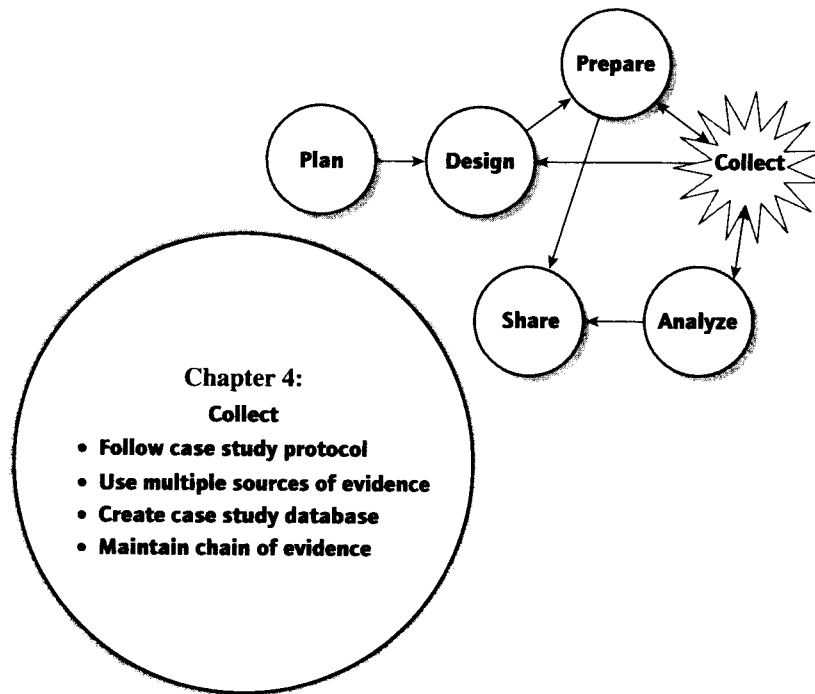


Collecting Case Study Evidence

The Principles You Should Follow in Working with Six Sources of Evidence



ABSTRACT

Case study evidence may come from six sources: documents, archival records, interviews, direct observation, participant-observation, and physical artifacts. Using these six sources calls for mastering different data collection procedures. Throughout, a major objective is to collect data about actual human events and behavior. This objective differs from (but complements) the typical survey objective of capturing perceptions, attitudes, and verbal reports about events and behavior (rather than direct evidence about the events and behavior).

In addition to the attention given to the six 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, converging on the same 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 among the questions asked, the data collected, and the conclusions drawn). The incorporation of these principles into a case study will increase its quality substantially.

Case study evidence can come from many sources. This chapter discusses six of them: documentation, archival records, interviews, direct observation, participant-observation, and physical artifacts. Each source is associated with an array of data or evidence. 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., L. 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, the texts are probably increasingly hard to locate.

Second, recent texts are more readily available, but your choices are more complicated. Individual texts usually only cover some of the sources of evidence (e.g., single interviews, focus group interviews, and field observations)

Tip: How much time and effort should I devote to collecting the case study data? How do I know whether I'm finished collecting the data?

Unlike other methods, there is no clear cut-off point. You should try to collect enough data so that (a) you have confirmatory evidence (evidence from two or more different sources) for most of your main topics, and (b) your evidence includes attempts to investigate major rival hypotheses or explanations.

What do you think are some of the cut-off points for other methods, and why wouldn't they work in doing case study research?



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, 2002), or (c) social work research (e.g., A. 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., H. J. 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, 2007, and 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 various texts. To do so will make your own data collection procedures even better.

Supporting principles. In addition to your need to be 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.

EXERCISE 4.1 Using Evidence

Select and obtain 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?

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, documentary information is likely to be relevant to every case study topic.¹ 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:

SOURCE OF EVIDENCE	Strengths	Weaknesses
Documentation	<ul style="list-style-type: none"> ◆ 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 	<ul style="list-style-type: none"> ◆ Retrieval—can be difficult to find ◆ Biased selectivity, if collection is incomplete ◆ Reporting bias—reflects (unknown) bias of author ◆ Access—may be deliberately withheld
Archival records	<ul style="list-style-type: none"> ◆ <i>[Same as those for documentation]</i> ◆ Precise and usually quantitative 	<ul style="list-style-type: none"> ◆ <i>[Same as those for documentation]</i> ◆ Accessibility due to privacy reasons
Interviews	<ul style="list-style-type: none"> ◆ Targeted—focuses directly on case study topics ◆ Insightful—provides perceived causal inferences and explanations 	<ul style="list-style-type: none"> ◆ Bias due to poorly articulated questions ◆ Response bias ◆ Inaccuracies due to poor recall ◆ Reflexivity—interviewee gives what interviewer wants to hear
Direct observations	<ul style="list-style-type: none"> ◆ Reality—covers events in real time ◆ Contextual—covers context of “case” 	<ul style="list-style-type: none"> ◆ Time-consuming ◆ Selectivity—broad coverage difficult without a team of observers ◆ Reflexivity—event may proceed differently because it is being observed ◆ Cost—hours needed by human observers
Participant-observation	<ul style="list-style-type: none"> ◆ <i>[Same as above for direct observations]</i> ◆ Insightful into interpersonal behavior and motives 	<ul style="list-style-type: none"> ◆ <i>[Same as above for direct observations]</i> ◆ Bias due to participant-observer’s manipulation of events
Physical artifacts	<ul style="list-style-type: none"> ◆ Insightful into cultural features ◆ Insightful into technical operations 	<ul style="list-style-type: none"> ◆ Selectivity ◆ Availability

Figure 4.1 Six Sources of Evidence: Strengths and Weaknesses

- ◆ letters, memoranda, e-mail correspondence, and other personal documents, such as diaries, calendars, and notes;
- ◆ agendas, announcements and minutes of meetings, and other written reports of events;
- ◆ administrative documents—proposals, progress reports, and other internal records;
- ◆ formal studies or evaluations of the same “case” that you are studying; and
- ◆ news clippings and other articles appearing in the mass media or in community newspapers.

These and other types of documents all are increasingly available through Internet searches. The 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, prior to field visits, an Internet search can produce invaluable information. During field visits, you should allot time for using local libraries and other reference centers whose documents, such as back issues of periodicals, may not be available electronically. 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, news accounts are excellent sources for covering certain topics, such as the two in BOXES 16 and 17.

BOX 16

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 news articles to corroborate events. The result is one of the most readable but also well-documented case studies that readers will encounter.

BOX 17

Comparing Evidence from Two Archival Sources to Cover the Same Community Events

One of the most inflammatory community events in the 1990s came to be known as the "Rodney King crisis." White police officers were serendipitously videotaped in the act of beating an African American man, but a year later, they all were acquitted of any wrongdoing. The acquittal sparked a major civil disturbance, in which 58 people were killed, 2,000 injured, and 11,000 arrested.

A case study of this crisis deliberately drew from two different newspapers—the major daily for the metropolitan area and the most significant newspaper for the area's African American community (R. N. Jacobs, 1996). For the pertinent period surrounding the crisis, the first newspaper produced 357 articles and the second (a weekly, not daily, publication) 137 articles. The case study traces the course of events and shows how the two papers constructed different understandings of the crisis, illustrating the potential biases of documentary evidence and the need to address such biases.

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, important in reviewing any document is to understand that it 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 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

A newer problem has arisen because of the abundance of materials available through Internet searches. You may get lost in reviewing such materials and actually waste a lot of time on them. Note, however, that the problem is not that different from having an overabundance of numeric data about your case, as might be available from sources such as the U.S. census (also see discussion of archival records, next) if you were doing a neighborhood study. In both situations, you need to have a strong sense of your case study inquiry and focus on the most pertinent information. One suggestion is to sort or triage the materials (documents or numeric data) by their apparent centrality to your inquiry. Then, spend more time reading or reviewing what appears central, and leave aside other, less important materials for later reading or review. The procedure will not be perfect, but it will permit you to keep moving to other case study tasks.

Archival Records

For many case studies, archival records—often taking the form of computer files and records as in the U.S. census data just mentioned—also may be relevant. Examples of archival records include

- ♦ "public use files" such as the U.S. census and other statistical data made available by federal, state, and local governments;
- ♦ service records, such as those showing the number of clients served over a given period of time;
- ♦ organizational records, such as budget or personnel records;
- ♦ maps and charts of the geographical characteristics of a place; and
- ♦ survey data, such as data previously collected about a site's employees, residents, or participants.

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 (for example, see a multiple-case study of 20 universities, in Yin, 2003, chap. 9). 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 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 (H. J. 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 (see distinction between “Level 1” and “Level 2” questions in Chapter 3). 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 (Level 2 questions) while simultaneously putting forth “friendly” and “nonthreatening” questions in your open-ended interviews (Level 1 questions).

