Collecting Case Study Evidence

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

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?

(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. 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**

<table>
<thead>
<tr>
<th>Documentation</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Stable—can be reviewed repeatedly</td>
<td>• Retrievability—can be difficult to find</td>
<td></td>
</tr>
<tr>
<td>• Unobtrusive— not created as a result of the case study</td>
<td>• Biased selectivity, if collection is incomplete</td>
<td></td>
</tr>
<tr>
<td>• Exact—contains exact names, references, and details of an event</td>
<td>• Reporting bias—reflects (unknown) bias of author</td>
<td></td>
</tr>
<tr>
<td>• Broad coverage—long span of time, many events, and many settings</td>
<td>• Access—may be deliberately withheld</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Archival records</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• [Same as those for documentation]</td>
<td>• [Same as those for documentation]</td>
<td></td>
</tr>
<tr>
<td>• Precise and usually quantitative</td>
<td>• Accessibility due to privacy reasons</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interviews</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Targeted— focuses directly on case study topics</td>
<td>• Bias due to poorly articulated questions</td>
<td></td>
</tr>
<tr>
<td>• Insightful—provides perceived causal inferences and explanations</td>
<td>• Response bias</td>
<td></td>
</tr>
<tr>
<td>• Inaccuracies due to poor recall</td>
<td>• Reflexivity—interviewee gives what interviewer wants to hear</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Direct observations</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Reality— covers events in real time</td>
<td>• Time-consuming</td>
<td></td>
</tr>
<tr>
<td>• Contextual— covers context of &quot;case&quot;</td>
<td>• Selectivity— broad coverage difficult without a team of observers</td>
<td></td>
</tr>
<tr>
<td>• Reflexivity— event may proceed differently because it is being observed</td>
<td>• Cost— hours needed by human observers</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participant-observation</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• [Same as above for direct observations]</td>
<td>• [Same as above for direct observations]</td>
<td></td>
</tr>
<tr>
<td>• Insightful into interpersonal behavior and motives</td>
<td>• Bias due to participant-observer's manipulation of events</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical artifacts</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Insightful into cultural features</td>
<td>• Selectivity</td>
<td></td>
</tr>
<tr>
<td>• Insightful into technical operations</td>
<td>• Availability</td>
<td></td>
</tr>
</tbody>
</table>

---

**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 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 consciously 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.

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. 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 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.
Using Observational Evidence

A. 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.

B. 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. (1977) 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.

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 are 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—was also 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, Dirsmith, 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 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.

---

**COLLECTING CASE STUDY EVIDENCE**

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). Envision 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.

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).
Chapter 5: Analyze

• Rely on theoretical propositions and other strategies
• Consider any of five analytic techniques, using quantitative or qualitative data or both
• Explore rival explanations
• Display data apart from interpretations

ABSTRACT

Data analysis consists of examining, categorizing, tabulating, testing, or otherwise recombining evidence, to draw empirically based conclusions. Analyzing case study evidence is especially difficult because the techniques still have not been well defined. To overcome this circumstance, every case study analysis should follow a general analytic strategy, defining priorities for what to analyze and why. Four strategies are relying on theoretical propositions, developing case descriptions, using both quantitative and qualitative data, and examining rival explanations. Using various computer aids to manipulate your data will not substitute for the absence of a general analytic strategy.

Any of these strategies can be used in practicing five specific techniques for analyzing case studies: pattern matching, explanation building, time-series analysis, logic models, and cross-case synthesis. With appropriately fine-grained data, the analyses can incorporate statistical models, such as regression or structural equation models. Throughout, a persistent challenge is to produce high-quality analyses, which require attending to all the evidence collected, displaying and presenting the evidence separate from any interpretation, and considering alternative interpretations.

5

Analyzing Case Study Evidence

How to Start Your Analysis, Your Analytic Choices, and How They Work

AN ANALYTIC STRATEGY: MORE THAN FAMILIARITY WITH ANALYTIC TOOLS

Need for an Analytic Strategy

Introduction. The analysis of case study evidence is one of the least developed and most difficult aspects of doing case studies. Too many times, investigators start case studies without having the foggiest notion about how the evidence is to be analyzed (despite Chapter 3's recommendation that the analytic approaches be considered when developing the case study protocol). Such investigations easily become stalled at the analytic stage; this author has known colleagues who have simply ignored their case study data for month after month, not knowing what to do with the evidence.

Because of the problem, the experienced case study investigator is likely to have great advantages over the novice at the analytic stage. Unlike statistical analysis, there are few fixed formulas or cookbook recipes to guide the novice. Instead, much depends on an investigator's own style of rigorous empirical thinking, along with the sufficient presentation of evidence and careful consideration of alternative interpretations.

Investigators and especially novices do continue to search for formulas, recipes, or tools, hoping that familiarity with these devices will produce the needed analytic result. The tools are important and can be useful, but they are usually most helpful if you know what to look for (i.e., have an overall analytic strategy), which unfortunately returns you back to your original problem, if you hadn't noticed.

Computer-assisted tools. For instance, computer-assisted routines with prepackaged software such as Atlas.ti, HyperRESEARCH, NVivo, or The Ethnograph
all are examples of computer-assisted qualitative data analysis software (CAQDAS—e.g., Fielding & Lee, 1998). The software has become more diverse and functional over the past decade. Essentially, the tools can help you code and categorize large amounts of narrative text, as might have been collected from open-ended interviews or from large volumes of written materials, such as newspaper articles. Guidance on coding skills and techniques also has improved (e.g., Boyatzis, 1998).

Key to your understanding of the value of these packages are two words: assisted and tools. The software will not do any analysis for you, but it may serve as an able assistant and reliable tool. For instance, if you enter your textual data and then define an initial set of codes, one or another of the various software packages will readily locate in the textual data all words and phrases matching these codes, count the incidence or occurrence of the words or codes, and even conduct Boolean searches to show when and where multiple combinations are found together. You can do this process iteratively, gradually building more complex categories or groups of codes. However, unlike statistical analyses, you cannot use the software’s outputs themselves as if they were the end of your analysis.

Instead, you will need to study the outputs to determine whether any meaningful patterns are emerging. Quite likely, any patterns—such as the frequency of codes or code combinations—will still be conceptually more primitive (lower) than the initial “how” and “why” research questions that might have led to your case study in the first place. In other words, developing a rich and full explanation or even a good description of your case, in response to your initial “how” or “why” questions, will require much post-computer thinking and analysis on your part.

Backtracking, you also will need to have clarified the reasons for defining the initial codes or subsequent codes, as well as connecting them to your original research design (you, not the software, created them). In what ways do the codes or concepts accurately reflect the meaning of the retrieved words and phrases, and why? Answering these questions requires your own analytic rationale.

**Tip: How do I start analyzing my case study data?**

You might start with questions (e.g., the questions in your case study protocol) rather than with the data. Start with a small question first, then identify your evidence that addresses the question. Draw a tentative conclusion based on the weight of the evidence, also asking how you should display the evidence so that readers can check your assessment. Continue to a larger question and repeat the procedure. Keep going until you think you have addressed your main research question(s).

**Could you have started with the data instead of the questions?**

Under some circumstances, the computerized functions can nevertheless be extremely helpful. The minimal conditions include when (a) the words or verbal reports represent verbatim records and are the central part of your case study evidence and (b) you have a large collection of such data. Such conditions commonly occur in research using grounded theory strategies (e.g., Corbin & Strauss, 2007), where the surfacing of a new concept or theme can be highly valuable. However, even under the best of circumstances, nearly all scholars express strong caveats about any use of computer-assisted tools: You must still be prepared to be the main analyst and to direct the tools; they are the assistant, not you.

Most case studies pose a more serious challenge in efforts to use computer-assisted tools: Verbatim records such as interviewees’ responses are likely to be only part of the total array of case study evidence. The case study will typically be about complex events and behavior, occurring within a possibly more complex, real-life context. Unless you convert all of your evidence—including your field notes and the archival documents you might have collected—into the needed textual form, computerized tools cannot readily handle this more diverse array of evidence. Yet, as emphasized in Chapter 4, such an array should represent an important strength of your case study. For a diverse set of evidence, you therefore need to develop your own analytic strategies.

A helpful starting point is to “play” with your data. One set of analytic manipulations has been comprehensively described and summarized by Miles and Huberman (1994) and includes:

- Putting information into different arrays
- Making a matrix of categories and placing the evidence within such categories
- Creating data displays—flowcharts and other graphics—for examining the data
- Tabulating the frequency of different events
- Examining the complexity of such tabulations and their relationships by calculating second-order numbers such as means and variances
- Putting information in chronological order or using some other temporal scheme

These are indeed useful and important manipulations and can put the evidence in some preliminary order. Moreover, conducting such manipulations is one way of overcoming the stalling problem mentioned earlier. Without a broader strategy, however, you are still likely to encounter many false starts and potentially waste large chunks of your time. Furthermore, if after playing with the data, a general strategy does not emerge (or if you are not facile in playing with the data to begin with), the entire case study analysis is likely to be in jeopardy.

Any preliminary manipulations, such as the preceding, or any use of computer-assisted tools therefore cannot substitute for having a general analytic
strategy in the first place. Put another way, all empirical research studies, including case studies, have a "story" to tell. The story differs from a fictional account because it embraces your data, but it remains a story because it must have a beginning, end, and middle. The needed analytic strategy is your guide to crafting this story, and only rarely will your data do the crafting for you.

Once you have a strategy, the tools may turn out to be extremely useful (or irrelevant). The strategy will help you to treat the evidence fairly, produce compelling analytic conclusions, and rule out alternative interpretations. The strategy also will help you to use tools and make manipulations more effectively and efficiently. Four such strategies are described below, after which five specific techniques for analyzing case study data are reviewed. These strategies or techniques are not mutually exclusive. You can use any number of them in any combination. A continued alert is to be aware of these choices before collecting your data, so that you can be sure your data will be analyzable.

Four General Strategies

Relying on theoretical propositions. The first and most preferred strategy is to follow the theoretical propositions that led to your case study. The original objectives and design of the case study presumably were based on such propositions, which in turn reflected a set of research questions, reviews of the literature, and new hypotheses or propositions.

The propositions would have shaped your data collection plan and therefore would have given priorities to the relevant analytic strategies. One example, from a study of intergovernmental relationships, followed the proposition that federal funds have redistributive dollar effects but also create new organizational changes at the local level (Yin, 1980). The basic proposition—the creation of a "counterpart bureaucracy" in the form of local planning organizations, citizen action groups, and other new offices within a local government itself, but all attuned to specific federal programs—was traced in case studies of several cities. For each city, the purpose of the case study was to show how the formation and modification in local organizations occurred after changes in related federal programs and how these local organizations acted on behalf of the federal programs even though they might have been components of local government.

This proposition is an example of a theoretical orientation guiding the case study analysis. Clearly, the proposition helps to focus attention on certain data and to ignore other data. (A good test is to decide what data you might cite if you had only 5 minutes to defend a proposition in your case study.) The proposition also helps to organize the entire case study and to define alternative explanations to be examined. Theoretical propositions stemming from "how" and "why" questions can be extremely useful in guiding case study analysis in this manner.

Developing a case description. A second general analytic strategy is to develop a descriptive framework for organizing the case study. This strategy is less preferable than relying on theoretical propositions but serves as an alternative when you are having difficulty making the first strategy work. For instance, you actually (but undesirably) may have collected a lot of data without having settled on an initial set of research questions or propositions. Studies started this way inevitably encounter challenges at their analytic phase.

Sometimes, the original and explicit purpose of the case study may have been a descriptive one. This was the objective of the famous sociological study Middletown (Lynd & Lynd, 1929), which was a case study of a small midwestern city. What is interesting about Middletown, aside from its classic value as a rich and historic case, is its compositional structure, reflected by its chapters:

- Chapter I: Getting a Living
- Chapter II: Making a Home
- Chapter III: Training the Young
- Chapter IV: Using Leisure
- Chapter V: Engaging in Religious Practices
- Chapter VI: Engaging in Community Activities

These chapters cover a range of topics relevant to community life in the early 20th century, when Middletown was studied. Note how the descriptive framework organizes the case study analysis but also assumes that data were collected about each topic in the first place. In this sense, you should have thought (at least a little) about your descriptive framework before designing your data collection instruments. As usual, the ideas for your framework should have come from your initial review of literature, which may have revealed gaps or topics of interest to you, spurring your interest in doing a case study. Another suggestion is to note the structure of existing case studies (e.g., by examining the original versions of those cited in the BOXES throughout this book) and at least to observe their tables of contents as an implicit clue to different descriptive approaches.

In other situations, the original objective of the case study may not have been a descriptive one, but a descriptive approach may help to identify the appropriate causal links to be analyzed—even quantitatively. BOX 25 gives an
example of a case study that was concerned with the complexity of implementing a local public works program in Oakland, California. Such complexity, the investigators realized, could be described in terms of the multiplicity of decisions, by public officials, that had to occur in order for implementation to succeed. This descriptive insight later led to the enumeration, tabulation, and hence quantification of the various decisions. In this sense, the descriptive approach was used to identify (a) an embedded unit of analysis (see Chapter 2) and (b) an overall pattern of complexity that ultimately was used in a causal sense to “explain” why implementation had failed.

BOX 25
Quantifying the Descriptive Elements of a Case Study

Pressman and Wildavsky’s (1973) book, Implementation: How Great Expectations in Washington Are Dashed in Oakland, is regarded as one of the breakthrough contributions to the study of implementation (Yin, 1982b). This is the process whereby some programmatic activity—an economic development project, a new curriculum in a school, or a crime prevention program, for example—is installed in a specific setting (e.g., organization or community). The process is complex and involves numerous individuals, organizational rules, social norms, and mixtures of good and bad intentions.

Can such a complex process also be the subject of quantitative inquiry and analysis? Pressman and Wildavsky (1973) offer one innovative solution. To the extent that successful implementation can be described as a sequence of decisions, an analyst can focus part of the case study on the number and types of such decisions or elements.

Thus, in their chapter titled “The Complexity of Joint Action,” the authors analyze the difficulties in Oakland: To implement one public works program required a total of 70 sequential decisions—project approvals, negotiation of leases, letting of contracts, and so on. The analysis examined the level of agreement and the time needed to reach agreement at each of the 70 decision points. Given the normal diversity of opinion and slippage in time, the analysis illustrates—in a quantitative manner—the low probability of implementation success.

Using both qualitative and quantitative data. This third strategy may be more attractive to advanced students and scholars and can yield appreciable benefits. Certain case studies can include substantial amounts of quantitative data. If these data are subjected to statistical analyses at the same time that qualitative data nevertheless remain central to the entire case study, you will have successfully followed a strong analytic strategy.

The quantitative data may have been relevant to your case study for at least two reasons. First, the data may cover the behavior or events that your case study is trying to explain—typically, the “outcomes” in an evaluative case study. Second, the data may be related to an embedded unit of analysis within your broader case study. In either situation, the qualitative data may be critical in explaining or otherwise testing your case study’s key propositions. So, imagine a case study about a school, a neighborhood, an organization, a community, a medical practice, or some other common case study topic. For these topics, the outcomes of an evaluative case study might be, respectively, student achievement (for the case study about the school), housing prices (for the neighborhood), employees’ salaries (for the organization), various crime rates (for the community), or the course of an illness (for the medical practice). Alternatively, the embedded units might be students (or teachers), census blocks (or single-family housing), employees (for the organization), persons arrested (for the community), or patients (for the medical practice).

All of the illustrative outcomes or embedded units can be the occasion for having collected fine-grained quantitative data. Yet, the main case study questions might have been at a higher level: a single school (not its students), the neighborhood (not its housing units), a business firm (not its employees), a community (not its residents), or a new medical practice (not the patients). To explore, describe, or explain events at this higher level, you would have collected and used qualitative data. Thus, your case study would have deliberately used both qualitative and quantitative data.

If you attempt this third strategy, be prepared for the skills you will need. Beyond knowing how to do the case study well, you may have to master certain statistical techniques. Mentioned later in this chapter (but only in passing) are regression discontinuity analyses, hierarchical linear models, and structural equation models. Do you believe that any of them can be part of a case study analysis?

EXERCISE 5.1 Using Quantitative Data in a Case Study

Select one of your own empirical studies—but not a case study—in which you analyzed some quantitative data (or choose such a study from the literature). Describe how the data were analyzed in this study. Argue whether this same analysis, virtually in its same form, could be found as one part of a fuller case study analysis. Do you think that quantitative data are less relevant to case studies than qualitative data?

Examining rival explanations. A fourth general analytic strategy, trying to define and test rival explanations, generally works with all of the previous
three: Initial theoretical propositions (the first strategy above) might have included rival hypotheses; the contrasting perspectives of participants and stakeholders may produce rival descriptive frameworks (the second strategy); and data from comparison groups may cover rival conditions to be examined as part of using both quantitative and qualitative data (the third strategy).

For instance, the typical hypothesis in an evaluation is that the observed outcomes were the result of an intervention supported by public or foundation funds. The simple or direct rival explanation would be that the observed outcomes were in fact the result of some other influence besides the intervention and that the investment of funds may not actually have been needed. Being aware (ahead of time) of this direct rival, your case study data collection should then have included attempts to collect evidence about the possible "other influences." Furthermore, you should have pursued your data collection about them vigorously—as if you were in fact trying to prove the potencies of the other influences rather than rejecting them (Patton, 2002, p. 553; F. R. Rosenbaum, 2002, pp. 8–10). Then, if you had found insufficient evidence, you would less likely be accused of stacking the deck in favor of the original hypothesis.

The direct rival—that the original investment was not the reason for the observed outcomes—is but one of several types of rival explanations. Figure 5.1 classifies and lists many types of rivals (Yin, 2000). For each type, an informal and more understandable descriptor (in the parentheses and quotation marks in Figure 5.1) accompanies the formal social science categorization, making the gist of the rival thinking clearer.

