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# 7

# Samples

The goal of social research is to find answers to the mysteries of social life. These mysteries are *social* in that they pertain to more than a few people. In contrast to psychiatrists or clinical social workers who work to understand the characteristics and problems of *unique* individuals in *unique* situations, social researchers explore the common characteristics, experiences, and problems of *types* of people and *types* of situations. So, for example, social researchers believe that when they talk with a few students about their experiences with technology, they are learning something about how students in general relate to technology. When researchers examine the Facebook postings of specific college men, they believe learning something about those particular men will tell us something about college men in general.

We come, then, to a core tension in social research of any variety: Researchers are interested in questions about social life in general, about patterns and their variations in types of people, experiences, and things. However, data to explore these questions must come from particular people in particular places who have unique experiences and histories. In order to believe that social research has produced general knowledge, we must believe that the particulars we study tell us something about the generalities we do not—and cannot—study. Sampling is the design work of establishing the logical reasonableness of making this leap from particulars to general. I will begin with defining terms.

## POPULATIONS AND SAMPLES IN SOCIAL RESEARCH

Because researchers are interested in generalities, yet can study only particulars, an issue for social research of any variety is about relationships between the whole, called a *population* (or a *universe*), and the part studied, called a *sample*.

### The Meaning of Population in Social Research

In daily life, the term *population* most often is used to talk about people who live in particular places such as cities (the population of Tampa), states (the population of Florida), or nations (the population of the United States). As used in research methods, the term *population* means the entire collection or every case—of people, places, behaviors, things, or time.

Population can refer to types of *people*: The population of "college students" includes every college student; the population of "vegetarians" includes every vegetarian. There are populations of first-generation immigrants in the United States, as well as populations of Republicans, Catholics, college athletes, abused children, and so on. In each instance, *population* is a term used to refer to every person with specific characteristics.

The concept of population as used in social research also can refer to types of *places*. The population of "public universities" includes all such universities; the population of "women-owned businesses" includes all such businesses. There are populations of juvenile courts, health and fitness clubs, city streets, law firms, and so on. The population of particular types of places includes each and every instance of that type of place.

The concept of population also can refer to types of *behaviors*: There are populations such as marriages in 2015, divorces in the past decade, and crime in New York City in the 1990s. Likewise, population can refer to types of *things*, such as television programs, *New York Times's* stories about Hurricane Katrina, romance novels, or Wikipedia pages.

Finally, population can refer to *time*: The population of time is 24 hours a day, seven days a week; it includes all time from the beginning of the earth to today.

**Whether referring to types of *people, places, behaviors, things,* or *time, population* is a term for the whole, for every case.**



### *Defining Relevant Populations in Research Design*

While population is a whole, there are many ways that a whole can be defined. Just as I argued in Chapter 4 that researchers must reduce *the literature* to the *relevant* literature, many—if not most—questions for social research require that the concept of population be defined in ways that will make it relevant to the research project.

**Example 7.1:** Theoretically, the concept/population of "college students" includes every person in every college in every country in every year. That definition is meaningless because it includes too much. At the minimum, common sense would tell us that college students in different countries or in different eras would have vastly different characteristics and experiences. Most researchers in the United States, for example, confine their research to *current* students in *American* colleges ("The Prevalence of Stalking Among College Students"), or they make explicit comparisons among *American* college students in *different eras* ("Changes in Adult Attachment"). The global population of American college students might be further reduced by specifying gender ("Alcohol Preferences on Undergraduate Males' Facebook Profiles"), or nationality ("Identity Threat and Dietary Choices Among U.S. Immigrant Groups"). In each instance, researchers have reduced the all-inclusive population of college students to something that is smaller and more relevant to the particular research questions being examined.

**Example 7.2:** The concept/population of *courts* includes family courts, criminal courts, civil courts, and juvenile courts; local courts, state courts, federal courts, and international courts. Because these are very different, it does not make much sense to talk about them as if they were one thing. Additionally, a great deal is already known about each of these types of courts so it would be not possible to do an adequate review of the literature. Narrowing the concept/population of *court* to a particular type of court brings conceptual clarity, which is a hallmark of quality research. It narrows the research topic, which narrows the literature review to something more manageable.