One type of case study interview is an *in-depth interview*. 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 interviewee to propose her or his own insights into certain occurrences and may use such propositions as the basis for further inquiry. The “interview” may therefore take place over an extended period of time, not just a single sitting. The interviewee also can suggest other persons for you to interview, as well as other sources of evidence.

The more that an interviewee 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 provide the case study investigator with insights into a matter and also can initiate access to corroboratory or contrary sources of evidence. 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; also see BOX 2A, Chapter 1, p. 7). 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 case study interview is a *focused interview* (Merton, Fiske, & Kendall, 1990), in which a person 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 genuinely naive about the topic and allow the interviewee 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.³ 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 jot this down in the

case study notes, 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 an embedded case study (see Chapter 2) and produce quantitative data as part of the case study evidence (see BOX 18). 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.

BOX 18

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.

Overall, interviews are an essential source of case study evidence because most case studies are about human affairs or behavioral events. Well-informed interviewees can provide important insights into such affairs or events. The interviewees also can provide shortcuts to the prior history of such situations, helping you to identify other relevant sources of evidence.

At the same time, even though your interviews may focus on behavioral events because they are the key ingredients of your case study, the interviews should always be considered *verbal reports* only. As such, even in reporting about such events or explaining how they occurred, the interviewees' responses 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.

Sometimes, you will be interested in an interviewee's opinions or attitudes, apart from explaining behavioral events. Corroborating these opinions or attitudes against other sources would not be relevant, as in dealing with behavioral events. You still may want to get a feeling for the prevalence of the opinions or attitudes by comparing them with those of others, but the more you do this, the more you are moving toward a conventional survey and should follow survey procedures and precautions.

A common question about doing interviews is whether to record them. Using recording devices is 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 Observation

Because a case study should take place in the natural setting of the “case,” 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 instruments can be developed as part of the case study protocol, and the fieldworker may be asked to assess the occurrence of certain types of behaviors during certain periods of time in the field (see the two examples in BOX 19). 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 an interviewee's office may be one indicator of the status of the interviewee within an organization.

BOX 19**Using Observational Evidence****19A. Reporting Field Observations**

"Clean rooms" are a key part of the manufacturing process for producing semiconductor chips. Among other features, employees wear "bunny suits" of lint-free cloth and handle extremely small components in these rooms. In their case study of high-tech working life, *Silicon Valley Fever*, Rogers and Larsen (1984) used observational evidence to show how employees adapted to the working conditions in these clean rooms, adding that, at the time, most of the employees were women while most of the supervisors were men.

19B. Combining Field Observations with Other Types of Case Study Evidence

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) covering events in a single school (also see BOX 7, Chapter 2, p. 48). 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 or a school curriculum, for instance, observations of the technology or curriculum at work are invaluable aids for understanding the actual uses of the technology or curriculum or any 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.

A common procedure to increase the reliability of observational evidence 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

- ◆ being a resident in a neighborhood that is the subject of a case study (see BOX 20);
- ◆ 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; and
- ◆ being a key decision maker in an organizational setting.

BOX 20**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, who wrote *The Urban Villagers* (1962), 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, and a stark contrast to the stability found in a nearby neighborhood, as covered in Whyte's (1943/1955) *Street Corner Society* some 20 years earlier (also see BOX 2A, Chapter 1, p. 7).

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 21; also see BOX 16, earlier) or informal small groups.

BOX 21

A Participant-Observer Study in an "Everyday" Setting

Eric Redman provides an insider's account of how Congress works in his well-regarded case study, *The Dance of Legislation* (1973). 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 on the staff of one of the bill's main supporters, Senator Warren G. Magnuson, is 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 re-created by the case study, and all add to the reader's general understanding of the legislative process.

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 a study. In other words, for some topics, there may be no way of collecting evidence other 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. Only through participant-observation can such manipulation occur, as the use of documents, archival records, and interviews, for instance, assumes 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 social science practice. Second, the participant-observer is likely to follow a commonly 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 case study 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 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 the type of schoolwork that had been done as well as 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 broader perspective concerning all of the classroom applications over the length of a semester, far beyond that which could be directly observed in the limited time of a field 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.

EXERCISE 4.2 Identifying Specific 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?

