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and 5, which apparently continue to provide well-appreciated guidance to case study investigators. In particular, Chapter 2 clarifies the strengths of multiple-case studies compared to single-case studies, especially the value of designing a "two-case" case study. Chapter 5 now presents fully five major analytic techniques, especially expanding on the use of logic models to guide analysis and also permitting the deletion of an earlier discussion of lesser modes of analysis. These and other examples, such as the discussion of case study screening (Chapter 3) and case studies as part of larger multimethod studies (Chapter 6), demonstrate that the case study craft not only can be updated but also can be upgraded. The upgrading produced a second challenge—avoiding the extremes of presenting a methodology that is either too basic or too obscure; The book should still provide practical and sound advice to be followed by novices and experienced investigators alike.

Yet a third general change has been the insertion of references (mostly in the notes at the end of each chapter) to examples of actual case studies that appear in the revised edition of a companion book, *Applications of Case Study Research* (2003). The companion book helps to meet yet another need expressed over the years—having access to case studies and not just advice about doing case studies. The references scattered throughout this book, to specific chapters in the companion book, tighten the relationship between principles for practice (this book) and samples from practice (the other book). Despite all these updates and changes, the text and chapters will appear largely similar to those of the second edition. The stability (not sterility!) is desirable because it reinforces the robustness of the basic case study method.

Throughout this entire process, I have carefully reviewed every word of the original text, still trying to improve sentence structure and syntax. Such editing is unending, compounded by the evolution of the American language—for example, "personal computers" instead of "microcomputers." Although the text is longer, I hope that it is easier to read.

I close this note by thanking all of you who have used this book over the past now-nearly 20 years. Comments about earlier versions suggest that the craft continues to advance, however haltingly. Understanding if not actual use of the method also appears more widespread. Whereas in 1984, the case study method appeared to be but a specialized niche in the repertoire of social science methods, figure and ground may have shifted. Most social scientists, whether wanting to practice case studies or not, now have some awareness and understanding of the method and may be increasingly using it in conjunction with other methods. These trends are heartening. Thank you all, once again.

1

Introduction

The case study is but one of several ways of doing social science research. Other ways include experiments, surveys, histories, and the analysis of archival information. Each strategy has peculiar advantages and disadvantages, depending on three conditions: (a) the type of research question, (b) the control an investigator has over actual behavioral events, and (c) the focus on contemporary as opposed to historical phenomena.

In general, case studies are the preferred strategy when "how" or "why" questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context. Such *explanatory* case studies also can be complemented by two other types—*exploratory* and *descriptive* case studies. Regardless of the type of case study, investigators must exercise great care in designing and doing case studies to overcome the traditional criticisms of the method.

THE CASE STUDY AS A RESEARCH STRATEGY

Using case studies for *research* purposes remains one of the most challenging of all social science endeavors. The purpose of this book is to help you—an experienced or budding social scientist—to deal with the challenge. Your goal is to design good case studies and to collect, present, and analyze data fairly. A further goal is to bring the case study to closure by writing a compelling report or book.

As a research strategy, the case study is used in many situations to contribute to our knowledge of individual, group, organizational, social, political, and related phenomena. Not surprisingly, the case study has been a common research strategy in psychology, sociology, political science, social work (Gilgun, 1994), business (Ghauri & Grønhaug, 2002), and community planning. Case studies are found even in economics, in which the structure of a given industry or the economy of a city or a region may be investigated by using the case study method. In all of these situations,

the distinctive need for case studies arises out of the desire to understand complex social phenomena. In brief, the case study method allows investigators to retain the holistic and meaningful characteristics of real-life events—such as individual life cycles, organizational and managerial processes, neighborhood change, international relations, and the maturation of industries.

This book covers the distinctive characteristics of the case study as a research method. The book will help you to deal with some of the more difficult questions still commonly neglected by available research texts. So often, for instance, the author has been confronted by a student or colleague who has asked (a) how to define the case being studied, (b) how to determine the relevant data to be collected, or (c) what should be done with the data, once collected. This book answers these questions and more by covering all of the phases of design, data collection, analysis, and reporting.

At the same time, the book does not cover all uses of case studies. For example, it is not intended to help those who might use case studies as teaching devices, popularized in the fields of law, business, medicine, or public policy (see Llewellyn, 1948; Stein, 1952; Towl, 1969; Windsor & Greanias, 1983) but now prevalent in virtually every academic field, including the natural sciences. For teaching purposes, a case study need not contain a complete or accurate rendition of actual events; rather, its purpose is to establish a framework for discussion and debate among students. The criteria for developing good cases for teaching—usually of the single- and not multiple-case variety—are far different from those for doing case study research (e.g., Caulley & Dowdy, 1987). Teaching case studies need not be concerned with the rigorous and fair presentation of empirical data; research case studies need to do exactly that.

Similarly, this book is not intended to cover those situations in which cases are used as a form of record keeping. Medical records, social work files, and other case records are used to facilitate some practice such as medicine, law, or social work. Again, the criteria for developing good cases for practice are different from those for designing case studies for research.

In contrast, the rationale for this book is that case studies have been increasingly used as a research tool (e.g., Hamel, 1992; Perry & Kraemer, 1986) and that you, as a social scientist, would like to know how to design and conduct single- or multiple-case studies to investigate a research issue. You may only be doing a case study or using it as part of a larger multimethod study (see Chapter 6). Whichever, this book concentrates heavily on the problem of designing and analyzing case studies. It is not merely a guide to collecting case study evidence. In this sense, the book fills a void in social science methodology, which has been dominated by texts on "fieldwork" and "field research" and, more recently, on "qualitative methods"—but that offer few guides on how to start a case study, analyze the data, or even minimize the problems of composing the case study report.

COMPARING CASE STUDIES WITH OTHER RESEARCH STRATEGIES IN THE SOCIAL SCIENCES

When and why would you want to do a case study on some topic? Should you consider doing an experiment instead? A survey? A history? A computer-based analysis of archival records, such as economic trends or student records?

These and other choices represent different research strategies. Each is a different way of collecting and analyzing empirical evidence, following its own logic. And each strategy has its own advantages and disadvantages. To get the most out of using the case study strategy, you need to appreciate these differences.[1]

A common misconception is that the various research strategies should be arrayed hierarchically. Many social scientists still deeply believe that case studies are only appropriate for the exploratory phase of an investigation, that surveys and histories are appropriate for the descriptive phase, and that experiments are the only way of doing explanatory or causal inquiries (e.g., Shavelson & Townes, 2002). This hierarchical view reinforces the idea that case studies are only a preliminary research strategy and cannot be used to describe or test propositions.

This hierarchical view, however, may be questioned. Experiments with an exploratory motive have certainly always existed. In addition, the development of causal explanations has long been a serious concern of historians, reflected by the subfield known as historiography. Likewise, case studies are far from being only an exploratory strategy. Some of the best and most famous case studies have been both explanatory case studies (e.g., see BOX 1 for a vignette on Allison and Zelikow's *Essence of Decision: **Explaining** the Cuban Missile Crisis*, 1999 [emphasis added]) and descriptive case studies (e.g., see BOX 2 for a vignette on Whyte's *Street Corner Society*, 1943/1955).[2]

The more appropriate view of these different strategies is an inclusive and pluralistic one. Each strategy can be used for all three purposes—exploratory, descriptive, or explanatory. There may be exploratory case studies, descriptive case studies, or explanatory case studies (Yin, 1981a, 1981b). There also may be exploratory experiments, descriptive experiments, and explanatory

BOX 1

A Best-Selling, Explanatory, Single-Case Study

For more than 30 years, Graham Allison's (1971) original study of a single case, the 1962 Cuban missile crisis—in which the U.S.–Soviet Union confrontation could have produced nuclear holocaust—has been a political science best-seller. The book posits three competing but also complementary theories to explain the crisis—that the United States and Soviet Union performed as (a) rationale actors, (b) complex bureaucracies, or (c) politically motivated groups of persons. Allison compares the ability of each one to explain the course of events in the crisis: why the Soviet Union placed offensive (and not merely defensive) missiles in Cuba in the first place, why the United States responded to the missile deployment with a blockade (and not an air strike or invasion—the missiles already were in Cuba!), and why the Soviet Union eventually withdrew the missiles.

The case study shows the explanatory and not just descriptive or exploratory functions of single-case studies. Furthermore, the lessons from the case study are intended to be generalizable not only to foreign affairs more broadly but also to a whole variety of complex governmental actions. In this way, the book, even more thoughtfully presented in its second edition (Allison & Zelikow, 1999), forcefully demonstrates how a single-case study can be the basis for significant explanations and generalizations.

BOX 2

A Famous Descriptive Case Study

Street Corner Society, by William F. Whyte (1943/1955), has for decades been recommended reading in community sociology. The book is a classic example of a descriptive case study. It traces the sequence of interpersonal events over time, describes a subculture that had rarely been the topic of previous study, and discovers key phenomena—such as the career advancement of lower-income youths and their ability (or inability) to break neighborhood ties.

The study has been highly regarded despite its being a single-case study, covering one neighborhood ("Cornerville") and a time period now more than 70 years old. The value of the book is, paradoxically, its generalizability to issues of individual performance, group structure, and the social structure of neighborhoods. Later investigators have repeatedly found remnants of Cornerville in their work, even though they have studied different neighborhoods and different time periods.

Strategy	Form of Research Question	Requires Control of Behavioral Events?	Focuses on Contemporary Events?
Experiment	how, why?	Yes	Yes
Survey	who, what, where, how many, how much?	No	Yes
Archival analysis	who, what, where, how many, how much?	No	Yes/No
History	how, why?	No	No
Case study	how, why?	No	Yes

Figure 1.1 Relevant Situations for Different Research Strategies
SOURCE: COSMOS Corporation.

experiments. What distinguishes the strategies is not this hierarchy but three other conditions, discussed below. Nevertheless, the clarification does not imply that the boundaries between the strategies—or the occasions when each is to be used—are always sharp. Even though each strategy has its distinctive characteristics, there are large overlaps among them. The goal is to avoid gross misfits—that is, when you are planning to use one type of strategy but another is really more advantageous.