Just as literature reviews often require defining what slice of *all* knowledge pertains to the particular project, defining populations often requires limiting the global population to something more relevant and conceptually clear. The general goal to keep in mind is to

work toward definitions of the relevant population that are consistent with study questions and with conceptualizations:

**Research questions, conceptual definitions, and population definitions must be logically compatible.**

Working for consistency between definitions of concepts and relevant populations helps reduce the often too large and too abstract meanings of a population. This also will tighten conceptual clarity. At the same time, there are limits to reducing the definitions of specific populations. Just as relevant literatures must be defined as general enough to show how a particular research project fits into ongoing scholarly interests, relevant populations must be social: Defining a relevant population as "male students at the University of South Florida who are fraternity members majoring in sociology" is not general enough because there are too few such men. Social research is about finding general patterns so populations must be defined as large enough to be of general interest. The lesson:

**Define concepts and their accompanying populations so that they are both important (large enough) and conceptually meaningful (small enough).**

In summary, population is a concept in social research that refers to an entire universe of specified types of people, places, things, or time. Researchers often reduce the global definitions of particular populations in order to gain conceptual clarity: The population of "current American college students" is preferable to "college students" because it specifies both time and place. While such reductions lead to conceptual clarity, they do not eliminate the practical problem that rarely can researchers generate data on every element of any given population. The census done once every decade by the United States government is the exception to the general rule that the data for social research comes from portions of populations called *samples*.

## The Meaning of Sample in Social Research

In social research, *sample* is a term for a part of a population. Of all people in a specified population, a sample is composed of those who completed a questionnaire or who participated in an experiment; of all possible films or Facebook postings, a sample is composed of those films researchers watched or those Facebook postings they examined.



**A *sample* is a subset of a population. It can refer to study participants, to places and times of observation, or to documents or other objects that are examined.**

The design task of sampling is the work of making decisions about which *specific* people, places, times, or documents will be a part of the study.

**Sampling: the design task of deciding *which* elements in a population will be chosen and *how* those elements will be chosen.**

## THE IMPORTANCE OF SAMPLES IN SOCIAL RESEARCH

While the specific characteristics of preferred and adequate samples can vary (I will get back to this), sample characteristics have important consequences for research findings.

*Samples influence what will be found:* Decisions about sampling are very similar to decisions about how to operationalize study concepts in that both highly influence what *can* be found as well as what *likely* will be found. Stories presented in the *New York Times will* be different from those in *Oprah* magazine; there *will* be very different ideas about what government should do to help the American economy depending upon whether data are coming from CEOs or public school teachers; a website promoting the legalization of marijuana *will* offer data far different from one centered on the harms of marijuana.

While my examples might seem too obvious to require mentioning, social research very often relies on samples that greatly affect study findings. When designing your own research or when evaluating research done by others, be sure to think critically about how the characteristics of samples influence findings.

**Example 7.3:** Studies of children of divorce often are authored by psychologists and clinical social workers whose research respondents are their patients. These studies invariably find that children experience many problems associated with divorce. This should not be surprising: Children would not be in psychiatric care unless they had problems. Data from

such sites *can* offer information about the types of problems children *might* experience from divorce, but it *cannot* be used to speculate about how common those problems might be. The relevant population of a sample of children receiving social services is "children of divorce who have problems severe enough to require professional help." It is *not* necessarily a sample of the larger population of "children of divorce."

**Example 7.4:** What are the characteristics of samples leading to often repeated findings that "men who beat their wives are alcoholics?" Most common is that research participants are in support groups for men with problems with alcohol. This is a sample from a population of "men who have problems with alcohol." Researchers find that some–typically many–of these men report using violence. Data from such studies *can* answer questions of the form: Of men who have problems with alcohol, how many are violent? These data *cannot* be used to examine the question: How many men who are violent use alcohol? That question requires a sample from the population of "men who use violence." You might need to pause to think this through because what seems like a very subtle difference is very important.