The list reminds us of three "craft" rivals that underlie all of our social science research, and textbooks have given much attention to these craft rivals. However, the list also defines six "real-life" rivals, which have received virtually no attention by other textbooks (nor, unfortunately, do most texts discuss the challenges and benefits of rival thinking or the use of rival explanations). These real-life rivals are the ones that you should carefully identify prior to your data collection (while not ignoring the craft rivals). Some real-life rivals also may not become apparent until you are in the midst of your data collection, and attending to them at that point is acceptable and desirable. Overall, the more rivals that your analysis addresses and rejects, the more confidence you can place in your findings.

Rival explanations were a critical part of several of the case studies already contained in the BOXES cited earlier (e.g., refer to BOXES 1 and 11 in Chapters 1 and 2, respectively). The authors of these case studies used the rivals to drive their entire case study analysis. Additional examples—covering cases of university innovation and of drug abuse prevention but deliberately focusing on the essence of the evidence about rival explanations—are found in Yin (2003, chaps. 4 and 5).

Summary. The best preparation for conducting case study analysis is to have a general analytic strategy. Four have been described, relying on theoretical propositions, case descriptions, a dual use of both quantitative and qualitative
data, and rival explanations. All four strategies underlie the analytic techniques to be described below. Without such strategies (or alternatives to them), case study analysis will proceed with difficulty.

The remainder of this chapter covers the specific analytic techniques, to be used as part of and along with any of the general strategies. The techniques are especially intended to deal with the previously noted problems of developing internal validity and external validity in doing case studies (see Chapter 2).

**EXERCISE 5.2 Creating a General Analytic Strategy**

Assume that you have begun analyzing your case study data but still do not have an overall analytic strategy. Instead of staying stalled at this analytic step, move to the next step and speculate how you might organize your (later) case study report into separate chapters or sections. Within each chapter or section, create substantive titles and headings (e.g., instead of "introduction," make the title say what the introduction is about, even if more than a few words are needed). Try different sequences of titles and headings, noting how such differences might dictate the creation of different analytic strategies. Now choose one sequence and start sorting your data into the designated chapters or sections. You should be on your way to analyzing your case study data.

**FIVE ANALYTIC TECHNIQUES**

None of the analytic techniques should be considered easy to use, and all will need much practice to be used powerfully. Your objective should be to start modestly, work thoroughly and introspectively, and build your own analytic repertoire over time. The reward will eventually emerge in the form of compelling case study analyses and, ultimately, compelling case studies.

**Pattern Matching**

For case study analysis, one of the most desirable techniques is to use a pattern-matching logic. Such a logic (Trochim, 1989) compares an empirically based pattern with a predicted one (or with several alternative predictions). If the patterns coincide, the results can help a case study to strengthen its internal validity.

If the case study is an explanatory one, the patterns may be related to the dependent or the independent variables of the study (or both). If the case study is a descriptive one, pattern matching is still relevant, as long as the predicted pattern of specific variables is defined prior to data collection.

**Nonequivalent dependent variables as a pattern.** The dependent-variables pattern may be derived from one of the more potent quasi-experimental research designs, labeled a "nonequivalent, dependent variables design" (Cook & Campbell, 1979, p. 118). According to this design, an experiment or quasi-experiment may have multiple dependent variables—that is, a variety of relevant outcomes. For instance, in quantitative health studies, some outcomes may have been predicted to be affected by a treatment, whereas other outcomes may have been predicted not to be affected (Rosenbaum, 2002, pp. 210–211). For these studies as well as a case study, the pattern matching occurs in the following manner: If, for each outcome, the initially predicted values have been found, and at the same time alternative "patterns" of predicted values (including those deriving from methodological artifacts, or "threats" to validity) have not been found, strong causal inferences can be made.

For example, consider a single case in which you are studying the effects of a newly decentralized office computer system. Your major proposition is that—because each peripheral piece of equipment can work independently of any server—a certain pattern of organizational changes and stresses will be produced. Among these changes and stresses, you specify the following, based on propositions derived from previous decentralization theory:

- employees will create new applications for the office system, and these applications will be idiosyncratic to each employee;
- traditional supervisory links will be threatened, as management control over work tasks and the use of central sources of information will be diminished;
- organizational conflicts will increase, due to the need to coordinate resources and services across the decentralized units; but nevertheless,
- productivity will increase over the levels prior to the installation of the new system.

In this example, these four outcomes each represent different dependent variables, and you would assess each with different measures. To this extent, you have a study that has specified nonequivalent dependent variables. You also have predicted an overall pattern of outcomes covering each of these variables. If the results are as predicted, you can draw a solid conclusion about the effects of decentralization. However, if the results fail to show the entire pattern as predicted—that is, even if one variable does not behave as predicted—your initial proposition would have to be questioned (see BOX 26 for another example).
CASE STUDY RESEARCH

BOX 26
Pattern Matching on Each of Multiple Outcomes

Researchers and politicians alike recognize that U.S. military bases, located across the country, contribute significantly to a local economy's housing, employment, and other markets. When such bases close, a corresponding belief is that the community will suffer in some catastrophic (both economic and social) manner.

To test the latter proposition, Bradshaw (1999) conducted a case study of a closure that had occurred in a modestly sized California community. He first identified a series of sectors (e.g., housing sales, civilian employment, unemployment, population turnover and stability, and retail markets) where catastrophic outcomes might have been feared, and he then collected data about each sector before and after the base closure. A pattern-matching procedure, examining the pre-post patterns of outcomes in every sector and also in comparison to other communities and statewide trends, showed that the outcomes were much less severe than anticipated. Some sectors did not even show any decline. Bradshaw also presented evidence to explain the pattern of outcomes, thereby producing a compelling argument for his conclusions.

This first case could then be augmented by a second one, in which another new office system had been installed, but of a centralized nature—that is, the equipment at all of the individual workstations had been networked. Now you would predict a different pattern of outcomes, using the same four dependent variables enumerated above. And now, if the results show that the decentralized system (Case A) had actually produced the predicted pattern and that this first pattern was different from that predicted and produced by the centralized system (Case B), you would be able to draw an even stronger conclusion about the effects of decentralization. In this situation, you have made a theoretical replication across cases. (In other situations, you might have sought a literal replication by identifying and studying two or more cases of decentralized systems.)

Finally, you might be aware of the existence of certain threats to the validity of this logic (see Cook & Campbell, 1979, for a full list of these threats). For example, a new corporate executive might have assumed office in Case A, leaving room for a counterargument: that the apparent effects of decentralization were actually attributable to this executive’s appointment and not to the newly installed office system. To deal with this threat, you would have to identify some subset of the initial dependent variables and show that the pattern would have been different (in Case A) if the corporate executive had been the actual reason for the effects. If you only had a single-case study, this type of procedure would be essential; you would be using the same data to rule out arguments based on a potential threat to validity. Given the existence of a second case, as in our hypothetical example, you also could show that the argument about the corporate executive would not explain certain parts of the pattern found in Case B (in which the absence of the corporate executive should have been associated with certain opposing outcomes). In essence, your goal is to identify all reasonable threats to validity and to conduct repeated comparisons, showing how such threats cannot account for the dual patterns in both of the hypothetical cases.

Rival explanations as patterns. The use of rival explanations, besides being a good general analytic strategy, also provides a good example of pattern matching for independent variables. In such a situation (for an example, see BOX 27), several cases may be known to have had a certain type of outcome, and your investigation has focused on how and why this outcome occurred in each case.

BOX 27
Pattern Matching for Rival Explanations and Replicating across Multiple Cases

A common policy problem is to understand the conditions under which new research findings can be made useful to society. This topic was the subject of a multiple-case study (Yin, 2003, chap. 1, pp. 20–22). For nine different cases, the investigators first provided definitive evidence that important research findings had indeed been put into practical use in every case. The main research inquiry then dealt with "how" and "why" such outcomes had occurred. The investigators compared three theories ("rivals") from the prevailing literature, that (a) researchers select their own topics to study and then successfully disseminate their findings to the practical world (technology "push"), (b) the practical world identifies problems that attract researchers' attention and that then leads to successful problem solving (demand "pull"), and (c) researchers and practitioners work together, customizing an elongated process of problem identification and solution testing ("social interaction"). Each theory predicts a different pattern of rival events that should precede the preestablished outcome. For instance, the demand "pull" theory requires the prior existence of a problem as a prelude to the initiation of a research project, but the same condition is not present in the other two theories.

For the nine cases, the events turned out to match best a combination of the second and third theories. The multiple-case study had therefore pattern-matched the events in each case with different theoretical predictions and also used a replication logic across the cases.
This analysis requires the development of rival theoretical propositions, articulated in operational terms. The desired characteristic of these rival explanations is that each involves a pattern of independent variables that is mutually exclusive: If one explanation is to be valid, the others cannot be. This means that the presence of certain independent variables (predicted by one explanation) precludes the presence of other independent variables (predicted by a rival explanation). The independent variables may involve several or many different types of characteristics or events, each assessed with different measures and instruments. The concern of the case study analysis, however, is with the overall pattern of results and the degree to which the observed pattern matches the predicted one.

This type of pattern matching of independent variables also can be done either with a single case or with multiple cases. With a single case, the successful matching of the pattern to one of the rival explanations would be evidence for concluding that this explanation was the correct one (and that the other explanations were incorrect). Again, even with a single case, threats to validity—basically constituting another group of rival explanations—should be identified and ruled out. Moreover, if this identical result were additionally obtained over multiple cases, literal replication of the single cases would have been accomplished, and the cross-case results might be stated even more assertively. Then, if this same result also failed to occur in a second group of cases, due to predictably different circumstances, theoretical replication would have been accomplished, and the initial result would stand yet more robustly.

Simpler patterns. This same logic can be applied to simpler patterns, having a minimal variety of either dependent or independent variables. In the simplest case, where there may be only two different dependent (or independent) variables, pattern matching is possible as long as a different pattern has been stipulated for these two variables.

The fewer the variables, of course, the more dramatic the different patterns will have to be to allow any comparisons of their differences. Nevertheless, there are some situations in which the simpler patterns are both relevant and compelling. The role of the general analytic strategy would be to determine the best ways of contrasting any differences as sharply as possible and to develop theoretically significant explanations for the different outcomes.

Precision of pattern matching. At this point in the state of the art, the actual pattern-matching procedure involves no precise comparisons. Whether one is predicting a pattern of nonequivalent dependent variables, a pattern based on rival explanations, or a simple pattern, the fundamental comparison between the predicted and the actual pattern may involve no quantitative or statistical criteria. (Available statistical techniques are likely to be irrelevant because each of the variables in the pattern will probably represent a single data point, and none will therefore have a "variance.") The most quantitative result will likely occur if the study had set preestablished benchmarks (e.g., productivity will increase by 10%) and the value of the actual outcome was then compared to this benchmark.

Low levels of precision can allow for some interpretive discretion on the part of the investigator, who may be overly restrictive in claiming a pattern to have been violated or overly lenient in deciding that a pattern has been matched. You can make your case study stronger by developing more precise measures. In the absence of such precision, an important suggestion is to avoid postulating very subtle patterns, so that your pattern matching deals with gross matches or mismatches whose interpretation is less likely to be challenged.

Explanation Building

A second analytic technique is in fact a special type of pattern matching, but the procedure is more difficult and therefore deserves separate attention. Here, the goal is to analyze the case study data by building an explanation about the case.

As used in this chapter, the procedure is mainly relevant to explanatory case studies. A parallel procedure, for exploratory case studies, has been commonly cited as part of a hypothesis-generating process (see Glaser & Strauss, 1967), but its goal is not to conclude a study but to develop ideas for further study.

Elements of explanations. To "explain" a phenomenon is to stipulate a presumed set of causal links about it, or "how" or "why" something happened. The causal links may be complex and difficult to measure in any precise manner (see BOX 28).

In most existing case studies, explanation building has occurred in narrative form. Because such narratives cannot be precise, the better case studies are the ones in which the explanations have reflected some theoretically significant propositions. For example, the causal links may reflect critical insights into public policy process or into social science theory. The public policy propositions, if correct, can lead to recommendations for future policy actions (see BOX 29A for an example); the social science propositions, if correct, can lead to major contributions to theory building, such as the transition of countries from agrarian to industrial societies (see BOX 29B for an example).
According to Derthick, local support did exist, but "federal officials had nevertheless stated such ambitious objectives that some degree of failure was certain" (p. 91). As a result, Derthick builds a modified explanation and concludes that "the surplus lands program failed both because the federal government had limited influence at the local level and because it set impossibly high objectives" (p. 93).

29B. A Study of Multiple Societies

An analytic approach similar to Derthick's is used by Barrington Moore (1966) in his history on the Social Origins of Dictatorship and Democracy. The book serves as another illustration of explanation building in multiple-case studies, even though the cases are actually historical examples.

Moore's (1966) book covers the transformation from agrarian to industrial societies in six different countries—England, France, the United States, China, Japan, and India—and the general explanation of the role of the upper classes and the peasantry is a basic theme that emerges and that became a significant contribution to the field of history.

Iterative nature of explanation building. The explanation-building process, for explanatory case studies, has not been well documented in operational terms. However, the eventual explanation is likely to be a result of a series of iterations:

- Making an initial theoretical statement or an initial proposition about policy or social behavior
- Comparing the findings of an initial case against such a statement or proposition
- Revising the statement or proposition
- Comparing other details of the case against the revision
- Comparing the revision to the facts of a second, third, or more cases
- Repeating this process as many times as is needed

In this sense, the final explanation may not have been fully stipulated at the beginning of a study and therefore differs from the pattern-matching approaches previously described. Rather, the case study evidence is examined, theoretical positions are revised, and the evidence is examined once again from a new perspective in this iterative mode.

The gradual building of an explanation is similar to the process of refining a set of ideas, in which an important aspect is again to entertain other plausible or...
rival explanations. As before, the objective is to show how these rival explanations cannot be supported, given the actual set of case study events.

Potential problems in explanation building. You should be forewarned that this approach to case study analysis is fraught with dangers. Much analytic insight is demanded of the explanation builder. As the iterative process progresses, for instance, an investigator may slowly begin to drift away from the original topic of interest. Constant reference to the original purpose of the inquiry and the possible alternative explanations may help to reduce this potential problem. Other safeguards already have been covered by Chapters 3 and 4—that is, the use of a case study protocol (indicating what data were to be collected), the establishment of a case study database for each case (formally storing the entire array of data that were collected, available for inspection by a third party), and the following of a chain of evidence.

EXERCISE 5.3 Constructing an Explanation

Identify some observable changes that have been occurring in your neighborhood (or the neighborhood around your campus). Develop an explanation for these changes and indicate the critical set of evidence you would collect to support or challenge this explanation. If such evidence were available, would your explanation be complete? Compelling? Useful for investigating similar changes in another neighborhood?

Time-Series Analysis

A third analytic technique is to conduct a time-series analysis, directly analogous to the time-series analysis conducted in experiments and quasi-experiments. Such analysis can follow many intricate patterns, which have been the subject of several major textbooks in experimental and clinical psychology with single subjects (e.g., see Kratochwill, 1978); the interested reader is referred to such works for further detailed guidance. The more intricate and precise the pattern, the more that the time-series analysis also will lay a firm foundation for the conclusions of the case study.

Simple time series. Compared to the more general pattern-matching analysis, a time-series design can be much simpler in one sense: In time series, there may only be a single dependent or independent variable. In these circumstances, when a large number of data points are relevant and available, statistical tests can even be used to analyze the data (see Kratochwill, 1978).

However, the pattern can be more complicated in another sense because the appropriate starting or ending points for this single variable may not be clear. Despite this problem, the ability to trace changes over time is a major strength of case studies—which are not limited to cross-sectional or static assessments of a particular situation. If the events over time have been traced in detail and with precision, some type of time-series analysis always may be possible, even if the case study analysis involves some other techniques as well (see BOX 30).

BOX 30

Using Time-Series Analysis in a Single-Case Study

In New York City, and following a parallel campaign to make the city’s subways safer, the city’s police department took many actions to reduce crime in the city more broadly. The actions included enforcing minor violations (“order restoration and maintenance”), installing computer-based crime-control techniques, and reorganizing the department to hold police officers accountable for controlling crime. Tellingly, Coles (1997) first describe all of these actions in sufficient detail to make their potential effect on crime reduction understandable and plausible. The case study then presents time series of the annual rates of specific types of crime over a 7-year period. During this period, crime initially rose for a couple of years and then declined for the remainder of the period. The case study explains how the timing of the relevant actions by the police department matched the changes in the crime trends. The authors cite the plausibility of the actions’ effects, combined with the timing of the actions in relation to the changes in crime trends, to support their explanation for the reduction in crime rates in the New York City of that era.

The essential logic underlying a time-series design is the match between the observed (empirical) trend and either of the following: (a) a theoretically significant trend specified before the onset of the investigation or (b) some rival trend, also specified earlier. Within the same single-case study, for instance, two different patterns of events may have been hypothesized over time. This is what D. T. Campbell (1969) did in his now-famous study of the change in Connecticut’s speed limit law, reducing the limit to 55 miles per hour in 1955. The predicted time-series pattern was based on the proposition that the new law (an “interruption” in the time series) had substantially reduced the number of fatalities, whereas the other time-series pattern was based on the proposition that no such effect had occurred. Examination of the actual data points—that is, the annual number of fatalities over a period of years before and after the law was passed—then determined which of the alternative time series best
matched the empirical evidence. Such comparison of "interrupted time series" within the same case can be used in many different situations.

The same logic also can be used in doing a multiple-case study, with contrasting time-series patterns postulated for different cases. For instance, a case study about economic development in cities may have examined the reasons that a manufacturing-based city had more negative employment trends than those of a service-based city. The pertinent outcome data might have consisted of annual employment data over a prespecified period of time, such as 10 years. In the manufacturing-based city, the predicted employment trend might have been a declining one, whereas in the service-based city, the predicted trend might have been a rising one. Similar analyses can be imagined with regard to the examination of youth gangs over time within individual cities, changes in health status (e.g., infant mortality), trends in college rankings, and many other indicators. Again, with appropriate data, the analysis of the trends can be subjected to statistical analysis. For instance, you can compute "slopes" to cover time trends under different conditions (e.g., comparing student achievement trends in schools with different kinds of curricula) and then compare the slopes to determine whether their differences are statistically significant (see Yin, Schmidt, & Besag, 2006). As another approach, you can use regression discontinuity analysis to test the difference in trends before and after a critical event, such as the passing of a new speed limit law (see D. T. Campbell, 1969).

