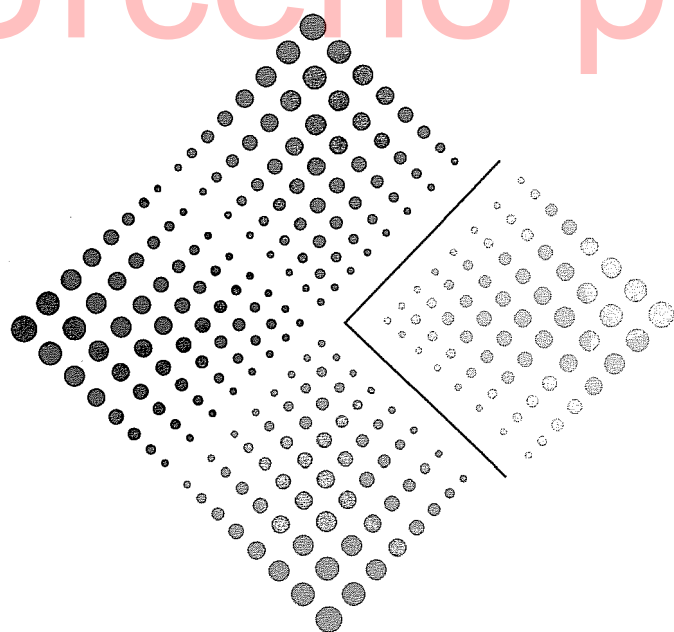


# Research Design



## Holographic Overview

*A wide variety of research designs are available to social science researchers. Designing a study involves specifying exactly who or what is to be studied when, how, and for what purpose. ■*

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## Introduction

Science is an enterprise dedicated to “finding out.” No matter what you want to find out, though, there will likely be a great many ways of doing it. That’s true in life generally. Suppose that you want to find out whether a particular automobile—say, the new Burpo-Blasto—would be a good car for you. You could, of course, buy one and find out that way. Or you could talk to a lot of B-B owners or to people who considered buying one and didn’t. You might check the classified ads to see if there are a lot of B-Bs being sold cheap. You could read a consumer magazine evaluation of Burpo-Blastos. You might combine several of these ways of finding out. A similar situation occurs in scientific inquiry.

Ultimately, scientific inquiry comes down to making observations and interpreting what you’ve observed, the subjects of Parts 3 and 4 of this book. Before you can observe and analyze, however, you need a plan. You need to determine what you’re going to observe and analyze: why and how. That’s what research design is all about.

Although the details vary according to what you wish to study, you face two major tasks in any research design. First, you must specify as clearly as possible what it is you want to find out. Second, you must determine the best way to do it. Interestingly, if you can handle the first consideration fully, you’ll probably handle the second in the same process. As mathematicians say, a properly framed question contains the answer.

Let’s say you’re interested in studying corruption in government. That’s certainly a worthy and appropriate topic for social research. But what do you mean by “corruption”? Specifically, what kinds of behavior do you have in mind? And what do you mean by “government”? Whom do you want to study: all public employees? elected officials? civil servants? Finally, what is your purpose? Do you want to find out how much corruption there is? Do you want to learn why corruption exists? These are the kinds of questions that need to be answered in the course of research design.

This chapter provides a general introduction to research design; the other chapters in Part 2 elaborate on specific aspects. In practice, all these aspects

of research design are interrelated. As you proceed through Part 2, the interrelationships among these parts will become clearer.

We’ll start by briefly examining the three main purposes of social research that help to define what kind of study to undertake. Then we’ll consider units of analysis—the what or whom you want to study. Next we’ll look at alternative ways of handling time in social research, or how to study a moving target that changes over time.

With these ideas in hand, we’ll turn to how to design a research project. This overview of the research process serves two purposes: Besides describing how you might go about designing a study, it provides a map of the remainder of this book.

Finally, we’ll look at the elements of research proposals. Often the actual conduct of research needs to be preceded by a detailing of your intentions—to obtain funding for a major project or perhaps to get your instructor’s approval for a class project. You’ll see that the research proposal provides an excellent opportunity for you to consider all aspects of your research in advance.

## Three Purposes of Research

Social research can serve many purposes. Three of the most common and useful purposes are exploration, description, and explanation. Although a given study can have more than one of these purposes—and most do—examining them separately is useful because each has different implications for other aspects of research design.

### Exploration

Much of social research is conducted to explore a topic, or to start to familiarize the researcher with that topic. This approach typically occurs when a researcher examines a new interest or when the subject of study itself is relatively new.

As an example, let’s suppose that widespread taxpayer dissatisfaction with the government erupts into a taxpayers’ revolt. People begin refusing to

pay their taxes, and they organize themselves around that issue. You might like to learn more about the movement: How widespread is it? What levels and degrees of support are there within the community? How is the movement organized? What kinds of people are active in it? An exploratory study could help you obtain at least approximate answers to some of these questions. For example, you might check figures with tax-collecting officials, collect and study the literature of the movement, attend meetings, and interview leaders.

Exploratory studies are also appropriate for more persistent phenomena. Suppose you're unhappy with your college's graduation requirements and want to help change them. You might study the history of such requirements at the college and meet with college officials to learn the reasons for the current standards. You could talk to several students to get a rough idea of their sentiments on the subject. Though this last activity would not necessarily yield a precise and accurate picture of student opinion, it could suggest what the results of a more extensive study might be.

Sometimes exploratory research is pursued through the use of focus groups, or guided small-group discussions. This technique is frequently used in market research; we'll examine it further in Chapter 10.

Exploratory studies are most typically done for three purposes: (1) to satisfy the researcher's curiosity and desire for better understanding, (2) to test the feasibility of undertaking a more extensive study, and (3) to develop the methods to be employed in any subsequent study.