*Samples influence the meaning of what is found:* Whether thinking about data from research you have designed or evaluating research written by others, keep focused on sample characteristics so you can understand what data do—and do not—mean. If study respondents, for example, were teachers talking about students, then these data tell us how teachers think, they do *not* tell us how students think. When evaluating the research of others be watchful for such common slips between who supplied data (often teachers or social service providers) and what data are about (often children or social service clients). Also remember there are multiple perspectives on social life. Questions about the work of any social service agency, for example, can be answered from the perspectives of agency supervisors, direct-service workers, and clients; schools are very different places depending on whether data come from principals, teachers, students, or parents. When designing your own research or evaluating the work of others, note the sample characteristics because these determine what data mean.

In summary, a lesson for designing and evaluating research is the need for critical thinking in relation to sample characteristics: What biases are predictable, given sample characteristics? What can data from such a sample tell us and what can it not tell us? Remember when reading the research of others that it is not uncommon for researchers



to briefly mention sample biases then proceed as if these biases did not exist. In my experience, researchers who do this are not intending to mislead their readers; they do not knowingly misrepresent the meaning of their data. The errors come from not thinking through all the implications from samples.

*Samples influence what protections will be needed for research respondents:* As I have repeated, social researchers are first and foremost responsible for the well-being of people who help them in their research. Researchers need to be extra cautious in preventing harm of all kinds when research questions lead to study respondents who are members of vulnerable populations.

The concept of *vulnerable population* refers to people who may be particularly susceptible to exploitation or coercion in research projects. Vulnerable populations include people with *cognitive* or *communicative* vulnerability (such as mental impairments or those who are not fluent in the language used by the researcher), *institutional* vulnerability (including prisoners, military personnel and—oddly enough—college students required to participate in research to earn a grade), *deferential* vulnerability (doctors who ask patients, bosses who ask employees, and teachers who ask students to participate in research), *medical vulnerability* (people who believe the research promises hope), and *economic* vulnerability (poor people would find it difficult to turn down large financial incentives for research participation). For multiple reasons, all *children* under the age of 18 are classified as a vulnerable population.

In Chapter 3 (Research Questions), I covered how researchers should exercise special cautions when proposing research on sensitive topics and how such topics would lead local Institutional Review Boards (IRB) to exercise more oversight than when topics were not so sensitive. Also expect that studies involving research participants who are members of vulnerable populations will receive considerable IRB oversight. A suggestion I made in Chapter 3 about talking with others who had done research on sensitive topics applies here: If you are proposing research where participants will be members of vulnerable populations, talk with others who have done research with such people and learn what they did to guarantee the necessary protections.

*Samples determine the ability of researchers to generalize their findings:* While social research generates data from samples, the goal of research is to learn something about social life in general, which requires generalizing from what is found in research on *particular* people, places, or

things to more general *types* of people, places, or things. There are several ways this generalizing can be done. The most highly valued is associated with naturalist research philosophy. This is statistical generalization which requires *probability* samples.

## PROBABILITY SAMPLES

Recall from Chapter 2 that the goal of research in the naturalist tradition is to discover general laws that explain broad patterns of events, characteristics, and behaviors. Within this perspective, generalizing from sample to population must be accomplished through a special type of mathematical reasoning called *inferential statistics*. While the mathematics of inferential statistics can be complicated, the logic of statistical generalization is straightforward and found in *probability theory*.

Inferential statistics can offer empirical proof that research done with a sample (of people, things, or places) would—*probably*—yield the same findings as research on every element in the sample's population. Making this leap between sample findings (what has been researched) and population findings (what has not been researched) is possible only when samples are *probability samples*. Probability samples are also called *representative samples* because they are miniversions of their larger populations. They are miniversions of their populations because they are *random samples*, where every element in a given population has an equal chance of being included in the sample.

**Probability sample: The sample is selected in such a way that every element in the population has an equal chance of being included in the sample. The sample is a miniature of its population; it is representative of the population.**

The logic of probability samples is statistical, and the logic of statistics is probability: If every element in the population had an equal chance of being included in the sample, then—*probably*—the sample is a miniature of the population from which it was drawn. This means that *probably* what we find in the sample is *more or less* (given a margin of error) what we would find if we did research on each and every element in the population.