When to Use Each Strategy

The three conditions consist of (a) the type of research question posed, (b) the extent of control an investigator has over actual behavioral events, and (c) the degree of focus on contemporary as opposed to historical events. Figure 1.1 displays these three conditions and shows how each is related to the five major research strategies being discussed: experiments, surveys, archival analyses, histories, and case studies. The importance of each condition, in distinguishing among the five strategies, is as follows.

Types of research questions (Figure 1.1, column 1). The first condition covers your research question(s) (Hedrick, Bickman, & Rog, 1993). A basic categorization scheme for the types of questions is the familiar series: "who," "what," "where," "how," and "why."

If research questions focus mainly on "what" questions, either of two possibilities arises. First, some types of "what" questions are exploratory,

such as, "What can be learned from a study of an effective school?" This type of question is a justifiable rationale for conducting an exploratory study, the goal being to develop pertinent hypotheses and propositions for further inquiry. However, as an exploratory study, any of the five research strategies can be used—for example, an exploratory survey, an exploratory experiment, or an exploratory case study. The second type of "what" question is actually a form of a "how many" or "how much" line of inquiry—for example, "What have been the outcomes from a particular managerial restructuring?" Identifying such outcomes is more likely to favor survey or archival strategies than others. For example, a survey can be readily designed to enumerate the "what," whereas a case study would not be an advantageous strategy in this situation.

Similarly, like this second type of "what" question, "who" and "where" questions (or their derivatives—"how many" and "how much") are likely to favor survey strategies or the analysis of archival records, as in economic research. These strategies are advantageous when the research goal is to describe the incidence or prevalence of a phenomenon or when it is to be *predictive* about certain outcomes. The investigation of prevalent political attitudes (in which a survey or a poll might be the favored strategy) or of the spread of a disease like AIDS (in which an epidemiological analysis of health statistics might be the favored strategy) would be typical examples.

In contrast, "how" and "why" questions are more *explanatory* and likely to lead to the use of case studies, histories, and experiments as the preferred research strategies. This is because such questions deal with operational links needing to be traced over time, rather than mere frequencies or incidence. Thus, if you wanted to know how a community successfully overcame the negative impact of the closing of its largest employer—a military base (see Bradshaw, 1999)—you would be less likely to rely on a survey or an examination of archival records and might be better off doing a history or a case study. Similarly, if you wanted to know why bystanders fail to report emergencies under certain conditions, you could design and conduct a series of experiments (see Latané & Darley, 1969).

Let us take two more examples. If you were studying "who" had suffered as a result of terrorist acts and "how much" damage had been done, you might survey residents, examine business records (an archival analysis), or conduct a "windshield survey" of the affected area. In contrast, if you wanted to know "why" the act had occurred, you would have to draw on a wider array of documentary information, in addition to conducting interviews; if you focused on the "why" question in more than one terrorist act, you would probably be doing a multiple-case study.

Similarly, if you wanted to know "what" the outcomes of a new governmental program had been, you could answer this question by doing a survey

or by examining economic data, depending on the type of program involved. Questions—for example, How many clients did the program serve? What kinds of benefits were received? How often were different benefits produced?—could all be answered without doing a case study. But if you needed to know "how" or "why" the program had worked (or not), you would lean toward either a case study or a field experiment.

To summarize, the first and most important condition for differentiating among the various research strategies is to identify the type of research question being asked. In general, "what" questions may either be exploratory (in which case any of the strategies could be used) or about prevalence (in which surveys or the analysis of archival records would be favored). "How" and "why" questions are likely to favor the use of case studies, experiments, or histories.

Defining the research questions is probably the most important step to be taken in a research study, so you should allow patience and sufficient time for this task. The key is to understand that research questions have both *substance* (e.g., What is my study about?) and *form* (e.g., Am I asking a "who," "what," "where," "why," or "how" question?). Others have focused on some of the substantively important issues (see Campbell, Daft, & Hulin, 1982); the point of the preceding discussion is that the form of the question can provide an important clue regarding the appropriate research strategy to be used. Remember, too, the large areas of overlap among the strategies, so that for some questions, a choice among strategies might actually exist. Be aware, finally, that you may be predisposed to pursue a particular strategy regardless of the study question. If so, be sure to create the form of the study question best matching the strategy you were inclined to pursue in the first place.

Extent of control over behavioral events (Figure 1.1, column 2) and degree of focus on contemporary as opposed to historical events (Figure 1.1, column 3). Assuming that "how" and "why" questions are to be the focus of study, a further distinction among history, case study, and experiment is the extent of the investigator's control over and access to actual behavioral events. Histories are the preferred strategy when there is virtually no access or control. The distinctive contribution of the historical method is in dealing with the "dead" past—that is, when no relevant persons are alive to report, even retrospectively, what occurred and when an investigator must rely on primary documents, secondary documents, and cultural and physical artifacts as the main sources of evidence. Histories can, of course, be done about contemporary events; in this situation, the strategy begins to overlap with that of the case study.

The case study is preferred in examining contemporary events, but when the relevant behaviors cannot be manipulated. The case study relies on

many of the same techniques as a history, but it adds two sources of evidence not usually included in the historian's repertoire: direct observation of the events being studied and interviews of the persons involved in the events. Again, although case studies and histories can overlap, the case study's unique strength is its ability to deal with a full variety of evidence—documents, artifacts, interviews, and observations—beyond what might be available in a conventional historical study. Moreover, in some situations, such as participant-observation (see Chapter 4), informal manipulation can occur.

Finally, experiments are done when an investigator can manipulate behavior directly, precisely, and systematically. This can occur in a laboratory setting, in which an experiment may focus on one or two isolated variables (and presumes that the laboratory environment can "control" for all the remaining variables beyond the scope of interest), or it can be done in a field setting, where the term *social experiment* has emerged to cover research in which investigators "treat" whole groups of people in different ways, such as providing them with different kinds of vouchers (Boruch, 1993). Again, the methods overlap. The full range of experimental science also includes those situations in which the experimenter cannot manipulate behavior (see Blalock, 1961; Campbell & Stanley, 1966; Cook & Campbell, 1979) but in which the logic of experimental design may still be applied. These situations have been commonly regarded as "quasi-experimental" situations. The quasi-experimental approach can even be used in a historical setting, where, for instance, an investigator may be interested in studying race riots or lynchings (see Spilerman, 1971) and use a quasi-experimental design because no control over the behavioral event was possible.

In the field of evaluation research, Boruch and Foley (2000) have made a compelling argument for the practicality of one form of the quasi-experimental strategy—randomized field trials. The authors maintain that the field trials design can be and has been used even when evaluating complex community initiatives. If implementable, such a design is certainly superior to other designs because it produces greater certainty in the results. However, Boruch and Foley's pronouncements and review of the literature do not address common situations in which using randomized field trials is nevertheless difficult to implement if not totally infeasible. The situations include the following:

- the program being evaluated decides to fund specific sites on a competitive award procedure (the random field trials design requires random assignment to intervention and control groups);
- any comparison or control sites, selected to match the funded (intervention) sites, may already have in place or later adopt important components of the funded intervention by using other resources (the design usually assumes that the intervention sites have the more potent intervention);
- the funded intervention may call for the community to reorganize its entire manner of providing certain services—that is, a "systems" change—thereby creating site-to-site variability in the unit of assignment or analysis (the design assumes that the unit of assignment is the same at every site, both intervention and control);
- the same systems change aspect of the intervention also may mean that the organizations or entities administering the intervention may not necessarily remain stable over the course of time (the design requires such stability until the random field trials have been completed);
- the funded intervention sites may be unwilling or unable to use the same instruments and measures (the design, which will ultimately "group" the data to compare intervention sites as a group with comparison sites as a second group, requires common instruments and measures across sites).

The existence of any of these conditions will likely lead to the need to find alternatives to randomized field trials.

Summary. You should be able to identify some situations in which all research strategies might be relevant (such as exploratory research) and other situations in which two strategies might be considered equally attractive. You also can use multiple strategies in any given study (e.g., a survey within a case study or a case study within a survey). To this extent, the various strategies are not mutually exclusive. But you should also be able to identify some situations in which a specific strategy has a distinct advantage. For the *case study*, this is when

- a "how" or "why" question is being asked about a contemporary set of events, over which the investigator has little or no control.

Determining the questions that are most significant for a topic and gaining some precision in formulating these questions requires much preparation. One way is to review the literature on the topic (Cooper, 1984). Note that such a literature review is therefore a means to an end and not—as many people have been taught to think—an end in itself. Novices may think that the purpose of a literature review is to determine the *answers* about what is known on a topic; in contrast, experienced investigators review previous research to develop sharper and more insightful *questions* about the topic.

Traditional Prejudices Against the Case Study Strategy

Although the case study is a distinctive form of empirical inquiry, many research investigators nevertheless disdain the strategy. In other words, as a research endeavor, case studies have been viewed as a less desirable form of inquiry than either experiments or surveys. Why is this?

Perhaps the greatest concern has been over the lack of rigor of case study research. Too many times, the case study investigator has been sloppy, has not followed systematic procedures, or has allowed equivocal evidence or biased views to influence the direction of the findings and conclusions. Such lack of rigor is less likely to be present when using the other strategies—possibly because of the existence of numerous methodological texts providing investigators with specific procedures to be followed. In contrast, few if any texts (besides the present one) cover the case study method in similar fashion.

The possibility also exists that people have confused case study teaching with case study research. In teaching, case study materials may be deliberately altered to demonstrate a particular point more effectively (e.g., Stein, 1952). In research, any such step would be strictly forbidden. Every case study investigator must work hard to report all evidence fairly, and this book will help her or him to do so. What is often forgotten is that bias also can enter into the conduct of experiments (see Rosenthal, 1966) and the use of other research strategies, such as designing questionnaires for surveys (Sudman & Bradburn, 1982) or conducting historical research (Gottschalk, 1968). The problems are not different, but in case study research, they may have been more frequently encountered and less frequently overcome.

