How to do Better Case Studies: (With Illustrations from 20 Exemplary Case Studies)

In: The SAGE Handbook of Applied Social Research Methods

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Pub. Date: 2013
Access Date: May 18, 2018
Publishing Company: SAGE Publications, Inc.
City: Thousand Oaks
Print ISBN: 9781412950312
Online ISBN: 9781483348858
DOI: http://dx.doi.org/10.4135/9781483348858
Print pages: 254-282

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Whether you are starting as a novice or a seasoned investigator, this chapter will help you improve your case study research.[1] The chapter differs from other case study guides, and especially, the earlier case study chapter (Yin, 1998) in the first edition of this *Handbook*, in at least two ways.

First, this chapter does not attempt to cover the full range of case study topics. Such broader coverage was the scope of the earlier chapter and also of a full textbook written by the present author (Yin, 2003b).[1] Instead, this chapter's narrowed scope allows it to focus on the following four steps that seem to have been the most challenging in doing case study research:

Step 1: Defining and selecting the case(s) for a case study.
Step 2: Using multiple cases as part of the same case study.
Step 3: Strengthening the evidence used in a case study.
Step 4: Analyzing case study evidence.

Although other steps also are important in doing case study research, somehow these four have posed the most formidable demands. If you can meet them, you will be able to conduct high-quality case studies—ones that may be better and more distinctive than those of your peers. Because of the importance of the four steps, this advantage will prevail whether you are doing a dissertation, case study evaluations (e.g., U.S. Government Accountability Office, 1990), case studies of natural settings (e.g., Feagin, Orum, & Sjoberg, 1991), or more theory-based (e.g., George & Bennett, 2004; Sutton & Staw, 1995) or norm-based (e.g., Thacher, 2006) case study research.[1]

Second, the chapter goes beyond merely describing the relevant research procedures. It also refers to many exemplary examples from the existing case study literature.[1] The examples include some of the best case studies ever done, including a case study that is more than 75 years old but that is still in print. The richness of the examples permits the discussion of the four steps—and especially the fourth and most difficult step of doing case study analysis—to be deeper than commonly found in other texts. In this sense, this chapter should help you do more advanced case studies.

The exemplary examples come from different fields, such as community sociology, public health services, national and international politics, urban planning, business management, criminal justice, and education. The hope is that among these examples you will find case studies that cover not only methodologically important issues but also topics relevant to your

interests.

Step 1: Defining and Selecting a Case Study

In a way, this first step of defining and selecting a case study entails the greatest risk in doing case study research. Significant cases will receive attention on their own right, somewhat independent of the quality of the research effort, and mundane cases are not likely to be cherished even if they reflect sound research procedures. When starting your own[1] case study, the goal is to set your sights high in the selection process. Seasoned case study investigators have learned to attend to both practical and substantive considerations.

Practical Considerations

From a practical standpoint, you will be devoting significant time to your case study. You therefore would like to reduce any likelihood of finding that, midstream, your case will not work out.

The most frequent surprise involves some disappointment regarding the actual availability, quality, or relevance of the case study data. For instance, you might have planned to interview several key persons as part of your case study but later found only limited or no access to these persons. Similarly, you might have planned to use what you had originally considered to be a rich source of documentary evidence, only later to find their contents to be unhelpful and irrelevant to your case study. Last, you might have counted on an organization or agency updating an annual data set, to provide a needed comparison to earlier years, only later to learn that the update will be significantly delayed. Any of these three situations could then cause you to search for another case to study, making you start all over again.

These and other practical situations need, as much as possible, to be investigated prior to starting your case study. A commonplace practice in other types of research, from laboratory experiments to surveys, is to carry out pilot work to refine research procedures. For case studies, doing a pilot study can likewise produce the same benefits and also can reduce the risks of defining and selecting the wrong case study. The pilot case can specifically tighten the link between your research questions and the likely availability of evidence. You can then decide better whether this is the type of case study you want to conduct. If you are unable to conduct a pilot study, assess the availability, relevance, and usefulness of your case-study-to-be as carefully as possible. Do your best to anticipate any problems that you will encounter in doing your case study.

Substantive Considerations

The selection process, however, should not dwell on practical considerations only. You should be ambitious enough to try to select a significant or "special" case for your case study, as a more mundane case may not produce an acceptable study (or even dissertation). Think of the possibility that your case study may be one of the few that you ever might complete and that you, therefore, would like to put your efforts into as important, interesting, or significant a case study as possible.

What makes a case special? One possibility arises if your case covers some distinctive event or condition, such as the revival or renewal of a major organization, the creation and confirmed efficacy of a new medical procedure, the discovery of a new way of reducing youth gang violence; a critical political election; some dramatic neighborhood change; or even the occurrence and aftermath of a natural disaster. By definition, these are likely to be remarkable circumstances. To do a good case study of any of them may produce an exemplary piece of research (see Case Studies 1 and 2).

Case Studies 1 and 2: Two Special Cases

Two historically distinctive, if not unique, events were the Swine Flu Scare and the Cuban Missile Crisis. Both events became the subjects of now well-known case studies in the field of political science.

In the first case (Neustadt & Fineberg, 1983), the United States faced a threat of epidemic proportions from a new, and potentially lethal, influenza strain. As a result, the U.S. government planned and then tried to immunize the whole U.S. population. Over a 10-week period, the immunization effort reached 40 million people before the campaign was ended amidst controversy, delay, administrative troubles, and legal complications.

In the second case (Allison, 1971), a nuclear holocaust between the United States and the former Soviet Union threatened the survival of the entire world. The case study investigates how and why military and diplomatic maneuvers successfully eliminated the confrontation. With the later availability of new documentation after the fall of the Soviet Union, an entirely updated and revised version of the case study was written, corroborating but also refining the understanding of the key decisions (Allison & Zelikow, 1999).

But what if no such distinctive circumstances are available for you to study? Or what if you deliberately want to do a case study about a common and even "everyday" phenomenon? In

these situations, you need to define some compelling theoretical framework for selecting your case. The more compelling the framework, the more your case study can contribute to the research literature, and in this sense, you will have conducted a special case study.

A compelling framework could be based on some historical context or some sociological insight. Around the context or insight, you would still need to amass the relevant existing literature, to show how your compelling framework would fit (or depart from) the literature, and how your case study would eventually extend that literature. These ingredients would lay the groundwork for your case study making a significant contribution to the literature (see Case Studies 3 and 4).

Case Studies 3 and 4: Strong Theoretical Frameworks

Two “community” case studies have compelling theoretical frameworks and have achieved the status of classic case studies.

The first case study is about an average American city, but the framework highlights a significant development in American history—the transition from an agricultural to an industrial economy and how it occurred in the average American city (Lynd & Lynd, 1957).

The second case study is about the discovery of a social class structure within the average American city (Warner & Lunt, 1941). The terminology and concepts for describing this structure were new. However, they were later applied to virtually all American communities and the American social structure as a whole.