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 she or he 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 as 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 22 and BOX 19B, earlier, for examples of such studies). Furthermore, the need to use multiple sources of evidence far exceeds that in other research methods, 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 measurement or recording of individual behavior. Finally, histories are 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.

BOX 22

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 calls on other independent sources of evidence, 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.

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 past several decades. Such studies involve extensive interviews with key leaders who have retired, on the stipulation that the interview information will not be reported until after the leader's death. Later, the historian will join the interview data with the more conventional array of historical evidence. Nevertheless, such a modification of the traditional methods does not alter the fact that the case study inherently deals with a wide variety of evidence, whereas the other methods do not.

The use of multiple sources of evidence in case studies allows an investigator to address a broader range of historical 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 and

corroboration emphasized repeatedly in the previous section of this chapter. Thus, any case study finding or conclusion is likely to be more convincing and accurate if it is based on several different sources of information, following a corroboratory mode (see BOX 23).

BOX 23

Triangulating from Multiple Sources of Evidence

Basu, Dirmsmith, and Gupta (1999) conducted a case study of the federal government's audit agency, the U.S. Government Accountability 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.

Patton (2002) discusses four types of triangulation in doing evaluations—the triangulation

1. of data sources (*data triangulation*),
2. among different evaluators (*investigator triangulation*),
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—when you have really triangulated the data (upper portion) and when you have multiple sources as part of the same study but that 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; 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

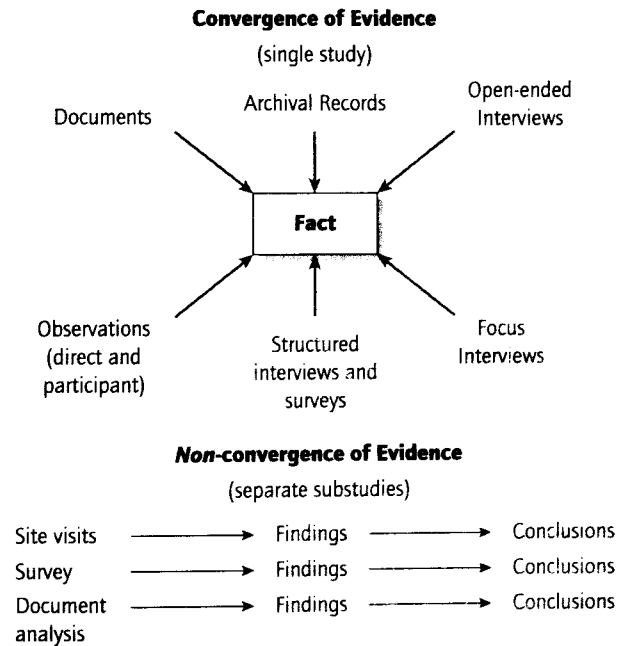


Figure 4.2 Convergence and Nonconvergence of Multiple Sources of Evidence

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 Corporation, 1983).

Prerequisites for using multiple sources of evidence. At the same time, the use of multiple sources of evidence imposes a greater burden, hinted at earlier, on yourself or any other case study investigator. First is that the collection 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 of 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. Worse, what started out as a case study may turn into something else. For example, you might overly rely on open-ended interviews as your data, giving insufficient attention to documentary or other evidence to corroborate the interviews. If you then complete your analysis and study, you probably will have done an “interview” study, similar to surveys that are entirely based on verbal reports that come from open-ended interviews—but you would not have done a case study. In this interview study, your text would constantly have to point out the self-reported nature of your data, using such phrases as “as reported by the interviewees,” “as stated in the interviews,” or “she/he reported that. . . .” and the like.

EXERCISE 4.3 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?

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 methods defined in Chapter 1. Their 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 computer files, the distinction between these two collections has been made even clearer. 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 then can 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 where ethnographic studies have separated and stored data on their fieldwork, to make 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 markedly increases the *reliability* of the entire case study.

The lack of a formal database for most case studies 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 effort 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 problem of initially 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, your own 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 your interviews, observations, or document analysis. The notes may be handwritten, typed, on audiotapes, or in word-processing or other electronic 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, yourself included, can retrieve them efficiently at some later date. Most commonly, the notes can be organized according to 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 you need to spend excessive amounts of time in rewriting interviews or making extensive editorial changes to make the notes presentable. Building such a formal case record, by editing and rewriting the notes, may be a misplaced priority. Any such editing 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, unless you trouble to make portable document format (PDF) copies and store them electronically. In addition, the documents may be of varying importance to the database, and you 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 in which the documents have been relevant to specific interviews, one additional cross-reference is to have the interview notes cite the documents.