A second common concern about case studies is that they provide little basis for scientific generalization. "How can you generalize from a single case?" is a frequently heard question. The answer is not simple (Kennedy, 1976). However, consider for the moment that the same question had been asked about an experiment: "How can you generalize from a single experiment?" In fact, scientific facts are rarely based on single experiments; they are usually based on a multiple set of experiments that have replicated the same phenomenon under different conditions. The same approach can be used with multiple-case studies but requires a different concept of the appropriate research designs, discussed in detail in Chapter 2. The short answer is that case studies, like experiments, are generalizable to theoretical propositions and not to populations or universes. In this sense, the case study, like the experiment, does not represent a "sample," and in doing a case study, your goal will be to expand and generalize theories (analytic generalization) and not to enumerate frequencies (statistical generalization). Or, as three notable social scientists describe in their *single* case study done years ago, the goal is to do a "generalizing" and not a "particularizing" analysis (Lipset, Trow, & Coleman, 1956, pp. 419-420).

A third frequent complaint about case studies is that they take too long and result in massive, unreadable documents. This complaint may be appropriate, given the way case studies have been done in the past (e.g., Feagin, Orum, & Sjoberg, 1991), but this is not necessarily the way case studies—yours included—must be done in the future. Chapter 6 discusses alternative ways of writing the case study—including ones in which the traditional, lengthy narrative can be avoided altogether. Nor need case studies take a long time. This incorrectly confuses the case study method with a specific method of data collection, such as ethnography (e.g., Fetterman, 1989) or participant-observation (e.g., Jorgensen, 1989). Ethnographies usually require long periods of time in the "field" and emphasize detailed, observational evidence. Participant-observation may not require the same length of time but still assumes a hefty investment of field efforts. In contrast, case studies are a form of inquiry that does *not* depend solely on ethnographic or participant-observer data. You could even do a valid and high-quality case study without leaving the library and the telephone or Internet, depending on the topic being studied.

Despite the fact that these common concerns can be allayed, as above, one major lesson is that good case studies are still difficult to do. The problem is that we have little way of screening or testing for an investigator's ability to do good case studies. People know when they cannot play music; they also know when they cannot do mathematics beyond a certain level; and they can be tested for other skills, such as the bar examination in law. Somehow, the skills for doing good case studies have not yet been defined, and as a result,

> most people feel that they can prepare a case study, and nearly all of us believe we can understand one. Since neither view is well founded, the case study receives a good deal of approbation it does not deserve. (Hoaglin, Light, McPeek, Mosteller, & Stoto, 1982, p. 134)

This quotation is from a book by five prominent *statisticians*. Surprisingly, even from another field, they recognize the challenge of doing good case studies.

DIFFERENT KINDS OF CASE STUDIES, BUT A COMMON DEFINITION

Our discussion has progressed without a formal definition of case studies. Moreover, commonly asked questions about case studies have still been

unanswered. For example, is it still a case study when more than one case is included in the same study? Do case studies preclude the use of quantitative evidence? Can case studies be used to do evaluations? Let us now attempt to define the case study strategy and answer these questions.

Definition of the Case Study as a Research Strategy

The most frequently encountered definitions of case studies have merely repeated the types of topics to which case studies have been applied. For example, in the words of one observer,

> The essence of a case study, the central tendency among all types of case study, is that it tries to illuminate a *decision* or set of decisions: why they were taken, how they were implemented, and with what result. (Schramm, 1971, emphasis added)

This definition thus cites the topic of "decisions" as the major focus of case studies. Other topics have been similarly cited, including "individuals," "organizations," "processes," "programs," "neighborhoods," "institutions," and even "events."[3] However, citing the topic is surely insufficient to establish the needed definition of case studies.

Alternatively, most social science textbooks have failed to consider the case study a formal research method at all (the major exception is the book by five statisticians from Harvard University—Hoaglin et al., 1982). As discussed earlier, one common flaw was to consider the case study as the exploratory stage of some other type of research strategy, and the case study itself was only mentioned in a line or two of text.

Another definitional flaw has been to confuse case studies with ethnographies or with participant-observation, so that a textbook's presumed discussion of case studies was in reality a description either of the ethnographic method or of participant-observation as a data collection technique. Many standard methodological texts (e.g., see the earlier ones by Kidder & Judd, 1986; Nachmias & Nachmias, 1992), in fact, still cover "fieldwork" only as a data collection technique and omit any further discussion of case studies.

In a historical overview of the case study in American methodological thought, Jennifer Platt (1992a) explains the reasons for these treatments. She traces the practice of doing case studies back to the conduct of life histories, the work of the Chicago school of sociology, and casework in social work. She then shows how "participant-observation" emerged as a data collection technique, leaving the further definition of any distinctive case

study method in suspension. Finally, she explains how the first edition of this book (1984) definitively dissociated the case study strategy from the limited perspective of doing participant-observation (or any type of fieldwork). The case study strategy, in her words, begins with "a logic of design . . . a strategy to be preferred when circumstances and research problems are appropriate rather than an ideological commitment to be followed whatever the circumstances" (Platt, 1992a, p. 46).

And just what is this logic of design? The technically critical features had been worked out prior to the first edition of this book (Yin, 1981a, 1981b) but now may be restated in two ways. First, the technical definition begins with the scope of a case study:

1. A case study is an empirical inquiry that

- investigates a contemporary phenomenon within its real-life context, especially when
- the boundaries between phenomenon and context are not clearly evident.

In other words, you would use the case study method because you deliberately wanted to cover contextual conditions—believing that they might be highly pertinent to your phenomenon of study. This first part of our logic of design therefore helps us to understand case studies by continuing to distinguish them from the other research strategies that have been discussed.

An experiment, for instance, deliberately divorces a phenomenon from its context, so that attention can be focused on only a few variables (typically, the context is "controlled" by the laboratory environment). A history, by comparison, does deal with the entangled situation between phenomenon and context, but usually with *non*contemporary events. Finally, surveys can try to deal with phenomenon and context, but their ability to investigate the context is extremely limited. The survey designer, for instance, constantly struggles to limit the number of variables to be analyzed (and hence the number of questions that can be asked) to fall safely within the number of respondents that can be surveyed.

Second, because phenomenon and context are not always distinguishable in real-life situations, a whole set of other technical characteristics, including data collection and data analysis strategies, now become the second part of our technical definition:

2. The case study inquiry

- copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as one result

- relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result
- benefits from the prior development of theoretical propositions to guide data collection and analysis.

In other words, the case study as a research strategy comprises an all-encompassing method—covering the logic of design, data collection techniques, and specific approaches to data analysis. In this sense, the case study is not either a data collection tactic or merely a design feature alone (Stoecker, 1991) but a comprehensive research strategy. How the strategy is defined and practiced is the topic of this entire book.

Certain other features of the case study strategy are not critical for defining the strategy but may be considered variations within case study research and also provide answers to common questions.

Variations Within Case Studies as a Research Strategy

Yes, case study research includes both single- and multiple-case studies. Though some fields, such as political science and public administration, have tried to distinguish sharply between these two approaches (and have used such terms as the *comparative case method* as a distinctive form of multiple-case studies) (see Agranoff & Radin, 1991; George, 1979; Lijphart, 1975), single- and multiple-case studies are in reality but two variants of case study designs (see Chapter 2 for more).

And, yes, case studies can include and even be limited to quantitative evidence. In fact, the contrast between quantitative and qualitative evidence does not distinguish the various research strategies. Note that, as analogous examples, some experiments (such as studies of psychophysical perceptions) and some survey questions (such as those seeking categorical rather than numerical responses) rely on qualitative and not quantitative evidence. Likewise, historical research can include enormous amounts of quantitative evidence.

As a related but important note, the case study strategy should not be confused with "qualitative research" (e.g., Denzin & Lincoln, 1994). Some qualitative research follows ethnographic methods and seeks to satisfy two conditions: (a) the use of close-up, detailed observation of the natural world by the investigator and (b) the attempt to avoid prior commitment to any theoretical model (Jacob, 1987, 1989; Lincoln & Guba, 1986; Stake, 1983; Van Maanen, Dabbs, & Faulkner, 1982, p. 16). However, ethnographic research does not always produce case studies (e.g., see the brief ethnographies in G. Jacobs, 1970), nor are case studies limited to these two conditions. Instead, case studies can be based on any mix of quantitative and qualitative evidence. In addition, case studies need not always include direct, detailed observations as a source of evidence.

As a further note, some investigators distinguish between quantitative research and qualitative research—not on the basis of the type of evidence but on the basis of wholly different philosophical beliefs (e.g., Guba & Lincoln, 1989; Lincoln, 1991; Sechrest, 1991; Smith & Heshusius, 1986). These distinctions have produced a sharp debate within the field of evaluation research. Although some believe that these philosophical beliefs are irreconcilable, the counterargument can still be posed—that regardless of whether one favors qualitative or quantitative research, there is a strong and essential common ground between the two (Yin, 1994b).

And, yes, case studies have a distinctive place in evaluation research (see Cronbach et al., 1980; Guba & Lincoln, 1981; Patton, 1990; U.S. General Accounting Office, 1990). There are at least five different applications. The most important is to *explain* the presumed causal links in real-life interventions that are too complex for the survey or experimental strategies. In evaluation language, the explanations would link program implementation with program effects (U.S. General Accounting Office, 1990). A second application is to *describe* an intervention and the real-life context in which it occurred. Third, case studies can *illustrate* certain topics within an evaluation, again in a descriptive mode. Fourth, the case study strategy may be used to *explore* those situations in which the intervention being evaluated has no clear, single set of outcomes. Fifth, the case study may be a *meta-evaluation*—a study of an evaluation study (Smith, 1990; Stake, 1986). Whatever the application, one constant theme is that program sponsors—rather than research investigators alone—may have a prominent role in defining the evaluation questions and relevant data categories (U.S. General Accounting Office, 1990).

