6e

Robert K. Yin

CASE STUDY RESEARCH and APPLICATIONS

Design and Methods

Case Study Research and Applications

Sixth Edition

Sara Miller McCune founded SAGE Publishing in 1965 to support the dissemination of usable knowledge and educate a global community. SAGE publishes more than 1000 journals and over 800 new books each year, spanning a wide range of subject areas. Our growing selection of library products includes archives, data, case studies and video. SAGE remains majority owned by our founder and after her lifetime will become owned by a charitable trust that secures the company's continued independence.

Los Angeles | London | New Delhi | Singapore | Washington DC | Melbourne

Case Study Research and Applications:

Design and Methods

Sixth Edition

Robert K. Yin
COSMOS Corporation

FOR INFORMATION:

SAGE Publications, Inc.

2455 Teller Road

Thousand Oaks, California 91320

E-mail: order@sagepub.com

SAGE Publications Ltd.

1 Oliver's Yard

55 City Road

London EC1Y 1SP

United Kingdom

SAGE Publications India Pvt. Ltd.

B 1/I 1 Mohan Cooperative Industrial Area

Mathura Road, New Delhi 110 044

India

SAGE Publications Asia-Pacific Pte. Ltd.

3 Church Street

#10-04 Samsung Hub

Singapore 049483

Printed in the United States of America

Library of Congress Cataloging-in-Publication Data

Names: Yin, Robert K., author.

Title: Case study research and applications : design and methods / Robert K. Yin.

Other titles: Case study research

Description: Sixth edition. | Los Angeles : SAGE, [2018] | Earlier editions called: Case study research : design and methods. | Includes bibliographical references and index.

Identifiers: LCCN 2017040835 | ISBN 9781506336169 (pbk. : alk. paper)

Subjects: LCSH: Case method. | Social sciences— Research—Methodology.

Classification: LCC H62 .Y56 2018 | DDC 300.72/2—dc23 LC record available at https://lccn.loc.gov/2017040835

This book is printed on acid-free paper.

17 18 19 20 21 10 9 8 7 6 5 4 3 2 1

Acquisitions Editor: Leah Fargotstein

Editorial Assistant: Eliza Wells

Content Development Editor: Chelsea Neve

Production Editor: Kelly DeRosa

Copy Editor: Gillian Dickens

Typesetter: C&M Digitals (P) Ltd.

Proofreader: Scott Oney

Indexer: Sheila Bodell and Rick Hurd

Cover Designer: Anupama Krishnan

Marketing Manager: Shari Countryman

Brief Contents

Detailed Contents

Foreword

It is a privilege to provide the foreword for this fine book. It epitomizes a research method for attempting valid inferences from events outside the laboratory while at the same time retaining the goals of knowledge shared with laboratory science.

More and more I have come to the conclusion that the core of the scientific method is not experimentation per se but rather the strategy connoted by the phrase "plausible rival hypotheses." This strategy may start its puzzle solving with evidence, or it may start with hypothesis. Rather than presenting this hypothesis or evidence in the context-independent manner of positivistic confirmation (or even of postpositivistic corroboration), it is presented instead in extended networks of implications that (although never complete) are nonetheless crucial to its scientific evaluation.

This strategy includes making explicit other implications of the hypotheses for other available data and reporting how these fit. It also includes seeking out rival explanations of the focal evidence and examining their plausibility. The plausibility of these rivals is usually reduced by ramification extinction, that is, by looking at their other implications on other data sets and seeing how well these fit. How far these two potentially endless tasks are carried depends on the scientific community of the time and what implications and plausible rival hypotheses have been made explicit. It is on such bases that successful scientific communities achieve effective consensus and cumulative achievements, without ever reaching foundational proof. Yet, these characteristics of the successful sciences were grossly neglected by the logical positivists and are underpracticed by the social sciences, quantitative or qualitative.

Such checking by other implications and the ramification-extinction of rival hypotheses also characterizes validity-seeking research in the humanities, including the hermeneutics of Schleiermacher, Dilthey, Hirst, Habermas, and current scholarship on the interpretation of ancient texts. Similarly, the strategy is as available for a historian's conjectures about a specific event as for a scientist's assertion of a causal law. It is tragic that major movements in the social sciences are using the term *hermeneutics* to connote giving up on the goal of validity and abandoning disputation as to who has got it right. Thus, in addition to the quantitative and quasi-experimental case study approach that Yin teaches, our social science methodological armamentarium also needs a humanistic validity-seeking case study methodology that, although making no use of quantification or tests of significance, would still work on the same questions and share the same goals of knowledge.