Alternatively, a compelling theoretical framework could call attention to organizational, community, group, or other types of social processes or outcomes. The purpose of your case study would be to develop new knowledge about these processes and outcomes, based on the facts of the case. Again, you need to review the existing literature carefully, to develop a refined conceptual niche so that your completed case study will contribute to that literature (see Case Study 5).

Case Study 5: A “Process” Case Study

This case study is about a specific economic development program in a specific city, Oakland, CA (Pressman & Wildavsky, 1973). However, the case study's main contribution

is not about urban economic development or about the city and its history.

Rather, the case study's lasting value derives from its focus on the decisions made by officials trying to put a federal initiative (the economic development program) into place in a local community. The authors show how the decisions were numerous, complex, and interdependent. They use these decisions to define, operationally, a broader implementation process that, until that time, had not been fully appreciated in the field of public policy. Instead of being about the program or the city, the case study therefore is about a process. The lessons learned have been helpful for understanding other implementation experiences.

Exercise for Step 1

You have just selected the case for your case study. Describe the significance of the case to a colleague (or faculty adviser). Pretend you might even have completed the case study, and preview what you might have learned. Argue persuasively about the significant contribution(s) made by your case study. If your colleague appears unimpressed with the significance of the learnings from your case study, reconsider whether you have selected the best case possible or, as an alternative, defined the best theoretical framework.

Step 2: Using Multiple Cases as Part of the Same Case Study

This step favors doing “multiple-” rather than “single-” case studies (see Yin, 2003b, pp. 39–54). Even though the classic case study has been about single cases, your case study is likely to be stronger if you base it on two or more cases.

“Two-Case” Case Studies

No matter how well you do a single case, doing more than one can strengthen your case study. Even if you only do a “two-case” study, the second case offers the possibility of responding to a frequent complaint against single-case studies that the case was aberrant in some undesirable manner. Thus, you can use a second case to produce a direct replication of your first case (see Case Study 6).

Case Study 6: Replication Cases

Conventional wisdom attributed the remarkable growth of Japan's economy, in the latter part of the 20th century, to the role of Japan's national government in supporting

Japanese industrial planning. The same conventional wisdom led to the belief that the United States's traditional free enterprise economy precluded a strong role by the U.S. government. Both beliefs led to the complaint that U.S. industries were disadvantaged in competing against Japanese industries.

Gregory Hooks's (1990) “two-case” study challenged the conventional wisdom. His first case pointed to the U.S. Department of Defense's relationship with the aeronautics industry. However, critics would argue that this industry long had a special relationship with defense.

Hooks's second case then showed how the department also played a similar role in the microelectronics industry, not usually considered as defense oriented. Together, the two cases provided a strong rationale for challenging the conventional wisdom.

The replication logic is analogous to that used in multiple experiments (see Yin, 2003b, p. 47–52). For example, on uncovering a significant finding from a single experiment, the immediate research goal would be to replicate this finding by conducting a second, third, and even more experiments. For “two-case” case studies, you may have selected both cases at the outset of your case study, anticipating that they will either produce similar findings (a *literal replication*) or produce contrasting results, but for predictable reasons (a *theoretical replication*). With more cases, the possibilities for more subtle and varied replications increase. Most important, the replication logic differs completely from the sampling logic used in survey research.

Case Studies Having More than Two Cases

Multiple cases, compared to single-case studies, also can broaden the coverage of your case study. For instance, consider the benefits if you do a case study of school reform but include more than one school, varying the schools according to enrollment size. The variations permit you to examine whether reform occurs in similar fashion in large and small schools—or if reform strategies need to be tailored according to the size of the school. By leading to the opportunity (and need) to conduct a “cross-case” analysis, a multiple-case study can actually address a broad topic of contemporary interest (see Case Studies 7 and 8). Such breadth contrasts strongly with the limited scope of a single-case study.

Case Studies 7 and 8: Two Multiple-Case Studies

Multiple-case studies provide more convincing data and also can permit the investigation

of broader topics than single-case studies.

Case Study 7(Magaziner & Patinkin, 1989) was one of nine cases amassed to describe various facets of a global but silent war, involving world economic competition at all levels. These include the United States's competition with low-wage countries, with developed countries, and in relation to future technologies.

Case Study 8 (Derthick, 1972) uses seven cases to illuminate the weakness of the federal government in addressing local affairs and attempting to respond to local needs. The federal objective was to implement new housing programs in seven different cities. The cross-case analysis, based on the experiences in all seven cities, readily pointed to common reasons for the problems that arose.

As the ability to expand the number of cases increases, you can start seeing the advantages of doing multiple-case studies. As part of the same case study, you might have two or three literal replications and two or three deliberately contrasting cases. Alternatively, multiple cases covering different contextual conditions might substantially expand the generalizability of your findings to a broader array of contexts than can a single-case study. Overall, the evidence from multiple-case studies should produce a more compelling and robust case study.

In principle, you will need more time and resources to conduct a multiple-rather than single-case study. However, you should note that the classic, single-case studies nevertheless consumed much time and effort. For instance, Case Study 3 involved a four-person research team living in the city under study for 18 months—just to carry out the data collection. Analysis and writing then took another couple of years. Other classic single-case studies have involved extensive time commitments made by single investigators. Doing a good single-case study should not automatically lead to reduced time commitments on your part.

Exercise for Step 2

From Section 1's discussion, you may have developed some preliminary ideas about defining and selecting a “case” for your case study. If not, recall some single-case study with which you are familiar—or even focus on one of the single cases presented earlier in this chapter.

Whether choosing your own case or the recalled case, now think of a companion case to match it. In what ways might the companion case's findings augment those of the first case? Could the data from the second case fill a gap left by the first case or respond better to some obvious shortcoming or criticism of the first case? Would the two cases together comprise a stronger case study? Could yet a third case make the findings even more compelling? The more you

can address these and related questions, the more you will be on your way to thinking about the advantages and disadvantages of doing a multiple-case study.

Step 3: Strengthening the Evidence Used in Your Case Study

The case study method is not limited to any single type of evidence or data. Both qualitative (e.g., categorical or nominal) and quantitative (e.g., ratio, interval, and ordinal) data may be relevant and should be part of your case study. These different data will come as a result of using different data sources and techniques such as focus groups, ethnographies, participant observation, key interviews, documentary evidence, access to archival records, direct observations in the field, and surveys. Your case study may call on a combination of such techniques, thereby involving a combination of qualitative and quantitative data.

The goal is to use different types of evidence to triangulate or converge on the same research questions. The findings will then be less open to the criticism that they had resulted from and possibly been biased by a single data collection method. To take advantage of this principle, good case study investigators need to be adept at using different data collection methods.

Regardless of the type of evidence, the objective is to present it apart from any interpretation or assessment that you might then make of the evidence. This way, readers can judge the evidence for themselves. They then can agree or take issue with your interpretation and assessment, which are part of the analysis that comes later in the case study. Any mixing of the evidence with your interpretation is undesirable, and such mixing has been a continuing source of criticism of earlier case studies.