And finally, yes, case studies can be conducted and written with many different motives, including the simple presentation of individual cases or the desire to arrive at broad generalizations based on case study evidence (see BOX 3).

SUMMARY

This chapter has introduced the importance of the case study as a research method. The case study, like other research strategies, is a way of investigating an empirical topic by following a set of prespecified procedures. Articulating these procedures will dominate the remainder of this book.

BOX 3

Generalizing From Case Studies

Case study books can simply present individual case studies or also use the cases to make broader generalizations. Both approaches are found on a topic of continued public interest: identifying successful programs to improve U.S. social conditions.

3a. A Book That Does Not Generalize

Jonathan Crane (1998) edited a collection on nine programs, each presented in a separate chapter and written by a different author. The programs have in common strong evidence of their effectiveness, but they vary widely in their focus—from education to nutrition to drug prevention to preschool programs to drug treatment for delinquent youths. The aim of the book is to share this information, and the editor attempts no summary chapter, cross-program analysis, or generalizations.

3b. A Book That Does Generalize

Lisbeth Schorr's (1997) book is about major strategies for improving social conditions, illustrated by four policy topics: welfare reform, strengthening the child protection system, education reform, and transforming neighborhoods. The book is full of case studies of successful programs. Also citing data from the literature, the author develops numerous generalizations based on the case studies, including the need for successful programs to be "results oriented." Similarly, she identifies six other attributes of highly effective programs.

The chapter has provided an operational definition of the case study and has identified some of the variations in case studies. The chapter also has attempted to distinguish the case study from alternative research strategies in social science, indicating the situations in which doing a case study may be preferred, for instance, to doing a survey. Some situations may have no clearly preferred strategy, as the strengths and weaknesses of the various strategies may overlap. The basic goal, however, is to consider all the strategies in an inclusive and pluralistic fashion—as part of your repertoire from which you may draw according to a given situation to do social science research.

Finally, the chapter has discussed some of the major criticisms of case study research and has suggested that these criticisms are misdirected.

However, we must all work hard to overcome the problems of doing case study research, including the recognition that some of us were not meant, by skill or disposition, to do such research in the first place. Case study research is remarkably hard, even though case studies have traditionally been considered to be "soft" research, possibly because investigators have not followed systematic procedures. This book tries to make your research study easier by offering an array of such procedures.

EXERCISES

1. *Defining a case study question.* Develop a question that would be the rationale for a case study you might conduct. Instead of doing a case study, now imagine that you could only do a history, a survey, or an experiment (but not a case study) to answer this question. What aspects of the question, if any, could not be answered through these other research strategies? What would be the distinctive advantage of doing a case study in order to answer this question?

2. *Defining "significant" case study questions.* Name a topic you think is worthy of making the subject of a case study. Identify the three major questions your case study would try to answer. Now assume that you were actually able to answer these questions with sufficient evidence (i.e., that you had successfully conducted your case study). How would you justify, to a colleague, the significance of your findings? Would you have advanced some major theory? Would you have discovered something rare? (If you are unimpressed by your answers, perhaps you should consider redefining the major questions of your case.)

3. *Identifying "significant" questions in other research strategies.* Locate a research study based solely on the use of survey, historical, or experimental (but not case study) methods. Describe the ways in which the findings of this study are significant. Does it advance some major theory? Has it discovered something rare?

4. *Examining case studies used for teaching purposes.* Obtain a copy of a case study designed for teaching purposes (e.g., a case in a textbook used in a business school course). Identify the specific ways in which this type of "teaching" case is different from research case studies. Does the teaching case cite primary documents, contain evidence, or display data? Does the teaching case have a conclusion? What appears to be the main objective of the teaching case?

5. *Defining different types of case studies used for research purposes.* Define the three types of case studies used for research (but not teaching) purposes: (a) explanatory or causal case studies, (b) descriptive case studies, and (c) exploratory case studies. Compare the situations in which these different types of case studies would be most applicable, and then name a case study you would like to conduct. Would it be explanatory, descriptive, or exploratory? Why?

NOTES

1. The discussion only pertains to the use of these strategies in the social sciences, making no claims for commenting on the use of experiments, for instance, in physics, astronomy, or other fields.

2. Additional examples of explanatory case studies are presented in their entirety in a companion book, *Applications of Case Study Research* (Yin, 2003), in Chapters 4, 5, 6, and 7. Similarly, two examples of descriptive case studies are presented in their entirety in Chapters 2 and 3 of the same book.

3. Stake (1994) has a similar approach to defining case studies. He considers them not to be "a methodological choice but a choice of object to be studied." Furthermore, the object must be a "functioning specific" (such as a person or classroom) but not a generality (such as a policy).

4

Conducting Case Studies: Collecting the Evidence

Evidence for case studies may come from six sources: documents, archival records, interviews, direct observation, participant-observation, and physical artifacts. An investigator must know how to use these six sources, which call for knowing different methodological procedures.

In addition to the attention given to these individual sources, some overriding principles are important to any data collection effort in doing case studies. These include the use of (a) multiple sources of evidence (evidence from two or more sources, but converging on the same set of facts or findings), (b) a case study database (a formal assembly of evidence distinct from the final case study report), and (c) a chain of evidence (explicit links between the questions asked, the data collected, and the conclusions drawn). The incorporation of these principles into a case study investigation will increase its quality substantially.

Data for case studies can come from many sources of evidence. Six important ones are discussed in this chapter: documentation, archival records, interviews, direct observation, participant-observation, and physical artifacts. One purpose of this chapter is to review the six sources briefly. A second purpose is to convey three essential data collection principles, regardless of the sources used.

Supporting textbooks. You may find the six sources of evidence all potentially relevant, even in doing the same case study. For this reason, having them briefly reviewed, all in one place, may be helpful. For any given source of evidence, extensive further detail is available in numerous methodological textbooks and articles. Therefore, you also may want to check out some of these texts, especially if any single source of evidence is especially important to your case study. However, choosing among the texts and other works will require some searching and careful selection.

First, at an earlier time, guidance on collecting data relevant for case studies was available under three rubrics. One was "fieldwork" (e.g., Murphy, 1980; Wax, 1971), and a second was "field research" (e.g.,

Bouchard, 1976; Schatzman & Strauss, 1973). The third was "social science methods" more broadly (e.g., Kidder & Judd, 1986; Webb, Campbell, Schwartz, Sechrest, & Grove, 1981). Under these rubrics, the books also could cover the logistics of planning and conducting the fieldwork (e.g., Fiedler, 1978). The array of data collection techniques included under these rubrics was relevant to doing case studies, although none focused on case studies. The texts are still valuable because they are easy to use and discuss the basic data collection procedures to be followed. Unfortunately, due to their age the texts are probably increasingly hard to locate.

Second, recent texts are more readily available, but your choices are more complicated. Contemporary texts usually only cover some of the sources of evidence (e.g., single interviews, focus group interviews, and field observations) but not the others (e.g., archival and documentary sources), thereby losing the flavor of the entire blend of multiple sources. Furthermore, the texts also may not suit your needs because they may have a dominant substantive or disciplinary orientation, such as (a) clinical research or research on primary care settings (e.g., Crabtree & Miller, 1999), (b) program evaluations (e.g., Patton, 1990), or (c) social work research (e.g., Rubin & Babbie, 1993). Yet other texts may not have such an orientation, but they may focus on only a single source of evidence, such as field interviewing (e.g., Rubin & Rubin, 1995), doing participant-observation (e.g., Jorgensen, 1989), or using documentary evidence (e.g., Barzun & Graff, 1985). In general, contemporary texts appear to have become more specialized, and few span the needed breadth of data collection methods. In particular, few texts combine data collection through communicative and observational means (i.e., interviews and direct observations, including the use of videotapes) with data collection through documentary and archival sources.

Third, books that might at first appear to be comprehensive methodological texts also cover many topics in addition to data collection and, as a result, only devote a fraction of their entire text to data collection procedures (e.g., 1 of 11 chapters in Creswell, 1998; 1 of 26 chapters in Silverman, 2000). Other books that do have a truly comprehensive range and that do discuss data collection techniques in greater detail are nevertheless designed to serve more as reference works than as textbooks to be used by individual investigators (e.g., Bickman & Rog, 2000).

Given these variations, you must overcome the complex if not fragmented nature of the methodological marketplace represented by these texts. To do so will make your own data collection procedures even better.

Supporting principles. In addition to being familiar with the data collection procedures using the six different sources of evidence, you also need

to continue addressing the design challenges enumerated in Chapter 2: construct validity, internal validity, external validity, and reliability. For this reason, this chapter gives much emphasis to its second purpose, the discussion of three principles of data collection.

These principles have been neglected in the past and are discussed at length: (a) using multiple, not just single, sources of evidence; (b) creating a case study database; and (c) maintaining a chain of evidence. The principles are extremely important for doing high-quality case studies, are relevant to all six types of sources of evidence, and should be followed whenever possible. In particular, the principles, as noted in Chapter 2 (see Figure 2.5), will help to deal with the problems of construct validity and reliability.

SIX SOURCES OF EVIDENCE

The sources of evidence discussed here are the ones most commonly used in doing case studies: documentation, archival records, interviews, direct observations, participant-observation, and physical artifacts. However, you should be aware that a complete list of sources can be quite extensive—including films, photographs, and videotapes; projective techniques and psychological testing; proxemics; kinesics; "street" ethnography; and life histories (Marshall & Rossman, 1989).

A useful overview of the six major sources considers their comparative strengths and weaknesses (see Figure 4.1). You should immediately note that no single source has a complete advantage over all the others. In fact, the various sources are highly complementary, and a good case study will therefore want to use as many sources as possible (see the later discussion in this chapter on "multiple sources of evidence").