As versions of this plausible rival hypotheses strategy, there are two paradigms of the experimental method that social scientists may emulate. By training, we are apt to think first of the randomized-assignment-to-treatments model coming to us from agricultural experimentation stations, psychological laboratories, randomized trials of medical and pharmaceutical research, and the statistician's mathematical models. Randomization purports to control an infinite number of rival hypotheses *without specifying what any of them are.* Randomized assignment never completely controls these rivals but renders them implausible to a degree estimated by the statistical model.

The other and older paradigm comes from physical science laboratories and is epitomized by experimental isolation and laboratory control. Here are the insulated and lead-shielded walls; the controls for pressure, temperature, and moisture; the achievement of vacuums; and so on. This older tradition controls for a relatively few but explicitly specified rival hypotheses. These are never controlled perfectly, but well enough to render them implausible. Which rival hypotheses are controlled for is a function of the disputations current in the scientific community at the time. Later, in retrospect, it may be seen that other controls were needed.

The case study approach as presented here, and quasi-experimentation more generally, is more similar to the experimental isolation paradigm than to the randomized-assignment-to-treatments model in that each rival hypothesis must be specified and specifically controlled for. The degree of certainty or consensus that the scientific community is able to achieve will usually be less in out-of-doors social science, due to the lesser degree of plausibility-reduction of rival hypotheses that is likely to be achieved. The inability to replicate at will (and with variations designed to rule out specific rivals) is part of the problem. We should use those singular-event case studies (which can never be replicated) to their fullest, but we should also be alert for opportunities to do intentionally replicated case studies.

Given Robert Yin's background (PhD in experimental psychology, with a dozen publications in that field), his insistence that the case study method be done in conformity with science's goals and methods is perhaps not surprising. But such training and career choice are usually accompanied by an intolerance of the ambiguities of nonlaboratory settings. I like to believe that this shift was facilitated by his laboratory research on that most hard-to-specify stimulus, the human face, and that this experience provided awareness of the crucial role of pattern and context in achieving knowledge.

This valuable background has not kept him from thoroughly immersing himself in the classic social science case studies and becoming in the process a leader of nonlaboratory social science methodology. I know of no comparable text. It meets a long-standing need. I am confident that it will become a standard text in social science research methods courses.

—Donald T. Campbell

Bethlehem, Pennsylvania

Preface

Spotlighting "Case Study Research"

At the time of the first edition of this book (1984), although popular versions of case studies were plentiful, case study *research* was an obscure mode of inquiry, not well understood. Over the years, both awareness and practice have changed. You and many others have increasingly recognized the value of case study *research,* and it now has gained a spotlight within social science.

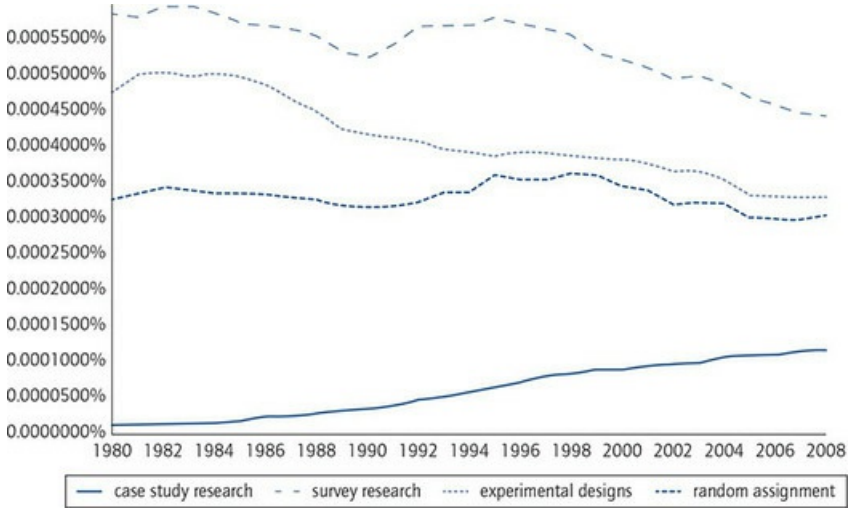
The spotlight comes from the sheer use of the term "case study research" (not just "case studies") in published books. The previous (fifth) edition of this book called attention to a rising trend in such use. Google's *Ngram Viewer* had provided data on the frequency of the term's appearance in publications from 1980 to 2008,1 compared with the appearance of three alternatives: "survey research," "experimental designs," and "random assignment."2 Figure Pref.1, reproduced from the fifth edition, compares the four terms.