Several methods can generate a probability sample with the idea of *random sampling* uniting them all. Why do some elements in the population end up in the sample and others do not? There is no reason because the selection of individual elements is done in very precise ways that ensure each element in the relevant population has the same chance as all others of being included.



**The techniques of probability sampling are ways to achieve random selection. It does not matter *how* this is done. It matters *that* it is done.**

**Example 7.5:** Research examining "Alcohol References on Undergraduate Males' Facebook Profiles" uses a probability sample of Facebook entries: "The Facebook search engine provides a sample of up to 500 profiles that meet selected criteria" (lines 64–65) which, in this case, were defined by researchers as profiles available to the public, an undergraduate student, 18 to 23 years of age, at least 90% of the postings in English, and postings within the past 30 days (lines 57–60). Then, "profiles that met inclusion criteria were selected for evaluation in the order that they appeared in the search until the sample size goal of 225 profiles was met" (lines 65–66). As long as the "sample" that Facebook provides is truly random (and there are no reasons to assume it was not), then this research uses a probability sample of the population of items as defined by researchers.

### Problems in Probability Sampling

Alert readers would have noticed that in this last section on probability samples, I used only one example from the articles in the Appendix. This is because only that article, "Alcohol References," clearly is a probability sample. This is not unexpected because, while probability samples are the most valued in social research and while they are necessary for statistical generalization, obtaining true probability samples can be difficult and often impossible.

*Problems in creating sampling frames in social research:* The defining characteristic of probability samples is that each and every individual element in the population must have the same chance of being chosen for inclusion in the sample. Creating a probability sample (of people, places, or things) therefore must begin with a list of every element in the population (called a *sampling frame*) because it is not possible to randomly choose elements without knowing *how many* elements there are and *what* these elements are. There can be no random sample of

men in prison without a list of all men in prison; there can be no random sample of Methodist churches without a list of all such churches, and so on.

This leads to two obvious problems in social research. First, it might be easy to *imagine* a particular population but very difficult to actually construct a sampling frame. For example, while it is theoretically possible to make a list of every high school student in the United States who plays on his or her school's basketball team, it is difficult to imagine the work it would take to actually make such a list. And, even if this work could be done, it is likely that by the time the list was created it could contain many errors: It would contain names of students no longer playing basketball and it would not contain names of students who recently started playing basketball. While researchers have devised countless techniques to circumvent common problems in social research sampling, constructing true probability samples can be impossible or simply too difficult, time consuming, and expensive for most researchers.

The second kind of problem in constructing sampling frames is that social research often is about people in undefinable populations. An unlimited amount of time and money could not construct a probability sample of "drug addicts," "homeless people," or "women who provide child daycare without a license." Probability sampling must begin with a list of population elements and those often simply do not exist.

**Probability sampling is possible only when the dimensions of the population are known and only when sampling frames can be constructed.**

*Problems in obtaining responses from respondents in probability samples:* Researchers doing large-scale survey research often encounter another problem. While they send their surveys to a proper probability sample, very few completed surveys are returned. It is common for social researchers to receive completed surveys from less than 30% of those sent. Statistical generalization from a survey sample to a larger population is possible only when the survey is originally given to a random sample of people *and* only when there are no important differences between those who do and those who do not complete and return it. What are *important differences*?

> **Example 7.6:** Researchers for "The Prevalence of Stalking Among College Students" recruited college students to answer an online survey about their experiences with stalking. To recruit participants, "a description of the study was provided on the university's home page and in the psychology department's online course management system" (lines 57–58). We are told that 1,573 students completed the survey. Are these students a representative sample of all students in this "comprehensive, large public university" (line 56)? We have no way of knowing. Are there significant differences between students who chose to complete the survey and those who did not? We do not know. However, we might speculate that students who did choose to complete the survey were either psychology students attempting to earn course credits or students with an interest in the topic of stalking. Are the stalking experiences of students with an interest in the topic of stalking different from the experiences of students who do not have an interest in this topic? We do not know. Do students with staking experiences define stalking differently than students without such experiences? We do not know. Does it matter? We do not know.



The practical consequence of these problems with probability sampling in social research is that if you are designing research, you might find it *not* possible to define a probability sample or to obtain one. If this happens, you have alternatives.