Documentation

Except for studies of preliterate societies,[1] documentary information is likely to be relevant to every case study topic. This type of information can take many forms and should be the object of explicit data collection plans. For instance, consider the following variety of documents:

- Letters, memoranda, and other communiques
- Agendas, announcements and minutes of meetings, and other written reports of events

Source of Evidence	Strengths	Weaknesses
Documentation	• stable—can be reviewed repeatedly • unobtrusive—not created as a result of the case study • exact—contains exact names, references, and details of an event • broad coverage—long span of time, many events, and many settings	• retrievability—can be low • biased selectivity, if collection is incomplete • reporting bias—reflects (unknown) bias of author • access—may be deliberately blocked
Archival Records	• *[Same as above for documentation]* • precise and quantitative	• *[Same as above for documentation]* • accessibility due to privacy reasons
Interviews	• targeted—focuses directly on case study topic • insightful—provides perceived causal inferences	• bias due to poorly constructed questions • response bias • inaccuracies due to poor recall • reflexivity—interviewee gives what interviewer wants to hear
Direct Observations	• reality—covers events in real time • contextual—covers context of event	• time-consuming • selectivity—unless broad coverage • reflexivity—event may proceed differently because it is being observed • cost—hours needed by human observers
Participant-Observation	• *[Same as above for direct observations]* • insightful into interpersonal behavior and motives	• *[Same as above for direct observations]* • bias due to investigator's manipulation of events
Physical Artifacts	• insightful into cultural features • insightful into technical operations	• selectivity • availability

Figure 4.1 Six Sources of Evidence: Strengths and Weaknesses

- Administrative documents—proposals, progress reports, and other internal records
- Formal studies or evaluations of the same "site" under study
- Newspaper clippings and other articles appearing in the mass media or in community newsletters

These and other types of documents are useful even though they are not always accurate and may not be lacking in bias. In fact, documents must be carefully used and should not be accepted as literal recordings of events that have taken place. Few people realize, for instance, that even the "verbatim" transcripts of official U.S. Congress hearings have been deliberately edited—by the congressional staff and others who may have testified—before being printed in final form. In another field, historians working with primary documents also must be concerned with the validity of a document.

For case studies, the most important use of documents is to corroborate and augment evidence from other sources. First, documents are helpful in verifying the correct spellings and titles or names of organizations that might have been mentioned in an interview. Second, documents can provide other specific details to corroborate information from other sources. If the documentary evidence is contradictory rather than corroboratory, you need to pursue the problem by inquiring further into the topic. Third, you can make inferences from documents—for example, by observing the distribution list for a specific document, you may find new questions about communications and networking within an organization. However, you should treat inferences only as clues worthy of further investigation rather than as definitive findings because the inferences could later turn out to be false leads.

Because of their overall value, documents play an explicit role in any data collection in doing case studies. Systematic searches for relevant documents are important in any data collection plan. For example, during field visits, you should allot time for using local libraries and other reference centers. You should also arrange access to examine the files of any organizations being studied, including a review of documents that may have been put into cold storage. The scheduling of such retrieval activities is usually a flexible matter, independent of other data collection activities, and the search can usually be conducted at your convenience. For this reason, there is little excuse for omitting a thorough review of documentary evidence. Among such evidence, newspaper accounts are excellent sources for covering certain topics, such as the two in BOXES 15 and 16.

At the same time, many people have been critical of the potential overreliance on documents in case study research. This is probably because the casual investigator may mistakenly assume that all kinds of documents—including proposals for projects or programs—contain the unmitigated truth. In fact, you need to remember that every document was written for some specific purpose and some specific audience *other than* those of the case study being done. In this sense, the case study investigator is a vicarious observer, and the documentary evidence reflects a communication among other parties attempting to achieve some other objectives. By

BOX 15

Combining Personal Participation With Extensive Newspaper Documentation

Improving educational conditions—especially for urban schools in the United States—has become one of the biggest challenges for the 21st century. How the Houston, Texas, system dealt with constrained fiscal resources, diverse student populations, and local political constituencies is the topic of an exciting and riveting case study by Donald McAdams (2000). McAdams benefits from having been a member of the system's school board for three elected, 4-year terms. He writes as a storyteller, not a social science analyst. At the same time, the book contains numerous references to local newspaper articles to corroborate events. The result is one of the most readable but also well-documented case studies readers will encounter.

BOX 16

Using Documentary Sources to Reconstruct Reality

R. N. Jacobs (1996) shows how two different local newspapers constructed different perspectives on the *meaning* of a now well-known civil rights "case"—the beating of Rodney King in Los Angeles. Jacobs's "case" is not the civil rights case. Rather, the study is about how different narrative constructions (by two different newspapers, based on an analysis of 357 articles in one newspaper and 137 in the other) can affect the selection and interpretation of significant crises. As such, Jacobs's case also can be used to alert case study investigators about the potential biases of documentary evidence and how such biases might be addressed.

constantly trying to identify these objectives, you are less likely to be misled by documentary evidence and more likely to be correctly critical in interpreting the contents of such evidence.[2]

Archival Records

For many case studies, archival records—often taking the form of computer files and records—also may be relevant. Examples of archival records include the following:

- *Service records,* such as those showing the number of clients served over a given period of time
- *Organizational records,* such as organizational charts and budgets over a period of time
- *Maps and charts* of the geographical characteristics or layouts of a place
- *Lists* of names and other relevant items
- *Survey data,* such as census records or data previously collected about a "site"
- *Personal records,* such as diaries, calendars, and telephone listings

These and other archival records can be used in conjunction with other sources of information in producing a case study. However, unlike documentary evidence, the usefulness of these archival records will vary from case study to case study. For some studies, the records can be so important that they can become the object of extensive retrieval and quantitative analysis.[3] In other studies, they may be of only passing relevance.

When archival evidence has been deemed relevant, an investigator must be careful to ascertain the conditions under which it was produced as well as its accuracy. Sometimes, the archival records can be highly quantitative, but numbers alone should not automatically be considered a sign of accuracy. Nearly every social scientist, for instance, is aware of the pitfalls of using the FBI's Uniform Crime Reports—or any other archival records based on crimes reported by law enforcement agencies. The same general word of caution made earlier with documentary evidence therefore also applies to archival evidence: Most archival records were produced for a specific purpose and a specific audience (other than the case study investigation), and these conditions must be fully appreciated in interpreting the usefulness and accuracy of the records.

Interviews

One of the most important sources of case study information is the interview. Such an observation may be surprising because of the usual association between interviews and the survey method. However, interviews also are essential sources of case study information. The interviews will appear to be guided conversations rather than structured queries. In other words, although you will be pursuing a consistent line of inquiry, your actual stream of questions in a case study interview is likely to be fluid rather than rigid (Rubin & Rubin, 1995).

Note that this means that throughout the interview process, you have two jobs: (a) to follow your own line of inquiry, as reflected by your case

study protocol, and (b) to ask your actual (conversational) questions in an unbiased manner that also serves the needs of your line of inquiry. For instance, you may want (in your line of inquiry) to know "why" a particular process occurred as it did. Becker (1998, pp. 58-60), however, has pointed to the important difference in actually posing a "why" question to an informant (which in his view creates defensiveness on the informant's part) in contrast to posing a "how" question—the latter, in fact, being his preferred way of addressing any "why" question in an actual conversation. Thus, case study interviews require you to operate on two levels at the same time: satisfying the needs of your line of inquiry while simultaneously putting forth "friendly" and "nonthreatening" questions in your open-ended interviews.

As a result, most commonly, case study interviews are of an *open-ended nature,* in which you can ask key respondents about the facts of a matter as well as their opinions about events. In some situations, you may even ask the respondent to propose his or her own insights into certain occurrences and may use such propositions as the basis for further inquiry. The respondent also can suggest other persons for you to interview, as well as other sources of evidence.

The more that a respondent assists in this manner, the more that the role may be considered one of an "informant" rather than a respondent. Key informants are often critical to the success of a case study. Such persons not only provide the case study investigator with insights into a matter but also can suggest sources of corroboratory or contrary evidence—and also initiate the access to such sources. Such a person, named "Doc," played an essential role in the conduct of the famous case study presented in *Street Corner Society* (Whyte, 1943/1955). Similar key informants have been noted in other case studies. Of course, you need to be cautious about becoming overly dependent on a key informant, especially because of the interpersonal influence—frequently subtle—that the informant may have over you. A reasonable way of dealing with this pitfall again is to rely on other sources of evidence to corroborate any insight by such informants and to search for contrary evidence as carefully as possible.

A second type of interview is a *focused interview* (Merton, Fiske, & Kendall, 1990), in which a respondent is interviewed for a short period of time—an hour, for example. In such cases, the interviews may still remain open-ended and assume a conversational manner, but you are more likely to be following a certain set of questions derived from the case study protocol.

For example, a major purpose of such an interview might simply be to corroborate certain facts that you already think have been established (but not to ask about other topics of a broader, open-ended nature). In this situation, the specific questions must be carefully worded, so that you appear

BOX 17

A Case Study Encompassing a Survey

Hanna (2000) used a variety of sources of data, including a survey, to conduct a case study of an urban-rural estuarine setting. In this setting, an integrated resource management program was established to help manage environmental and economic planning issues. The case study focused on the estuarine setting, including its description and the policies and public participation that appeared to affect it. Within the case study, participants in the policy process served as an embedded unit of analysis. Hanna surveyed these individuals, and the survey data were presented with statistical tests as part of the single-case study.

genuinely naive about the topic and allow the respondent to provide a fresh commentary about it; in contrast, if you ask leading questions, the corroboratory purpose of the interview will not have been served. Even so, you need to exercise caution when different interviewees appear to be echoing the same thoughts—corroborating each other but in a conspiratorial way.[4] Further probing is needed. One way is to test the sequence of events by deliberately checking with persons known to hold different perspectives. If one of the interviewees fails to comment, even though the others tend to corroborate one another's versions of what took place, the good case study investigator will even indicate this result by citing the fact that a person was asked but declined to comment, as done in good journalistic accounts.