In the figure, the frequency for "case study research" follows an upward trend, in contrast to the other three terms. Even though the absolute level of the trend is still lower than those of the other terms, the others are trending in the opposite direction. The contrasting trends may surprise you (as it did me), because of the decade-long hullabaloo at that time over random assignment designs as the preferred "gold standard" for doing any social science research.3 Notably, the hullabaloo had been accompanied by explicit attempts to downgrade other types of social science research—by giving little or no priority for using federal funds to support studies using any of these other methods. Private foundations, as well as other social science funding sources, followed suit, making support difficult for research not using random assignment designs.

To my knowledge, the 1980–2008 data as well as Google's *Ngram Viewer* had not been updated by this sixth edition's publication time. Thus, trends may have changed since 2008 and may have shifted in some unknown way. However, another Google source provided a different type of more recent data that seems to support a continuing spotlight on case study research.

The data represent citation frequencies from Google *Scholar* (see http://blogs.lse.ac.uk/impactofsocialsciences/2016/05/12/what-are-the-most-cited-publications-in-the-social-sciences-according-to-google-scholar/). These data show that the present book, through all its editions since 1984, placed second (!) on a list of the "10 most cited methodology books in the social sciences" (see Figure Pref.2, which originally appeared as Table 3 in the cited blog).

Figure Pref.1 Frequency of Four Methodological Terms Appearing in Published Books, 1980–2008



Source: Google's Ngram Viewer (http://books.google.com/ngrams), accessed March 2012.

The tenfold list includes *all* social science methods books—qualitative *and quantitative* (Green, 2016). To place second, this book had well over 100,000 citations, which were 20,000 more than that of the third-place book.4 (Note that all the books on the list are more than 25 years old; had the analysis normalized the totals by the number of years of a book's availability, more recent books might have had a fairer chance to be included.) So, whether mentioning "case study research" is still on an upward trend or not (the original trend from Google *Ngram*), a lot of people have been citing "case study research" when they cite this book and its title (the more recent data from Google *Scholar*). Along similar lines, 15 different academic disciplines and practicing professions now have at least one specialized work focusing on doing case study research in their particular discipline or profession (see Figure 1.1, Chapter 1).

Figure Pref.2 Ten Most Cited Methodology Books in the Social Sciences

Book	Author(s)	Date	Citations
Applied Multiple Regression/ Correlation Analysis for the Behavioral Sciences	J. Cohen, P. Cohen, S. West, and L. Aiken	1975	131,033
Case Study Research: Designs and Methods	Robert Yin	1984	107,931
Psychometric Theory	Jim Nunnally	1967	80,196
The Discovery of Grounded Theory: Strategies for Qualitative Research	Barney Glaser and Anselm Strauss	1967	78,385
Multivariate Data Analysis	J. F. Hair, R. E. Anderson and R. L. Tatham	1979	70,700
Qualitative Data Analysis	Matthew Miles and A. Michael Huberman	1984	59,829
Using Multivariate Statistics	Barbara Tabachnick and Linda Fidell	1989	57,324
Econometric Analysis	William Greene	1990	54,524
An Introduction to Probability Theory and Its Applications	William Feller	1950	51,825
Naturalistic Inquiry	Yvonna Lincoln and Egon Guba	1985	51,169

Source: Data from Google Scholar, compiled by Green (2016).

The Sixth Edition: Case Study Research *and Applications*

Special to this sixth edition.

The spotlight on "case study research" suggested the desirability of a special effort in creating the sixth edition of this book—if nothing else, something to increase its breadth and usefulness to you. Thus, if you have followed the book's previous editions, you will immediately note that, by comparison, the sixth edition has an augmented title: "Case Study Research *and Applications.*" Now included in the sixth edition are 11 substantial case study applications. Although versions of these applications had appeared in earlier works (Yin, 2004, 2005, 2012a), the goal has been to put these materials into your hands in a single publication, along with a revised and much updated version of the material in the fifth edition.