A while back, for example, I became aware of the growing popularity of something called "channeling," in which a person known as a channel or medium enters a trance state and begins speaking with a voice that claims it originates outside the channel. Some of the voices say they come from a spirit world of the dead, some say they are from other planets, and still others say they exist on dimensions of reality difficult to explain in ordinary human terms.

The channeled voices, often referred to as "entities," sometimes use the metaphor of radio or television for the phenomenon they represent. "When you watch the news," one entity told me in the

course of an interview, "you don't believe Dan Rather is really inside the television set. The same is true of me. I use this medium's body the way Dan Rather uses your television set."

The idea of channeling interested me from several perspectives, not the least of which was the methodological question of how to study scientifically something that violates so much of what we take for granted, such as space, time, causation, and individuality.

Lacking any rigorous theory or precise expectations, I merely set out to learn more. Using some of the techniques of field research discussed later in this book, I began amassing information and forming categories for making sense of what I observed. I read books and articles about the phenomenon and talked to people who had attended channeling sessions. I then attended channeling sessions myself, observing those who attended as well as the channel and entity. Next I conducted personal interviews with numerous channels and entities.

In most interviews, I began by asking the human channels questions about how they first began channeling, what it was like, and why they continued, as well as standard biographical questions. The channel would then go into a trance, whereby the interview continued with the entity. "Who are you?" I might ask. "Where do you come from?" "Why are you doing this?" "How can I tell if you are real or a fake?" Although I went into these interview sessions with several questions prepared in advance, each of the interviews followed whatever course seemed appropriate in the light of the answers given.

This example of exploration illustrates where social research often begins. Whereas researchers working from deductive theories have the key variables laid out in advance, one of my first tasks was to identify some of the possibly relevant variables for determining the kinds of people most likely to participate. For example, I noted a channel's gender, age, education, religious background, regional origins, and previous participation in things metaphysical. I chose most of these variables because they commonly affect behavior.

I also noted differences in the circumstances of channeling sessions. Some channels said they must go into deep trances, some use light trances, and

others remain conscious. Most sit down while channeling, but others stand and walk about. Some channels operate under pretty ordinary conditions; others seem to require metaphysical props such as dim lights, incense, and chanting. Many of these differences became apparent to me only in the course of my initial observations.

Regarding the entities, I have been interested in classifying where they say they come from. Over the course of my interviews, I've developed a set of questions about specific aspects of "reality" in an attempt to classify the answers they give. Similarly, I ask each to speak about future events.

Over the course of this research, my examination of specific topics has become increasingly focused as I've identified variables that seem worth pursuing: gender, education, and religion, for example. Note, however, that I began with a relatively blank slate.

Exploratory studies are quite valuable in social scientific research. They are essential whenever a researcher is breaking new ground, and they almost always yield new insights into a topic for research. Exploratory studies are also a source of grounded theory, as discussed in Chapter 2.

The chief shortcoming of exploratory studies is that they seldom provide satisfactory answers to research questions, though they can hint at the answers and can suggest which research methods could provide definitive answers. The reason exploratory studies are seldom definitive in themselves has to do with representativeness; that is, the people you study in your exploratory research may not be typical of the larger population that interests you. Once you understand representativeness, you'll be able to know whether a given exploratory study actually answered its research problem or only pointed the way toward an answer. (Representativeness is discussed at length in Chapter 7.)

### Description

A major purpose of many social scientific studies is to describe situations and events. The researcher observes and then describes what was observed. Because scientific observation is careful and delib-

erate, however, scientific descriptions are typically more accurate and precise than are casual ones.

The U.S. Census is an excellent example of descriptive social research. The goal of the census is to describe accurately and precisely a wide variety of characteristics of the U.S. population, as well as the populations of smaller areas such as states and counties. Other examples of descriptive studies are the computation of age-gender profiles of populations done by demographers, the computation of crime rates for different cities, and a product-marketing survey that describes the people who use, or would use, a particular product. A researcher who carefully chronicles the events that take place on a labor union picket line has, or at least serves, a descriptive purpose. A researcher who computes and reports the number of times individual legislators voted for or against organized labor also fulfills a descriptive purpose.

Many qualitative studies aim primarily at description. An anthropological ethnography, for example, may try to detail the particular culture of some preliterate society. At the same time, such studies are seldom limited to a merely descriptive purpose. Researchers usually go on to examine why the observed patterns exist and what these patterns imply.

### Explanation

The third general purpose of social scientific research is to explain things. Descriptive studies answer questions of what, where, when, and how; explanatory questions, of why. So, when William Sanders (1994) set about describing the varieties of gang violence, he also wanted to reconstruct the process that brought about violent episodes among the gangs of different ethnic groups.

Reporting the frequency of church attendance is a descriptive activity, but reporting why some people attend and others don't is explanatory. Reporting the crime rates of different cities is a case of description; identifying variables that explain why some cities have higher crime rates than others involves explanation. A researcher who sets out to discover why an antiabortion demonstration ended in a violent confrontation with police, as opposed

to simply describing what happened, has an explanatory purpose.

In a similar vein, a survey of attitudes toward legalizing marijuana might serve the worthwhile descriptive purpose of simply reporting the attitudes of various segments of the population. Or a researcher might set out to discover what factors shape people's attitudes on this issue—a *why* question (“Why do people have the attitudes they do about marijuana?”). An explanatory analysis of 1993 General Social Survey (GSS) data indicates that 28 percent of men and 15 percent of women said marijuana should be legalized: While strong majorities of both genders oppose legalization, men were nearly twice as supportive as were women. Thus, gender seems to be one influence in attitudes toward marijuana.

Not surprisingly, political orientations also correlated with attitudes about marijuana legalization. Among liberals, 37 percent said marijuana should be legalized, compared with 15 percent each of moderates and conservatives. In terms of political party, 39 percent of the Democrats, 18 percent of Independents, and 15 percent of Republicans supported legalization.