Yet a third type of interview entails more structured questions, along the lines of a formal *survey.* Such a survey could be designed as part of a case study and produce quantitative data as part of the case study evidence (see BOX 17). This situation would be relevant, for instance, if you were doing a case study of an urban design project and surveyed a group of designers about the project (e.g., Crewe, 2001) or if you did a case study of an organization that included a survey of workers and managers. This type of survey would follow both the sampling procedures and the instruments used in regular surveys, and it would subsequently be analyzed in a similar manner. The difference would be the survey's role in relation to other sources of evidence. For example, residents' perceptions of neighborhood decline or improvement would not necessarily be taken as a measure of actual decline or improvement but would be considered only one component of the overall assessment of the neighborhood.

Overall, interviews are an essential source of case study evidence because most case studies are about human affairs. These human affairs should be reported and interpreted through the eyes of specific interviewees, and well-informed respondents can provide important insights into a situation. They also can provide shortcuts to the prior history of the situation, helping you to identify other relevant sources of evidence. However, the interviews should always be considered *verbal reports* only. As such, they are subject to the common problems of bias, poor recall, and poor or inaccurate articulation. Again, a reasonable approach is to corroborate interview data with information from other sources.

A common question about doing interviews is whether to record them. Using recording devices is in part a matter of personal preference. Audiotapes certainly provide a more accurate rendition of any interview than any other method. However, a recording device should not be used when (a) an interviewee refuses permission or appears uncomfortable in its presence, (b) there is no specific plan for transcribing or systematically listening to the contents of the electronic record—a process that takes enormous time and energy, (c) the investigator is clumsy enough with mechanical devices that the recording creates distractions during the interview itself, or (d) the investigator thinks that the recording device is a substitute for "listening" closely throughout the course of an interview.

Direct Observations

By making a field visit to the case study "site," you are creating the opportunity for direct observations. Assuming that the phenomena of interest have not been purely historical, some relevant behaviors or environmental conditions will be available for observation. Such observations serve as yet another source of evidence in a case study.

The observations can range from formal to casual data collection activities. Most formally, observational protocols can be developed as part of the case study protocol, and the field-worker may be asked to measure the incidence of certain types of behaviors during certain periods of time in the field (see BOX 18). This can involve observations of meetings, sidewalk activities, factory work, classrooms, and the like. Less formally, direct observations might be made throughout a field visit, including those occasions during which other evidence, such as that from interviews, is being collected. For instance, the condition of buildings or work spaces will indicate something about the climate or impoverishment of an organization; similarly, the location or the furnishings of a respondent's office may be one indicator of the status of the respondent within an organization.

BOX 18

Combining Formal Observations and Other Methods to Produce Quantitative and Qualitative Data for a Case Study

Case studies need not be limited to a single source of evidence. In fact, most of the better case studies rely on a variety of sources.

One example of a case study that used such a variety is a book by Gross et al. (1971), *Implementing Organizational Innovations,* covering events in a single school. The case study included an observational protocol for measuring the time that students spent on various tasks but also relied on a structured survey of a larger number of teachers, open-ended interviews with a smaller number of key persons, and a review of organizational documents. Both the observational and survey data led to quantitative information about attitudes and behavior in the school, whereas the open-ended interviews and documentary evidence led to qualitative information.

All sources of evidence were reviewed and analyzed together, so that the case study's findings were based on the convergence of information from different sources, not quantitative or qualitative data alone.

Observational evidence is often useful in providing additional information about the topic being studied. If a case study is about a new technology, for instance, observations of the technology at work are invaluable aids for understanding the actual uses of the technology or potential problems being encountered. Similarly, observations of a neighborhood or of an organizational unit add new dimensions for understanding either the context or the phenomenon being studied. The observations can be so valuable that you may even consider taking photographs at the case study site. At a minimum, these photographs will help to convey important case characteristics to outside observers (see Dabbs, 1982). Note, however, that in some situations—such as photographing students in public schools—you will need written permission before proceeding.

To increase the reliability of observational evidence, a common procedure is to have more than a single observer making an observation—whether of the formal or the casual variety. Thus, when resources permit, a case study investigation should allow for the use of multiple observers.

Participant-Observation

Participant-observation is a special mode of observation in which you are not merely a passive observer. Instead, you may assume a variety of

roles within a case study situation and may actually participate in the events being studied. In urban neighborhoods, for instance, these roles may range from having casual social interactions with various residents to undertaking specific functional activities within the neighborhood (see Yin, 1982a). The roles for different illustrative studies in neighborhoods and organizations have included the following:

- Being a resident in a neighborhood that is the subject of a case study (see BOX 19)
- Taking some other functional role in a neighborhood, such as serving as a storekeeper's assistant
- Serving as a staff member in an organizational setting
- Being a key decision maker in an organizational setting

The participant-observation technique has been most frequently used in anthropological studies of different cultural or social groups. The technique also can be used in more everyday settings, such as a large organization (see BOX 20; also see BOX 15) or informal small groups.

Participant-observation provides certain unusual opportunities for collecting case study data, but it also involves major problems. The most distinctive opportunity is related to your ability to gain access to events or groups that are otherwise inaccessible to scientific investigation. In other words, for some topics, there may be no other way of collecting evidence than through participant-observation. Another distinctive opportunity is the ability to perceive reality from the viewpoint of someone "inside" the case study rather than external to it. Many have argued that such a perspective is invaluable in producing an "accurate" portrayal of a case study phenomenon. Finally, other opportunities arise because you may have the ability to manipulate minor events—such as convening a meeting of a group of persons in the case study. Only through participant-observation can such manipulation occur, as the use of documents, archival records, and interviews, for instance, all assume a passive investigator. The manipulations will not be as precise as those in experiments, but they can produce a greater variety of situations for the purposes of collecting data.

The major problems related to participant-observation have to do with the potential biases produced (see Becker, 1958). First, the investigator has less ability to work as an external observer and may, at times, have to assume positions or advocacy roles contrary to the interests of good scientific practice. Second, the participant-observer is likely to follow a commonly

BOX 19

Participant-Observation in a Neighborhood Near "Street Corner Society"

Participant-observation has been a method used frequently to study urban neighborhoods. One such study of subsequent fame was conducted by Herbert Gans (1962), who wrote *The Urban Villagers*, a study about "group and class in the life of Italian-Americans."

Gans's methodology is documented in a separate chapter of his book, titled "On the Methods Used in This Study." He notes that his evidence was based on six approaches: the use of the neighborhood's facilities, attendance at meetings, informal visiting with neighbors and friends, formal and informal interviewing, the use of informants, and direct observation. Of all these sources, the "participation role turned out to be most productive" (pp. 339-340). This role was based on Gans's being an actual resident, along with his wife, of the neighborhood he was studying. The result is a classic statement of neighborhood life undergoing urban renewal and change—a stark contrast to the stability found nearby, in Whyte's (1943/1955) *Street Corner Society*, some 20 years earlier.

BOX 20

A Participant-Observer Study in an "Everyday" Setting

Eric Redman (1973) provides an insider's account of how Congress works in his well-regarded case study, *The Dance of Legislation*. The case study traces the introduction and passage of the legislation that created the National Health Service Corps during the 91st Congress in 1970.

Redman's account, from the vantage point of an author who was also on the staff of one of the bill's main supporters, Senator Warren G. Magnuson, is not simply well written and easy to read. The account also provides the reader with great insight into the daily operations of Congress—from the introduction of a bill to its eventual passage, including the politics of a lame-duck session when Richard Nixon was president.

The account is an excellent example of participant-observation in a contemporary setting. It contains information about insiders' roles that few persons have been privileged to share. The subtle legislative strategies, the overlooked role of committee clerks and lobbyists, and the interaction between the legislative and executive branches of government are all recreated by the case study, and all add to the reader's general understanding of the legislative process.

known phenomenon and become a supporter of the group or organization being studied, if such support did not already exist. Third, the participant role may simply require too much attention relative to the observer role. Thus, the participant-observer may not have sufficient time to take notes or to raise questions about events from different perspectives, as a good observer might. Fourth, if the organization or social group being studied is physically dispersed, the participant-observer may find it difficult to be at the right place at the right time, either to participate in or to observe important events.

These trade-offs between the opportunities and the problems have to be considered seriously in undertaking any participant-observation study. Under some circumstances, this approach to case study evidence may be just the right approach; under other circumstances, the credibility of a whole case study project can be threatened.

Physical Artifacts

A final source of evidence is a physical or cultural artifact—a technological device, a tool or instrument, a work of art, or some other physical evidence. Such artifacts may be collected or observed as part of a field visit and have been used extensively in anthropological research.

Physical artifacts have less potential relevance in the most typical kind of case study. However, when relevant, the artifacts can be an important component in the overall case. For example, one case study of the use of personal computers in the classroom needed to ascertain the nature of the actual use of the machines. Although such use could be directly observed, an artifact—the computer printout—also was available. Students displayed these printouts as the finished product of their work and maintained notebooks of their printouts. Each printout showed not only the type of schoolwork that had been done but also the date and amount of computer time used to do the work. By examining the printouts, the case study investigators were able to develop a more precise understanding of the classroom applications over the length of an entire semester, far beyond that which could be directly observed in the limited time of a site visit.

Summary

This section has reviewed six commonly used sources of case study evidence. The procedures for collecting each type of evidence must be developed and mastered independently to ensure that each source is properly used. Not all sources will be relevant for all case studies. However, the

trained case study investigator should be acquainted with the procedures associated with using each source of evidence—or have colleagues who have the needed expertise and who can work as members of the case study team.

THREE PRINCIPLES OF DATA COLLECTION

The benefits from these six sources of evidence can be maximized if you follow three principles. These principles are relevant to all six sources and, when used properly, can help to deal with the problems of establishing the construct validity and reliability of the case study evidence. The three are as follows.