The inclusion of the applications responds to requests and suggestions by readers and reviewers of earlier editions. In addition to the methodological ideas in the earlier editions, the readers always had wanted to "see how it's done." Even though every earlier edition (including this one) had contained numerous BOXES, representing concrete and exemplary examples of case studies or case study materials, the BOXES were only brief summaries. They were aimed at highlighting a specific issue in the text, but they did not reveal the breadth or depth of the original work. At the same time, the three earlier works (Yin, 2004, 2005, 2012a) did in fact consist of lengthy excerpts of actual case study applications, but readers may not have been able to connect the dots between these excerpts and the principles in the present text. So, directly including a bunch of the applications, along with the updated and revised version of the main text of this sixth edition, seemed like a useful step.

The inclusion of the 11 applications, however, comes with some trepidation. The first concerns the length of the new text. Despite having to add the new applications, the goal was to keep the full text within reasonable bounds of length *and cost*. To contribute to an offset, dropped from their appearance in the fifth edition have been Appendix C (which indexed the case studies in the BOXES) and the seven Tutorials. These supplementary materials, along with other potentially valuable slides, reprints, and briefs, all now appear on the study.sagepub.com/yin6e website that accompanies this book. The website, created for the first time in conjunction with this sixth edition, becomes your resource for gaining a more informed and personalized way of taking advantage of what case study research has to offer you.

Nevertheless, the text for the sixth edition has inevitably become longer than the previous editions. How much longer is difficult to tell, especially as of the time of this writing (prior to seeing the final page proofs and comparing their length with that of the fifth edition). My sincere hope is that the benefit from the inclusion of the applications will far outweigh the sixth edition's greater length and potential inconvenience *and cost*.

The second trepidation deals with the presentation of the applications. Some of them already were lengthy in their original form. Given the first trepidation, I had to pare down and edit these originals, in some instances to a rather aggressive degree. My sincere hope is that the original authors will not be offended by the shortening and editing of their works, as noted in the footnotes to each application. At the same time—and

especially to readers genuinely interested in the applications—by following their full citations, you do have the viable alternative of retrieving any of these works in their original form.

A third trepidation was logistical: Where to locate the applications within the sixth edition was not an easy decision. My original preference was to locate all the applications at the end of the text of the entire sixth edition. However, Sage's editors pointed out that materials located at the back of a book are frequently ignored. In contrast, one editor thought that the applications should be located within the chapters themselves, at the point where the applications were called out. I felt that such a location would totally disrupt the reading of the basic text (you would be reading the text, be interrupted by the insertion of a multiple-page application, and might then have difficulty keeping your train of thought until you found where the text picked up again). A logical compromise was to locate the applications at the end of each relevant chapter. I hope this location, along with the bleeding of the pages to help you find where the next chapter starts, will lessen the disruptiveness of the applications but still make them readily accessible to you.

Other enhancements to this sixth edition.

Aside from the applications, much of the layout and formatting of this sixth edition will appear similar to those of the fifth edition. However, this edition gives more attention to certain topics, such as:

- More frequent reference to the opportunities for maintaining a *relativist* or *constructivist* orientation in doing your case study;
- A totally rewritten Preface, introducing an insightful "trilogy;"
- Similarly, more frequent attention to the possibilities of having your case study be part of a mixed-methods study, as such combinations appear to be increasing in frequency;
- Increased emphasis on the importance of considering rival explanations; and
- A stronger discussion of analytic generalization (Chap. 2) and of cross-case syntheses (Chap. 5).

Along with these and other enhancements, this edition also has

- An expanded list of 15 academic disciplines and practicing professions that have a work or text or devoted entirely to doing case study research in that particular field (the fifth edition only had 12 such fields)
- Scores of new citations, scores of updated citations, a sharpened glossary, and, hopefully, a sharpened terminology, especially following the discussion of the trilogy that comes next

A Trilogy: Case Study Research, Case Studies, and the Case(s)

Notwithstanding the enhancements and modifications to this sixth edition, the book's central topic still rests on what I have only belatedly come to recognize as a foundational trilogy:

- Case study *research* (the *mode* of inquiry),
- Case studies (the *method* of inquiry, or *research method* used in doing case study research), and
- Case(s) (the usual *unit* of inquiry in a case study).