Direct Observations: Two Examples

Let's start with one of the most common methods: making direct observations in the field. If nothing else, the opportunity to make such observations is one of the most distinctive features in doing case studies.

The observational data can be qualitative or quantitative. The conventional manner of reporting qualitative data takes the form of a narrative text. The composing of this text must overcome the pitfall just discussed—by presenting the observational evidence as neutrally and factually as possible, and by minimizing your interpretation of, or judgment about, the evidence (see Case Study 9).

Case Study 9: Observational Evidence as Part of a Case Study

Part of a case study about the firms and working life in Silicon Valley called for the case study investigators to observe the “clean room” operations where silicon chips are made (Rogers & Larsen, 1984). The 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. The case study observations showed how the employees adapted to the working conditions in these clean rooms, adding that, at the time, most of the employees were female while most of the supervisors were male.

Coroners' reports, with their dry and factually operational tone, may serve as a good model for the desired narrative. Note that such narrative—whose main function is to present observational evidence—is not the same as the interpretive narrative that will appear elsewhere in the case study. That narrative discusses evidence and interpretation together, and the case still may be told in a compelling manner. This latter narrative, in combination with the drier, operational narrative covering the observational evidence, parallels other types of research where numeric tables (the evidentiary portion) are accompanied by the investigator's interpretation of the findings (the interpretive portion). Again, the main point is that many case studies confuse the two presentations, and yours should not.

The separate presentation of narrative evidence can assume several forms. One, the use of *vignettes*, is illustrated in this very chapter by the material in the boxes about the individual case studies. Another, the use of *word tables*, is a table, arranged with rows and cells like any other table, but whose cells are filled with words (i.e., categorical or qualitative evidence) rather than the numbers found in numeric tables.

Going beyond this traditional, narrative form of reporting observational data, you can quantify observations by using a formal observational instrument and then report the evidence in numeric form (e.g., tables showing the frequency of certain observations). The instrument typically requires you to enumerate an observed activity or to provide one or more numeric ratings about the activity (see Case Study 10). Thus, observational evidence can be reported both as narrative and in the form of numeric tables.

Case Study 10: Quantifying Observational Evidence in a Case Study

An elementary school was the site for a case study of a new instructional practice, or “innovation” (Gross, Bernstein, & Giacquinta, 1971). To judge how well teachers were

implementing the new practice, members of the research team made classroom observations and quantified their observations.

An observational instrument called for the use of a 5-point rating scale (from *high* to *low*) for 12 kinds of teachers' behaviors that reflected the new practice:

- making the materials in the classroom available to students;
- permitting students to move freely about the room, to choose their own activities and to decide whether they wanted to work individually, in pairs, or in groups; and
- acting as a guide, catalyst, or resource person between children.

The overall pattern of ratings, across all the desired behaviors, became the basis for assessing the degree of implementation of the new practice.

Archival Records

In contrast to direct observations in the field, case studies also can rely on archival data—information stored through existing channels, such as electronic records, libraries, and old-fashioned (paper) files. Newspapers, television, and the mass media are but one type of channel. Records maintained by public agencies, such as public health or police records, serve as another. The resulting archival data can be quantitative or qualitative (or both).

From a research perspective, the archival data can be subject to their own biases or shortcomings. For instance, researchers have long known that police records of *reported crime* do not reflect the actual amount of crime that might have occurred. Similarly, school systems' reports of their enrollment, attendance, and dropout rates may be subject to systematic under- or overcounting. Even the U.S. Census struggles with the completeness of its population counts and the potential problems posed because people residing in certain kinds of locales (rural and urban) may be undercounted.

Likewise, the editorial leanings of different mass media are suspected to affect their choice of stories to be covered (and not covered), questions to be asked (and not asked), and writing detail (and not detailed). All these editorial choices can collectively produce a systematic bias in what would otherwise appear to be a full and factual account of some important events.

Case studies relying heavily on archival data need to be sensitive to these possible biases and to take steps to counteract them. With mass media, a helpful procedure is to select two different media that are believed, if not known, to have opposing orientations. A more factually balanced picture may then emerge (see Case Study 11). Finding and using additional sources

bearing on the same topic would help even more.

Case Study 11: A Case Study Using 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 male, but a year later they all were acquitted. 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 (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 not only traces the course of events but also shows how the two papers constructed different but overlapping understandings of the crisis.

Open-Ended Interviews

A third common type of evidence for case studies comes from open-ended interviews. These interviews offer richer and more extensive material than data from surveys and especially the closed-ended portions of survey instruments. On the surface, the open-ended portions of surveys may resemble open-ended interviews, but the latter are generally less structured and even may assume a conversational manner.

The diminished structure permits open-ended interviews, if properly done, to reveal how case study interviewees construct reality and think about situations, not just giving answers to specific questions. For some case studies, the construction of reality provides important insights into the case. The insights gain even further value if the interviewees are key persons in the organizations, communities, or small groups being studied, not just the average member of such groups. For a case study of a public agency or private firm, for instance, a key person would be the head of the agency or firm. For schools, the principal or a department head would carry the same status. Because by definition such roles are not frequently found within an organization, the open-ended interviews also have been called "elite" interviews. A further requirement is that case study investigators need to be able to gain access to these elites. Such access is not always available and may hamper the conduct of the case study in the first

place (see Case Study 12).

Case Study 12: Open-Ended Interviews as a Source of Case Study Evidence

Professional life in entrepreneurial firms, such as electronic firms in Silicon Valley, can be highly demanding. Employees from the top to the bottom of the firms may dedicate long hours and hard thinking to their work. At the same time, because older firms may cease growing at a rapid pace and newer firms are continually getting started, employees' loyalties also are tested by their willingness to stay with their existing firms.

Describing these and other delicate conditions were an integral part of a case study of Silicon Valley (Rogers & Larsen, 1984). Some of the most relevant information could only be obtained through open-ended interviews, often with the key executives and supervisors in a firm. The case study's authors, who were local to the Silicon Valley area, used their professional and personal ties to gain access to these persons. In addition, the sensitivity of some of the information meant that the authors withheld the real names of some of the interviewees, referring to them with pseudonyms instead.

Integrating Evidence

The preceding paragraphs have covered three types of case study evidence. Other chapters in this *Handbook* actually cover some of the other types, such as the use of focus groups, surveys, and ethnographies. Together, you should now have a good idea of the different kinds of evidence that you can use in case studies.

More important than reviewing the remaining types at this juncture is the need to show how various sources of evidence might come together as part of the same case study. Recall that the preferred integration would position the evidence from each source in a way that converged with, or at least complemented, the evidence from other sources.