Complex time series. The time-series designs can be more complex when the trends within a given case are postulated to be more complex. One can postulate, for instance, not merely rising or declining (or flat) trends but some rise followed by some decline within the same case. This type of mixed pattern, across time, would be the beginning of a more complex time series. The relevant statistical techniques would then call for stipulating nonlinear models. As always, the strength of the case study strategy would not merely be in assessing this type of time series but also in having developed a rich explanation for the complex pattern of outcomes and in comparing the explanation with the outcomes.

Greater complexities also arise when a multiple set of variables—not just a single one—are relevant to a case study and when each variable may be predicted to have a different pattern over time. Such conditions can especially be present in embedded case studies: The case study may be about a single case, but extensive data also cover an embedded unit of analysis (see Chapter 2, Figure 2.3). BOX 31 contains two examples. The first (see BOX 31A) was a single-case study about one school system, but hierarchical linear models were used to analyze a detailed set of student achievement data. The second (see BOX 31B) was about a single neighborhood revitalization strategy taking place in several neighborhoods; the authors used statistical regression models to analyze time trends for the sales prices of single-family houses in the targeted and comparison neighborhoods and thereby to assess the outcomes of the single strategy.

BOX 31A. Evaluating the Impact of Systemwide Reform in Education

Supovitz and Taylor (2005) conducted a case study of Duval County School District in Florida, with the district’s students serving as an embedded unit of analysis. A quantitative analysis of the students’ achievement scores over a 4-year period, using hierarchical linear models adjusted for confounding factors, showed “little evidence of sustained systemwide impacts on student learning, in comparison to other districts.”

The case study includes a rich array of field observations and surveys of principals, tracing the difficulties in implementing new systemwide changes prior to and during the 4-year period. The authors also discuss in great detail their own insights about systemwide reform and the implications for evaluators—that such an “intervention” is hardly self-contained and that its evaluation may need to embrace more broadly the institutional environment beyond the workings of the school system itself.

BOX 31B. Evaluating a Neighborhood Revitalization Strategy

Galster, Tiatian, and Accordino (2006) do not present their work as a case study. The aim of their study was nevertheless to evaluate a single neighborhood revitalization strategy (as in a single-case study) begun in 1998 in Richmond, Virginia. The article presents the strategy’s rationale and some of its implementation history, and the main conclusions are about the revitalization strategy. However, the distinctive analytic focus is on what might be considered an “embedded” unit of analysis: the sales prices of single-family homes. The overall evaluation design is highly applicable to a wide variety of embedded case studies.

To test the effectiveness of the revitalization strategy, the authors used regression models to compare pre- and postintervention (time series) trends between housing prices in targeted and comparison neighborhoods. The findings showed that the revitalization strategy had “produced substantially greater appreciation in the market values of single-family homes in the targeted areas than in comparable homes in similarly distressed neighborhoods.”
In general, although a more complex time series creates greater problems for data collection, it also leads to a more elaborate trend (or set of trends) that can strengthen an analysis. Any match of a predicted with an actual time series, when both are complex, will produce strong evidence for an initial theoretical proposition.

**Chronologies.** The compiling of chronological events is a frequent technique in case studies and may be considered a special form of time-series analysis. The chronological sequence again focuses directly on the major strength of case studies cited earlier—that case studies allow you to trace events over time.

You should not think of the arraying of events into a chronology as a descriptive device only. The procedure can have an important analytic purpose—to investigate presumed causal events—because the basic sequence of a cause and its effect cannot be temporally inverted. Moreover, the chronology is likely to cover many different types of variables and not be limited to a single independent or dependent variable. In this sense, the chronology can be richer and more insightful than general time-series approaches. The analytic goal is to compare the chronology with that predicted by some explanatory theory—in which the theory has specified one or more of the following kinds of conditions:

- Some events must always occur before other events, with the reverse sequence being impossible.
- Some events must always be followed by other events, on a contingency basis.
- Some events can only follow other events after a prespecified interval of time.
- Certain time periods in a case study may be marked by classes of events that differ substantially from those of other time periods.

If the actual events of a case study, as carefully documented and determined by an investigator, have followed one predicted sequence of events and not those of a compelling, rival sequence, the single-case study can again become the initial basis for causal inferences. Comparison to other cases, as well as the explicit consideration of threats to internal validity, will further strengthen this inference.

**Summary conditions for time-series analysis.** Whatever the stipulated nature of the time series, the important case study objective is to examine some relevant “how” and “why” questions about the relationship of events over time, not merely to observe the time trends alone. An interruption in a time series will be the occasion for postulating potential causal relationships; similarly, a chronological sequence should contain causal postulates.

On those occasions when the use of time-series analysis is relevant to a case study, an essential feature is to identify the specific indicator(s) to be traced over time, as well as the specific time intervals to be covered and the presumed temporal relationships among events, prior to collecting the actual data. Only as a result of such prior specification are the relevant data likely to be collected in the first place, much less analyzed properly and with minimal bias.

In contrast, if a study is limited to the analysis of time trends alone, as in a descriptive mode in which causal inferences are unimportant, a non-case study strategy is probably more relevant—for example, the economic analysis of consumer price trends over time.

Note, too, that without any hypotheses or causal propositions, chronologies become *chronicles*—valuable descriptive renditions of events but having no focus on causal inferences.

**EXERCISE 5.4 Analyzing Time-Series Trends**

Identify a simple time series—for example, the number of students enrolled at your university for each of the past 20 years. How would you compare one period of time with another within the 20-year period? If the university admissions policies had changed during this time, how would you compare the effects of such policies? How might this analysis be considered part of a broader case study of your university?

**Logic Models**

This fourth technique has become increasingly useful in recent years, especially in doing case study evaluations (e.g., Mulroy & Lauber, 2004). The logic model deliberately stipulates a complex chain of events over an extended period of time. The events are staged in repeated cause-effect—cause-effect patterns, whereby a dependent variable (event) at an earlier stage becomes the independent variable (causal event) for the next stage (Peterson & Bickman, 1992; Rog & Huebner, 1992). Evaluators also have demonstrated the benefits when logic models are developed collaboratively—that is, when evaluators and the officials implementing a program being evaluated work together to define a program's logic model (see Nesman, Batsche, & Hernandez, 2007). The process can help a group define more clearly its vision and goals, as well as how the sequence of programmatic actions will (in theory) accomplish the goals.

As an analytic technique, the use of logic models consists of matching empirically observed events to theoretically predicted events. Conceptually, you therefore may consider the logic model technique to be another form of pattern
matching. However, because of their sequential stages, logic models deserve to be distinguished as a separate analytic technique from pattern matching.

Joseph Wholey (1979) was at the forefront in developing logic models as an analytic technique. He first promoted the idea of a “program” logic model, tracing events when a public program intervention was intended to produce a certain outcome or sequence of outcomes. The intervention could initially produce activities with their own immediate outcomes; these immediate outcomes could in turn produce some intermediate outcomes; and in turn, the intermediate outcomes were supposed to produce final or ultimate outcomes.

To illustrate Wholey’s (1979) framework with a hypothetical example, consider a school intervention aimed at improving students’ academic performance. The hypothetical intervention involves a new set of classroom activities during an extra hour in the school day (intervention). These activities provide time for students to work with their peers on joint exercises (immediate outcome). The result of this immediate outcome is evidence of increased understanding and satisfaction with the educational process, on the part of the participating students, peers, and teachers (intermediate outcome). Eventually, the exercises and the satisfaction lead to the increased learning of certain key concepts by the students, and they demonstrate their knowledge with higher test scores (ultimate outcome).

Going beyond Wholey’s (1979) approach and using the strategy of rival explanations espoused throughout this book, an analysis also could entertain rival chains of events, as well as the potential importance of spurious external events. If the data were supportive of the preceding sequence involving the extra hour of schooling, and no rivals could be substantiated, the analysis could claim a causal effect between the initial school intervention and the later increased learning. Alternatively, the conclusion might be reached that the specified series of events was illogical—for instance, that the school intervention had involved students at a different grade level than whose learning had been assessed. In this situation, the logic model would have helped to explain a spurious finding.

The program logic model strategy can be used in a variety of circumstances, not just those where a public policy intervention has occurred. A key ingredient is the claimed existence of repeated cause-and-effect sequences of events, all linked together. The links may be qualitative or, with appropriate data involving an embedded unit of analysis, even can be tested with structural equation models (see BOX 32). The more complex the link, the more definitively the case study data can be analyzed to determine whether a pattern match has been made with these events over time. Four types of logic models are discussed next. They mainly vary according to the unit of analysis that might be relevant to your case study.

**BOX 32**

*Testing a Logic Model of Reform in a Single School System*

An attempted transformation of a major urban school system took place in the 1980s, based on the passage of a new law that decentralized the system by installing powerful local school councils for each of the system’s schools. Bryk, Bebring, Kerbow, Rollow, and Easton (1998) evaluated the transformation, including qualitative data about the system as a whole and about individual schools (embedded units of analysis) in the system. At the same time, the study also includes a major quantitative analysis, taking the form of structural equation modeling with data from 269 of the elementary schools in the system. The path analysis is made possible because the single case (the school system) contains an embedded unit of analysis (individual schools).

The analysis tests a complex logic model whereby the investigators claim that pre-reform restructuring will produce strong democracy for a school, in turn producing the systemic restructuring of the school, and finally producing innovative instruction. The results, being aggregated across schools, pertain to the collective experience across all of the schools and not to any single school—in other words, the overall transformation of the system (single case) as a whole.

*Individual-level logic model.* The first type assumes that your case study is about an individual person, with Figure 5.2 depicting the behavioral course of events for a hypothetical youth. The events flow across a series of boxes and arrows reading from left to right in the figure. It suggests that the youth may be at risk for becoming a member of a gang, may eventually join a gang and become involved in gang violence and drugs, and even later may participate in a gang-related criminal offense. Distinctive about this logic model is the series of 11 numbers associated with the various arrows in the figure. Each of the 11 represents an opportunity, through some type of planned intervention (e.g., community or public program), to prevent an individual youth from continuing on the course of events. For instance, community development programs (number 1) might bring jobs and better housing to a neighborhood and reduce the youth’s chances of becoming at risk in the first place. How a particular youth might have encountered and dealt with any or all of the 11 possible interventions might be the subject of a case study, with Figure 5.2 helping you to define the relevant data and their analysis.

*Firm or organizational-level logic model.* A second type of logic model traces events taking place in an individual organization, such as a manufacturing firm. Figure 5.3 shows how changes in a firm (Boxes 5 and 6 in Figure 5.3)
Figure 5.2 Youth Behavior and 11 Possible Interventions

Figure 5.3 Changes in Performance in a Manufacturing Firm

are claimed to lead to improved manufacturing (Box 8) and eventually to improved business performance (Boxes 10 and 11). The flow of boxes also reflects a hypothesis—that the initial changes were the result of external brokerage and technical assistance services. Given this hypothesis, the logic model therefore also contains rival or competing explanations (Boxes 12 and 13). The data analysis for this case study would then consist of tracing the actual events over time, at a minimum giving close attention to their chronological sequence. The data collection also should have tried to identify ways in which the boxes were actually linked in real life, thereby corroborating the layout of the arrows connecting the boxes.

An alternative configuration for an organizational-level logic model. Graphically, nearly all logic models follow a linear sequence (e.g., reading from left to right or from top to bottom). In real life, however, events can be more dynamic, not necessarily progressing linearly. One such set of events might occur in relation to the “reforming” or “transformation” of an organization. For instance, business firms may undergo many significant operational changes, and the business’s mission and culture (and even name) also may change. The significance of these changes warrants the notion that the entire business has been transformed (see Yin, 2003, chaps. 6 and 10, for a case study of a single firm and then the cross-case analysis of a group of transformed firms). Similarly, schools or school systems can sufficiently alter their way of doing business that “systemic reform” is said to be occurring. In fact, major public initiatives deliberately aim at improving schools by encouraging the reform of entire school systems (i.e., school districts). However, neither the business transformation nor school reform processes are linear, in at least two ways. First, changes may reverse course and not just progress in one direction. Second, the completed transformation or systemic reform is not necessarily an end point implied by the linear logic model (i.e., the final box in the model); continued transforming and reforming may be ongoing processes even over the long haul.

Figure 5.4 presents an alternatively configured, third type of logic model, reflecting these conditions. This logic model tracks all of the main activities in a school system (the initials are decoded in the key to the figure)—over four periods of time (each time interval might represent a 2- or 3-year period of time). Systemic reform occurs when all of the activities are aligned and work together, and this occurs at \( t_3 \) in Figure 5.4. At later stages, however, the reform may regress, represented by \( t_4 \), and the logic model does not assume that the vacillations will even end at \( t_4 \). As a further feature of the logic model, the entire circle at each stage can be positioned higher or lower, representing the level of student performance—the hypothesis being that systemic reform will be associated with the highest performance. The pennants in the middle of the circle indicate the number of schools or classrooms implementing the desired...
Cross-Case Synthesis

A fifth technique applies specifically to the analysis of multiple cases (the previous four techniques can be used with either single- or multiple-case studies). The technique is especially relevant if, as advised in Chapter 2, a case study consists of at least two cases (for a synthesis of six cases, see Ericksen & Dyer, 2004). The analysis is likely to be easier and the findings likely to be more robust than having only a single case. BOX 33 presents an excellent example of the important research and research topics that can be addressed by having a "two-case" case study. Again, having more than two cases could strengthen the findings even further.

Cross-case syntheses can be performed whether the individual case studies have previously been conducted as independent research studies (authored by different persons) or as a predesigned part of the same study. In either situation, the technique treats each individual case study as a separate study. In this way, the technique does not differ from other research syntheses—aggregating findings across a series of individual studies (see BOX 34). If there are large numbers of individual case studies available, the synthesis can incorporate quantitative techniques common to other research syntheses (e.g., Cooper & Hedges, 1994) or meta-analyses (e.g., Lipsey, 1992). However, if only a modest number of case studies are available, alternative tactics are needed.

One possibility starts with the creation of word tables that display the data from the individual cases according to some uniform framework. Figure 5.6 has an

Program-level logic model. Returning to the more conventional linear model, Figure 5.5 contains a fourth and final type of logic model. Here, the model depicts the rationale underlying a major federal program, aimed at reducing the incidence of HIV/AIDS by supporting community planning and prevention initiatives. The program provides funds as well as technical assistance to 65 state and local health departments across the country. The model was used to organize and analyze data from eight case studies, including the collection of data on rival explanations, whose potential role also is shown in the model (see Yin, 2003 chap. 8, for the entire multiple-case study).

Summary. Using logic models represents a fourth technique for analyzing case study data. Four types of logic models, applicable to different units of analysis and situations, have been presented. You should define your logic model prior to collecting data and then "test" the model by seeing how well the data support it (see Yin, 2003, for several examples of case studies using logic models).
BOX 33

Using a "Two-Case" Case Study to Test a Policy-Oriented Theory

The international marketplace of the 1970s and 1980s was marked by Japan's prominence. Much of its strength was attributable to the role of centralized planning and support by a special governmental ministry—considered by many to be an unfair competitive edge, compared to the policies in other countries. For instance, the United States was considered to have no counterpart support structures. Gregory Hooks (1990) excellent case study points to a counterexample frequently ignored by advocates: the role of the U.S. defense department in implementing an industrial planning policy within defense-related industries.

Hooks (1990) provides quantitative data on two cases—the aeronautics industry and the microelectronics industry (the forerunner to the entire computer chip market and its technologies, such as the personal computer). One industry (aeronautics) has traditionally been known to be dependent upon support from the federal government, but the other has not. In both cases, Hooks’s evidence shows how the defense department supported the critical early development of these industries through financial support, the support of R&D, and the creation of an initial customer base for the industry’s products. The existence of both cases, and not the aeronautics industry alone, makes the author’s entire argument powerful and persuasive.

BOX 34

Eleven Program Evaluations and a Cross-"Case" Analysis

Dennis Rosenbaum (1986) collected 11 program evaluations as separate chapters in an edited book. The 11 evaluations had been conducted by different investigators, had used a variety of methods, and were not case studies. Each evaluation was about a different community crime prevention intervention, and some presented ample quantitative evidence and employed statistical analyses. The evaluations were deliberately selected because nearly all had shown positive results. A cross-case analysis was conducted by the present author (Yin, 1986), treating each evaluation as if it were a separate case. The analysis dissected and arrayed the evidence from the 11 evaluations in the form of word tables. Generalizations about successful community crime prevention, independent of any specific intervention, were then derived by using a replication logic, given that all of the evaluations had shown positive results.

example of such a word table, capturing the findings from 14 case studies of organizational centers, with each center having an organizational partner (COSMOS Corporation, 1998). Of the 14 centers, 7 had received programmatic support and were considered intervention centers; the other 7 were selected as comparison centers. For both types of centers, data were collected about the center’s ability to

<table>
<thead>
<tr>
<th>CENTERS</th>
<th>Characteristics of Co-Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention Centers:</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Partnering staff are located in the same facility as Center 1 and follow Center 1’s policies that were in place prior to the partnership. Center 1 receives $25,000 annually from the partnership budget for software and peripherals, and communication and supplies.</td>
</tr>
<tr>
<td>2</td>
<td>As a business unit of Center 2, the partnering staff are housed within Center 2’s offices. Center 2’s parent organization contributes $2,500 for space and $23,375 for indirect expenses annually to the partnership budget.</td>
</tr>
<tr>
<td>3</td>
<td>Five partnership offices are co-located with Center 3’s staff.</td>
</tr>
<tr>
<td>4</td>
<td>Center 4 and its partner share office space.</td>
</tr>
<tr>
<td>5</td>
<td>Center 5 staff and the partnering staff are located in the same building, but do not share office space.</td>
</tr>
<tr>
<td>6</td>
<td>The two organizations are not co-located.</td>
</tr>
<tr>
<td>7</td>
<td>Partnering staff are located in Center 7’s offices.</td>
</tr>
<tr>
<td>Comparison Centers:</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Center 8 and its partner share office space in eight locations statewide.</td>
</tr>
<tr>
<td>9</td>
<td>Some sites are co-located.</td>
</tr>
<tr>
<td>10</td>
<td>Center 10 and its partner are not co-located.</td>
</tr>
<tr>
<td>11</td>
<td>The partnering and center staff share office space.</td>
</tr>
<tr>
<td>12</td>
<td>Center 12 and its partner’s staff are located in the same building.</td>
</tr>
<tr>
<td>13</td>
<td>Center 13 and its partner’s staff are located in the same office.</td>
</tr>
<tr>
<td>14</td>
<td>Center 14 shares office space with three regional partners.</td>
</tr>
</tbody>
</table>

Figure 5.6 Co-location of Interorganizational Partners (14 Centers and Their Counterpart Organizations)

co-locate (e.g., share facilities) with its partnering organization—this being only one of several outcomes of interest in the original study.