I don't think this trilogy suggests anything unusual, so you don't need to conjure any deep thoughts. For instance, other trilogies in social science research might include experimental research (mode), experiments (method), and subjects (units); or survey research (mode), surveys (method), and respondents (units); or historical research (mode), histories (method), and human events (units)—or, and possibly more speculatively, statistical research (mode), statistical modeling (method), and variables (units).

Regardless of the potential parallels among all these modes and methods, for case study research, the trilogy highlights two pairs of internal relationships—between "case study research" and "case study," and between "case study" and "case(s)." An intriguing by-product is that clarifying the trilogy and these pairings might help us to understand why "case studies" may still have a mixed reputation as a research method.

To examine the pairs, let's start with "case studies," which always has occupied the central position in the trilogy. Most of you entered this domain because you wanted to be an adept consumer of high-quality case studies, if not a respected producer of them. As one result, this book has increasingly attended to one of the pairings—between "case studies" and "case(s)." For instance, the past couple of editions have raised greater awareness over the important role of the "case(s)" in doing a case study, with (hopefully) better and fuller descriptions of the procedures for defining and bounding the "case(s)."

At the same time, the other pairing—between "case study research" and "case study"—has tended to be taken for granted. "Case study research" has been the main title of this book since its inception. As a direct offshoot, the body of the book has covered "case study" as a research method. These designations do not appear especially surprising or unusual.

A more recent realization, however, has been that case studies also exist *outside* the domain of case study *research*. People who do such case studies don't necessarily think of themselves as practicing a formal research method. In fact, a far more common use of "case studies" takes place as an everyday form of exposition, appearing in newsprint, magazines, blogs, videos, and nearly every type of popular media. "Let's write a case study" or "We need to find a case" serve as common motives for engaging in such work, and just about anyone —you included—may participate. The result has been an ongoing stream of *popular case studies* that have been highly informative and useful. However, the case studies do not necessarily follow any explicit research procedures. Instead, you might think of them as *nonresearch* case studies.

In a similar manner, case studies frequently appear as supplementary materials in professional training and

practicums. These have been commonly called "teaching cases." The early ones served such professions as business, law, and, later, medicine. Currently, these kinds of case studies seem to be appearing with increasing frequency and in greater variety. They are now associated with professional development courses on such topics as career counseling, psychotherapy, nursing ethics, service innovation, finance, and marketing. Thus, the classic "teaching cases" may be considered part of a broader genre that might be recognized as *teaching-practice case studies*. The purpose of these kinds of case studies has been to present information about practical situations (for training or practice) but, again, not necessarily to follow any explicit research procedures.

Taken together, the *popular case studies, as well as the teaching-practice case studies,* probably typify the kind of case studies most commonly encountered by everyone (including scholars and specialists from non–social science fields). As a result, these two types of case studies, rather than *research case studies*, likely drive everyday impressions of what constitutes a case study. People may then inadvertently be led to believe that "case studies" are a form of literary exposition or supplemental practice material and not an explicit endeavor within social science research.

In other words, the visibility and prevalence of the two types of *nonresearch* case studies may be one reason for the sometimes disparaging reputation of *research* case studies. So—if you want to do case study *research*—be aware that you need to promote openly a higher set of expectations. Research inquiries are methodic, demand an acceptable level of discipline, and should exhibit transparency about their procedures. Especially to be avoided is the notion that the main skill needed to do case study research is to be a good writer (although being an enthusiastic writer does not hurt). More important, and as stated in earlier prefaces, this book's enduring objective is to guide you and others to do case studies as a formal research method.5

Having distinguished among the potentially different kinds of case studies, the entirety of this book is about case studies as a *research* method. Little is said about the popular case studies or about the teaching-practice case studies. To help keep your bearings straight, the text occasionally refers to the term "*research* case studies" to set them apart from the other two types. In summary, the topic of this book is "case study research," and your way of knowing about this topic is to understand "case studies" as a research method, with the case studies of interest usually focusing on a "case" as the main unit of inquiry.