Such integration readily takes place in many existing case studies. The presentation of a case study can integrate (a) information from interviews (e.g., quotations or insights from the interviews appearing in the text, but citations pointing the reader to the larger interview database) with (b) documentary evidence (e.g., quotations or citations to specific written texts, accompanied by the necessary citations) and with (c) information drawn from direct observations. The resulting case study tries to see whether the evidence from these sources presents a consistent picture. The procedure involves juxtaposing the different pieces of

evidence, to see whether they corroborate each other or provide complementary (or conflicting) details. If the case study is well documented, all the evidence contains appropriate footnotes and citations to data collection sources (e.g., the name and date of a document that was used), and the case study also includes a full description of the data collection methods, often appearing as an appendix to the case study.

Integrating and presenting the evidence in this manner can be a major challenge (see Case Studies 13 and 14). Although the final case study still may be criticized for having undesirable biases, the richness of the evidence should nevertheless shift any debate into a more empirical mode—that is, critics need to produce contrary evidence rather than simply make alternative arguments. The shift is highly desired, because case studies should promote sound social science inquiry rather than raw polemic argument.

Case Studies 13 and 14: Two Case Studies that Bring the Evidence Together

Two case studies exhibit similar methodological features by integrating data from direct observations, documentary sources, and extensive interviews of key informants. In both cases, the main author was a participant in the case being studied, and extensive additional evidence is cited and used, to offset the possible biases created by the participatory role.

Case Study 13 (Zigler & Muenchow, 1992) covers the *Head Start* program—a well-known federal initiative that boosts support for early childhood development. In its early years, the program was controversial, drawing sharp critics as well as supporters. In the long run, however, the program became a forerunner of many related initiatives, all aimed at improving the health and well-being of preschool children.

The lead author of the case study was one of the directors of the *Head Start* program. The director's role provided observational evidence for the case study, but the authors also buttressed this evidence with a wide array of other evidence, including data from hundreds of open-ended interviews, reviews of numerous program-related documents, and references to many other studies of the program conducted by eminent scholars. In their case study, the authors continually weave together the evidence from these various sources, trying to present an accurate picture of the program though not denying the director's role as a strong supporter of the program.

Case Study 14 (McAdams, 2000) has a similar flavor, as the author was a prominent member of the school board overseeing a large urban system during a critical period in

the system's life. Again, citations to specific documentary sources, including newspaper accounts, as well as references to numerous interviews, demonstrate the author's concern with integrating the evidence and accurately depicting events as they transpired.

As an alternative strategy, you can bring the evidence together, from multiple sources, on an even grander scale than just described. Understanding this grander scale requires an appreciation of the concept of *embedded units of analysis* (see Yin, 2003b, pp. 42–45).

The concept applies when the data for a case study come from more than a single layer. For instance, a case study about an organization will certainly include data about an organizational layer (the organization's overall performance, policies, partnerships, etc.). However, depending on the research questions being studied, additional data may come from a second layer—the organization's employees. Data might come from an employee survey, which, if used alone, might have served to support a study of the employees. However, within the context of the case study of the organization, the employee layer would be an embedded unit of analysis, falling within the main unit of analysis for the case study, which is the organization as a whole.

You can imagine many situations where case studies will have embedded units of analysis: a neighborhood case study, where the services or the residents in the neighborhood might represent embedded units of analysis; a case study of a public or foundation program that consists of multiple, separately funded projects; a study of a new technology, with an assessment of the technology's multiple applications also being part of the case study; or a study of a health services marketplace, with different health service providers and clients being the embedded units.

In all these examples, the embedded units are embedded within the larger, main unit of the case study. The main unit is the single entity, covering a single-case. The embedded units are more numerous and can produce a large amount of quantitative data. Nevertheless, the data are still part of the same single case. The most complex case study design then arises when your case study may contain multiple cases (e.g., multiple organizations), each of which has an embedded unit of analysis.

In these situations, the multiple sources of evidence help cover the different units of analysis—the main and embedded units. In the example of an organization and its employees, the case study might be about the development of an organizational culture. At the main unit of analysis, only a single entity—the organization—exists, and the relevant data could include the kind of observations, key interviews, and documents review previously highlighted in Case Studies 13

and 14. At the embedded unit of analysis—a sample or universe of employees—the relevant data would include an employee survey or some analysis of employee records. In contrast to Case Studies 13 and 14, which did not have an embedded unit of analysis, Case Study 15 is an older but classic case study of a single organization (a labor union), with multiple layers and in fact, several levels of embedded units.

Case Study 15: Bringing the Evidence Together in a More Complex Case Study

This case study is about a single trade union, the International Typographical Union, whose membership came from across the country (Lipset, Trow, & Coleman, 1956). Because of its national coverage, the union, like many other unions, was organized into a series of “locals,” each local representing the members in a local area. Similarly, each local consisted of a number of “shops.” Finally, each shop contained individual union members. From top to bottom, the organization therefore had four layers. As a case study, the case had one main unit (the union) and three embedded units. In this sense, the case study was complex.

The research questions called for information at every level. The three investigators, who ultimately became recognized as prominent scholars in their fields, designed a variety of data collection activities, ranging from key interviews with the top officials to observations of informal group behavior among the locals and shops to a survey of the individual members. For each of the three embedded levels, the investigators also had to define and defend their sample selection. The study took 4 years to complete, in addition to two earlier years when the senior author had begun preliminary queries.

Exercise for Step 3

Name five ways of collecting social science data. For each way, describe the method briefly and create an imagined application of the method as part of a case study.

Describe the strengths and weaknesses of each method, as it might have been used in this application. Where any weaknesses have been identified, indicate whether some other method's strengths can counteract all or most of the weaknesses. For instance, a major weakness of the survey method is that the survey data are limited to “self-reports” of respondents' own behavior. The accuracy of the self-reports could be checked by combining the survey data with investigators' direct observations of the respondents' actual behavior.

Step 4: Analyzing Case Study Evidence

Case study analysis takes many forms. Regardless of the form, the task is difficult because the analytic procedures are not usually formulaic, as they may be with other research methods. The absence of a strict routine leaves case study investigators with the need (some would say, "opportunity") to make critical procedural decisions when analyzing case study data. In doing so, investigators should document carefully the procedures used. As another alert, the course of the analysis may depend as much on the marshaling of arguments as on the tallying of data. Strong case study arguments will reflect a thoroughness in covering all relevant conditions combined with the explicit naming and entertaining of rival explanations (Yin, 2000).

The absence of any cookbook for analyzing case study evidence has only partially been offset by the development of prepackaged software to conduct computer-assisted tallies of large amounts of narrative text. The software helps code and categorize the words found in a text, as might have been collected from open-ended interviews or extracted from documents. However, the coding can only attend to the verbatim or surface language in the texts, potentially serving as a microlevel starting point for doing case study analysis. Yet the case study of interest is likely to be concerned with broader themes and events than represented by the surface language of texts. To this extent, you still need to have a broader analytic strategy, even if you have found the computer software to be a useful preliminary tool.