Although it's useful to distinguish the three purposes of research, it bears repeating that most studies will have elements of all three. Suppose, for example, that you have set out to evaluate the effectiveness of a new form of psychotherapy. Your study will have exploratory aspects, as you explore possibly relevant variables and map out the impacts of the therapy. You will want to describe such things as recovery rates. And you will undoubtedly seek to explain why the therapy works better for some types of people than for others, or why it works more for some types of people (or problems) than do other forms of therapy.

You will see these several purposes at work in the following discussions of other aspects of research design. Let's turn now to a consideration of whom or what you want to explore, describe, and explain.

## Units of Analysis

In social scientific research, there is virtually no limit to what or whom can be studied, or the **units of analysis**. This topic is relevant to all forms

of social research, although its implications are clearest in the case of nomothetic, quantitative studies.

The idea for units of analysis may seem slippery at first, because research—especially nomothetic research—often studies large collections of people or things, or aggregates. It's important to distinguish between the unit of analysis and the aggregates that we generalize about. For instance, a researcher may study a class of people, such as Democrats, college undergraduates, African-American women under 30, or some other collection. But if the researcher is interested in exploring, describing, or explaining how different groups of individuals behave *as individuals*, the unit of analysis is the individual, not the group. This is so even though the researcher then proceeds to generalize about aggregates of individuals, as in saying that more Democrats than Republicans favor legalizing marijuana. Think of it this way: Having an attitude about marijuana is something that can only be an attribute of an individual, not a group; that is, there is no one group “mind” that can have an attitude. So even when we generalize about Democrats, we're generalizing about an attribute they possess as individuals.

In contrast, we may sometimes want to study groups, considered as individual “actors” or entities that have attributes *as groups*. For instance, we might want to compare the characteristics of different types of street gangs. In that case our unit of analysis would be gangs (not members of gangs), and we might proceed to make generalizations about different types of gangs.

Social scientists perhaps most typically choose individual people as their units of analysis. Researchers can note the characteristics of individual people—gender, age, region of birth, attitudes, and so forth. They can then combine these descriptions to provide a composite picture of the group the individuals represent, whether a street-corner gang or a whole society.

For example, you may note the age and gender of each student enrolled in Political Science 110 and then characterize the group of students descriptively as being 53 percent men and 47 percent women and as having a mean age of 18.6 years. Although the final description would be of the class

as a whole, the description is based on characteristics that members of the class have as individuals.

The same distinction between units of analysis and aggregations occurs in explanatory studies. Suppose you wished to discover whether students with good study habits received better grades in Political Science 110 than did students with poor study habits. You would operationalize the variable *study habits* and measure this variable, perhaps in terms of hours of study per week. You might then aggregate students with good study habits and those with poor study habits and see which group received the best grades in the course. The purpose of the study would be to explain why some groups of students do better in the course than do others, but the unit of analysis is still individual students.

Units of analysis in a study are usually also the units of observation. Thus, to study success in a political science course, we would observe individual students. Sometimes, however, we “observe” our units of analysis indirectly. For example, suppose we want to find out whether disagreements about the death penalty tend to cause divorce. In this case, we might “observe” individual husbands and wives by asking them about their attitudes about capital punishment, in order to distinguish couples who agree and disagree on this issue. In this case, our units of observation are individual wives and husbands, but our units of analysis (the things we want to study) are couples.

Units of analysis, then, are those things we examine in order to create summary descriptions of all such units and to explain differences among them. In most research projects, the unit of analysis will probably be clear to you. When the unit of analysis is not so clear, however, it's essential to determine what it is; otherwise, you cannot determine what observations are to be made about whom or what.

Some studies try to describe or explain more than one unit of analysis. In these cases, the researcher must anticipate what conclusions she or he wishes to draw with regard to which units of analysis. For example, we may want to discover what kinds of college students (individuals) are most successful in their careers; we may also want to learn what kinds of colleges (organizations) produce the most successful graduates.

To make this discussion more concrete, let's consider several common units of analysis in social science.

## Individuals

As we've just seen, individual human beings are perhaps the most typical units of analysis for social scientific research. Researchers tend to describe and explain social groups and interactions by aggregating and analyzing the descriptions of individuals.

Any type of individual may be the unit of analysis for social scientific research, and research generally deals with specific types or classes of individuals. This point is more important than it may seem at first reading. Inasmuch as social science seeks to understand human behavior in general, it would seem that scientific findings are most valuable when they apply to all kinds of people. In practice, however, social scientists seldom study all kinds of people. At the very least, their studies are typically limited to the people living in a single country, though some comparative studies stretch across national boundaries. Often, though, studies are quite circumscribed.

Examples of classes of individuals that might be chosen for study include college students, gays and lesbians, auto workers, U.S. voters, single parents, and churchgoers. Notice that each of these terms implies some population of individual persons. Descriptive studies with individuals as their units of analysis typically aim to describe the population that comprises those individuals, whereas explanatory studies aim to discover the social dynamics operating within that population.

As the units of analysis, individuals may be characterized in terms of their membership in social groupings. Thus, an individual may be described as belonging to a rich family or to a poor one, or as having a college-educated mother or not. We might examine in a research project whether people with college-educated mothers are more likely to attend college than those with non-college-educated mothers or whether high school graduates in rich families are more likely to attend college than those in poor families. In each case, the unit of analysis—the “thing” whose characteristics we are seeking to

describe or explain—is the individual. We then aggregate these individuals and make generalizations about the population they belong to.

### Groups

Social groups can also be units of analysis in social scientific research. That is, we may be interested in characteristics that belong to one group, considered as a single entity. If you were to study criminals by looking at the members of a criminal gang, the individual (the criminal) would be the unit of analysis. But if you studied all the gangs in a city to learn the differences, say, between big gangs and small ones, between “uptown” and “downtown” gangs, and so forth, you would be interested in gangs rather than their individual members. In this case, the unit of analysis would be the gang, a social group.