The overall pattern in the word table led to the conclusion that the intervention and comparison centers did not differ with regard to this particular outcome. Additional word tables, reflecting other processes and outcomes of interest, were examined in the same way. The analysis of the entire collection of word tables enabled the study to draw cross-case conclusions about the intervention centers and their outcomes.

Complementary word tables can go beyond the single features of a case and array a whole set of features on a case-by-case basis. Now, the analysis can start to probe whether different groups of cases appear to share some similarity and deserve to be considered instances of the same "type" of general case. Such an observation can further lead to analyzing whether the arrayed case studies reflect subgroups or categories of general cases—raising the possibility of a typology of individual cases that can be highly insightful.

An important caveat in conducting this kind of cross-case synthesis is that the examination of word tables for cross-case patterns will rely strongly on argumentative interpretation, not numeric tallies. Chapter 2 has previously pointed out, however, that this method is directly analogous to cross-experiment interpretations, which also have no numeric properties when only a small number of experiments are available for synthesis. A challenge you must be prepared to meet as a case study investigator is therefore to know how to develop strong, plausible, and fair arguments that are supported by the data.

---

**PRESSING FOR A HIGH-QUALITY ANALYSIS**

No matter what specific analytic strategy or techniques have been chosen, you must do everything to make sure that your analysis is of the highest quality. At least four principles underlie all good social science research (Yin, 1994a, 1994b, 1997, 1999) and require your attention.

First, your analysis should show that you attended to all the evidence. Your analytic strategies, including the development of rival hypotheses, must exhaustively cover your key research questions (you can now appreciate better the importance of defining sharp as opposed to vague questions). Your analysis should show how it sought to use as much evidence as was available, and your interpretations should account for all of this evidence and leave no loose ends. Without achieving this standard, your analysis may be vulnerable to alternative interpretations based on the evidence that you had (inadvertently) ignored.

Second, your analysis should address, if possible, all major rival interpretations. If someone else has an alternative explanation for one or more of your findings, make this alternative into a rival. Is there evidence to address this rival? If so, what are the results? If not, should the rival be restated as a loose end to be investigated in future studies?

Third, your analysis should address the most significant aspect of your case study. Whether it is a single- or multiple-case study, you will have demonstrated your best analytic skills if the analysis focuses on the most important issue (preferably defined at the outset of the case study). By avoiding a detour to a lesser issue, your analysis will be less vulnerable to the possibility that the main issue was being avoided because of possibly negative findings.

Fourth, you should use your own prior expert knowledge in your case study. The strong preference here is for you to demonstrate awareness of current thinking and discourse about the case study topic. If you know your subject matter as a result of your own previous investigations and publications, so much the better.

The case study in BOX 35 was done by a research team with academic credentials as well as strong and relevant practical experience. In their work, the authors demonstrate a care of empirical investigation whose spirit is worth considering in all case studies. The care is reflected in the presentation of the cases themselves, not by the existence of a stringent methodology section whose tenets might not have been fully followed in the actual case study. If you can emulate the spirit of these authors, your case study analysis also will be given appropriate respect and recognition.

---

**BOX 35**

**Analytic Quality in a Multiple-Case Study of International Trade Competition**

The quality of a case study analysis is not dependent solely on the techniques used, although they are important. Equally important is that the investigator demonstrate expertise in carrying out the analysis. This expertise was reflected in Magaziner and Patinkin's (1989) book, _The Silent War: Inside the Global Business Battles Shaping America's Future_.

The authors organized their nine cases in excellent fashion. Across cases, major themes regarding America's competitive advantages (and disadvantages) were covered in a replication design. Within each case, the authors provided extensive interview and other documentation, showing the sources of their findings. (To keep the narrative reading smoothly, much of the data—in word tables, footnotes, and quantitative tabulations—were relegated to footnotes and appendices.) In addition, the authors showed that they had extensive personal exposure to the issues being studied, as a result of numerous domestic and overseas visits.

Technically, a more explicit methodological section might have been helpful. However, the careful and detailed work, even in the absence of such a section, helps to illustrate what all investigators should strive to achieve (also see BOX 5B, Chapter 2, p. 31).
EXERCISE 5.5 Analyzing the Analytic Process

Select and obtain one of the case studies described in the BOXES in this book. Find one of the case study's chapters (usually in the middle of the study) in which evidence is presented, but conclusions also are being made. Describe how this linkage—from cited evidence to conclusions—occurs. Are data displayed in tables or other formats? Are comparisons being made?

SUMMARY

This chapter has presented several ways of analyzing case studies. First, the potential analytic difficulties can be reduced if you have a general strategy for analyzing the data—whether such a strategy is based on theoretical propositions, rival explanations, or descriptive frameworks. In the absence of such strategies, you may have to "play with the data" in a preliminary sense, as a prelude to developing a systematic sense of what is worth analyzing and how it should be analyzed.

Second, given a general strategy, several specific analytic techniques are relevant. Of these, five (pattern matching, explanation building, time-series analysis, logic models, and cross-case syntheses) can be effective in laying the groundwork for high-quality case studies. For all five, a similar replication logic should be applied if a study involves multiple cases. Comparisons to rival propositions and threats to internal validity also should be made within each individual case.

None of these techniques is easy to use. None can be applied mechanically, following any simple cookbook procedure. Not surprisingly, case study analysis is the most difficult stage of doing case studies, and novice investigators are especially likely to have a troublesome experience. Again, one recommendation is to begin with a simple and straightforward case study (or, more preferably, a "two-case" design), even if the research questions are not as sophisticated or innovative as might be desired. Experience gained in completing such straightforward case studies will lead to the ability to tackle more difficult topics in subsequent case studies.

REFERENCE TO EXPANDED CASE STUDY MATERIALS FOR CHAPTER 5

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.

<table>
<thead>
<tr>
<th>Chapter 5</th>
<th>Topics of Illustrative Case Studies</th>
<th>Reference to Lengthier Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>An Analytic Strategy: More Than Familiarity with Analytic Tools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOX 25, p. 5-8</td>
<td>Local economic development</td>
<td>CSA-5</td>
</tr>
<tr>
<td>p. 5-114 text</td>
<td>University innovation</td>
<td>ACSR-4</td>
</tr>
<tr>
<td>p. 5-114 text</td>
<td>Drug abuse prevention</td>
<td>ACSR-5</td>
</tr>
<tr>
<td>Five Specific Analytic Techniques</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOX 26, p. 5-14</td>
<td>Local economic development</td>
<td>CSA-18</td>
</tr>
<tr>
<td>BOX 27, p. 5-15</td>
<td>Making research useful</td>
<td>ACSR, pp. 20–22</td>
</tr>
<tr>
<td>BOX 28, p. 5-18</td>
<td>Business and industry</td>
<td>None</td>
</tr>
<tr>
<td>BOX 29A, p. 5-18</td>
<td>Local economic development</td>
<td>CSA-8</td>
</tr>
<tr>
<td>BOX 29B, p. 5-18</td>
<td>Societies</td>
<td>None</td>
</tr>
<tr>
<td>BOX 30, p. 5-21</td>
<td>Crime prevention</td>
<td>CSA-17</td>
</tr>
<tr>
<td>BOX 31A, p. 5-23</td>
<td>Schools</td>
<td>None</td>
</tr>
<tr>
<td>BOX 31B, p. 5-23</td>
<td>Neighborhoods</td>
<td>None</td>
</tr>
<tr>
<td>BOX 32, p. 5-27</td>
<td>Schools</td>
<td>CSA-11</td>
</tr>
<tr>
<td>p. 5-29 text</td>
<td>Business and industry</td>
<td>ACSR-6 &amp; 10</td>
</tr>
<tr>
<td>p. 5-30 text</td>
<td>Health (HIV/AIDS) care</td>
<td>ACSR-8</td>
</tr>
<tr>
<td>p. 5-31 text</td>
<td>Three different case studies</td>
<td>ACSR-6, 8, &amp; 10</td>
</tr>
<tr>
<td>BOX 33, p. 5-31</td>
<td>Business and industry</td>
<td>CSA-7</td>
</tr>
<tr>
<td>BOX 34, p. 5-32</td>
<td>Crime prevention</td>
<td>None</td>
</tr>
<tr>
<td>Pressing for a High-Quality Analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOX 35, p. 5-34</td>
<td>Business and industry</td>
<td>CSA-6</td>
</tr>
</tbody>
</table>

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

Reporting a case study means bringing its results and findings to closure. Regardless of the form of the report, similar steps underlie the case study composition: identifying the audience for the report, developing its compositional structure, and having drafts reviewed by others.

Once composed, the case study may be finished—or it may be joined with data collected through other methods, as part of a broader, mixed methods study. Such studies can be advantageous and represent a further challenge in doing case study research.

Whether serving as a finished case study or as part of a mixed methods study, creating a case study report is one of the most challenging aspects of doing case studies. The best general advice is to compose portions of the case study early (e.g., the bibliography and the methodology section), rather than waiting until the end of the data analysis process. As for compositional structures, six alternatives are suggested: linear-analytic, comparative, chronological, theory-building, "suspense," and unsequenced structures. The case study report also presents a choice regarding the disclosure or anonymity of case identities. A final plea is to worry about producing high-quality and not just run-of-the-mill case studies.

6

Reporting Case Studies

How and What to Compose

As a general rule, the compositional phase puts the greatest demands on a case study investigator. The case study report does not follow any stereotypic form, such as a journal article in psychology. Because of this uncertain nature, researchers who do not like to compose may want to question their interest in doing case studies in the first place. Most of the notable case study scholars have been ones who liked to compose and also actually had a flair for writing. Do you?

Of course, most investigators can eventually learn to compose easily and well, and inexperience in composing should not be a deterrent to doing case studies. However, much practice will be needed. Furthermore, to do good case studies, you should want to become good at composing—and not merely put up with it. One indicator of success at this phase of the craft is whether you found term papers easy or difficult to do in high school or college. The more difficult they were, the more difficult it will be to compose a case study report. Another indicator is whether composing is viewed as an opportunity or as a burden. The successful investigator usually perceives the compositional phase as an opportunity—to make a significant contribution to knowledge or practice.

Unfortunately, few people are forewarned about this problem that lies at the end of designing and doing a case study. The smart investigator will begin to compose the case study report even before data collection and analysis have been completed. In general, the compositional phase is so important that you should give it explicit attention throughout the earlier phases of your case study.

Despite this advice, most investigators typically ignore the compositional phase until the very end of their case studies. Under these circumstances, all sorts of "writer's cramps" may appear, and the case study report may become impossible to compose. Thus, a prelude to any case study research may be to consult a textbook covering the writing of research reports more generally (e.g., Barzun & Graff, 1985; Becker, 1986). Such texts offer invaluable reminders for taking notes, making outlines, using plain words, writing clear sentences, establishing a schedule for composing, and combating the common urge not to compose.
Tip: What's the best way of getting my case study report finished, with the least trouble and time?

Every investigator differs, so you have to develop your own style and preferences. Improvement occurs with each case study you write. Thus, don't be surprised if your first one is more difficult. One possible strategy is to think about writing "inside-out" and "backwards." Inside-out: Start your report with a table, exhibit, vignette, or quotation to be cited by the narrative of your case study (but don't try to write the narrative yet). In the same manner, now amass all of the tables, exhibits, vignettes, or quotations for your entire report, arraying them in the sequence they are to appear in your report. Backwards: Now start by writing the analytic narrative that led to the final portion, and so on.

If you successfully follow the preceding suggestions, would you be finished, or do you have but a first draft that now needs to be recomposed so that it blends better?

EXERCISE 6.1 Reducing the Barriers to Composition

Everyone has difficulties in composing reports, whether case studies or not. To succeed at composing, investigators must take specific steps during the conduct of a study to reduce barriers to composition. Name five such steps that you would take—such as starting on a portion of the composition at an early stage. Have you used these five steps in the past?

The purpose of this chapter is not to repeat these general lessons, although they are applicable to case studies. Most of the lessons are important to all forms of research composition, and to describe them here would defeat the purpose of providing information specific to case studies. Instead, the main purpose of this chapter is to highlight those aspects of composition and reporting that are directly related to case studies. These include the following topics, each covered in a separate section:

• targeting case study reports;
• case study reports as part of larger, mixed methods studies;
• illustrative structures for case study compositions;
• procedures to be followed in doing a case study report; and
• in conclusion, speculations on the characteristics of an exemplary case study (extending beyond the report itself and covering the design and content of the case).

One reminder from Chapter 4 is that the case study report should not be the main way of recording or storing the evidentiary base of the case study. Rather, Chapter 4 advocated the use of a case study database for this purpose (see Chapter 4, Principle 2), and the compositional efforts described in this chapter are primarily intended to serve reporting, and not documentation, objectives.

TARGETING CASE STUDY REPORTS

Giving some initial thought to your likely or preferred audience and reporting formats serves as a good starting point for composing your case study. It can have a more diverse set of potential audiences than most other types of research, including (a) academic colleagues; (b) policy makers, practitioners, community leaders, and other professionals who do not specialize in case study or other social science research; (c) special groups such as a dissertation or thesis committee; and (d) funders of research.

With most research reports, such as reports of experiments, the second audience is not typically relevant, as few would expect the result of a laboratory experiment to be directed to nonspecialists. However, for case studies, this second audience may be a frequent target of the case study report. As another contrast, the third audience would rarely be relevant for some types of research—such as evaluations—because evaluations are not usually suitable as theses or dissertations. However, for case studies, this third audience also is a frequent consumer of the case study report, due to the large number of theses and dissertations in the social sciences that rely on case studies.

Because case studies have more potential audiences than other types of research, one of your essential tasks in designing the overall case study report is to identify the specific audiences for the report. Each audience has different needs, and no single report will serve all audiences simultaneously.

As examples, for academic colleagues, the relationships among the case study, its findings, and previous theory or research are likely to be most important (see BOX 36). For nonspecialists, the descriptive elements in portraying some real-life situation, as well as the implications for action, are likely to be more important. For a thesis committee, mastery of the methodology and theoretical issues, along with an indication of the care with which the research was conducted, is important. Finally, for research funders, the significance of the case study findings, whether cast in academic or practical terms, is probably as important as the rigor with which the research was conducted. Successful communication with more than one audience may mean the need for more than one version of a case study report. Investigators should seriously consider catering to such a need (see BOX 37).
For many years, Philip Selznick’s TVA and the Grass Roots (1949) has stood as a classic about public organizations. The case has been cited in many subsequent studies of federal agencies, political behavior, and organizational decentralization. Fully 30 years after its original publication, this case was reprinted in 1980 as part of the Library Reprint Series by the University of California Press, the original publisher. This type of reissuance allows numerous other researchers to have access to this famous case study and reflects its substantial contribution to the field.

The city planning office of Broward County, Florida, implemented an office automation system beginning in 1982 (“The Politics of Automating a Planning Office,” Standerfer & Rider, 1983). The implementation strategies were innovative and significant—especially in relation to tensions with the county government’s computer department. As a result, the case study is interesting and informative, and a popularized version—appearing in a practitioner journal—is fun and easy to read.

Because this type of implementation also covers complex technical issues, the authors made supplementary information available to the interested reader. The popularized version provided a name, address, and telephone number, so that such a reader could obtain the additional information. This type of dual availability of case study reports is but one example of how different reports of the same case study may be useful for communicating with different audiences.

A related situation, often overlooked, occurs with testimony before a legislative committee. If an elderly person, for instance, testifies about her or his health services before such a committee, its members may assume that they have acquired an understanding of health care for the elderly more generally—based on this “case.” Only then might the members be willing to review broader statistics about the prevalence of similar cases. Later, the committee may inquire about the representative nature of the initial case, before proposing new legislation. However, throughout this entire process, the initial “case”—represented by a witness—may have been the essential ingredient in gaining insight into the health care issue in the first place.

In these and other ways, your case study can communicate research-based information about a phenomenon to a variety of nonspecialists. Your case study may even assume the form of a videotape or other multimedia device and not a narrative report (e.g., see Naumes & Naumes, 1999, chap. 10). The usefulness of case studies therefore goes far beyond the role of the typical research report, which is generally addressed to research colleagues rather than nonspecialists. Obviously, descriptive as well as explanatory case studies can be important in this role, and you should not overlook the potential descriptive impact of a well-presented case study (see BOX 38).

Whether four “countries”—the American colonies, Russia, England, and France—all underwent similar courses of events during their major political revolutions is the topic of Crane Brinton’s (1938) famous historical study, The Anatomy of a Revolution. Tracing and analyzing these events is done in a descriptive manner, as the author’s purpose is not so much to explain the revolutions as to determine whether they followed similar courses (also see BOX 41B, p. 173).