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 an embedded case study. In such situations, the tabular materials may 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 when using other research methods.

Narratives. Certain types of narrative, produced by a case study investigator upon completion of all data collection, also may be considered a formal part of the database and not part of the final case study report. The narrative reflects 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 24).

BOX 24

Narratives in the Case Study Database

A series of 12 case studies was done on personal computer use in schools (Yin, 2003, chap. 3). 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 a school district, and the training and coordination provided by the district.

After data collection has finished, 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 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.

In such a situation, each answer represents your attempt to integrate the available evidence and to converge upon 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. You the investigator

are the respondent, and your 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. You, 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. Again, because the answers are part of the database and not of the final report, you should not spend much time trying to make the answers presentable. In other words, you need not perform the standard editing and copyediting chores. (However, for an example of a case study that was written entirely in the form of narrative answers to the protocol questions and in which such editing was done, see Yin 2003, chap. 2.) The most important attribute of good answers is that they indeed connect the pertinent issues—through adequate citations—to specific evidence.

EXERCISE 4.4 Practicing the Development of a Database

For the topic you covered in Exercise 4.3, write a short report (no more than two double-spaced pages) that adheres to the following outline: Start the report by stating a major question you were attempting to answer (about the facts of the incident recalled from your everyday life). Now provide the answer, citing the evidence you had used (your format should include formal citations and footnotes). Repeat the procedure for another research question (or the questions from your hypothetical case study protocol). Envisage how this question-and-answer sequence might be one of many in your total case study “database.”

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 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.

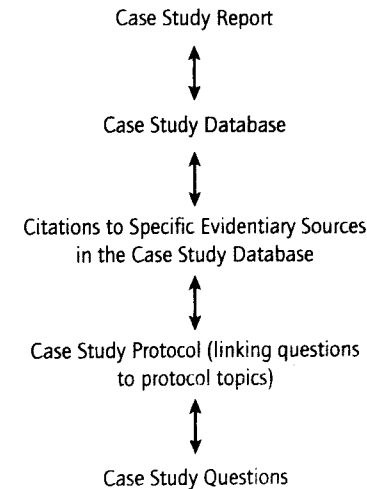


Figure 4.3 Maintaining a Chain of Evidence

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 study.

Imagine the following scenario. You have read the conclusions in a case study report and 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 had 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.

EXERCISE 4.5 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?

SUMMARY

This chapter has reviewed six sources of case study evidence, how evidence can be collected from these sources, 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 methods. A case study investigator must have a methodological versatility not necessarily required for using other methods 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.

NOTES

1. Limited availability of print materials in low-income communities in the United States—even including signage and materials in schools 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 (1985, pp. 109–133). An exemplary quantitative study of the authorship problem is found in Mosteller and Wallace (1984).

3. 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.

REFERENCE TO EXPANDED CASE STUDY MATERIALS FOR CHAPTER 4

For selected case studies cited in the text of this chapter, two anthologies contain either a more extensive excerpt or the full case study. The table below crosswalks the reference in this book to the location of the excerpt or full rendition.

<i>Chapter 4 Chapter Topic and Page Number</i>	<i>Topics of Illustrative Case Studies</i>	<i>Reference to Lengthier Material</i>
Six Sources of Evidence		
BOX 16, p. 4-7	Schools	CSA-19
BOX 17, p. 4-7	Cities and towns	CSA-13
p. 4-8 text	University administration	ACSR-9
BOX 18, p. 4-12	Urban planning	None
BOX 19A, p. 4-14	Computers and technology	CSA-12
BOX 19B, p. 4-14	Schools	CSA-9
BOX 20, p. 4-15	Neighborhoods	None
BOX 21, p. 4-16	Government agencies	None
Three Principles of Data Collection		
BOX 22, p. 4-20	Health care	CSA-15
BOX 23, p. 4-20	Government agencies	None
BOX 24, p. 4-27	Computers in schools	ACSR-3
p. 4-28 text	Neighborhoods	ACSR-2

NOTE: CSA = *Case Study Anthology* (Yin, 2004). ACSR = *Applications of Case Study Research* (Yin, 2003). The number denotes the chapter number in the book.

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