Discussed next are four examples of the broader analytic strategies (see also Yin, 2003b, pp. 116–133). The associated case study examples suggest that all the strategies can use either qualitative or quantitative data, or both. This duality reinforces the positioning of the case study method as a method not limited to either type of data. An important correlate is that case study investigators, including yourself, should not only be acquainted with collecting data from the variety of sources of evidence discussed in the preceding section but also with the analytic techniques now discussed in the present section.

Compare Expected and Actual Patterns

A pattern-matching procedure is the first type of case study analysis.

Many types of patterns can be relevant to a case study. Some patterns might cover a series of related *actions* or *events.* For instance, the conditions for transforming a business organization might include multiple changes, such as (National Institute of Standards and Technology, 1999, 2000) the implementation of new human resource and administrative practices; turnover in board or executive leadership; a retooling of product or service lines; and changed relationships

in suppliers and the organization's supply chain. If you were doing a case study of such a transformation, you would start by hypothesizing the needed changes and their relationships. You would then collect data to see whether the changes and their relationships actually occurred, by matching the data against the predicted pattern.

Alternatively, the predicted pattern of events can be a pattern of *outcomes.* Cook and Campbell (1979, p. 118) defined such a pattern as the key ingredient in their quasi-experimental research design known as the *nonequivalent dependent variables* design. According to this design, an experiment or quasi-experiment may have multiple dependent variables—in other words, a variety of outcomes. The design pertains directly to case studies, as well. Whether as part of a quasi-experiment or a case study, the matching procedure would then pit an empirically observed or measured set of outcomes against those that had been predicted prior to the data collection.

For either of the preceding or other types of patterns, the specific pattern-matching technique depends on the nature of the data. If the pattern of outcomes includes some variables that enable you to compare the means and respective variances from two groups, you could perform statistical tests of significance. For instance, a study of math-science education reform might predict a pattern whereby students' test scores in math and science at different grade levels will improve compared to some baseline period, but that their reading scores at different grade levels will remain on the same trend lines compared to the same baseline period. In this example, you could conduct all the needed matching (comparisons) through statistical tests.

More commonly, the variables of interest are likely to be categorical or nominal variables. In this situation, you would have to judge the presence or absence of the predicted pattern by setting your own criteria (ahead of time) for what might constitute a “match” or a “mismatch.” For instance, a case study investigating the presumed economic impact of a military base closing argues that the closing was *not* associated with the pattern of dire consequences that pundits commonly predicted would occur as a result of such closings (see Case Study 16).

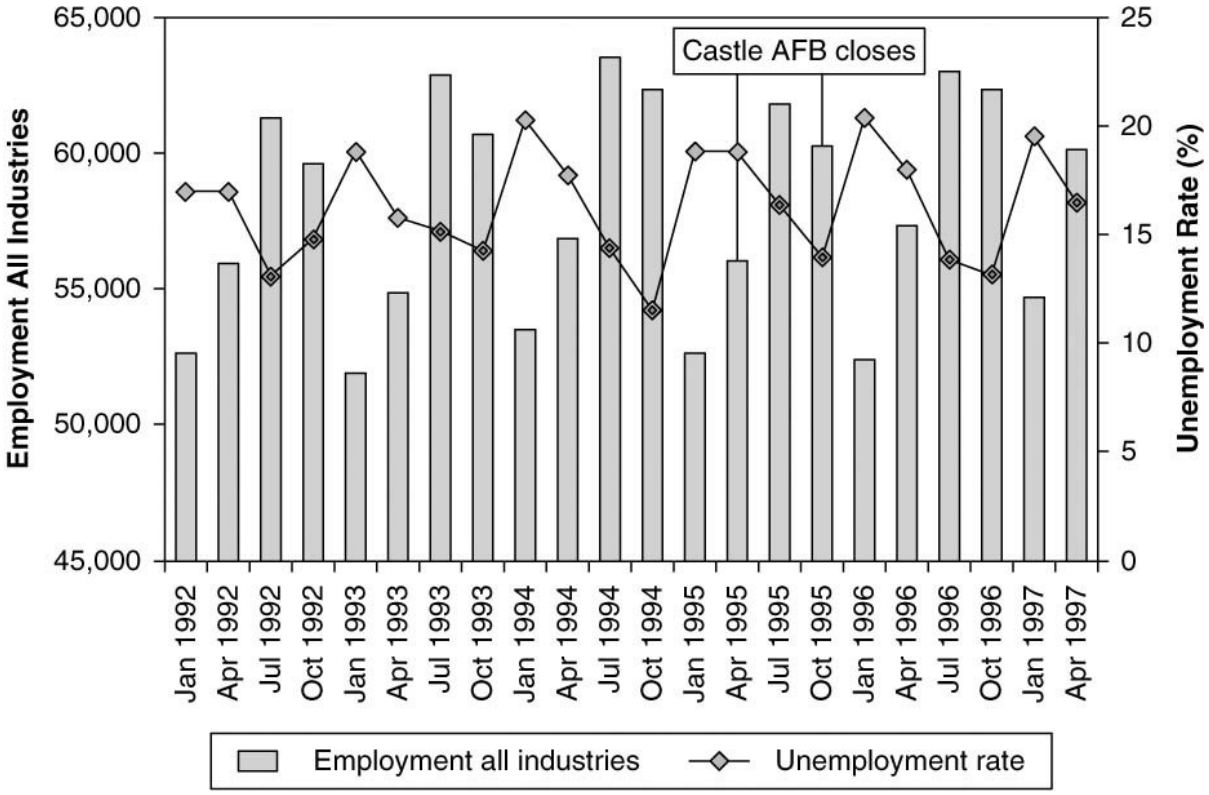
Case Study 16: Pattern Matching to Show Why a Military Base Closure was Not Catastrophic

Many military bases in the United States have been the presumed economic and residential driving forces of the local community. When such bases close, the strong belief is that the community will suffer in some catastrophic manner—leaving behind both economic and social disarray.

A case study of such a closure in California (Bradshaw, 1999), assembled a broad array of data to suggest that such an outcome did not, in fact, occur. The analytic strategy was to identify a series of sectors (e.g., retail markets, housing sales, hospital and health services, civilian employment, unemployment, and population turnover and stability) where catastrophic outcomes might have been feared, and then to collect data about each sector before and after the base closure. In every sector, and also in comparison to other communities and statewide trends, a pattern-matching procedure showed that the outcomes were much less severe than anticipated. The case study also presented potential explanations for these outcomes, thereby producing a compelling argument for its conclusions.

As but one example presented in Case Study 16, among the predicted consequences was a rise in unemployment. The case study tracked the seasonal pattern of unemployment for several years before and after the base closing and showed how, after observing seasonal variations, the overall rate did not appear to decline at all, much less in any precipitous manner. The case study especially called attention to the employment levels between January and April 1997, well after the base closing. The levels at these later times exceeded those of the January and April periods in the previous 5 years, when the base was still in operation (see Figure 8.1).