The “cross-case” analysis reveals major similarities: All societies were on the upgrade, economically; there were bitter class antagonisms; the intellectuals deserted their governments; government machinery was inefficient; and the ruling class exhibited immoral, dissolute, or inept behavior (or all three). However, rather than relying solely on this “factors” approach to description, the author also develops the metaphor of a human body suffering from a fever as a way of describing the pattern of events over time. The author adeptly uses the cyclic pattern of fever and chills, rising to a critical point and followed by a false tranquility, to describe the ebb and flow of events in the four revolutions.
Orienting the Case Study Report to an Audience’s Needs

Overall, the preferences of the potential audience should dictate the form of your case study report. Although the research procedures and methodology should have followed other guidelines, suggested in Chapters 1 through 5, your report should reflect emphases, detail, compositional forms, and even a length suitable to the needs of the potential audience. The importance of the audience suggests that you might want to collect formal information about what the audiences need and their preferred types of communication (Morris, Fitz-Gibbon, & Freeman, 1987, p. 13). Along these lines, this author has frequently called the attention of thesis or dissertation students to the fact that the thesis or dissertation committee may be their only audience. The ultimate report, under these conditions, should attempt to communicate directly with this committee. A recommended tactic is to integrate the committee members’ previous research into the thesis or dissertation, creating greater conceptual (and methodological) overlap and thereby increasing the thesis or dissertation’s potential communicability to that particular audience.

Whatever the audience, the greatest error you can make is to compose a report from an egocentric perspective. This error will occur if you complete your report without identifying a specific audience or without understanding the specific needs of such an audience. To avoid this error, you should identify the audience, as previously noted. A second and equally important suggestion is to examine prior case study reports that have successfully communicated with this audience. Such earlier reports may offer helpful clues for composing a new report. For instance, consider again the thesis or dissertation student. The student should consult previous dissertations and theses that have passed the academic regimen successfully—or are known to have been exemplary works. The inspection of such works may yield sound information regarding the departmental norms (and reviewers’ likely preferences) for designing a new thesis or dissertation.

Formats for Written Case Study Reports

Among written forms of case studies, there are at least four important varieties. The first is the classic single-case study. A single narrative is used to describe and analyze the case. You may augment the narrative with tabular as well as graphic and pictorial displays. Depending upon the depth of the case study, these classic single cases are likely to appear as books, although some of the best discipline-based journals also run rather long articles.

A second type of written product is the multiple-case version of the classic single case. This type of multiple-case report will contain multiple narratives, covering each of the cases singly, usually presented as separate chapters or sections. In addition to these individual case narratives, your report also will contain a chapter or section covering the cross-case analysis and results. Some situations even may call for several cross-case chapters or sections, and the cross-case portion of the final text may justify a volume separate from the individual case narratives (see BOX 39). In these situations, a frequent form of presentation is to have the bulk of the main report contain the cross-case analysis, with the individual cases presented as part of a long appendix to that basic volume.

A Multiple-Case Report

Multiple-case studies often contain both the individual case studies and some cross-case chapters. The composition of such a multiple-case study also may be shared among several authors.

This type of arrangement was used in a study of eight innovations in mathematics and science education, edited by Raizen and Britton (1997). The study, titled Bold Ventures, appears in three separate and lengthy volumes (about 250, 350, and 650 pages, respectively). The individual case studies appear in the last two volumes, while the seven chapters in Volume 1 cover cross-case issues. Many different and multiple authors conducted both the individual case studies and the cross-case chapters, although the entire study was orchestrated and coordinated as a single undertaking.

A third type of written product covers either a multiple- or a single-case study but does not contain the traditional narrative. Instead, the composition for each case follows a series of questions and answers, based on the questions and answers in the case study database (see Chapter 4). For reporting purposes, the content of the database is shortened and edited for readability, with the final product still assuming the format, analogously, of a comprehensive examination. (In contrast, the traditional case study narrative may be considered similar to the format of a term paper.) This question-and-answer format may not reflect your full creative talent, but the format helps to avoid the problems of writer’s cramps. This is because you can proceed immediately to answer the required set of questions. (Again, the comprehensive exam has a similar advantage over a term paper.)

If you use this question-and-answer format to report a multiple-case study, repeating the same set of questions in covering each individual case study, the advantages are potentially enormous: Your reader(s) need only examine the answers to the same question or questions within each case study to begin making her or his own cross-case comparisons. Because each reader may be interested in different questions, the entire format facilitates the development of a
cross-case analysis tailored to the specific interests of its readers (see BOX 40). Yin (2003, chap. 2) contains a complete case study demonstrating this format.

The fourth and last type of written product applies to multiple-case studies only. In this situation, there may be no separate chapters or sections devoted to the individual cases. Rather, your entire report may consist of the cross-case analysis, whether purely descriptive or also covering explanatory topics. In such a report, each chapter or section would be devoted to a separate cross-case issue, and the information from the individual cases would be dispersed throughout each chapter or section. With this format, summary information about the individual cases, if not ignored altogether (see BOX 41, as well as Chapter 1, p. 20, BOX 3B), might be presented in abbreviated vignettes.

As a final note, the specific type of case study composition, involving a choice among at least these four alternatives, should be identified during the design of the case study. Your initial choice always can be altered, as unexpected conditions may arise, and a different type of composition may become more relevant than the one originally selected. However, early selection will facilitate both the design and the conduct of the case study. Such an initial selection should be part of the case study protocol, alerting you to the likely nature of the final composition and its requirements.

**BOX 40**

**A Question-and-Answer Format: Case Studies without the Traditional Narrative**

Case study evidence does not need to be presented in the traditional narrative form. An alternative format for presenting the same evidence is to write the narrative in question-and-answer form. A series of questions can be posed, with the answers taking some reasonable length—for example, three or four paragraphs each. Each answer can contain all the relevant evidence and can even be augmented with tabular presentations and citations.

This alternative was followed in 40 case studies of community organizations produced by the U.S. National Commission on Neighborhoods (1979), *People, Building Neighborhoods*. The same question-and-answer format was used in each case, so that the interested reader could do her or his own cross-case analysis by following the same question across all of the cases. The format allowed hurried readers to find exactly the relevant portions of each case. For people offended by the absence of the traditional narrative, each case also called for a summary, unconstrained in its form (but no longer than three pages), allowing the author to exercise her or his more literary talents.

**BOX 41**

**Writing a Multiple-Case Report**

In a multiple-case study, the individual case studies need not always be presented in the final manuscript. The individual cases, in a sense, serve only as the evidentiary base for the study and may be cited sporadically in the cross-case analysis (also see BOX 38, Chapter 1, p. 20).

**41A. An Example in Which No Single Cases Are Presented**

This approach was used in a book about six federal bureau chiefs, by Herbert Kaufman (1981), *The Administrative Behavior of Federal Bureau Chiefs*. Kaufman spent intensive periods of time with each chief to understand his day-to-day routine. He interviewed the chiefs, listened in on their phone calls, attended meetings, and was present during staff discussions in the chiefs' offices.

The book's purpose, however, was not to portray any single one of these chiefs. Rather, the book synthesizes the lessons from all of them and is organized around such topics as how chiefs decide things, how they receive and review information, and how they motivate their staffs. Under each topic, Kaufman draws appropriate examples from the six cases, but none of the six is presented as a single-case study.

**41B. Another Example (from Another Field) in Which No Single Cases Are Presented**

A design similar to Kaufman's is used in another field—history—in a famous book by Crane Brinton (1938), *The Anatomy of a Revolution*. Brinton's book is based on four revolutions: the English, American, French, and Russian revolutions (also see BOX 38, p. 169). The book is an analysis and theory of revolutionary periods, with pertinent examples drawn from each of the four "cases"; however, in Kaufman's book, there is no attempt to present the single revolutions as individual case studies.

**CASE STUDY REPORTS AS PART OF LARGER, MIXED METHODS STUDIES**

Your completed case study may include data from other methods (e.g., surveys or quantitative analysis of archival data such as health status indicators). In particular, Chapter 2 pointed to the possibility that within a single case might exist embedded units of analysis, which might have been the subject of data collection through these other methods (see Chapter 2, Figure 2.3). In this situation, the case study encompasses the other methods, and your completed case study report would incorporate the reporting of the data from these other methods (e.g., see Chapter 4, BOX 18).
A totally different situation occurs when your case study has been deliberately designed to be part of a larger, mixed methods study (Yin, 2006b). In this situation, the larger study encompasses the case study. The larger study will contain your completed case study but also should report separately the findings about the data from the other methods. The larger study's overall report would then be based on the pattern of evidence from both the case study and the other methods.

This mixed methods situation deserves a bit more attention so that you will understand its implications for your case study, even though you might not compose your case study report any differently than if it had been a "stand-alone" report. At least three different rationales might have motivated the larger study to use mixed methods.

First, the larger study may have called for mixed methods simply to determine whether converging evidence (triangulation) might be obtained even though different methods had been used (Datta, 1997). In this scenario, your case study would have shared the same initial research questions as those driving the other methods, but you would likely have conducted, analyzed, and reported your case study independently. Part of the larger study's assessment would then be to compare the case study results with those based on the other methods.

Second, the larger study may have been based on a survey or quantitative analysis of archival data—for example, a study of households' financial situations under different income tax conditions. The larger study might then have wanted case studies to illustrate, in greater depth, the experiences of individual families. In this scenario, the questions for your case study might only be surfaced after the survey or archival data had been analyzed, and the selection of cases might come from the pool of those surveyed or contained within the archival records. The main implications for your case study effort are that both its timing and direction may depend on the progress and findings of the other inquiries.

Third, the larger study might knowingly have called for case studies to elucidate some underlying process and used another method (such as a survey) to define the prevalence or frequency of such processes. In this scenario of complementarity as opposed to convergence, the case study questions are likely to be closely coordinated with those of the other methods, and the complementary inquiries can occur simultaneously or sequentially. However, the initial analysis and reports from each inquiry should be conducted independently (even though the final analysis may merge findings from all the different methods). BOX 42 contains two examples of larger studies done under this third scenario.

These three different situations show how your case study and its reporting may have to be coordinated within some broader context. Beware that when your case study is not independent, you may have to coordinate deadlines and technical directions, and your case study report may not proceed as you might have expected initially. Also assess carefully your willingness and ability to be part of a larger team before making any commitments.

ILLUSTRATIVE STRUCTURES FOR CASE STUDY COMPOSITIONS

The chapters, sections, subtopics, and other components of a report must be organized in some way, and this constitutes your case study report's compositional structure. Attending to such structure has been a topic of attention with other methodologies. For instance, L. Kidder and Judd (1986, pp. 430–431) write of the "hourglass" shape of a report for quantitative studies. Similarly, in ethnography, John Van Maanen (1988) has developed the concept of "tales" for reporting fieldwork results. He identifies several different types of tales: realist tales, confessional tales, impressionist tales, critical tales, formal tales, literary tales, and jointly told tales. These different types may be used in different combinations in the same report.

Alternatives also exist for structuring case study reports. This section suggests six illustrative structures (see Figure 6.1) that may be used with any type of case study formats just described. The illustrations are described mainly in relation to the composition of a single-case study, although the principles are readily translatable into multiple-case reports. As a further note and as indicated in Figure 6.1, the first three are all applicable to descriptive, exploratory, and explanatory case studies. The fourth is applicable mainly to exploratory and explanatory case studies, the fifth to explanatory cases, and the sixth to descriptive cases.
Purpose of the repetition is to show the degree to which the facts fit each model, and the repetitions actually illustrate a pattern-matching technique at work.

A similar approach can be used even if a case study is serving descriptive, and not explanatory, purposes. The same case can be described repeatedly, from different points of view or with different descriptive models, to understand how the case might best be categorized for descriptive purposes—similar to arriving at the correct diagnosis for a clinical patient in psychology. Of course, other variants of the comparative approach are possible, but the main feature is that the entire case study (or the results of a cross-case analysis when doing a multiple-case study) is repeated two or more times, in an overtly comparative mode.

**Chronological Structures**

Because case studies generally cover events over time, a third type of approach is to present the case study evidence in chronological order. Here, the sequence of chapters or sections might follow the early, middle, and late phases of a case history. This approach can serve an important purpose in doing explanatory case studies because presumed causal sequences must occur linearly over time. If a presumed cause of an event occurs after the event has occurred, one would have reason to question the initial causal proposition.

Whether for explanatory or descriptive purposes, a chronological approach has one pitfall to be avoided: giving disproportionate attention to the early events and insufficient attention to the later ones. Most commonly, an investigator will expend too much effort in composing the introduction to a case, including its early history and background, and leave insufficient time to write about the current status of the case. Yet, much of the interest in the case may be related to the more recent events. Thus, one recommendation when using a chronological structure is to *draft* the case study *backward*. Those chapters or sections that are about the current status of the case should be drafted first, and only after these drafts have been completed should the background to the case be drafted. Once all drafts have been completed, you can then return to the normal chronological sequence in then refining the final version of the case study.

**Theory-Building Structures**

In this approach, the sequence of chapters or sections will follow some theory-building logic. The logic will depend on the specific topic and theory, but each chapter or section should reveal a new part of the theoretical argument being made. If structured well, the entire sequence and its unfolding of key ideas can produce a compelling and impressive case study.
The approach is relevant to both explanatory and exploratory case studies, both of which can be concerned with theory building. Explanatory cases will be examining the various facets of a causal argument; exploratory cases will be debating the value of further investigating various hypotheses or propositions.

Suspense Structures

This structure inverts the linear-analytic structure described previously. The direct “answer” or outcome of a case study and its substantive significance is, paradoxically, presented in the initial chapter or section. The remainder of the case study—and its most suspenseful parts—are then devoted to the development of an explanation of this outcome, with alternative explanations considered in the ensuing chapters or sections.

This type of approach is relevant mainly to explanatory case studies, as a descriptive case study has no especially important outcome. When used well, the suspense approach is often an engaging compositional structure.

Unsequenced Structures

An unsequenced structure is one in which the sequence of sections or chapters assumes no particular importance. This structure is often sufficient for descriptive case studies, as in the example of Middletown (Lynd & Lynd, 1929), cited in Chapters 2 and 3 (BOXES 8 and 14). Basically, one could change the order of the chapters in that book and not alter its descriptive value.

Descriptive case studies of organizations often exhibit the same characteristic. Such case studies use separate chapters or sections to cover an organization’s genesis and history, its ownership and employees, its product lines, its formal lines of organization, and its financial status. The particular order in which these chapters or sections is presented is not critical and may therefore be regarded as an unsequenced approach (see BOX 43 for another example).

BOX 43
Unsequenced Chapters, but in a Best-Selling Book

A best-selling book, appealing to both popular and academic audiences, was Peters and Waterman’s (1982) In Search of Excellence. Although the book is based on more than 60 case studies of America’s most successful large businesses, the text contains only the cross-case analysis, each chapter covering an insightful set of general characteristics associated with organizational excellence. However, the particular sequence of these chapters is alterable. The book would have made a significant contribution even if the chapters were in some other order.

PROCEDURES IN DOING A CASE STUDY REPORT

Every investigator should have a well-developed set of procedures for analyzing social science data and for composing an empirical report. Numerous texts offer good advice on how you can develop your own customized procedures, including the benefits and pitfalls of using word-processing software (Becker, 1986, p. 160). One common warning is that writing means rewriting—a function not commonly practiced by students and therefore underestimated during the early years of research careers (Becker, 1986, pp. 43–47). The more rewriting, especially in response to others’ comments, the better a report is likely to be. In this respect, the case study report is not much different from other research reports.

However, three important procedures pertain specifically to case studies and deserve further mention. The first deals with a general tactic for starting a composition, the second covers the problem of whether to leave the case identities anonymous, and the third describes a review procedure for increasing the construct validity of a case study.

When and How to Start Composing

The first procedure is to start composing early in the analytic process. One guide in fact admonishes that “you cannot begin writing early enough” (Wolcott, 1990, p. 20). From nearly the beginning of an investigation, certain sections of your report will always be draftable, and this drafting should proceed even before data collection and analysis have been completed.

For instance, after the literature has been reviewed and the case study has been designed, two sections of a case study report can be drafted: the bibliographic and the methodological sections. The bibliography always can be augmented later with new citations if necessary, but by and large, the major citations will have been covered in relation to the literature review. This is therefore the time to formalize the references, to be sure that they are complete,
and to construct a draft bibliography. If some references are incomplete, the remaining details can be tracked down while the rest of the case study proceeds. This will avoid the usual practice among researchers who do the bibliography last and who therefore spend much clerical time at the very end of their research, rather than attending to the more important (and pleasurable!) tasks of writing, rewriting, and editing.

The methodological section also can be drafted at this stage because the major procedures for data collection and analysis should have become part of the case study design. This section may not become a formal part of the final narrative but may be designated as an appendix. Whether part of the text or an appendix, however, the methodological section can and should be drafted at this early stage. You will remember your methodological procedures with greater precision at this juncture.

A third section is the preliminary literature review and how it led to or complemented your research questions and the propositions being studied. Because your case study will already have settled on these questions and propositions in order to proceed with protocol development and data collection, much of the connectivity to the literature will be known. Although you may need to revisit this early version after completing your data collection and analysis, having a preliminary draft never hurts.

After data collection but before analysis begins, a fourth section that can be composed covers the descriptive data about the cases being studied. Whereas the methodological section should have included the issues regarding the selection of the case(s), the descriptive data should cover qualitative and quantitative information about the case(s). At this stage in the research process, you still may not have finalized your ideas about the type of case study format to be used and the type of structure to be followed. However, the descriptive data are likely to be useful regardless of the format or structure. Furthermore, drafting the descriptive sections, even in abbreviated form, may stimulate your thinking about the overall format and structure.

If you can draft these four sections before analysis has been completed, you will have made a major advance. These sections also may call for substantial documentation (e.g., copies of your final case study protocol), and an opportunity to put such documentation into presentable form (possibly even "camera ready") occurs at this stage of the research. You also will be at an advantage if all details—citations, references, organizational titles, and spellings of people’s names—have been accurately recorded during data collection and are integrated into the text at this time (Wolcott, 1990, p. 41).

If these sections are drafted properly, more attention can then be devoted to the analysis itself, as well as to the findings and conclusions. To begin composing early also serves another important psychological function: You may get accustomed to the compositional process as an ongoing (possibly even daily) practice and have a chance to routinize it before the task becomes truly awesome. Thus, if you can identify other sections that can be drafted at these early stages, you should draft them as well.