Here’s another example. Suppose you were interested in the question of access to computers in different segments of society. You might describe families in terms of total annual income and according to whether or not they had computers. You could then aggregate families and describe the mean income of families and the percentage of families who have computers. You would then be in a position to determine whether families with higher incomes were more likely to have computers than those with lower incomes. In this case, the unit of analysis would be families.

As with other units of analysis, we can derive the characteristics of social groups from those of their individual members. Thus, we might describe a family in terms of the age, race, or education of its head. In a descriptive study, we might find the percentage of all families that have a college-educated head of family. In an explanatory study, we might determine whether such families have, on average, more or fewer children than do families headed by people who have not graduated from college. In each of these examples, the family is the unit of analysis. In contrast, had we asked whether college-educated individuals have more or fewer children than do their less educated counterparts, then the individual person would have been the unit of analysis.

Other units of analysis at the group level could be friendship cliques, married couples, census blocks, cities, or geographic regions. As with individuals, each of these terms implies some population. Street gangs imply a population that includes all street gangs, perhaps in a given city. You might then describe this population by generalizing from your findings about individual gangs. For instance, you might describe the geographical distribution of gangs throughout a city. In an explanatory study of street gangs, you might discover whether large gangs are more likely than small ones to engage in intergang warfare. Thus, you would arrive at conclusions about the population of gangs by using individual groups as your unit of analysis.

### Organizations

Formal social organizations may also be the units of analysis in social scientific research. For example, a researcher might study corporations, by which he or she implies a population of all corporations. Individual corporations might be characterized in terms of number of employees, net annual profits, gross assets, number of defense contracts, percentage of employees from racial or ethnic minority groups, and so forth. We might determine whether large corporations hire a larger or smaller percentage of minority group employees than do small corporations. Other examples of formal social organizations suitable as units of analysis include church congregations, colleges, army divisions, academic departments, and supermarkets.

Figure 4-1 provides a graphic illustration of some different units of analysis and the statements that might be made about them.

### Social Artifacts

Another unit of analysis is the **social artifact**, or any product of social beings or their behavior. One class of artifacts includes concrete objects such as books, poems, paintings, automobiles, buildings, songs, pottery, jokes, student excuses for missing exams, and scientific discoveries. In the Robin

Wagner-Pacifici (1995) examination of the Philadelphia police attack on MOVE described in Chapter 3, official pronouncements were the units of analysis.

Just as people or social groups imply populations, each social object implies a set of all objects of the same class: all books, all novels, all biographies, all introductory sociology textbooks, all cookbooks. In a study using books as the units of analysis, an individual book might be characterized by its size, weight, length, price, content, number of pictures, number sold, or description of its author. Then the population of all books or of a particular kind of book could be analyzed for the purpose of description or explanation: what kinds of books sell best and why, for example.

Similarly, a social scientist could analyze whether paintings by Russian, Chinese, or U.S. artists showed the greatest degree of working-class consciousness, taking paintings as the units of analysis and describing each, in part, by the nationality of its creator. Or you might examine a newspaper’s editorials regarding a local university for the purpose of describing, or perhaps explaining, changes in the newspaper’s editorial position on the university over time. In this example, individual editorials would be the units of analysis.

Social interactions form another class of social artifacts suitable for social scientific research. For example, we might characterize weddings as racially or religiously mixed or not, as religious or secular in ceremony, as resulting in divorce or not, or by descriptions of one or both of the marriage partners (such as, “previously married,” “Oakland Raider fan,” “wanted by the FBI”). When a researcher reports that weddings between partners of different religions are more likely to be performed by secular authorities than are those between partners of the same religion, weddings are the units of analysis, not the individuals involved.

Other social interactions that might be units of analysis include friendship choices, court cases, traffic accidents, divorces, fistfights, ship launchings, airline hijackings, race riots, final exams, student demonstrations, and congressional hearings. Congressional hearings, for instance, could be characterized by whether or not they occurred during an election campaign, whether the committee chairs

were running for a higher office, whether they had received campaign contributions from interested parties, and so on. Notice that even if we characterized and compared the hearings in terms of the committee chairs, the hearings themselves—not the individual chairpersons—would be our units of analysis.

### Units of Analysis in Review

The examples in this section should suggest the nearly infinite variety of possible units of analysis in social scientific research. Although individual human beings are typical objects of study, many research questions can be answered more appropriately through the examination of other units of analysis. Indeed, social scientists can study just about anything that bears on social life.

Moreover, the types of units of analysis named in this section don’t begin to exhaust the possibilities. Morris Rosenberg (1968:234–48), for example, speaks of individual, group, organizational, institutional, spatial, cultural, and societal units of analysis. John and Lyn Lofland (1995:103–13) speak of practices, episodes, encounters, roles, relationships, groups, organizations, settlements, social worlds, lifestyles, and subcultures as suitable units of study. The important thing here is to grasp the logic of units of analysis. Once you do, the possibilities for fruitful research are limited only by your imagination.

Categorizing possible units of analysis may make the concept seem more complicated than it needs to be. What you call a given unit of analysis—a group, a formal organization, or a social artifact—is irrelevant. The key is to be clear about what your unit of analysis is. When you embark on a research project, you must decide whether you are studying marriages or marriage partners, crimes or criminals, corporations or corporate executives. Otherwise, you run the risk of drawing invalid conclusions because your assertions about one unit of analysis are actually based on the examination of another. We’ll see an example of this issue as we look at the ecological fallacy in the next section.