Figure 8.1 Employment and Unemployment Rate in Merced County



SOURCE: From "Communities not fazed: Why military base closures may not be catastrophic," by T. K. Bradshaw, 1999, *Journal of the American Planning Association, 65,* p. 201, fig. 1. Used with permission.

Important, too, was the breadth of possible consequences covered by the case study. Thus, the full case study did not rely on the unemployment outcome alone but showed that similar patterns existed in nearly every other important sector related to the community's economy. In this same manner, you would want to show that you had considered a broad array of relevant variables related to your research questions and also had defined and tested a variety of rival conditions—the more conditions, the better.

Use Evidence to Build an Explanation

This second analytic strategy comes directly from the explanatory role of case studies, based on their claimed advantage in addressing "how" and "why" questions (Shavelson & Townes, 2002). Following this strategy, you need to analyze your case study data by putting forth a convincing explanation for some set of events or conditions.

Unfortunately, building an explanation has no well-trodden template to emulate. You have to

decide ahead of time what your case study is trying to demonstrate (if anything) and how you will meet the requirements for making such a demonstration convincing. Because all this may sound extremely vague, let's go into more detail with two illustrative case studies.

The explanation building in the first case study follows many situations in which an explanation is built “post-hoc,” or after the fact. Such a label means that you try retrospectively to explain an event whose outcome already is known. In this first case study (see Case Study 17), the known outcome was that a Fortune 50 firm had gone out of business. The case study tried to explain why this outcome might have occurred. To do this, the case study posited the downside effects of several of the firm's “cultural tendencies.” The case study then offered evidence in support of these tendencies and explained how they collectively left the firm without a critical “survival” motive.

Case Study 17: Explanation Building: Why a Fortune 50 firm Went Out of Business

Business failure has been a common part of the American scene. Less common is when a failure occurs with a firm that, having successfully grown for 30 years, had risen to be the number two computer maker in the United States and, across all industries, among the top 50 corporations in size.

A professor at MIT served as a consultant to the senior management of the firm during nearly all its history. His case study (Schein, 2003) tries to explain how and why the company had a “missing gene,” critical to the survival of the business.

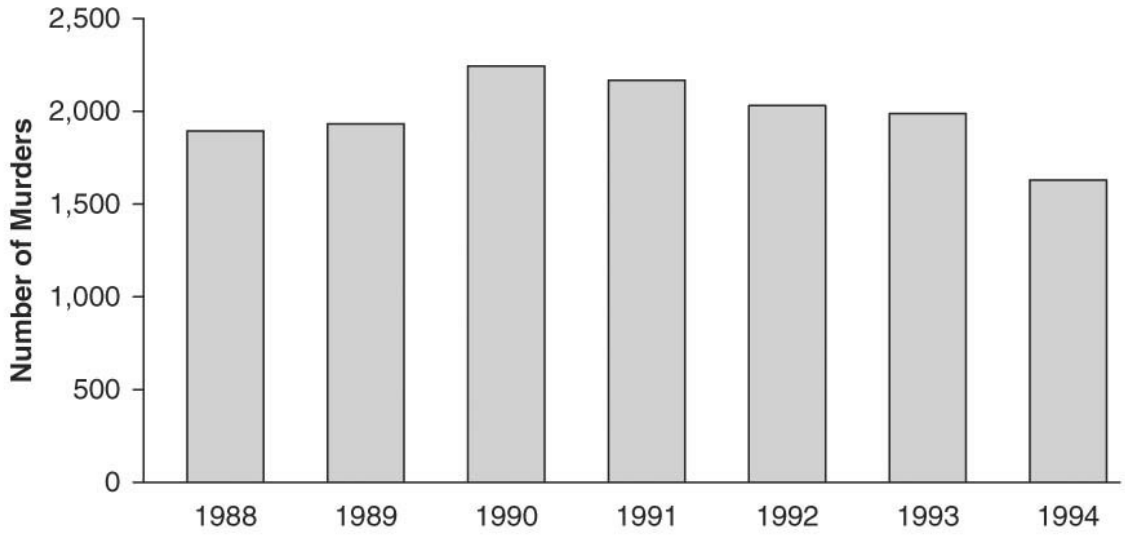
As an important part of the explanation, the author argues that the gene needed to be strong enough to overcome the firm's other cultural tendencies, which included its inability to address layoffs that might have pruned deadwood in a more timely manner; set priorities among competing development projects (the firm developed three different PCs, not just one); and give more prestige to marketing and business as opposed to technological functions within the firm.

The case study cites much documentation and interviews but also includes supplementary chapters permitting key former officials of the firm to offer their own rival explanations.

The second case study took place in an entirely different setting. In New York City, a long-time

rise in crime from 1970 finally peaked in the early 1990s, starting a new, declining trend from that time thereafter (see Figure 8.2). The case study (see Case Study 18) attempts to explain how actions taken by the New York City Police Department might have contributed to the turnaround. The case study builds a twofold explanation. First, it devotes several chapters to the nature of the police department's specific protective actions, showing how they could plausibly reduce crime. Second, it presents time-series data and suggests that the timing of the actions fit well the timing of the turnaround. In particular, the case study argues that, although a declining trend already had started in 1991, an even sharper decline in murder rates in 1994 coincided with the first full year of new police protection practices (see Figure 8.2).

Figure 8.2 New York Murder Rate (1988–1994)



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Case Study 18: Explaining the Decline in Crime Rates in New York City

In New York City, 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.

Case Study 18 (Kelling & Coles, 1996) first describes all 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 matches 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, as part of their explanation for the reduction in crime rates in the New York City of that era.

Both of these examples show how to build explanations for a rather complex set of events. Each case study is book length. Neither follows any routine formula or procedure in the explanation-building process. However, the work in both case studies suggests the following characteristics that might mark the explanations in your own case study analyses:

- Thoroughness in identifying and incorporating data relevant to the testing of logical explanations
- Clarity, through the use of tables and exhibits where possible, in showing how the data collected were used to test at least the most important parts of the explanations
- Exploration of alternative or rival explanations
- A summary interpretation that directly compares the main and rival explanations

Ascertain and Array Key Events, Chronologically

A third strategy is more straightforward and applicable to many case studies. The strategy is based on the principle that, in explaining a series of events, an event claimed to be the cause of a second event needs to occur prior to the second event. For instance, a health service's new resources in Year 1 could only affect its performance after, and not prior to, Year 1. To this extent, organizing events chronologically can help develop a logical sequence for explaining how and why the case study's key events might have occurred (see Case Study 19).

Case Study 19: A Chronology Showing The Delayed Start-Up Of A Controversial Community Program

Controversies surround the opening and location of certain kinds of public services, such as those, like a methadone maintenance clinic, aimed at helping drug addicts. Communities fear that the services will bring undesirable “elements” into the community

and also jeopardize the quality of related health services such as psychiatric services to nonaddicted clients.