First, and most obviously, you can keep your research questions and construct a very good nonprobability sample (the next topic). While you will *not* be able to make statements about statistical generalizability, very good nonprobability samples *do* allow researchers to make cautious statements about generalizability supported by the soundness of the nonprobability sample.

Second, you can change plans to generate your own data and rather use existing data from studies done by governments, public agencies, or research groups. In Chapters 5 and 6, I argued that using such already existing data made sense because these data banks often contain high-quality survey questions and because using the data gathered by others is cost effective. This is the third reason: It is very difficult and expensive to construct a true sample, something that most often is a characteristic of data in publicly available data sets.

**Given problems in obtaining probability samples, consider using already existing data.**

Probability samples are not all that common in social research. While preferred by researchers working within naturalist frameworks, probability samples can be difficult or even impossible to obtain. Furthermore, researchers working within constructionist frameworks

do not value such samples because their goals are not to do statistical generalization from sample to population. This leads to a second kind of sample: Nonprobability.

## NONPROBABILITY SAMPLES

The most common form of sample in social research is *nonprobability*. While such samples do *not* allow statistical generalization, it is possible to construct very good samples that *do* allow researchers to make cautious statements about generalizability based on the high quality of the sample. Nonprobability samples are defined in terms of what they are not:

**Nonprobability sample: The relationship between the sample and its population is unknown; the sample is not necessarily a miniature of the population.**

I started this chapter with the ways samples determine characteristics of research findings and interpretation. Because the characteristics of samples *always* are important, it follows that designing a nonprobability sample must be done just as carefully as constructing a probability sample. The general rule:

**Nonprobability sampling *procedures* should be justified as logical given research questions; characteristics of obtained *samples* should be justified as adequate to explore research questions.**

*Mathematical* reasoning shapes how probability sampling is done; *logical* reasoning shapes how nonprobability sampling is done. Whether designing nonprobability samples or evaluating the nonprobability samples in published research, two useful skills to develop are those of thinking critically about the kinds of samples that make sense given research questions and what biases and limitations are posed by samples generated in specific ways.

**Example 7.7:** Research respondents in "From Foster Care to College" were "24 college students who grew up in [foster care] and were under the auspices of foster care agencies in three South Florida counties" (lines 45–46). Do we have reason to believe that these particular 24 students differ in some systematic and important way from other college students who had been in foster care and were current clients in foster care agencies in Florida? None that I can see; but use critical reasoning to think it through for yourself. What we do know is that because this is not a probability sample, these data *cannot* tell us what percentages of all college students who had been in foster care (the population) experience each of the barriers and supports mentioned by these particular students. These data also *cannot* show other barriers and supports that may be experienced by other members of this population but not by these particular 24. What these data *do* show are the types of barriers and types of supports experienced by these students. As such, they extend theories about the process of educational attainment in general populations to the particular situations of children in foster care (lines 182–192), and they show us what kinds of topics should be considered in forming social policy (lines 196–201).



**Example 7.8:** Readers of "The Digital Identity Divide" are told the sample started with students "solicited online through the official residential hall mailing list and through residential hall floor meetings" (lines 64–65). We are told that although only 24% of all surveys sent were returned, those returning the survey were "representative of the student population at the university" (lines 65–69). This information, though, is not important, because the author does not use these survey data in this report. Rather, she presents this study as an in-depth look at *three* students selected because "they represented different points on the spectrum of technological fluency, cultural identity and experience" (lines 71–72). Do we know how many students there are with each of these three kinds of digital identities? No. That is not what the author is trying to do. Her concluding paragraph (lines 208–213) is modest: She calls for research on the digital divide. Do these data support a call for more research? I think so, yet use critical thinking to make your own decision.

My points here are that social research most often relies on nonprobability samples and that these samples have only one *necessary* limitation: Inferential statistics cannot be used to make statistical claims about generalizability from sample to relevant population. Such samples, however, can be quite adequate to answer a range of questions about the mysteries of social life.

### Types of Nonprobability Sampling

There are many techniques that can be used to generate nonprobability samples. Here are the most common:

*Theoretical Sampling*: In this technique, researchers carefully select cases that will help reveal features that are important for the study.