# Určeno pouze pro studijní účely

FIGURE 4-1  
Illustrations of Units of Analysis

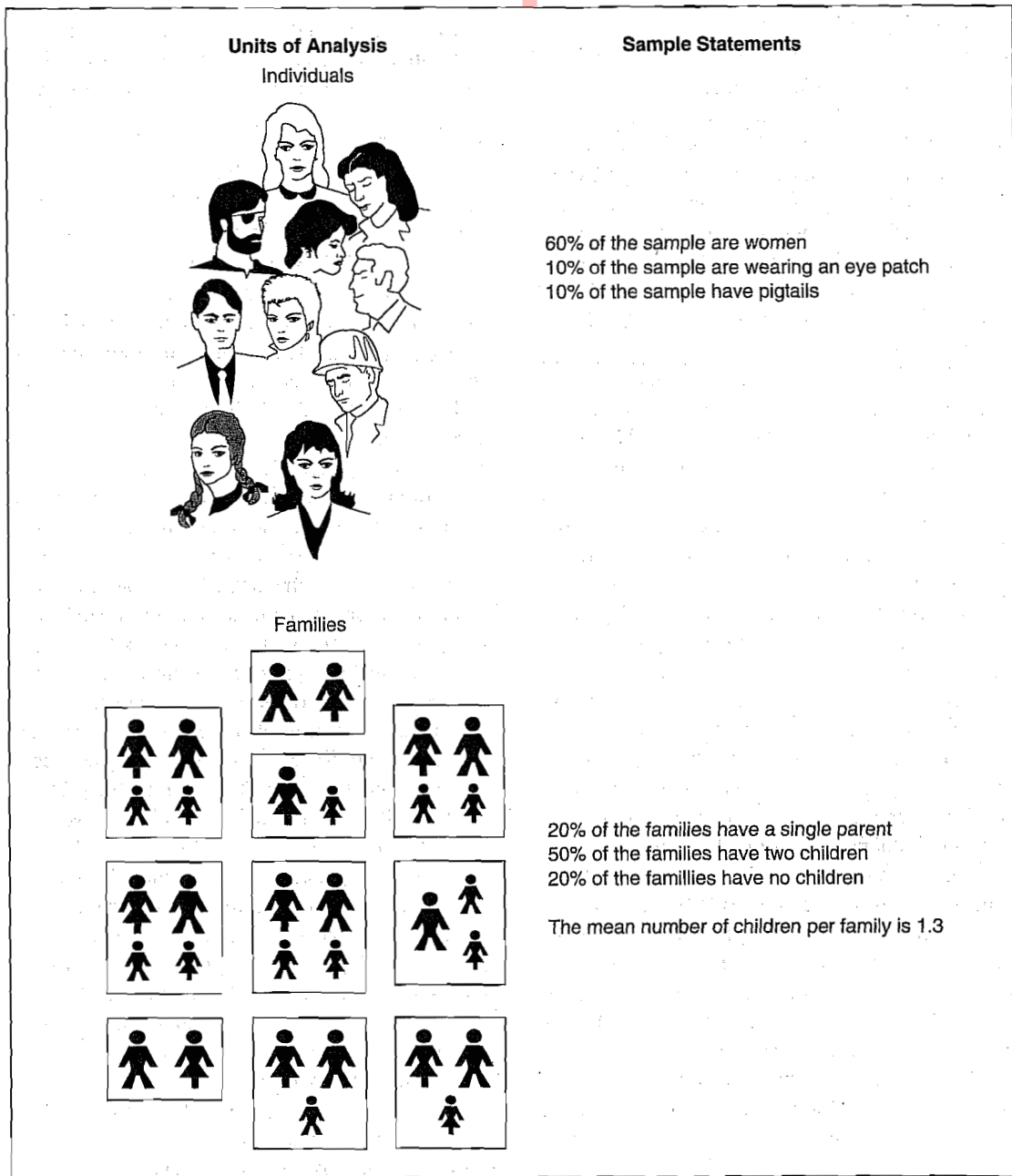
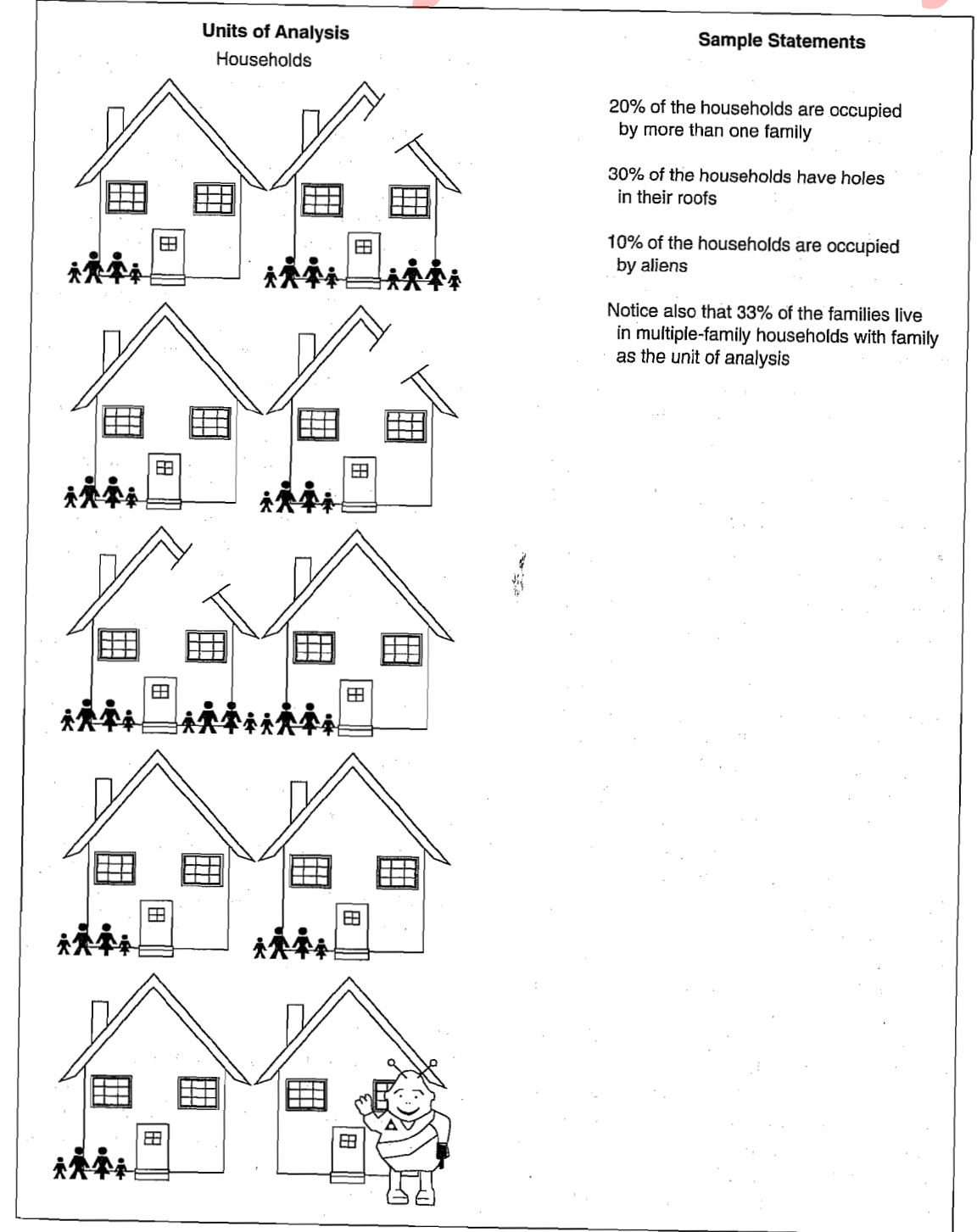