Case Identities: Real or Anonymous?

Nearly every case study presents an investigator with a choice regarding the anonymity of the case. Should the case study and its informants be accurately identified, or should the names of the entire case and its participants be disguised? Note that the anonymity issue can be raised at two levels: that of the entire case (or cases) and that of an individual person within a case (or cases).

The most desirable option is to disclose the identities of both the case and the individuals, within the constraints for protecting human subjects, discussed in Chapter 3. Disclosure produces two helpful outcomes. First, the reader has the opportunity to recollect any other previous information he or she may have learned about the same case—from previous research or other sources—in reading and interpreting your case study. This ability to become familiar with a new case study in light of prior knowledge is invaluable, similar to the ability to recall previous experimental results when reading about a new set of experiments. Second, the absence of disguised names will make the entire case easier to review, so that footnotes and citations can be checked, if necessary, and appropriate external comments can be solicited about the published case.

Nevertheless, anonymity is necessary on some occasions. The most common rationale occurs when a case study has been on a controversial topic. Anonymity then serves to protect the real case and its real participants. A second occasion occurs when the issuance of the final case report may affect the subsequent actions of those that were studied. This rationale was used by the Lynds in their study Middletown (Lynd & Lynd, 1929), in which the names of the small town, its residents, and its industries all were disguised. Nevertheless, anonymity is necessary on some occasions. The most common rationale occurs when a case study has been on a controversial topic. Anonymity then serves to protect the real case and its real participants. A second occasion occurs when the issuance of the final case report may affect the subsequent actions of those that were studied. This rationale was used by the Lynds in their study Middletown (Lynd & Lynd, 1929), in which the names of the small town, its residents, and its industries all were disguised.

On such occasions when anonymity may appear justifiable, however, other compromises should still be sought. First, you should determine whether the anonymity of the individuals alone might be sufficient, thereby leaving the case itself to be identified accurately.

A second compromise would be to name the individuals but to avoid attributing any particular point of view or comment to a single individual, again allowing the case itself to be identified accurately. This second alternative is most
relevant when you want to protect the confidentiality of specific individuals. However, the lack of attribution may not always be completely protective—you also may have to disguise the comments so that no one involved in the case can infer the likely source.

For multiple-case studies, a third compromise would be to avoid composing any single-case reports and to report only a cross-case analysis. This last situation would be roughly parallel to the procedure used in surveys, in which the individual responses are not disclosed and in which the published report is limited to the aggregate evidence.

Only if these compromises are impossible should you consider making the entire case study and its informants anonymous. However, anonymity is not to be considered a desirable choice. Not only does it eliminate some important background information about the case, but it also makes the mechanics of composing the case difficult. The case and its components must be systematically converted from their real identities to fictitious ones, and you must make a considerable effort to keep track of the conversions. The cost of undertaking such a procedure should not be underestimated.

**Exercise 6.3 Maintaining Anonymity in Case Studies**

Identify a case study whose "case" has been given a fictitious name (or check some of the boxes in this book for an example). What are the advantages and disadvantages of using such a technique? What approach would you use in reporting your own case study, and why?

**Reviewing the Draft Case Study: A Validating Procedure**

A third procedure to be followed in doing the case study report is related to the overall quality of the study. The procedure is to have the draft report reviewed, not just by peers (as would be done for any research manuscript) but also by the participants and informants in the case. If the comments are exceptionally helpful, the investigator may even want to publish them as part of the entire case study (see BOX 44).

Such review is more than a matter of professional courtesy. The procedure has been correctly identified as a way of corroborating the essential facts and evidence presented in a case report (Schatzman & Strauss, 1973, p. 134). The informants and participants may still disagree with an investigator's conclusions and interpretations, but these reviewers should not disagree over the actual facts of the case. If such disagreement emerges during the review process, an investigator knows that the case study report is not finished and that such disagreements must be settled through a search for further evidence.

Often, the opportunity to review the draft also produces further evidence, as the informants and participants may remember new materials that they had forgotten during the initial data collection period.

This type of review should be followed even if the case study or some of its components are to remain anonymous. Under this condition, some recognizable version of the draft must be shared with the case study informants or participants. After they have reviewed this draft, and after any differences in facts have been settled, the investigator can disguise the identities so that only the informants or participants will know the true identities. When Whyte (1943/1955) first completed Street Corner Society, he followed this procedure by sharing drafts of his book with "Doc," his major informant. He notes,

> As I wrote, I showed the various parts to Doc and went over them with him in detail. His criticisms were invaluable in my revision. (p. 341)

From a methodological standpoint, the corrections made through this process will enhance the accuracy of the case study, hence increasing the construct validity of the study. The likelihood of falsely reporting an event should be reduced. In addition, where no objective truth may exist—as when different participants indeed have different renditions of the same event—the procedure should help to identify the various perspectives, which can then be represented in the case study report. At the same time, you need not respond to all the comments made about the draft. For example, you are entitled to your
own interpretation of the evidence and should not automatically incorporate your informants' reinterpretations. In this respect, your discretionary options are no different from how you might respond to comments made in the conventional peer review process.

The review of the draft case study by its informants will clearly extend the period of time needed to complete the case study report. Informants, unlike academic reviewers, may use the review cycle as an opportunity to begin a fresh dialogue about various facets of the case, thereby extending the review period even further. You must anticipate these extensions and not use them as an excuse to avoid the review process altogether. When the process has been given careful attention, the potential result is the production of a high-quality case study (see BOX 45).

**BOX 45 Formal Reviews of Case Studies**

As with any other research product, the review process plays an important role in enhancing and ensuring the quality of the final results. For case studies, such a review process should involve, at a minimum, a review of the draft case study.

One set of case studies that followed this procedure, to an exemplary degree, was sponsored by the U.S. Office of Technology Assessment (1980–1981). Each of 17 case studies, which were about medical technologies, was "seen by at least 20, and some by 40 or more, outside reviewers." Furthermore, the reviewers reflected different perspectives, including those of government agencies, professional societies, consumer and public interest groups, medical practice, academic medicine, and economics and decision sciences.

In one of the case studies, a contrary view of the case—put forth by one of the reviewers—was included as part of the final published version of the case, as well as a response by the case study authors. This type of open printed interchange adds to the reader’s ability to interpret the case study’s conclusions and therefore to the overall quality of the case study evidence.

**EXERCISE 6.4 Anticipating the Difficulties of the Review Process**

Case study reports are likely to be improved by having some review by informants—that is, those persons who were the subjects of the study. Discuss the pros and cons of having such reviews. What specific advantage, for quality control purposes, is served? What disadvantages are there? On balance, are such reviews worthwhile?

**EXERCISE 6.5 Defining a Good Case Study**

Select a case study that you believe is one of the best you know (again, the selection can be from the BOXES in this book). What makes it a good case study? Why are such characteristics so infrequently found in other case studies? What specific efforts might you make to emulate such a good case study?

**The Case Study Must Be Significant**

The first general characteristic may be beyond the control of many investigators. If an investigator has access to only a few "cases," or if resources are extremely limited, the ensuing case study may have to be on a topic of only marginal significance. This situation is not likely to produce an exemplary case study. However, where choice exists, the exemplary case study is likely to be one in which

- the individual case or cases are unusual and of general public interest,
- the underlying issues are nationally important—either in theoretical terms or in policy or practical terms, or
- your case meets both of the preceding conditions.

For instance, a single-case study may have been chosen because it was a revelatory case—that is, one reflecting some real-life situation that social
The Case Study Must Be “Complete”

This characteristic is extremely difficult to describe operationally. However, a sense of completeness is as important in doing a case study as it is in defining a complete series of laboratory experiments (or in completing a symphony or finishing a painting). All have the problem of defining the boundaries of the effort, but few guidelines are available.

For case studies, completeness can be characterized in at least three ways. First, the complete case is one in which the boundaries of the case—that is, the distinction between the phenomenon being studied and its context—are given explicit attention. If this is done only mechanically—for example, by declaring at the outset that only arbitrary time intervals or spatial boundaries will be considered—a nonexemplary case study is likely to result. The best way is to show, either through logical argument or the presentation of evidence, that as the analytic periphery is reached, the information is of decreasing relevance to the case study. Such testing of the boundaries can occur throughout the multiple-case study in which each individual case reveals a discovery but in which the replication across cases also adds up to a significant theoretical breakthrough. This situation truly lends itself to the production of an exemplary case study.

In contrast to these promising situations, many students select nondistinctive cases or outmoded theoretical issues as the topics for their case studies. This situation can be avoided, in part, by doing better homework with regard to the existing body of research. Prior to selecting a case study, you should describe, in detail, the contribution to be made, assuming that the intended case study were to be completed successfully. If no satisfactory answer is forthcoming, you might want to plan another case study.

The Case Study Must Consider Alternative Perspectives

For explanatory case studies, one valuable approach is the consideration of rival propositions and the analysis of the evidence in terms of such rivals (see Chapter 5). The citing of rival claims or alternative perspectives also should be part of a good abstract for your case study (Kelly & Yin, 2007). Even in doing an exploratory or a descriptive case study, the examination of the evidence from different perspectives will increase the chances that a case study will be exemplary.

For instance, a descriptive case study that fails to account for different perspectives may raise a critical reader’s suspicions. The investigator may not have collected all the relevant evidence and only may have attended to the evidence supporting a single point of view. Even if the investigator was not purposefully biased, different descriptive interpretations might not have been entertained, thereby presenting a one-sided case. To this day, this type of problem persists whenever studies of organizations appear to represent the perspectives of management and not workers, or when studies of social groups appear to be insensitive to issues of gender or multiculturalism, or when studies of youth programs appear to represent adult perspectives and ignore those of youths.

To represent different perspectives adequately, an investigator must seek those alternatives that most seriously challenge the assumptions of the case study. These perspectives may be found in alternative cultural views, different
theories, variations among the stakeholders or decision makers who are part of the case study, or some similar contrasts. If sufficiently important, the alternative perspectives can appear as alternative renditions covering the same case, using the comparative structure of composition described earlier in this chapter as one of seven possible structures. Less prominently but still invaluable would be the presentation of alternative views as separate chapters or sections of the main case study (see BOX 46).

**BOX 46**

Adding Alternative Perspectives, Written by a Case Study’s Participants, as Supplements to a Case Study

Edgar Schein’s (2003) single-case study tried to explain the demise of a computer firm that had been among the country’s top 50 corporations in size (see BOX 28, Chapter 5, p. 142). The contemporary nature of the case study meant that the firm’s former executives were still available to offer their own rendition of the firm’s fate. Schein supported his own explanation with much documentation and interview data, but he made his case study distinctive in another way: He also included supplementary chapters, each giving a key executive the opportunity to present his own rival explanation.

Many times, if an investigator describes a case study to a critical listener, the listener will immediately offer an alternative interpretation of the facts of the case. Under such circumstances, the investigator is likely to become defensive and to argue that the original interpretation was the only relevant or correct one. In fact, the exemplary case study anticipates these “obvious” alternatives, even advocates their positions as forcefully as possible, and shows—empirically—the basis upon which such alternatives might be rejected.

The Case Study Must Display Sufficient Evidence

Although Chapter 4 encouraged investigators to create a case study database, the critical pieces of evidence for a case study must still be contained within the case study report. The exemplary case study is one that judiciously and effectively presents the most relevant evidence, so that a reader can reach an independent judgment regarding the merits of the analysis.

This selectiveness does not mean that the evidence should be cited in a biased manner—for example, by including only the evidence that supports an investigator’s conclusions. On the contrary, the evidence should be presented neutrally, with both supporting and challenging data. The reader should then be able to draw an independent conclusion about the validity of a particular interpretation. The selectiveness is relevant in limiting the report to the most critical evidence and not cluttering the presentation with supportive but secondary information. Such selectiveness takes a lot of discipline among investigators, who usually want to display their entire evidentiary base, in the (false) hope that sheer volume or weight will sway the reader. (In fact, sheer volume or weight will bore the reader.)

Another goal is to present enough evidence to gain the reader’s confidence that the investigator “knows” his or her subject. In doing a field study, for instance, the evidence presented should convince the reader that the investigator has indeed been in the field, made penetrating inquiries while there, and has become steeped in the issues about the case. A parallel goal exists in multiple-case studies: The investigator should show the reader that all of the single cases have been treated fairly and that the cross-case conclusions have not been biased by undue attention to one or a few of the entire array of cases.

Finally, the display of adequate evidence should be accompanied by some indication that the investigator attended to the validity of the evidence—in maintaining a chain of evidence, for example. This does not mean that all case studies need to be burdened with methodological treatises. A few judicious footnotes will serve the purpose. Alternatively, some words in the preface of the case study can cover the critical validating steps. Notes to a table or figure also will help. As a negative example, a figure or table that presents evidence without citing its source is an indication of sloppy research and cautions the reader to be more critical of other aspects of the case study. This is not a situation that produces exemplary case studies.

The Case Study Must Be Composed in an Engaging Manner

One last global characteristic has to do with the composition of the case study report. Regardless of the medium used (a written report, an oral presentation, or some other form), the report should be engaging.

For written reports, this means a clear writing style, but one that constantly entices the reader to continue reading. A good manuscript is one that "seduces" the eye. If you read such a manuscript, your eye will not want to leave the page, and you will continue to read paragraph after paragraph, page after page, until exhaustion sets in. Anyone reading good fiction has had this experience. This type of seduction should be the goal in composing any case study report.
The production of such seductive writing calls for talent and experience. The more often that someone has written for the same audience, the more likely that the communication will be effective. However, the clarity of writing also increases with rewriting, which is highly recommended. With the use of electronic writing tools, an investigator has no excuse for shortcutting the rewriting process.

Engagement, enticement, and seduction—these are unusual characteristics of case studies. To produce such a case study requires an investigator to be enthusiastic about the investigation and to want to communicate the results widely. In fact, the good investigator might even think that the case study contains earth-shattering conclusions. This sort of inspiration should pervade the entire investigation and will indeed lead to an exemplary case study.

NOTES

1. Ignored here is a frequent audience for case studies: students taking a course using case studies as a curriculum material. Such use of case studies, as indicated in Chapter 1, is for teaching and not research purposes, and the entire case study strategy might be defined and pursued differently under these conditions.

2. Of course, even when an investigator makes the identity of a case or its participants anonymous, a few other colleagues—sharing the confidence of the investigator—will usually know the real identities. In the case of both Street Corner Society and Middletown, other sociologists, especially those working in the same academic departments as Whyte and the Lynds, were quite aware of the real identities.

3. The speculations also are based on some empirical findings. As part of an earlier investigation, 21 prominent social scientists were asked to name the best qualities of case studies (see COSMOS Corporation, 1983). Some of these qualities are reflected in this discussion of exemplary case studies.

REFERENCE TO EXPANDED CASE STUDY MATERIALS FOR CHAPTER 6

For selected case studies cited in the text of this chapter, one anthology contains 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.

<table>
<thead>
<tr>
<th>Chapter 6</th>
<th>Targeting Case Study Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOX 36, p. 6-5</td>
<td>Government agencies None</td>
</tr>
<tr>
<td>BOX 37, p. 6-5</td>
<td>Urban planning None</td>
</tr>
<tr>
<td>BOX 38, p. 6-6</td>
<td>Societies None</td>
</tr>
<tr>
<td>BOX 39, p. 6-8</td>
<td>Innovations None</td>
</tr>
<tr>
<td>BOX 40, p. 6-9</td>
<td>Community organizations None</td>
</tr>
<tr>
<td>p. 6-9 text</td>
<td>Community organizations ACSR-2</td>
</tr>
<tr>
<td>BOX 41A, p. 6-9</td>
<td>Leadership None</td>
</tr>
<tr>
<td>BOX 41B, p. 6-9</td>
<td>Societies None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Topics of Illustrative Case Studies</th>
<th>Reference to Lengthier Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Study Reports as Part of Larger, Mixed Methods Studies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOX 42, p. 6-12</td>
<td>Schools None</td>
<td></td>
</tr>
<tr>
<td>Illustrative Structures for Case Study Compositions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOX 43, p. 6-17</td>
<td>Business and industry None</td>
<td></td>
</tr>
<tr>
<td>Procedures for Doing a Case Study Report</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOX 44, p. 6-23</td>
<td>Schools None</td>
<td></td>
</tr>
<tr>
<td>BOX 45, p. 6-24</td>
<td>Health care None</td>
<td></td>
</tr>
<tr>
<td>What Makes an Exemplary Case Study?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOX 46, p. 6-29</td>
<td>Business and industry None</td>
<td></td>
</tr>
</tbody>
</table>

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


Brookings Institution Press.