Starting and running a methadone clinic in an urban community were the subjects of a case study (Nelkin, 1973). The case study refers extensively to specific chronological information in explaining the sources of significant delays in opening the clinic. The case study also refers to chronological information in explaining how resistance by some community members and by the medical staff of some related public health services led the methadone maintenance clinic to operate differently than its originally proposed configuration.

Chronologies offer the additional advantage that chronological data are usually easy to obtain. One value of using documentary evidence is that the documents frequently cite specific dates. But even in the absence of specific dates, having an estimated month or even season of occurrence may be sufficient to serve your case study's needs. If so, you need not depend solely on having relevant documentary evidence. You also can ask your interviewees to estimate when something might have happened. Such an inquiry does not require them to have been a chronicler. Rather, you can ask whether something happened before or after a well-known election, a holiday season, or some other benchmark such as the annual Super Bowl in professional football. Citing such a benchmark usually can help most people recall more readily the chronological occurrence of an event or even the chronology of a sequence of events.

Chronological data are sufficiently valuable that collecting such information should be a routine part of all the data collected for your case study. Tracking such chronologies requires you to take note of the dates that appear in documents and to ask interviewees *when* something might have occurred, not just whether it had transpired. Even if you had not identified the need for this information at the outset of your case study, in later analyzing your data you may find that the chronologies lead to surprising insights. Evidence about the timing of events also may help you reject some rival explanations, because they may not fit the chronological facts that you have amassed.

Construct and Test Logic Models

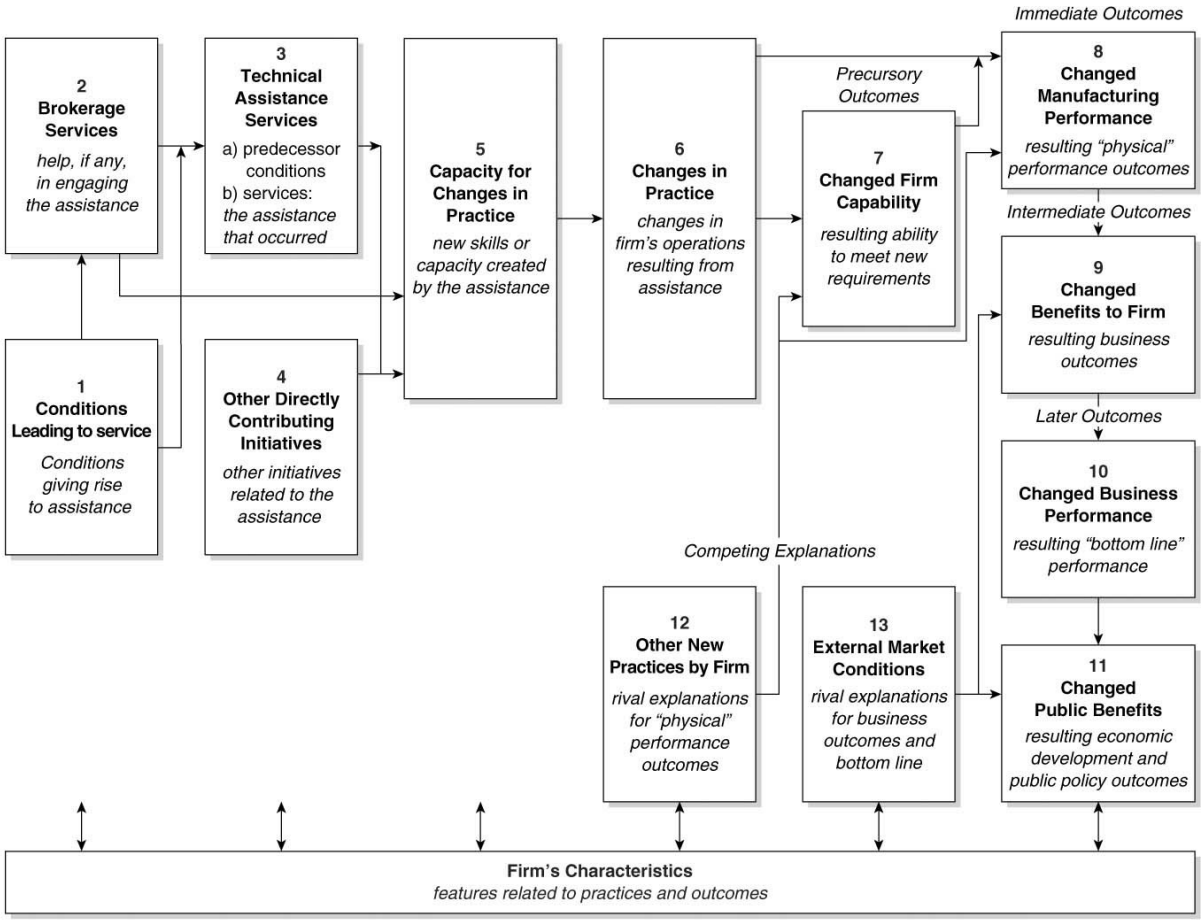
A logic model (Wholey, 1979) stipulates a complex sequence of events over time, covering presumed causal relationships among a host of independent, intervening, and dependent variables. This fourth analytic strategy has become extremely useful for doing case study evaluations but also can be used for case study research.

For evaluation, the logic model assists in assessing an intervention, which is supposed to produce a certain outcome or outcomes. However, most interventions are complex chains of events: Initial activities (e.g., employee training) have their own immediate outcomes (e.g., employees' new knowledge), which, in turn, produce some intermediate outcome (e.g., new practices by the employees), which, in turn, produce final or ultimate outcomes (e.g., improved business performance). The strength of the logic model is its requirement of an explicit conceptualization, or *theory of action*, of the chain of events.

After you develop operational definitions for the events in the logic model, you will then try to collect relevant data for your case study. Comparing the collected data with the previously stipulated sequence of events serves as the empirical test of the logic model and is the actual analytic step. The more the data support the original logic model, the more the original theory of action is to be favorably judged.

An illustrative logic model (see Figure 8.3) represents an increasingly common type used in case study evaluations. The model begins with the resources or support (see Box 1, Figure 8.3) needed to conduct the intervention (brokerage and technical assistance services—see Boxes 2 and 3). The actual case study data are needed to confirm this support as well as whether the intervention ultimately preceded a series of desired outcomes, culminating in changed business performance and related benefits (Boxes 8, 9, 10, and 11). Distinctive about this logic model is that it also has a place for two sets of rival explanations (Boxes 12 and 13), apart from the intervention of interest. The rivals hypothesize that the same outcomes might have occurred, but due to conditions other than the brokerage and technical assistance services. The collected data need to show whether these rival conditions existed and how they might have influenced the outcomes. The more the intervention of interest can be supported in the face of these rivals, the more positive will be the overall assessment.

Figure 8.3 Changes in Performance in the Manufacturing Firm



SOURCE: Yin and Oldsman (1995).