FIGURE 4-1  
Illustrations of Units of Analysis (continued)



## Faulty Reasoning about Units of Analysis: The Ecological Fallacy and Reductionism

At this point, it's appropriate to introduce two types of faulty reasoning that you should be aware of: the ecological fallacy and reductionism. Each represents a potential pitfall regarding units of analysis, either of which can occur in doing research and drawing conclusions from the results.

### The Ecological Fallacy

In this context, "ecological" refers to groups or sets or systems: something larger than individuals.

**The ecological fallacy** is the assumption that something learned about an ecological unit says something about the individuals making up that unit. Let's consider a hypothetical illustration of this fallacy.

Suppose we are interested in learning about the nature of electoral support received by a female political candidate in a recent citywide election. Let's assume that we have the vote tally for each precinct so that we can tell which precincts gave her the greatest support and which the least. Assume also that we have census data describing some characteristics of these precincts. Our analysis of such data might show that precincts with relatively young voters gave the female candidate a greater proportion of their votes than did precincts with older voters. We might be tempted to conclude from these findings that young voters are more likely to vote for female candidates than are older voters—in other words, that age affects support for women in politics. In reaching such a conclusion, we run the risk of committing the ecological fallacy because it may have been the older voters in those "young" precincts who voted for the woman. Our problem is that we have examined *precincts* as our units of analysis but wish to draw conclusions about *voters*.

The same problem would arise if we discovered that crime rates were higher in cities having large African-American populations than in those with few African Americans. We would not know if the crimes were actually committed by African Americans. Or if we found suicide rates higher in Protestant countries than in Catholic ones, we still could

not know for sure that more Protestants than Catholics committed suicide.

In spite of these hazards, social scientists very often have little choice but to address a particular research question through an ecological analysis. Perhaps the most appropriate data are simply not available. For example, the precinct vote tallies and the precinct characteristics mentioned in our initial example might be easy to obtain, but we may not have the resources to conduct a postelection survey of individual voters. In such cases, we may reach a tentative conclusion, recognizing and noting the risk of an ecological fallacy.

While you should be careful not to commit the ecological fallacy, don't let these warnings lead you into committing what we might call the individualistic fallacy. Some people who approach social research for the first time have trouble reconciling general patterns of attitudes and actions with individual exceptions. As we discussed in Chapter 2, generalizations and probabilistic statements are not invalidated by individual exceptions. Your knowing a rich Democrat, for example, doesn't deny the fact that most rich people vote Republican—as a general pattern. Similarly, if you know someone who has gotten rich without any formal education, that doesn't deny the general pattern of higher education relating to higher income.

The ecological fallacy deals with something else altogether—confusing units of analysis in such a way that we draw conclusions about individuals based solely on the observation of groups. Although the patterns observed between variables at the level of groups may be genuine, the danger lies in reasoning from the observed attributes of groups to the attributes of the individuals who made up those groups when we have not actually observed individuals.

### Reductionism

A second type of potentially faulty reasoning related to units of analysis is reductionism. Reductionism means seeing and explaining complex phenomena in terms of a single, narrow concept or set of concepts. Thus, we "reduce" what in reality is complex to a simple explanation.

For instance, scientists from different disciplines tend to look at different types of answers and ignore the others. Sociologists tend to consider only sociological variables (such as values, norms, and roles), economists only economic variables (such as supply and demand, marginal value), and psychologists only psychological variables (such as personality types, traumas). Explaining all or most human behavior in terms of economic factors is called economic reductionism; explaining all or most human behavior in terms of psychological factors is called psychological reductionism; and so forth. Notice how this issue relates to the discussion of theoretical paradigms in Chapter 2.

In another example, suppose we ask what caused the American Revolution. Was it a shared commitment to the value of individual liberty? The economic plight of the colonies in relation to Britain? The megalomania of the founding fathers? As soon as we inquire about *the* single cause, we run the risk of reductionism.

Reductionism of any type tends to suggest that particular units of analysis or variables are more relevant than others. If we were to regard shared values as the cause of the American Revolution, our unit of analysis would be the individual colonist. An economist, though, might choose the 13 colonies as units of analysis and examine the economic organizations and conditions of each. A psychologist might choose individual leaders as the units of analysis for purposes of examining their personalities.

Like the ecological fallacy, reductionism can occur when we use inappropriate units of analysis. The appropriate unit of analysis for a given research question, however, is not always clear. Social scientists, especially across disciplinary boundaries, often debate this issue.

## The Time Dimension

So far in this chapter, we have regarded research design as a process for deciding what aspects we shall observe, of whom, and for what purpose. Now we must consider a set of time-related options

that cuts across each of these earlier considerations. We can choose to make observations more or less at one time or over a long period.