Principle 1: Use Multiple Sources of Evidence

Any of the preceding sources of evidence can and have been the sole basis for entire studies. For example, some studies have relied only on participant-observation but have not examined a single document; similarly, numerous studies have relied on archival records but have not involved a single interview.

This isolated use of sources may be a function of the independent way that sources have typically been conceived—as if an investigator should choose the single most appropriate source or the one with which he or she is most familiar. Thus, on many an occasion, investigators have announced the design of a new study by identifying both the problem to be studied and the prior selection of a *single* source of evidence—such as "interviews"—as the focus of the data collection effort.

Triangulation: Rationale for using multiple sources of evidence. The approach to individual sources of evidence just described, however, is not recommended for conducting case studies. On the contrary, a major strength of case study data collection is the opportunity to use many different sources of evidence (see BOX 21, as well as BOX 18, for examples of such studies). Furthermore, the need to use multiple sources of evidence far exceeds that in other research strategies, such as experiments, surveys, or histories. Experiments, for instance, are largely limited to the measurement and recording of actual behavior in a laboratory and generally do not include the systematic use of survey or verbal information. Surveys tend to be the opposite, emphasizing verbal information but not the direct measurement or recording of individual behavior. Finally, histories are

BOX 21

A Case Study Combining Personal Experience With Extensive Field Research

Most people across the country by now have heard of Head Start. Its development and growth into one of the most successful federal programs is traced by Zigler and Muenchow (1992). Their book is exceptionally insightful, possibly because it is based on Zigler's personal experiences with the program, beginning with his role as its first director. However, the book also is empirically based, with the coauthor contributing historical and field research, including interviews of more than 200 persons associated with Head Start. All of these multiple sources of evidence are integrated into a coherent if not compelling case study of Head Start. The result is a winning combination: a most readable but also well-documented book.

limited to events in the "dead" past and therefore seldom have any contemporary sources of evidence, such as direct observations of a phenomenon or interviews with key actors.

Of course, each of these strategies can be modified, creating hybrid strategies in which multiple sources of evidence are more likely to be relevant. An example of this is the evolution of "oral history" studies in the field of history. Nevertheless, such a modification of the traditional strategies does not alter the fact that the case study inherently deals with a wide variety of evidence, whereas the other strategies do not.

The use of multiple sources of evidence in case studies allows an investigator to address a broader range of historical, attitudinal, and behavioral issues. However, the most important advantage presented by using multiple sources of evidence is the development of *converging lines of inquiry,* a process of triangulation mentioned repeatedly in the previous section of this chapter. Thus, any finding or conclusion in a case study is likely to be much more convincing and accurate if it is based on several different sources of information, following a corroboratory mode (see BOX 22).

Patton (1987) discusses four types of triangulation in doing evaluations—the triangulation

1. of data sources (*data triangulation*),
2. among different evaluators (*investigator triangulation*),

BOX 22

Triangulating From Multiple Sources of Evidence

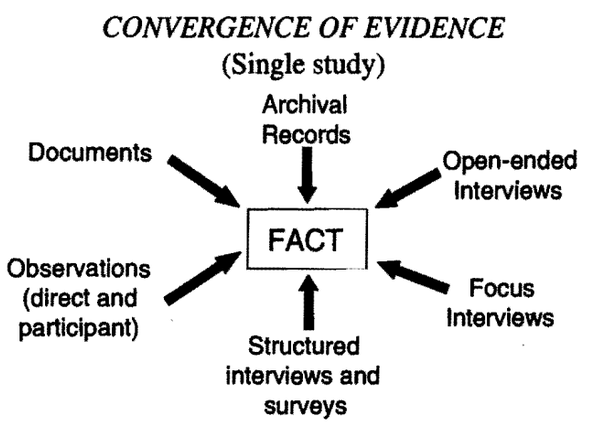
Basu, Dirsmith, and Gupta (1999) conducted a case study of the federal government's audit agency, the U.S. General Accounting Office. Their case was theory oriented and examined the relationship between an organization's actual work and the image it presents to external parties (the finding was that they are loosely coupled). The case study used an impressive array of sources of evidence—an extended period of field observations, with diaries; interviews of 55 persons; and reviews of historical accounts, public records, administrators' personal files, and news articles—all triangulating on the same set of research questions.

3. of perspectives to the same data set (*theory triangulation*), and
4. of methods (*methodological triangulation*).

The present discussion pertains only to the first of these four types (*data triangulation*), encouraging you to collect information from multiple sources but aimed at corroborating the same fact or phenomenon. In pursuing such corroboratory strategies, Figure 4.2 distinguishes between two conditions—1) when you have really triangulated the data (upper portion) and 2) when you have multiple sources as part of the same study, but they nevertheless address *different* facts (lower portion). When you have really triangulated the data, the events or facts of the case study have been supported by more than a single source of evidence (e.g., Sieber, 1973; Yin, 1982c); when you have used multiple sources but not actually triangulated the data, you typically have analyzed each source of evidence separately and have compared the conclusions from the different analyses—but not triangulated the data.

With data triangulation, the potential problems of *construct validity* also can be addressed because the multiple sources of evidence essentially provide multiple measures of the same phenomenon. Not surprisingly, one analysis of case study methods found that those case studies using multiple sources of evidence were rated more highly, in terms of their overall quality, than those that relied on only single sources of information (see COSMOS, 1983).

Prerequisites for using multiple sources of evidence. At the same time, the use of multiple sources of evidence imposes a great burden, hinted at earlier, on yourself or any other case study investigator. First, the collection



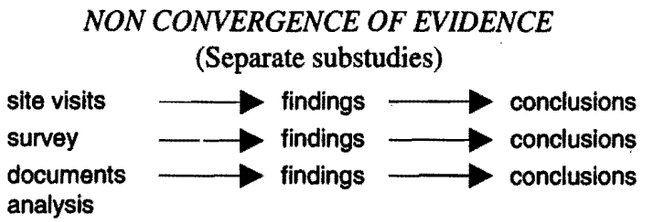


Figure 4.2 Convergence and Nonconvergence of Multiple Sources of Evidence
SOURCE: COSMOS Corporation.

of data from multiple sources is more expensive than if data were only collected from a single source (Denzin, 1978, p. 61). Second and more important, each investigator needs to know how to carry out the full variety of data collection techniques. For example, a case study investigator may have to collect and analyze documentary evidence as in history, to retrieve and analyze archival records as in economics or operations research, and to design and conduct surveys as in survey research. If any of these techniques is used improperly, the opportunity to address a broader array of issues or to establish converging lines of inquiry may be lost. This requirement for mastering multiple data collection techniques therefore raises important questions regarding the training and expertise of the case study investigator.

Unfortunately, many graduate training programs emphasize one type of data collection activity over all others, and the successful student is not likely to have a chance to master the others. To overcome such conditions, you should seek other ways of obtaining the needed training and practice. One such way is to work in a multidisciplinary research organization rather than being limited to a single academic department. Another way is to analyze the methodological writings of a variety of social scientists (see Hammond, 1968) and to learn the strengths and weaknesses of different data collection techniques as they have been practiced by experienced scholars. Yet a third way is to design different pilot studies that will provide an opportunity for practicing different techniques.

No matter how the experience is gained, every case study investigator should be well versed in a variety of data collection techniques so that a case study can use multiple sources of evidence. Without such multiple sources, an invaluable advantage of the case study strategy will have been lost.

Principle 2: Create a Case Study Database

A second principle has to do with the way of organizing and documenting the data collected for case studies. Here, case studies have much to borrow from the practices followed by the other research strategies defined in Chapter 1, whose documentation commonly consists of two *separate* collections:

1. the data or evidentiary base and
2. the report of the investigator, whether in article, report, or book form.

With the advent of computerized data files, the distinction between these two collections has been made even more clear. For example, investigators doing psychological, survey, or economic research may exchange data files and other electronic documentation that contain only the actual database—for example, behavioral responses or test scores in psychology, itemized responses to various survey questions, or economic indicators. The database can then be the subject of separate, secondary analysis, independent of any reports by the original investigator.

However, with case studies, the distinction between a separate database and the case study report has not yet become an institutionalized practice. Too often, the case study data are synonymous with the narrative presented in the case study report, and a critical reader has no recourse if he or she wants to inspect the raw data that led to the case study's conclusions. The

case study report may not have presented adequate data, and without a case study database, the raw data may not be available for independent inspection. A major exception to this is when ethnographic studies have separated and stored data on their fieldwork, making these data available to new research investigators. The practice is sufficiently important, however, that every case study project should strive to develop a formal, presentable database, so that in principle, other investigators can review the evidence directly and not be limited to the written case study reports. In this manner, a case study database increases markedly the *reliability* of the entire case study.

The lack of a formal database for most case study efforts is a major shortcoming of case study research and needs to be corrected. There are numerous ways of accomplishing the task, as long as you and other investigators are aware of the need and are willing to commit the additional resources required to build the database. At the same time, the existence of an adequate database does not preclude the need to present sufficient evidence within the case study report itself (to be discussed further in Chapter 6). Every report should still contain enough data so that the reader of the report can draw independent conclusions about the case study.

Nevertheless, the initial problem of establishing a case study database has not been recognized by most of the books on field methods. Thus, the subsections below represent an extension of the current state of the art. The problem of developing the database is described in terms of four components: notes, documents, tabular materials, and narratives.

Case study notes. For case studies, notes are likely to be the most common component of a database. These notes take a variety of forms. The notes may be a result of an investigator's interviews, observations, or document analysis. The notes may be handwritten, typed, on audiotapes, or in computer files, and they may be assembled in the form of a diary, on index cards, or in some less organized fashion.