The logic model framework has quantitative counterparts that take the form of structural equation models (SEMs) and path analyses. For example, schools' progress in implementing education reform was a major subject of a case study of a reforming school system. Although the single system was the subject of a single-case study (see Case Study 20), the size of the system meant that it contained hundreds of schools. The school-level data then became the subject of a path analysis. Figure 8.4 shows the results of the path analysis, enumerating all the original variables but then only showing arrows where the standardized regression coefficients were statistically significant.

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Case Study 20: Testing the Logic of a School Reform ACT

Case studies can include rather advanced quantitative analyses. The subject of the case

study (Bryk, Bebring, Kerbow, Rollow, & Easton, 1998) is the attempted transformation of a major urban school system (a single case) that took place in the 1980s. A new law was passed to decentralize the system by installing powerful local school councils.

The case study includes qualitative data about the system as a whole and about the individual schools in the system. At the same time, the study also includes a major quantitative analysis that takes the form of structural equation modeling. The resulting path analysis tests a complex logic model whereby prereform restructuring is claimed to produce strong democracy, in turn producing systemic restructuring, and finally producing innovative instruction, all taking into account a context of basic school characteristics. The analysis is made possible because the single case (the school system) contains an embedded unit of analysis (individual schools), and the path model is based on data from 269 of the elementary schools in the system. The results of the path model do not pertain to any single school but represent a commentary about the collective reform experience across all the schools—in other words, the overall reform of the system (single case) as a whole.

In this example, the schools represented an embedded unit of analysis within the overall single-case study, and the collective experiences of the schools provided important commentary about the advances made by the system as a whole. Note the similarity between the variables used in the path analysis and those that might have been used in a logic model studying the same situation. Other investigators of school reform have used the same path analysis method to test the logic of reform in multiple school systems, not just single systems (see Borman & Associates, 2005).

Exercise for Step 4

Select one of your own empirical studies—but *not* a case study—in which you analyzed some data (if you cannot cite one of your own studies, choose one from the literature, related to a topic of interest to you). Examine and describe how the data were analyzed in this study. Was it a qualitative or quantitative analysis? Argue whether this same analysis, virtually in its same form, could be found as part of a case study. Do you think that quantitative analyses are less relevant to case studies than qualitative analyses?

Summary

This chapter has suggested ways of dealing with four steps that have been the most challenging in doing case study research. In the first step, investigators like yourself commonly

struggle with how to choose a significant, not mundane, case or cases for their case studies.

In the second step, having multiple cases within your case study may require greater effort. However, the benefit will be a more strongly designed case study, where the cases may replicate or otherwise complement each other's experiences.

In the third and fourth steps, creating a strong evidentiary base will provide greater credibility for your case study, and methodically analyzing these data, using qualitative or quantitative methods, will then lead to more defensible findings and conclusions.

By covering these four steps, the chapter follows the spirit of handbooks that try to provide concrete and operational advice to readers. The chapter's descriptions of numerous, specific case studies add to the concreteness. If you can emulate some of these case studies, or if you can successfully implement the four steps more generally, you may markedly improve your own case studies.

In contrast, the chapter has not attempted another conventional use of handbooks—to provide a theoretical and historical perspective on the evolution of a topic such as case study research. Such a perspective already has been provided elsewhere by Jennifer Platt (1992), and readers interested in learning more about it would be well-advised to consult her work.[1]

Exercises

Different exercises may be relevant, depending on whether a class is at the preliminary or advanced end of the spectrum of doing social science research.

Exercise 1. Finding and Analyzing an Existing Case Study: Have each student retrieve an example of case study research from the literature.

Prelim. Class: The case study can be on any topic, but it must have used some empirical method and presented some empirical data. Questions for discussion:

1. Why is this a case study?
2. What, if anything, is distinctive about the findings that could not be learned by using some other social science method focusing on the same topic?

Advanced Class: The case study must have presented some numeric (quantitative) as well as narrative (qualitative) data. Questions for discussion:

1. How were these data derived (e.g., from what kind of instrument, if any) and were they presented clearly and fairly?

2. How were these data analyzed? What were the specific analytic procedures or methods?
3. Are there any lessons regarding the potential usefulness of having both qualitative and quantitative evidence within the same case study?

Exercise 2. Designing Case Study Data Collection: Have each student design a case study on a topic with which he or she is familiar (my family, my school, my friends, my neighborhood, etc.).

- *Prelim. Class:* What are the case study's questions? Among the various sources of evidence for the case study, will interviews, documents, observations, and archival data all be relevant? If so, how?
- *Advanced Class:* Design a preliminary case study protocol (instrument), to collect data from the relevant sources of evidence relevant to the case study.

Exercise 3. Testing for Case Study Skills: Have each student present the following "claims," either in the form of a classroom presentation or written assignment.

- *Prelim. Class:* Why and with what distinctive skills, if any, does a student believe that he or she is adequately equipped (or *not* equipped) to do a case study? Where not well-equipped, what remedies does the student recommend for himself or herself?
- *Advanced Class:* Carry out the same exercise as that of the prelim class. In addition, however, ask two other students to prepare critiques of the first student's claims and permit the first student time for a brief response or rebuttal.

Notes

1. The chapter is based on and draws heavily from a case study anthology compiled by the author (see Yin, 2004). See also Yin (2005) for an anthology of case studies devoted solely to the field of education.

2. Aspiring case study investigators may, therefore, need to consult (and use) the earlier chapter and the full textbook, as well as several other directly related works by the present author: Yin (2003a) for in-depth applications of the case study method; Yin (2006a) for guidance in doing case studies in the field of education; and Yin (2006b) if case studies are to be part of a mixed methods research study. These other works can help investigators address such questions as "when and why to use the case study method" in the first place, compared to other methods.

3. These forms all fall within the domain of “case study research.” In turn, many specialists consider case study research to fall within a yet broader domain of “qualitative research” (Creswell, 2007). However, the present approach to case study research resists any categorization under the broader domain, because case study research, as discussed throughout the present chapter, can include quantitative and not just qualitative methods.

4. The case study anthology (Yin, 2004) referenced in Footnote 1 contains lengthy excerpts of all the case studies described in the boxes throughout this chapter.

5. Case study evaluations are not necessarily the same as doing your own case studies. Clients and sponsoring organizations (e.g., private foundations) usually prespecify the research questions as well as the cases to be studied. In this sense, case study evaluators may not need to decide how to define and select their case studies as covered in the text.

6. Platt traces the evolution of case study research, starting with the work of the “Chicago School” (of sociology) in the 1920s. Despite this auspicious beginning, Platt explains why case study research became moribund during the post–World War II period—a period so barren that the term *case study* was literally absent from the methodological texts of the 1950s and 1960s. Platt then argues that the resurgence of case study research occurred in the early 1980s, crediting the resurgence to a fresh understanding of the benefits that may accrue when case study research is properly designed.

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http://dx.doi.org/10.4135/9781483348858.n8