Time plays many roles in the design and execution of research, quite aside from the time it takes to do research. Chapter 3 noted that the time sequence of events and situations is critical to determining causation (a point we'll return to in Part 4). Time also affects the generalizability of research findings. Do the descriptions and explanations resulting from a particular study accurately represent the situation of ten years ago, ten years from now, or only the present? Researchers have two principal options available to deal with the issue of time in the design of their research: cross-sectional studies and longitudinal studies.

### Cross-Sectional Studies

A **cross-sectional study** involves observations of a sample, or cross section, of a population or phenomenon that are made at one point in time. Exploratory and descriptive studies are often cross-sectional. A single U.S. Census, for instance, is a study aimed at describing the U.S. population at a given time.

Many explanatory studies are also cross-sectional. A researcher conducting a large-scale national survey to examine the sources of racial and religious prejudice would, in all likelihood, be dealing with a single time frame—taking a snapshot, so to speak, of the sources of prejudice at a particular point in history.

Explanatory cross-sectional studies have an inherent problem. Although their conclusions are based on observations made at only one time, typically they aim at understanding causal processes that occur over time. This problem is somewhat akin to that of determining the speed of a moving object on the basis of a high-speed, still photograph that freezes the movement of the object.

Yanjie Bian, for example, conducted a survey of workers in Tianjin, China, for the purpose of studying stratification in contemporary, urban Chinese society. In undertaking the survey in 1988, however, he was conscious of the important changes

you'll reach them. Will it be appropriate to select a sample? If so, how will you do that? If there is any possibility that your research will affect those you study, how will you insure that the research does not harm them?

### Measurement

What are the key variables in your study? How will you define and measure them? Do your definitions and measurement methods duplicate or differ from those of previous research on this topic? If you have already developed your measurement device (a questionnaire, for example) or will be using something previously developed by others, it might be appropriate to include a copy in an appendix to your proposal.

### Data-Collection Methods

How will you actually collect the data for your study? Will you conduct an experiment or a survey? Will you undertake field research or will you focus on the reanalysis of statistics already created by others? Perhaps you will use more than one method.

### Analysis

Indicate the kind of analysis you plan to conduct. Spell out the purpose and logic of your analysis. Are you interested in precise description? Do you intend to explain why things are the way they are? Do you plan to account for variations in some quality: for example, why some students are more liberal than others? What possible explanatory variables will your analysis consider, and how will you know if you've explained variations adequately?

### Schedule

It is often appropriate to provide a schedule for the various stages of research. Even if you don't do this for the proposal, do it for yourself. Unless you have a timeline for accomplishing the several stages of research and keeping in touch with how you're doing, you may end up in trouble.

### Budget

When you ask someone to cover the costs of your research, you need to provide a budget that specifies where the money will go. Large, expensive projects include budgetary categories such as personnel, equipment, supplies, telephones, and postage. Even for a project you will pay for yourself, it's a good idea to spend some time anticipating expenses: office supplies, photocopying, computer disks, telephone calls, transportation, and so on.

As you can see, if you were interested in conducting a social science research project, it would be a good idea to prepare a research proposal for your own purposes, even if you weren't required to do so by your instructor or a funding agency. If you're going to invest your time and energy in such a project, you should do what you can to insure a return on that investment.

Now that you've had a broad overview of social research, let's move on to the remaining chapters in this book and learn exactly how to design and execute each specific step. If you've found a research topic that really interests you, you'll want to keep it in mind as you see how you might go about studying it.

### MAIN POINTS

- The principal purposes of social research include exploration, description, and explanation. Research studies often combine more than one purpose.
- Exploration is the attempt to develop an initial, rough understanding of some phenomenon.
- Description is the precise reporting and/or measurement of the characteristics of some population or phenomenon under study.
- Explanation is the discovery and reporting of relationships among different aspects of the phenomenon under study. Whereas descriptive studies answer the question "What's so?" explanatory ones tend to answer the question "Why?"

- Units of analysis are the people or things whose characteristics social researchers observe, describe, and explain. Typically, the unit of analysis in social research is the individual person, but it may also be a social group, a formal organization, a social artifact, or some other phenomenon such as lifestyles or social interactions.
- The ecological fallacy involves conclusions drawn from the analysis of the attributes of groups (e.g., neighborhoods) that are then assumed to apply to individuals (e.g., specific residents of different neighborhoods).
- Reductionism is the attempt to understand a complex phenomenon in terms of a narrow set of concepts, such as attempting to explain the American Revolution solely in terms of economics (or political idealism or psychology).
- Research into processes that occur over time presents social challenges that can be addressed through cross-sectional studies or longitudinal studies.
- Cross-sectional studies are based on observations made at one time. Although such studies are limited by this characteristic, researchers can sometimes make inferences about processes that occur over time.
- In longitudinal studies, observations are made at many times. Such observations may be made of samples drawn from general populations (trend studies), samples drawn from more specific subpopulations (cohort studies), or the same sample of people each time (panel studies).
- Research design starts with an initial interest, idea, or theoretical expectation and proceeds through a series of interrelated steps to narrow the focus of the study so that concepts, methods, and procedures are well defined. A good research plan accounts for all these steps in advance.
- At the outset, a researcher specifies the meaning of the concepts or variables to be studied (conceptualization), chooses a research method or methods (e.g., experiments versus surveys), and specifies the population to be studied and, if applicable, how it will be sampled.

- The researcher operationalizes the concepts to be studied by stating precisely how variables in the study will be measured. Research then proceeds through observation, processing the data, analysis, and application, such as reporting the results and assessing their implications.
- A research proposal provides a preview of why a study will be undertaken and how it will be conducted. A research project is often required to get permission or necessary resources. Even when not required, a proposal is a useful device for planning.