REFERENCES


REFERENCES


REFERENCES


<table>
<thead>
<tr>
<th>Author</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fisher, R. A.</td>
<td>25</td>
</tr>
<tr>
<td>Fiske, M.</td>
<td>107</td>
</tr>
<tr>
<td>Fitz-Gibbon, C. T.</td>
<td>170</td>
</tr>
<tr>
<td>Flippin, C.</td>
<td>43</td>
</tr>
<tr>
<td>Foley, E.</td>
<td>12</td>
</tr>
<tr>
<td>Fowler, F. J., Jr.</td>
<td>38</td>
</tr>
<tr>
<td>Freeman, M. E.</td>
<td>170</td>
</tr>
<tr>
<td>Fuhrman, S. H.</td>
<td>61</td>
</tr>
<tr>
<td>Galster, G.</td>
<td>147</td>
</tr>
<tr>
<td>Gans, H.</td>
<td>111</td>
</tr>
<tr>
<td>Garet, M. S.</td>
<td>63</td>
</tr>
<tr>
<td>Garvin, D. A.</td>
<td>14, 4</td>
</tr>
<tr>
<td>George, A. L.</td>
<td>5</td>
</tr>
<tr>
<td>Gerring, J.</td>
<td>5</td>
</tr>
<tr>
<td>Ghauri, P.</td>
<td>5</td>
</tr>
<tr>
<td>Giaquinta, J. B.</td>
<td>48</td>
</tr>
<tr>
<td>Gibbert, M.</td>
<td>5</td>
</tr>
<tr>
<td>Gilgun, J. F.</td>
<td>5</td>
</tr>
<tr>
<td>Glaser, B.</td>
<td>141</td>
</tr>
<tr>
<td>Goldstein, D. K.</td>
<td>5</td>
</tr>
<tr>
<td>Gottschalk, L.</td>
<td>14</td>
</tr>
<tr>
<td>Graebner, M. E.</td>
<td>5</td>
</tr>
<tr>
<td>Graff, H.</td>
<td>100, 165</td>
</tr>
<tr>
<td>Greanias, G.</td>
<td>4</td>
</tr>
<tr>
<td>Grönhaug, K.</td>
<td>5</td>
</tr>
<tr>
<td>Gross, N.</td>
<td>48, 110</td>
</tr>
<tr>
<td>Grove, J. B.</td>
<td>99</td>
</tr>
<tr>
<td>Guba, E. G.</td>
<td>35</td>
</tr>
<tr>
<td>Gupta, P. P.</td>
<td>116</td>
</tr>
<tr>
<td>Hamel, J.</td>
<td>5</td>
</tr>
<tr>
<td>Hammond, P. E.</td>
<td>118</td>
</tr>
<tr>
<td>Hanna, K. S.</td>
<td>61, 108</td>
</tr>
<tr>
<td>Hedges, L. V.</td>
<td>156</td>
</tr>
<tr>
<td>Hedrick, T.</td>
<td>9</td>
</tr>
<tr>
<td>Hernandez, M.</td>
<td>149</td>
</tr>
<tr>
<td>Herriott, R. E.</td>
<td>53</td>
</tr>
<tr>
<td>Hersen, M.</td>
<td>5, 54</td>
</tr>
<tr>
<td>Hipp, J. R.</td>
<td>42</td>
</tr>
<tr>
<td>Hoaglin, D. C.</td>
<td>16, 17</td>
</tr>
<tr>
<td>Hooks, G.</td>
<td>158</td>
</tr>
<tr>
<td>Huberman, A. M.</td>
<td>89, 121, 129</td>
</tr>
<tr>
<td>Huebner, R. B.</td>
<td>149</td>
</tr>
<tr>
<td>Hulin, C. L.</td>
<td>10</td>
</tr>
<tr>
<td>Jacobs, J.</td>
<td>44</td>
</tr>
<tr>
<td>Jacobs, R. N.</td>
<td>104</td>
</tr>
<tr>
<td>Jadad, A.</td>
<td>16</td>
</tr>
<tr>
<td>Johnson, R. B.</td>
<td>63</td>
</tr>
<tr>
<td>Jorgensen, D.</td>
<td>15, 100</td>
</tr>
<tr>
<td>Judd, C. M.</td>
<td>17, 25, 40, 99, 175</td>
</tr>
<tr>
<td>Kaufman, H.</td>
<td>173</td>
</tr>
<tr>
<td>Keating, W. D.</td>
<td>41</td>
</tr>
<tr>
<td>Kelling, G. L.</td>
<td>145</td>
</tr>
<tr>
<td>Kelly, A. E.</td>
<td>187</td>
</tr>
<tr>
<td>Kendall, P. L.</td>
<td>107</td>
</tr>
<tr>
<td>Kennedy, M. M.</td>
<td>15</td>
</tr>
<tr>
<td>Kerbow, D.</td>
<td>151</td>
</tr>
<tr>
<td>Kidder, L.</td>
<td>17, 25, 40, 99, 175</td>
</tr>
<tr>
<td>Kidder, T.</td>
<td>31</td>
</tr>
<tr>
<td>Kraemer, K. L.</td>
<td>5</td>
</tr>
<tr>
<td>Kratchowill, T. R.</td>
<td>144</td>
</tr>
<tr>
<td>Krumholz, N.</td>
<td>41</td>
</tr>
<tr>
<td>Lafronza, V.</td>
<td>61</td>
</tr>
<tr>
<td>Larsen, J. K.</td>
<td>110</td>
</tr>
<tr>
<td>Lauber, H.</td>
<td>149</td>
</tr>
<tr>
<td>Lavrakas, P. J.</td>
<td>38</td>
</tr>
<tr>
<td>Lee, R. M.</td>
<td>128</td>
</tr>
<tr>
<td>Leibold, M.</td>
<td>5</td>
</tr>
<tr>
<td>Liebow, E.</td>
<td>30, 49</td>
</tr>
<tr>
<td>Light, R. J.</td>
<td>16</td>
</tr>
<tr>
<td>Lijphart, A.</td>
<td>19, 53</td>
</tr>
<tr>
<td>Lincoln, Y. S.</td>
<td>35</td>
</tr>
<tr>
<td>Lippman, A. J.</td>
<td>99</td>
</tr>
<tr>
<td>Lipset, S. M.</td>
<td>15, 50</td>
</tr>
<tr>
<td>Lipsey, M. W.</td>
<td>156</td>
</tr>
<tr>
<td>Llewellyn, K. N.</td>
<td>4</td>
</tr>
<tr>
<td>Lunt, P. S.</td>
<td>44</td>
</tr>
<tr>
<td>Lynd, H.</td>
<td>48, 75, 131, 178, 181</td>
</tr>
<tr>
<td>Lynd, R.</td>
<td>48, 75, 131, 178, 181</td>
</tr>
<tr>
<td>Lynd, R.</td>
<td>48, 75, 131, 178, 181</td>
</tr>
<tr>
<td>Lefranz, V.</td>
<td>61</td>
</tr>
<tr>
<td>Larsen, J. K.</td>
<td>110</td>
</tr>
<tr>
<td>Lauber, H.</td>
<td>149</td>
</tr>
<tr>
<td>Lavrakas, P. J.</td>
<td>38</td>
</tr>
<tr>
<td>Lee, R. M.</td>
<td>128</td>
</tr>
<tr>
<td>Leibold, M.</td>
<td>5</td>
</tr>
<tr>
<td>Liebow, E.</td>
<td>30, 49</td>
</tr>
<tr>
<td>Light, R. J.</td>
<td>16</td>
</tr>
<tr>
<td>Lijphart, A.</td>
<td>19, 53</td>
</tr>
<tr>
<td>Lincoln, Y. S.</td>
<td>35</td>
</tr>
<tr>
<td>Lipset, S. M.</td>
<td>15, 50</td>
</tr>
<tr>
<td>Lipsey, M. W.</td>
<td>156</td>
</tr>
<tr>
<td>Llewellyn, K. N.</td>
<td>4</td>
</tr>
<tr>
<td>Lunt, P. S.</td>
<td>44</td>
</tr>
<tr>
<td>Lynd, H.</td>
<td>48, 75, 131, 178, 181</td>
</tr>
<tr>
<td>Lynd, R.</td>
<td>48, 75, 131, 178, 181</td>
</tr>
<tr>
<td>Lefranz, V.</td>
<td>61</td>
</tr>
<tr>
<td>Larsen, J. K.</td>
<td>110</td>
</tr>
<tr>
<td>Lauber, H.</td>
<td>149</td>
</tr>
<tr>
<td>Lavrakas, P. J.</td>
<td>38</td>
</tr>
<tr>
<td>Lee, R. M.</td>
<td>128</td>
</tr>
<tr>
<td>Leibold, M.</td>
<td>5</td>
</tr>
<tr>
<td>Liebow, E.</td>
<td>30, 49</td>
</tr>
<tr>
<td>Light, R. J.</td>
<td>16</td>
</tr>
<tr>
<td>Lijphart, A.</td>
<td>19, 53</td>
</tr>
<tr>
<td>Lincoln, Y. S.</td>
<td>35</td>
</tr>
<tr>
<td>Lipset, S. M.</td>
<td>15, 50</td>
</tr>
<tr>
<td>Lipsey, M. W.</td>
<td>156</td>
</tr>
<tr>
<td>Llewellyn, K. N.</td>
<td>4</td>
</tr>
<tr>
<td>Lunt, P. S.</td>
<td>44</td>
</tr>
<tr>
<td>Lynd, H.</td>
<td>48, 75, 131, 178, 181</td>
</tr>
<tr>
<td>Lynd, R.</td>
<td>48, 75, 131, 178, 181</td>
</tr>
<tr>
<td>Lefranz, V.</td>
<td>61</td>
</tr>
<tr>
<td>Larsen, J. K.</td>
<td>110</td>
</tr>
<tr>
<td>Lauber, H.</td>
<td>149</td>
</tr>
<tr>
<td>Lavrakas, P. J.</td>
<td>38</td>
</tr>
<tr>
<td>Lee, R. M.</td>
<td>128</td>
</tr>
<tr>
<td>Leibold, M.</td>
<td>5</td>
</tr>
<tr>
<td>Liebow, E.</td>
<td>30, 49</td>
</tr>
<tr>
<td>Light, R. J.</td>
<td>16</td>
</tr>
<tr>
<td>Lijphart, A.</td>
<td>19, 53</td>
</tr>
<tr>
<td>Lincoln, Y. S.</td>
<td>35</td>
</tr>
<tr>
<td>Lipset, S. M.</td>
<td>15, 50</td>
</tr>
<tr>
<td>Lipsey, M. W.</td>
<td>156</td>
</tr>
<tr>
<td>Llewellyn, K. N.</td>
<td>4</td>
</tr>
<tr>
<td>Lunt, P. S.</td>
<td>44</td>
</tr>
<tr>
<td>Lynd, H.</td>
<td>48, 75, 131, 178, 181</td>
</tr>
<tr>
<td>Lynd, R.</td>
<td>48, 75, 131, 178, 181</td>
</tr>
<tr>
<td>Magaziner, I. C., 31, 161</td>
<td></td>
</tr>
<tr>
<td>Magnuson, W. G., 112</td>
<td></td>
</tr>
<tr>
<td>Mannoni, C., 5</td>
<td></td>
</tr>
<tr>
<td>Markus, M. L., 35</td>
<td></td>
</tr>
<tr>
<td>Marshall, C., 101</td>
<td></td>
</tr>
<tr>
<td>Mead, M., 5</td>
<td></td>
</tr>
<tr>
<td>Merton, R. K., 107</td>
<td></td>
</tr>
<tr>
<td>Miles, M. B., 89, 121, 129</td>
<td></td>
</tr>
<tr>
<td>Miller, W. L., 100</td>
<td></td>
</tr>
<tr>
<td>Moore, B., 143</td>
<td></td>
</tr>
<tr>
<td>Morris, L. L., 170</td>
<td></td>
</tr>
<tr>
<td>Mosteller, F., 16</td>
<td></td>
</tr>
<tr>
<td>Muenchow, S., 115</td>
<td></td>
</tr>
<tr>
<td>Mulroy, E. A., 149</td>
<td></td>
</tr>
<tr>
<td>Murphy, J. T., 99</td>
<td></td>
</tr>
<tr>
<td>Nachmias, C., 17, 26</td>
<td></td>
</tr>
<tr>
<td>Nachmias, D., 17, 26</td>
<td></td>
</tr>
<tr>
<td>Naumes, M. J., 169</td>
<td></td>
</tr>
<tr>
<td>Naumes, W., 169</td>
<td></td>
</tr>
<tr>
<td>Nesman, T. M., 149</td>
<td></td>
</tr>
<tr>
<td>Neustadt, R. E., 7</td>
<td></td>
</tr>
<tr>
<td>Onwuegbuzie, A. J., 63</td>
<td></td>
</tr>
<tr>
<td>Orum, A. M., 15</td>
<td></td>
</tr>
<tr>
<td>Patinkin, M., 31, 161</td>
<td></td>
</tr>
<tr>
<td>Patton, M. Q., 19, 100, 134</td>
<td></td>
</tr>
<tr>
<td>Payne, M. R., 16</td>
<td></td>
</tr>
<tr>
<td>Pelletier, J., 5</td>
<td></td>
</tr>
<tr>
<td>Perry, J. M., 5</td>
<td></td>
</tr>
<tr>
<td>Peters, T. J., 178</td>
<td></td>
</tr>
<tr>
<td>Peterson, K. A., 149</td>
<td></td>
</tr>
<tr>
<td>Philliber, S. G., 26</td>
<td></td>
</tr>
<tr>
<td>Platt, J., 5, 17, 29</td>
<td></td>
</tr>
<tr>
<td>Phye, P., 5</td>
<td></td>
</tr>
<tr>
<td>Potvin, L., 5</td>
<td></td>
</tr>
<tr>
<td>Pressman, J. L., 132</td>
<td></td>
</tr>
<tr>
<td>Radin, B. A., 5, 19</td>
<td></td>
</tr>
<tr>
<td>Ragin, C. C., 5, 29</td>
<td></td>
</tr>
<tr>
<td>Raizen, S. A., 171</td>
<td></td>
</tr>
<tr>
<td>Randolph, J. J., 77</td>
<td></td>
</tr>
<tr>
<td>Redman, E., 112</td>
<td></td>
</tr>
</tbody>
</table>
Townes, L., 16
Trow, M., 15, 50
Van Maanen, J., 35, 175
van Yperen, T. A., 16
Veerman, J. W., 16
Voelpel, S., 5
von Krogh, G., 5
Warner, W. L., 44
Waterman, R. H., Jr., 178
Wax, R., 99
Web, E., 99
White, P., 183

Whooley, J., 150
Whyte, W. F., 7, 30, 107, 111, 181, 183
Wildavsky, A., 132
Wilford, J. N., 29
Windsor, D., 4
Wolcott, H. E., 179, 180

Yin, R. K., 5, 7, 18, 37, 63, 92, 93, 106, 111, 121, 122, 130, 132, 134, 135, 139, 146, 154, 155, 156, 160, 172, 174, 175, 187

Zelikow, P., 6
Zigler, E., 115

The Administrative Behavior of Federal Bureau Chiefs (Kaufman), 173 [box]
Alternative perspectives example of adding, 188 [box]
exemplary case study inclusion of, 187-188
See also Rival theories
The Anatomy of a Revolution (Brinton), 169 [box], 173 [box]
Anonymous case identities, 181-182
Archival analysis method, 8 [figure]
Archival records, 102 [figure], 105-106
Atlas, 127
Bias avoidance, 72
Bibliography (case study report), 179-180
Bold Ventures (Raizen & Britton), 171 [box]
CAQDAS, 128
Case studies defining an exemplary, 185-190
pilot, 92-94
preparation and training for specific, 73-79
protocol for, 77-78, 79-91
See also Case study method; Research design
Case study database case study documents as part of, 120
case study notes as part of, 120
creating a, 118-119
exercise on practicing development of, 122

narratives as part of, 121
reliability through use of, 45, 119
tabular materials as part of, 120-121
Case study documents, 120
See also Documentation
Case study investigators asking good questions, 69-70
avoiding bias, 72
being a good “listener,” 70
case study protocol followed by, 79-91
desired skills of, 67-69, 72-73
exercising adaptiveness and flexibility, 70-71
preparation and training of, 73-79
screening the candidate “cases,” 91-92
understanding the issues being studied, 71-72
See also Evidence
Case study method abstract overview of, 2
compared to other research methods, 5-16
definition as research method, 17-19
as linear and iterative process, 1 [figure]
relevant situations for, 8 [figure]
things to understand about, 3-5
traditional prejudices against, 14-16
variations and applications of, 19-21
See also Case studies; Social science research methods

Subject Index
Case study notes, 120
Case study preparation
deciding problems to be addressed, 78–79
human subjects protection, 73–74
protocol development and review, 77–78
screening candidate “cases,” 91–92
seminar training as, 74–77
Case study propositions
data analysis based on theoretical, 130–131
design linking data to, 33–34
example of exploratory case study, 28–29 [box]
as research design component, 28
Case study protocol
case study questions, 86–89
description and purpose of, 79, 81–82
detailed and illustrative protocol question, 82 [figure]
development and review of, 77–78
exercise on developing a, 91
field procedures, 83, 85–86
guide for case study report, 89–90
letter of introduction, 84 [figure]
overview of the case study project, 82–83
reliability through use of, 45
table of contents of, 80 [figure]–81 [figure]
Case study question exercises
defining a case study question, 10
identifying when other research methods are used, 11
Case study questions
asking good, 69–70
detailed and illustrative protocol, 82 [figure]
developing substantial, 10–11
general orientation of, 86–87
levels of, 87–88
protocol on, 86–89
as research design component, 27–28
types of, 9–10
unit of data collection versus unit of analysis, 88–89 [figure]
See also Data collection
Case study report composition
chronological structures, 176 [figure], 177
comparative structures, 176 [figure]–177
issues to consider for, 175
linear-analytic structures, 176 [figure]
summary of six structures for, 176 [figure]
suspense structures, 176 [figure], 178
type-building structures, 176 [figure], 177–178
unsequenced structures, 176 [figure], 178–179
Case study report procedures
real versus anonymous case identities, 181–182
reviewing draft case study, 182–184
when and how to start composing, 179–181
Case study report sections
bibliography of, 179–180
methodological section of, 180
preliminary literature review section of, 180
Case study reports
audience and required tasks of, 167–168, 170
as communication device, 168–169
engaging or seductive writing of, 189–190
examples of, 168 [box], 169 [box]
exercise for reducing barriers to composing, 166
on field observations, 110 [box]
209
SUBJECT INDEX
formats for written, 170–172
illustrative structures for composition used in, 175–179
issues related to, 165–167
using metaphor in, 169 [box]
as part of mixed method studies, 173 [box]–175 [box]
from pilot cases, 94
procedure in doing, 179–184
protocol guiding the, 89–90
qualities of an exemplary, 185–190
sections of, 179–180
tip on completing the, 166
See also Findings
Case study team, 75
Case study tips
completing the case study report, 166
how to know when to use it, 4
how to select cases for case study, 26
readiness to start collecting data, 68
starting the data analysis process, 128
time and effort of data collection, 100
Case study training
preparatory readings for, 76 [figure]
reviewing case study tools and methods used, 77 [box]
as seminar experience, 74–77
Case study vignettes
alternative perspectives, 188 [box]
analytic quality, 161 [box]
case studies containing multiple “cases,” 20 [box]
case study database use of narratives, 121 [box]
case study report examples, 168 [box], 169 [box], 171 [box], 172 [box], 173 [box], 175 [box], 178 [box], 183 [box], 184 [box], 188 [box]
cross-case analysis, 158 [box]
data collection examples, 104 [box], 108 [box], 110 [box], 111 [box], 112 [box], 115 [box], 116 [box]
defining unit of analysis, 31 [box]
Essence of Decision: (Allison & Zelikow), 6 [box]
explanation building, 142 [box]–143 [box]
“exploration” analogy for exploratory case study, 29 [box]
field research logistics (1924–1925), 75 [box]
flexibility in designing case study, 71 [box]
generalizing case studies to theory, 44 [box]
multiple-case study examples, 55 [box], 62 [box], 142 [box]–143 [box], 171 [box], 173 [box]
pattern matching examples, 138 [box], 139 [box]
quantifying descriptive elements, 132 [box]
reviewing case study examples, 183 [box], 184 [box]
single-case study examples, 48 [box], 49 [box], 50 [box]–51 [box], 142 [box]
Street Corner Society (Whyte), 7 [box]
The Swine Flu Affair: (Neustadt & Fineberg), 7 [box]
testing logic model, 151 [box]
time-series analysis examples, 145 [box], 147 [box]
Chain of evidence
data collection and, 122–124
exercise on establishing, 124
CASE STUDY RESEARCH

