. Theoretically, our argument is that COVID-19 assistance, a type of *foreign aid*, was used deliberately by the PRC to improve its global image as a form of *image management*. Brainstorming, we develop a list of political synonyms or words that are related to these concepts. For the concept “image management”, we might think of terms like “soft power”, “public diplomacy”, “information warfare”, “image propoganda”, or “state branding”. For the concept “foreign aid”, related terms might include “official development assistance”, “ODA”, “development assistance”, “development aid”, or “humanitarian aid”. Your brainstorming should develop a fairly wide list of relevant keywords, because you do not know how the existing research may characterize your theory’s concepts.

If permitted by your instructor, Artificial Intelligence (AI) tools can also be useful in helping to brainstorm terms for your search grid. Generative AI is rapidly upending many aspects of the scholarly research process. While AI capabilities are constantly evolving, AI is becoming increasingly popular as a search tool, supplementing or replacing previous search engine tools like *Google*, *Bing*, or *DuckDuckGo*. The landscape of AI tools includes offerings from many traditional technology entities, including *Google*, *Microsoft*, *Meta*, *Baidu*, and *X*, as well as a vast range of start-up platforms. An early AI tool is *OpenAI’s* GPT series, or “ChatGPT”. Large Language Models (LLMs) like ChatGPT are designed precisely around connections between words and phrases based on billions of examples in