This, of course, assumes deductive logic (what is important is already known). The object of this form of sampling is *not* to construct a sample that is more-or-less typical of some larger group. The purpose rather is to construct a sample containing what the researcher needs to examine the particular question.

> **Example 7.9:** Research exploring how presidential communication promoting war differs by audience could begin by choosing a particular event (such as the events of September 11, 2001, that were triggers for wars in Iraq and Afghanistan) and then look at the first speech about this event given to different audiences (such as a speech broadcast on national media to the American public, one given to Congress, and one given at the United Nations). Data from such a sample could *not* be used to discuss characteristics of all presidential addresses, yet they *would* be adequate to show differences in communication to these audiences.

*Quota sampling:* Quota sampling constructs a sample that is as close to a probability sample as possible. The researcher identifies important characteristics of the relevant population and then develops a sample that mimics the population. This method requires that the researcher knows the characteristics of the population, but it does *not* require drawing up a list of those population elements.

> **Example 7.10:** Colleges and universities regularly offer reports of the characteristics of their students in terms of gender, race/ethnicity, age, percentage on financial aid (often taken as an indicator of social class), and so on. A researcher interested in obtaining as close as possible to a probability sample of "college students" might begin with these figures and choose a sample that reflected these characteristics.

*Snowball sampling:* Snowball sampling is used to locate study participants, especially when they are in hidden populations. In this technique, members of the relevant group are asked to identify others. This technique makes use of social networks.

> **Example 7.11:** I was interested in the experiences of women who do child daycare in their own homes without a license. I started with a neighbor who did such work herself. After the interview, I asked if she knew anyone else. She gave my phone number to three women, one called me and we talked. That woman gave my name to two other women and I talked with both of them. I proceeded in this way, asking each woman I talked with if she could give my name and number to others who could call if they were interested in talking with me. In the end, I talked with 15 women.



*Convenience sampling:* This is just what it sounds like: Gather data where it is possible to gather data.

> **Example 7.12:** The majority of articles in the Appendix use convenience samples. These include research participants who are "students in an introductory communications course" (line 176 in "Mean Girls?"), "recruited through the subject pool" (line 90 in "Identity Threat and Dietary Choices Among U.S. Immigrant Groups"), or recruited "online through the official residential hall mailing list and through residential hall floor meetings" (lines 64–65 in "The Digital Identity Divide").

*Self-selected sampling:* The sampling in almost all social research is, ultimately, "self-selected" because people decide whether or not to complete a survey or participate in an experiment. At times, researchers begin with self-sampling. Self-selected samples are obtained by putting announcements on bulletin boards, newspapers, or online. These announcements describe the research topic and what will be asked of participants. Announcements ask interested people to contact the researcher.

## Designing High-Quality Nonprobability Samples

Nonprobability samples vary in their quality. Some are inadequate, some are good, and some are excellent. If you are designing research, think carefully about this element in research design.

**High-quality nonprobability sampling requires critical thinking.**

While there are agreed-upon rules and procedures for obtaining high-quality probability samples, the quality of nonprobability samples depends upon the care researchers take to think through, and compensate for, biases. Here are some issues to think about when you are designing or evaluating research:

*Are convenience samples too convenient?* While there is nothing necessarily wrong with convenience samples, at times they seem to be *too* convenient. An example would be a professor who surveys students in one of her own classes. This is a possible violation of ethics and there are all sorts of reasons why using her own students could lead to biases. Consider, though, how the sample could be vastly improved. The instructors could use students in classes other than her own—she could use students in different kinds of classes (such as natural science, social science, humanities), which would increase diversity. As another

example, rather than standing outside the library asking passing students to complete surveys, it would be preferable to stand outside the library, the recreation center, and perhaps other sites because students with different characteristics frequent different places. Again, the possible examples are never ending. The lesson is: Do not allow the term *convenience* to lead you to believe that data generation should be convenient for researchers.

*Why do respondents self-select?* Ask why some people—and not others—volunteer to be a part of an experiment, a survey, or an interview. Is it possible that students answering a survey on stalking have some interest in the topic? Is it likely that people volunteering to talk about the deficiencies of the campus career counseling office, have had bad experiences with that office? There is no way to know, of course, yet you can anticipate such possibilities, and attempt to measure them. You also can use several different routes to finding respondents. For example, notices could be placed in different kinds of places.