Cuban Missile Crisis case study, 6, 47, 176
The Dance of Legislation (Redman), 112 [box]
Dashed-line feedback loop, 56-57 [figure]
Data using both qualitative and quantitative, 132-133
embedded single-case design, 50 [box]-51 [box]
readiness to start collecting, 68
report section description of the, 180
research design linking propositions to, 33-34
See also Evidence
Data analysis
computer-assisted tools used for, 127-130
exercise on analyzing the, 162
five techniques for, 136-160
four general strategies for, 130-136
need for analytic strategy for, 127
pressing for a high-quality, 160-162
tip on starting the process of, 128
See also Evidence
Data analysis strategies
using both qualitative and quantitative data, 132-133
developing a case description, 131-132
examining rival explanations, 133-135 [figure]
exercise on creating general, 136
relying on theoretical propositions, 130-131
Data analysis techniques
cross-case synthesis, 156-160
explanation building, 141-144
logic models, 149-156

SUBJECT INDEX

pattern matching, 43, 136-141
time-series analysis, 144-149
Data collection
ensuring quality control during, 124
ethnography method of, 15
participant-observation, 17
protocol on, 86-89 [figure]
textbook resources on, 99-100
three principles of, 114-124
tips on time and effort to spend on, 100
unit of analysis questions versus, 88-89 [figure]
See also Case study questions
Data collection principles
1: using multiple sources of evidence, 114-118
2: creating a case study database, 118-122
3: maintaining a chain of evidence, 122-124
Data General Corporation, 31 [box]
Data triangulation, 116-117 [figure]
Designing multiple single-case, 147 [box]
Digital Equipment Corporation, 31 [box]
Direct observation, 102 [figure], 109-111
Documentation
collecting evidence using, 101, 103-105
examining rival explanations, 133-135 [figure]
exercise on creating general, 136
relying on theoretical propositions, 130-131
Data analysis techniques
cross-case synthesis, 156-160
explanation building, 141-144
logic models, 149-156

Evidence
case study display of sufficient, 188-189
case study protocol for gathering, 79-91
chain of, 42, 122-124
creating converging lines of inquiry for, 115-117 [figure], 118
multiple sources of, 42
principles for working with sources of, 100-101
six sources of, 101-114
textbook resources on collecting, 99-100
triangulation of, 114-117 [figure]
See also Case study investigators; Data; Data analysis
Evidence sources
archival records, 102 [figure], 105-106
convergence and nonconvergence of multiple, 115-117 [figure], 118
direct observation, 102 [figure], 109-111
documentation, 101, 102 [figure], 103-105
interviews, 102 [figure], 106-109

increasing construct validity/reliability using, 42, 122
maintaining a, 123 [figure]
“The Changed World Economy” (Drucker), 36
Chronological events technique, 148
Chronological structures, 176 [figure], 177
Closed research designs, 62
Comparative case method, 19
Comparative structures, 176 [figure]-177
Complex time-series analysis, 146-148
“The Complexity of Joint Action” (Pressman & Wildavsky), 132 [box]
Concepts
example of “neighboring,” 32
examples of more or less concrete, 32-33 [figure]
See also Unit of analysis
Confidentiality issues, 73
Construct validity
data triangulation to address, 116-117 [figure]
research design quality and, 40, 41 [figure]-42
reviewing case study draft to increase, 183-184
“Cornerville” case study, 7 [box], 30, 49, 107, 111 [box], 181, 183
COSMOS Corporation, 52, 117, 158, 159
Critical case rationale, 47, 48 [box]
Cross-case synthesis
COSMOS Corporation use of, 158-159 [figure]
data analysis using, 156, 158, 160
of HIV/AIDS Prevention study, 157 [figure]
Hooks’ testing policy-oriented theory using, 158 [box]
Rosenbaum’s program evaluations using, 158 [box]
CASE STUDY RESEARCH

3.1: identifying skills for doing case studies, 72
3.2: analyzing your own skills for doing case studies, 73
3.3: conducting training for doing case study, 79
3.4: developing case study protocol, 91
3.5: selecting case for doing pilot study, 94
4.1: using evidence, 101
4.2: identifying specific types of evidence, 114
4.3: seeking converging evidence, 118
4.4: practicing the development of a database, 122
4.5: establishing chain of evidence, 124
5.1: using quantitative data in case study, 133
5.2: creating general analytic strategy, 136
5.3: constructing an explanation, 144
5.4: analyzing the analytic process, 162
6.1: reducing the barriers to composition, 166
6.2: defining the audience, 168
6.3: maintaining anonymity in case studies, 182
6.4: anticipating difficulties of review process, 184
6.5: defining a good case study, 185

Experiment research method
description of, 11–12
situations appropriate for, 8 [figure]
Explanation building
as data analysis technique, 141
elements of, 141
exercise on constructing, 144

subject index

Internal validity through, 43
iterative nature of, 143–144
plausible or rival explanations and, 143–144
potential problems in, 144
in single-case and multiple-case studies, 142 [box]–143 [box]

External validity
analytic techniques related to, 136–160
research design quality and, 40, 41 [figure], 43–44

Extreme case rationale
FBI's Uniform Crime Reports, 106
Feedback loop (dashed-line), 56–57 [figure]
Field (or social) experiment, 12
Field research
case study protocol on, 83, 85–86
combining with other types of evidence, 110 [box]
combining personal experience with, 115 [box]
example of logistics (1924–1925), 75 [box]
reporting field observations and, 110 [box]

Findings
criteria for interpreting, 34
integrating case study and survey evidence in, 178 [box]

In Search of Excellence (Peters & Waterman), 178 [box]

In-depth interview, 107
Individual theories, 37
Individual-level logic models, 151, 152 [figure]

Informed consent, 73
Institutional Review Board (IRB), 74, 78

Internal validity
analytic techniques related to, 136–160
research design quality and, 40, 41 [figure], 42–43

Interviews
collecting data using, 106–109
strengths and weaknesses of, 102 [figure]
three types of, 107–108

Multiple-case embedded versus, 59–60
single-case embedded versus, 50–52
Type 1 single-case, 46 [figure], 47–53
Type 3 multiple-case, 46 [figure], 53–60

How questions, 9, 10
HyperRESEARCH, 127

Implementing: How Great Expectations in Washington Are Dashed in Oakland (Pressman & Wildavsky), 132 [box]

Implementing Organizational Innovations (Gross, Bernstein, & Giacquinta), 48 [box]

In Search of Excellence (Peters & Waterman), 178 [box]

In-depth interview, 107
Individual theories, 37
Individual-level logic models, 151, 152 [figure]

Inferences
detective role in making, 72
Levels One and Two, 38, 39 [figure]

Informed consent, 73
Institutional Review Board (IRB), 74, 78

Internal validity
analytic techniques related to, 136–160
research design quality and, 40, 41 [figure], 42–43

Interviews
collecting data using, 106–109
strengths and weaknesses of, 102 [figure]
three types of, 107–108

multiple-case embedded versus, 59–60
single-case embedded versus, 50–52
Type 1 single-case, 46 [figure], 47–53
Type 3 multiple-case, 46 [figure], 53–60

How questions, 9, 10
HyperRESEARCH, 127

Illustrative theory, 37–38

Implementation: How Great Expectations in Washington Are Dashed in Oakland (Pressman & Wildavsky), 132 [box]

Implementing Organizational Innovations (Gross, Bernstein, & Giacquinta), 48 [box]

In Search of Excellence (Peters & Waterman), 178 [box]

In-depth interview, 107
Individual theories, 37
Individual-level logic models, 151, 152 [figure]

Inferences
detective role in making, 72
Levels One and Two, 38, 39 [figure]

Informed consent, 73
Institutional Review Board (IRB), 74, 78

Internal validity
analytic techniques related to, 136–160
research design quality and, 40, 41 [figure], 42–43

Interviews
collecting data using, 106–109
strengths and weaknesses of, 102 [figure]
three types of, 107–108

multiple-case embedded versus, 59–60
single-case embedded versus, 50–52
Type 1 single-case, 46 [figure], 47–53
Type 3 multiple-case, 46 [figure], 53–60

How questions, 9, 10
HyperRESEARCH, 127

Illustrative theory, 37–38

Implementation: How Great Expectations in Washington Are Dashed in Oakland (Pressman & Wildavsky), 132 [box]

Implementing Organizational Innovations (Gross, Bernstein, & Giacquinta), 48 [box]

In Search of Excellence (Peters & Waterman), 178 [box]

In-depth interview, 107
Individual theories, 37
Individual-level logic models, 151, 152 [figure]

Inferences
detective role in making, 72
Levels One and Two, 38, 39 [figure]

Informed consent, 73
Institutional Review Board (IRB), 74, 78

Internal validity
analytic techniques related to, 136–160
research design quality and, 40, 41 [figure], 42–43

Interviews
collecting data using, 106–109
strengths and weaknesses of, 102 [figure]
three types of, 107–108
Joint Committee on Standards for Educational Evaluation, 74

Letter of introduction, 84 [figure]
Level One inference, 38, 39 [figure]
Level Two inference, 39 [figure]
Linear-analytic structures, 176 [figure]
Listening skills, 70
Literal replication logic, 54, 138, 140
Logic models
alternative configuration for organizational-level, 154–156
as data analysis technique, 149–150
firm or organizational-level, 151, 153 [figure], 154
individual-level, 151, 152 [figure]
internal validity through use of, 43
See also Replication logic

Longitudinal case rationale, 49

Methodological section (case study report), 180
Middletown (Lynd & Lynd), 48 [box], 75 [box], 131, 178, 181
Mixed methods designs
case study reports as part of, 173 [box]–175 [box]
description of, 62–64
Multiple sources of evidence, 42
Multiple-case designs
establishing rationale for, 62
two-case studies, 61 [box]
report format for, 171 [box]
single-case versus, 53–54, 60–62
type 3 holistic, 46 [figure], 53–60
type 4 embedded, 46 [figure], 53–60
See also Research design

Narratives
case study database, 121–122
question-and-answer report format without, 171–172 [box]
Neighborhood revitalization strategy
case study, 147 [box]
New Towns In-Town: Why a Federal Program Failed (Dertikh), 142 [figure]–143 [box]
Not Well Advised (Szanion), 55 [box]
NVivo, 127

“On the Methods Used in This Study” (Gans), 111
Oral history, 115
Organizational theories, 37
Organizational-level logic models
alternative configuration for, 154–156
description and examples of, 151, 153 [figure], 154
Participant-observation method
emergence of, 17
example of neighborhood study
using, 111–113
strengths and weaknesses of, 102 [figure]

Pattern matching
on each of multiple outcomes, 138 [box]
internal validity through, 43, 136–137
literal and theoretical replication
logic and, 138, 140
nonequivalent dependent variables
as a pattern, 137–139
precision of, 140–141
rival explanations as patterns, 139–140
simpler patterns, 140
People, Building Neighborhoods case study, 172 [box]
Physical artifacts, 102 [figure], 113
Pilot case study

Randomized field trials
finding alternatives to, 13
new case study emphasis on, 15–16
practicality of, 12
Reliability
case study database to increase, 45, 119
chain of evidence to increase, 42, 122
research design quality and, 40, 41 [figure], 45, 119
Replication logic
external validity and, 44
lateral and theoretical, 54, 138, 140
multiple-case design use of, 54–58, 139 [box]
See also Logic models
Reports. See Case study reports
Representative case rationale, 48
Research design
type of, 46 [figure]–60, 173 [box]–175 [box]
components of, 27–35
criteria for judging the quality of, 40–45

See also Research design

Research design components
criteria for interpreting a study’s findings, 34
listed, 27
logic linking data to propositions, 33–34
study propositions, 28–29
study questions, 27–29
unit of analysis, 29–33

Research design quality
construct validity for, 40, 41 [figure]–42
external validity for, 40, 41 [figure], 43–44
internal validity for, 40, 41 [figure], 42–43
reliability for, 40, 41 [figure], 45
validity testing for, 46–47 [figure]

Research design selection
closed or flexible designs, 62
mixing case studies with other methods, 62–64
single- or multiple-case designs, 60–62

Research design types
illustration of basic, 46 [figure]
mixed, 62–64, 173 [box]–175 [box]
“two-tail,” 59
Type 1 single-case (holistic), 46 [figure], 47–53
Type 1 single-case (embedded), 46 [figure], 47–53
Type 3 multiple-case (holistic), 46 [figure], 53–60

See also Case studies; Multiple-case designs; Single-case designs

See also Level One inference, 39 [figure]
CASE STUDY RESEARCH

Social science research methods
exploratory, descriptive, and
explanatory purposes of, 6–8
relevant situations for different,
8 [figure]
when to use each specific, 8–14
See also Case study method

Rival theories
pattern matching, 139–140
internal validity through
explanations of, 43

Reviewing draft case study,
182–184

Rational explanation building using,
143–144

Typical case rationale, 48

Unique case rationale, 47

Validity
construct, 40, 41 [figure]–42,
116–117 [figure], 183–184
external, 40, 41 [figure], 43–44,
136–160
internal, 40, 41 [figure], 42–43,
136–160
overview of, 46–47 [figure]
reliability and, 40, 41 [figure], 45,
119, 122

Tips. See Case study tips
Training. See Case study training

Tips. See Case study tips
Training. See Case study training

Study questions. See Case study
tips

Suspense structures, 176 [figure], 177–178

Type 1 single-case (holistic) design,
46 [figure], 47–53
Type 2 single-case (embedded) design,
46 [figure], 47–53
Type 3 multiple-case (holistic) design,
46 [figure], 53–60
Type 4 multiple-case (embedded)
design, 46 [figure], 53–60

Survey research method, 8 [figure]

Tabular materials, 120–121

The Soul of a New Machine (Kidder),
31 [box]
The Swine Flu Affair: Decision-Making
on a Slippery Disease (Neustadt &
Fineberg), 7 [box]

Tally's Corner (Liebow), 30, 49 [box]
Theoretical replication logic, 54,
138, 140

The Soul of a New Machine (Kidder),
31 [box]
Statisticlal generalization, 38–39
Street Corner Society (Whyte), 7 [box],
30, 49, 107, 111 [box], 181, 183

Theory
data analysis based on, 130–131
descriptive, 36–37
development of, 35
generalized to, 44 [box]
generalizing from case study to,
38–39
theory
grounded theory strategies, 129
making inferences using, 38,
39 [figure], 72

See also Rival theories

Social Origins of Dictatorship and
Democracy (Moore), 143 [box]

Simple time-series analysis, 144–146
Single-case designs
complex time-series analysis in
embedded, 147 [box]
rationales for, 47–50
using time-series analysis in,
145 [box]
Type 1 holistic, 46 [figure], 47–53
Type 2 embedded, 46 [figure],
47–53
See also Research design

Social Origins of Dictatorship and
Democracy (Moore), 143 [box]
Robert K. Yin was born and raised on the upper west side of Manhattan. He does not remember encountering case studies then, or at Harvard College where he received his B.A. (magna cum laude) in history, or even at M.I.T., where he received his Ph.D. by doing laboratory experiments in brain and cognitive sciences. Nor, to his knowledge, were case studies among the major works published by The Commercial Press, founded by his grandfather in 1897 (the publisher’s main line of books consisted of textbooks, journals, and reference works—a familiar sounding niche). The Commercial Press has been China’s largest publishing house and has survived to this day, despite two major regime changes in China (both were called revolutions).

Dr. Yin’s exposure to case studies occurred during his first few years as an analyst at the New York City-Rand Institute, which conducted applied studies to improve the quality of then-declining urban living conditions, including life in city neighborhoods, citizen participation, and the provision of urban services. The rest, as they say, is history. Thus, for the past thirty years Dr. Yin has completed numerous qualitative (field-based) and quantitative (statistical) studies, also serving for many years as the President of COSMOS Corporation. He has produced another case study book (Applications of Case Study Research) and two readers containing lengthy excerpts from exemplary case studies (The Case Study Anthology and Introducing the World of Education). In addition, he has taught courses related to case study topics at the Department of Urban Studies and Planning (M.I.T.), the School for International Service (The American University), and multi-day seminars in the United States and abroad.

During this time, Dr. Yin has published widely on education and urban topics, also contributing to methodological advances. Among these have been the various editions of the present book, whose first edition was published in 1984 and which has now been translated into seven languages. The first translation was into Japanese, followed by multiple Portuguese and Chinese translations of multiple editions of the book. Korean, Italian, Romanian, and Swedish have been the most recent translations. Dr. Yin hopes that readers will find this Fourth Edition to be an improvement over previous editions as well as a book presented in legible English.