Regardless of their form or content, these case study notes must be stored in such a manner that other persons, including the investigator, can retrieve them efficiently at some later date. Most commonly, the notes can be divided into the major subjects—as outlined in the case study protocol—covered by a case study; however, any classificatory system will do, as long as the system is usable by an outside party. Only in this manner will the notes be available as part of the case study database.

This identification of the notes as part of the case study database does not mean, however, that the investigator needs to spend excessive amounts of time rewriting interviews or making extensive editorial changes to make the notes presentable. Such a building of a formal case record, including the

editing and rewriting of interview notes, may be a misplaced priority. Any such editing effort should be directed at the case study report itself, not at the notes. The only essential characteristics of the notes are that they be organized, categorized, complete, and available for later access.

Case study documents. Many documents relevant to a case study will be collected during the course of a study. Chapter 3 indicated that the disposition of these documents should be covered in the case study protocol and suggested that one helpful way is to have an annotated bibliography of these documents. Such annotations would again facilitate storage and retrieval, so that later investigators can inspect or share the database.

The single, unique characteristic of these documents is that they are likely to require a large amount of physical storage space. In addition, the documents may be of varying importance to the database, and the investigator may want to establish a primary file and a secondary file for such documents. The main objective, again, is to make the documents readily retrievable for later inspection or perusal. In those instances when the documents have been relevant to specific interviews, one additional cross-reference is to have the interview notes cite the document.

Tabular materials. The database may consist of tabular materials, either collected from the site being studied or created by the research team. Such materials also need to be organized and stored to allow for later retrieval.

The materials may include survey and other quantitative data. For example, a survey may have been conducted at one or more of the case study sites as part of the overall study. In such situations, the tabular materials may even be stored in computer files. As another example, in dealing with archival or observational evidence, a case study may have called for "counts" of various phenomena (see Miles & Huberman, 1994). The documentation of these counts, done by the case study team, also should be organized and stored as part of the database. In brief, any tabular materials, whether based on surveys, observational counts, or archival data, can be treated in a manner similar to the way they are handled in applying other research methods.

Narratives. Certain types of narrative, produced by the case study investigator, also may be considered a formal part of the database and not part of the final case study report. This is reflected by a special practice that should be used more frequently: to have case study investigators compose *open-ended answers to the questions in the case study protocol.* This practice has been used on several occasions in multiple-case studies designed by the author (see BOX 23). The questions and answers, in modified form,

BOX 23

Narratives in the Case Study Database

A series of 12 case studies was done on personal computer use in schools (COSMOS, 1984b). Each case study was based on open-ended answers to about 50 protocol questions concerning matters such as the number and location of the personal computers (an inventory question requiring tabular and narrative responses), the relationship between the computer units and other computational systems within the school district, and the training and coordination provided by the school district.

The case study investigator's first responsibility was to answer these 50 questions as completely as possible, citing specific sources of evidence in footnotes. These answers were unedited, but they served as the basis for both the individual case reports and the cross-case analysis. The availability of the database meant that other members of the case study team could determine the events at each site, even before the case study reports were completed. These files remain a rich source of evidence that could be used again, even as part of another study.

can even serve directly as the basis for the final case study report, as described further in Chapter 6.

In such a situation, each answer represents an attempt to integrate the available evidence and to converge on the facts of the matter or their tentative interpretation. The process is actually an analytic one and is the start of the case study analysis. The format for the answers may be considered analogous to that of a comprehensive "take-home" exam, used in academic courses. The investigator is the respondent, and his or her goal is to cite the relevant evidence—whether from interviews, documents, observations, or archival evidence—in composing an adequate answer. The main purpose of the open-ended answer is to document the connection between specific pieces of evidence and various issues in the case study, generously using footnotes and citations.

The entire set of answers can be considered part of the case study database. The investigator, along with any other interested party, can then use this database to compose the actual case study report. Or, if no reports are composed concerning the individual cases (see Chapter 6 for such situations), the answers can serve as the database for the subsequent cross-case analysis.[5] Again, because the answers are part of the database and not of the final report, the investigators should not spend much time trying to make the answers presentable. In other words, they need not perform the standard editing and copyediting chores. The most important attribute of good answers is that they indeed connect the pertinent issues—through adequate citations—to specific evidence.

Principle 3: Maintain a Chain of Evidence

Another principle to be followed, to increase the *reliability* of the information in a case study, is to maintain a chain of evidence. Such a principle is based on a notion similar to that used in forensic investigations.

The principle is to allow an external observer—in this situation, the reader of the case study—to follow the derivation of any evidence, ranging from initial research questions to ultimate case study conclusions (see Figure 4.3). Moreover, this external observer should be able to trace the steps in either direction (from conclusions back to initial research questions or from questions to conclusions). As with criminological evidence, the process should be tight enough that evidence presented in "court"—the case study report—is assuredly the same evidence that was collected at the scene of the "crime" during the data collection process. Conversely, no original evidence should have been lost, through carelessness or bias, and therefore fail to receive appropriate attention in considering the "facts" of a case. If these objectives are achieved, a case study also will have addressed the methodological problem of determining construct validity, thereby increasing the overall quality of the case.

Imagine the following scenario. You have read the conclusions in a case study report and you want to know more about the basis for the conclusions. You therefore want to trace the evidentiary process backward.

First, the report itself should have made sufficient citation to the relevant portions of the case study database—for example, by citing specific documents, interviews, or observations. Second, the database, upon inspection, should reveal the actual evidence and also indicate the circumstances under which the evidence was collected—for example, the time and place of an interview. Third, these circumstances should be consistent with the specific procedures and questions contained in the case study protocol, to show that the data collection followed the procedures stipulated by the protocol. Finally, a reading of the protocol should indicate the link between the content of the protocol and the initial study questions.

In the aggregate, you have therefore been able to move from one part of the case study process to another, with clear cross-referencing to methodological procedures and to the resulting evidence. This is the ultimate "chain of evidence" that is desired.

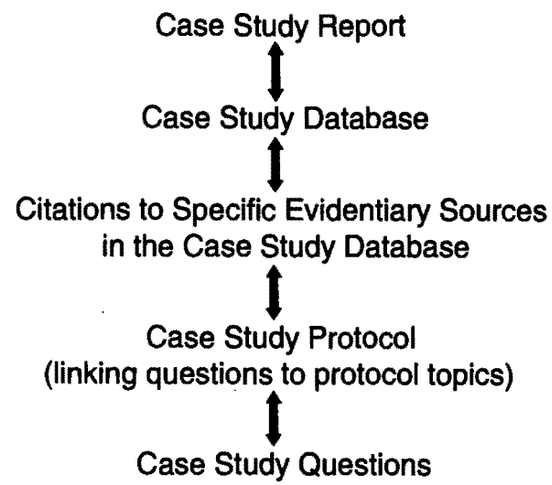


Figure 4.3 Maintaining a Chain of Evidence
SOURCE: COSMOS Corporation.

SUMMARY

This chapter has reviewed six types of case study evidence, how they can be collected, and three important principles regarding the data collection process.

The data collection process for case studies is more complex than those used in other research strategies. The case study investigator must have a methodological versatility not necessarily required for using other strategies and must follow certain formal procedures to ensure *quality control* during the data collection process. The three principles described above are steps in this direction. They are not intended to straitjacket the inventive and insightful investigator. They are intended to make the process as explicit as possible, so that the final results—the data that have been collected—reflect a concern for construct validity and for reliability, thereby becoming worthy of further analysis. How such analysis can be carried out is the subject of the next chapter.

EXERCISES

1. *Using evidence.* Select one of the case studies cited in the BOXES of this book. Go through the case study, and identify five "facts" important to the case study. For each fact, indicate the source or sources of evidence, if any, used to define the fact. In how many instances was there more than a single source of evidence?

2. *Identifying illustrative types of evidence.* Name a case study topic you would like to study. For some aspect of this topic, identify the specific type of evidence that would be relevant—for example, if a document, what kind of document? If an interview, what respondent and what questions? If an archival record, what records and what variables?

3. *Seeking converging evidence.* Name a particular incident that occurred recently in your everyday life. How would you go about establishing the "facts" of this incident, if you wanted now (in retrospect) to demonstrate what had happened? Would you interview any important persons (including yourself)? Would there have been any artifacts or documentation to rely on?

4. *Practicing the development of a database.* For the topic you covered in the preceding question, write a short report (no more than two double-spaced pages). Start this report with the major question you were attempting to answer, and then provide the answer, citing the evidence you had used (your format should include footnotes). Envisage how this question-and-answer sequence might be one of many in your total case study "database."

5. *Establishing a chain of evidence.* State a hypothetical conclusion that might emerge from a case study you are going to do. Now work backward and identify the specific data or evidence that would have supported such a conclusion. Similarly, work backward and define the protocol question that would have led to the collection of this evidence, and then the study question that in turn would have led to the design of the protocol question. Do you understand how this chain of evidence has been formed and how one can move forward or backward in tracing the chain?

NOTES

1. Limited availability of print materials in low-income communities in the United States—including signage and materials in school and public libraries—has been the subject of study (Neuman & Celano, 2001). To the extent of such impoverishment, researchers studying such neighborhoods and their community organizations (or schools) may find the use of documentary sources of evidence also limited.

2. Excellent suggestions regarding the ways of verifying documentary evidence, including the nontrivial problem of determining the actual author of a document, are offered by Barzun and Graff (1986, pp. 109-133). An exemplary quantitative study of the authorship problem is found in Mosteller and Wallace (1984).

3. Chapter 9 of the companion book (Yin, 2003) contains a complete multiple-case study that quantitatively analyzed a critical set of archival records.

4. Such consistent responses are likely to occur when interviewing members of a "closed" institution, such as the residents of a drug treatment program or the teachers in a closely knit school. The apparent conspiracy arises because those being interviewed all are aware of the "socially desirable" responses and appear to be providing corroboratory evidence when in fact they are merely repeating their institution's mantra.

5. See Chapter 2 of the companion book (Yin, 2003) for an example of a complete case study that is written in the form of narrative answers to the protocol questions.