*Do snowball samples reflect the characteristics and biases of the researcher?* The technique of snowballing has the promise of being the most unbiased technique of generating nonprobability samples. However, the extent to which such techniques actually produce such samples is dependent upon the researcher using the technique.

> **Example 7.13:** One of my students felt very strongly that *vegan* was the only ethical stance toward food, clothing, and all else using animal products. She wanted to see how common it was for others to feel so strongly. She started a snowball sample with her boyfriend. Then she talked to his best friend and his best friend's girlfriend and continued in this way. Her data were predictable: All of her research respondents felt the same way that she did. Of course they did—her sample did not go beyond her own circle of friends. To be effective, researchers using snowball sampling must be very mindful of the kinds of decisions they are making. First, researchers must continually seek to find research participants who do *not* share researchers' characteristics. Second, they must work to increase diversity in their samples, particularly by finding people who do *not* have the characteristics researchers assume they will have.

In summary, researchers who carefully think out how to obtain a good sample often can obtain one. This can take work, it always takes critical thinking. As with all else, few samples are perfect, but many can be quite adequate and some are excellent.



## EVALUATING SAMPLES IN PUBLISHED RESEARCH

Because samples determine findings and their meanings, when evaluating the research of others it is important to evaluate samples. Unfortunately, this often is not easy because publishing conventions in academic journals often allow researchers to give only the vaguest descriptions of sampling techniques and sample characteristics.

*Problems in evaluating probability samples in published research:* It is very common for researchers to use inferential statistics without fully describing how the relevant population was defined or the probability sample drawn.

> **Example 7.14:** Although my editing eliminated all statistical presentations in example articles, the full manuscript of "Changes in Adult Attachment Styles" uses inferential statistics to talk about the changes in attachment styles among "American college students." We are told that researchers reanalyzed already published data from "94 separate samples" (lines 65–66) using the RQ (Relationship Questionnaire), yet the inclusion criteria (lines 53–61) yielding these data did not include information about the characteristics of samples used in these 94 studies. Were the 94 samples used for this analysis each probability samples? We do not know. Does it matter to study findings if some, many, or most of the 94 samples generating these data were not probability samples? We cannot judge.

Does it really matter if inferential statistics are used on nonprobability samples? Technically, it does because the mathematics of inferential statistics assume sample characteristics that are met only when the sample is probability. However, when samples are very large (there were over 25,000 college students in the 94 studies used in the "Attachment" study cited above), such problems become more "technical" than real. When evaluating research, use critical thinking to decide the extent to which technical problems likely have real influences on study findings or interpretations.

*Problems in evaluating nonprobability samples in published research*: While more of a characteristic of journal articles than of books, publishing conventions often allow only minimal attention to the characteristics of sample design. Readers are told that snowball sampling was used, for example, yet nothing about how, specifically, the sample was built from person to person. Readers are told the sample was self-selected,

yet little about how, specifically, that worked. While this is an unfortunate characteristic of much publishing, what you can expect is that authors seriously engage the topic of what biases likely are possible from their samples.

## SAMPLES AND RESEARCH DESIGN

I included this chapter on samples at the end of my description of the process of research design because in many respects, sampling decisions come at the end of the design process. You will not know if you need to recruit people to participate in your study or what you need to recruit people for until you decide what data generation techniques you will use. You will not know if you want to examine court records or newspaper articles or magazines or blogs until you work through questions about data generation techniques. At the same time, I will close this chapter with the way I have concluded all others: If you are designing research, do not expect that you will make design decisions once and only once or that decisions are made in a particular order. Keep in mind what you have learned from this chapter about sampling and samples as you think about your research questions, as you conceptualize and operationalize your major concepts, and as you decide what data generation techniques make the most sense. Research is a package, and the highest quality research is characterized by logical consistency. Particular research questions are best answered by particular data generation techniques; particular research questions are also best answered with data from particular types of samples.

I have one final topic before concluding this brief tour through the world of social research design: general lessons in thinking about research design. This is a summary of recurring comments I made throughout this book.