### KEY TERMS

|                       |                    |
|-----------------------|--------------------|
| units of analysis     | longitudinal study |
| social artifact       | trend study        |
| ecological fallacy    | cohort study       |
| reductionism          | panel study        |
| cross-sectional study |                    |

### REVIEW QUESTIONS AND EXERCISES

1. Using InfoTrac or the library, select a research report that illustrates exploration, description, or explanation. Identify which of these three purposes the report illustrates and briefly justify your judgment in that regard.
2. Here are some examples of real research topics. For each one, name the unit of analysis. (The answers are at the end of this chapter.)
  - a. Women watch TV more than men because they are likely to work fewer hours outside the home than men. . . . Black people watch an average of approximately three-quarters of an hour more television per day than white people. (Hughes 1980:290)
  - b. Of the 130 incorporated U.S. cities with more than 100,000 inhabitants in 1960, 126 had at least two short-term nonproprietary general hospitals accredited by the American Hospital Association. (Turk 1980:317)
  - c. The early TM [transcendental meditation] organizations were small and informal. The Los Angeles group, begun in June 1959, met at a member's house where, incidentally, Maharishi was living. (Johnston 1980:337)

- d. However, it appears that the nursing staffs exercise strong influence over . . . a decision to change the nursing care system. . . . Conversely, among those decisions dominated by the administration and the medical staffs . . . (Comstock 1980:77)
- e. Though 667,000 out of 2 million farmers in the United States are women, women historically have not been viewed as farmers, but rather, as the farmer's wife. (Votaw 1979:8)
- f. The analysis of community opposition to group homes for the mentally handicapped . . . indicates that deteriorating neighborhoods are most likely to organize in opposition, but that upper-middle class neighborhoods are most likely to enjoy private access to local officials. (Graham and Hogan 1990:513)
- g. Some analysts during the 1960s predicted that the rise of economic ambition and political militancy among blacks would foster discontent with the "otherworldly" black mainline churches. (Ellison and Sherkat 1990:551)
- h. This analysis explores whether propositions and empirical findings of contemporary theories of organizations directly apply to both private product producing organizations (PPOs) and public human service organizations (PSOs). (Schiflett and Zey 1990:569)
- i. This paper examines variations in job title structures across work roles. Analyzing 3,173 job titles in the California civil service system in 1985, we investigate how and why lines of work vary in the proliferation of job categories that differentiate ranks, functions, or particular organizational locations. (Strang and Baron 1990:479)
3. Look through an academic research journal until you find examples of at least three different units of analysis. Identify each and present quotations from the journal to justify your conclusions.
4. Make up a research example—different from those discussed in the text—that illustrates a researcher falling into the trap of the ecological fallacy. Then modify the example to avoid this trap.
5. Drop in at the Russell Sage Foundation (<http://www.epn.org/sage.html>) and look at their publications. Select one that illustrates a cross-sectional, trend, cohort, or panel study design. Justify your choice.


### ADDITIONAL READINGS

- Bart, Pauline, and Linda Frankel. 1986. *The Student Sociologist's Handbook*. Morristown, NJ: General Learning Press. A handy little reference book to help you get started on a research project. Written from the standpoint of a student term paper, this volume offers a particularly good guide to the periodical literature of the social sciences available in a good library.
- Casley, D. J., and D. A. Lury. 1987. *Data Collection in Developing Countries*. Oxford: Clarendon Press. This book discusses the special problems of research in the developing world.
- Cooper, Harris M. 1989. *Integrating Research: A Guide for Literature Reviews*. Newbury Park, CA: Sage. The author leads you through each step in the literature review process.
- Hunt, Morton. 1985. *Profiles of Social Research: The Scientific Study of Human Interactions*. New York: Basic Books. An engaging and informative series of project biographies: James Coleman's study of segregated schools is presented, as well as several other major projects that illustrate the elements of social research in practice.
- Iversen, Gudmund R. 1991. *Contextual Analysis*. Newbury Park, CA: Sage. Contextual analysis examines the impact of socioenvironmental factors on individual behavior. Durkheim's study of suicide offers a good example of this, identifying social contexts that affect the likelihood of self-destruction.
- Maxwell, Joseph A. 1996. *Qualitative Research Design: An Interactive Approach*. Newbury Park, CA: Sage. Maxwell covers many of the same topics that this chapter does but with attention devoted specifically to qualitative research projects.
- Menard, Scott. 1991. *Longitudinal Research*. Newbury Park, CA: Sage. Beginning by explaining why researchers conduct longitudinal research, the author goes on to detail a variety of study designs as well as suggestions for the analysis of longitudinal data.
- Miller, Delbert. 1991. *Handbook of Research Design and Social Measurement*. Newbury Park, CA: Sage. A useful reference for introducing or reviewing numerous issues involved in design and measurement. In addition, the book contains a wealth of practical information relating to foundations, journals, and professional associations.

### ANSWERS TO REVIEW QUESTIONS AND EXERCISES, ITEM 2

- Men and women, black and white people (individuals)
- Incorporated U.S. cities (groups)
- Transcendental meditation organizations (groups)
- Nursing staffs (groups)
- Farmers (individuals)
- Neighborhoods (groups)
- Blacks (individuals)
- Service and production organizations (formal organizations)
- Job titles (artifacts)


### SOCIOLOGY WEB SITE

 See the Wadsworth Sociology Resource Center, Virtual Society, for additional links, Internet exercises by chapter, quizzes by chapter, and Microcase-related materials:

<http://www.sociology.wadsworth.com>

### INFOTRAC COLLEGE EDITION

#### SEARCH WORD SUMMARY

 Go to the Wadsworth Sociology Resource Center, Virtual Society, to find a list of search words for each chapter. Using the search words, go to InfoTrac College Edition, an online library of over 900 journals where you can do online research and find readings related to your studies. To aid in your search and to gain useful tips, see the Student Guide to InfoTrac College Edition on the Virtual Society Web site:

<http://www.sociology.wadsworth.com>