Some Unfinished Business

As with other modes of inquiry and research methods, case study research still has unfinished business that goes beyond this sixth edition. Three topics especially deserve your attention: (1) the role of plausible rival explanations, (2) case-based compared with variable-based approaches to designing and conducting case study research, and (3) the relationship between case study research and qualitative research.

Plausible rival explanations.

The presence of rival explanations in designing and doing case study research remains critical. This sixth edition, like the previous ones, has given increasing attention to the need to address such rivals as a core part of interpreting case study findings. The challenge is to identify and address the most *plausible* rivals and not necessarily to deal with all rivals. At the same time, a broader spirit of rival thinking should pervade all your case study work, not just as the main quality control in interpreting your findings. For instance, you can express and discuss the implications of starting with a different set of research questions; similarly, you could give your reasons for choosing a particular data collection procedure instead of using some alternative or rival procedure.

The unfinished business has to do with the lack of formal procedures for rigorously testing rivals, for example,

- Whether in fact you have identified the most plausible ones or are only dealing with what later may turn out to be "red herrings" (and therefore not very compelling rivals),
- Whether you have sought the needed evidence as aggressively as possible or have unknowingly skewed your efforts in the direction of disfavoring the rival(s), and
- Whether a rival has definitively been ruled out successfully.

Currently, researchers still exercise complete discretion over these matters. Formal guidance as well as benchmarks (e.g., for successfully ruling out a rival) have yet to be developed and hence remain unfinished future business. A minimum initial step might be for *all* future case studies to address whether and how they examined rival explanations in some systematic and explicit manner—that is, similar to how methodologies now discuss "how a case was selected" or other choices in their methodological procedures. Chapter 6 of this book takes a stab at this initial step, offering a 4-point scale, to be used in your methodological discussion, simply indicating the degree of presence of any rival considerations in your case study. However, more work in this direction needs to be done in the future.

Case-based compared with variable-based approaches.

Dwelling on the holistic feature of the case(s) being studied represents a core feature of case study research. The goal is to understand "the case"—what it is, how it works, and how it interacts with its real-world contextual environment. Many people still think that a case can be characterized by a set of variables—that is, the micro elements, such as a case's demographic profile, and many people still use a collection of variables to define a case. However, the relevant holism seems to go beyond a mere collection of micro elements.

Nevertheless, variables are still important in case study research. How to keep the holistic essence of case study research while still appreciating the collection of variables represents a second type of unfinished business. Sufficient clarification still awaits. For instance, Charles Ragin's (1987/2014) qualitative comparative analysis (QCA) is a case-based approach that involves defining *patterns* of variables *within* each case—and that then creates case typologies—before making cross-case comparisons. However, QCA is still at a frontier, and other approaches have yet to establish how to maintain a sufficiently holistic orientation in defining a suitable *pattern* of variables or an insightful *typology* at a holistic level.

As noted in Tutorial 1, which is posted on the companion website at study.sagepub.com/yin6e, the reference to variables does not mean that case study research is variable based. On the contrary, the multiplicity of variables (compared with the small number of cases in most case studies) raises doubts about the usefulness of conventional, variable-based methods in analyzing case study data. Still waiting to be developed—and therefore the unfinished business—are methodic and holistic, case-based methods for doing such analyses. Without such methods, Chapter 5 of this book later alerts readers to the potential difficulties created when researchers try to do cross-case syntheses but remain captives of variable-based thinking.

Relationship between qualitative research and case study research.

The sixth edition gingerly touches upon a third unfinished topic: the relationship between case study research and qualitative research. Chapter 1 briefly contrasts the realist and relativist perspectives, and in the literature, you may encounter occasional reference to the possibility of doing a "qualitative case study." In fact, an earlier tradition, reflected by the treatment of case studies in the first edition of the *Handbook of Qualitative Research* (Denzin & Lincoln, 1994), as well as the inclusion of "case study" as one of the five major types of qualitative research in a well-received textbook on qualitative research (Creswell & Poth, 2017), implicitly tends to assume that doing a case study might be considered one of the acceptable variants in doing qualitative research.

An opposing perspective, however, suggests that case study research may be separate from qualitative research. Case studies may need to follow their own customized research procedures—as in identifying and defining the case to be studied, along with numerous other procedures as discussed in the chapters of this book. In a complementary manner, even a comprehensive presentation of qualitative research (e.g., Yin, 2016) may not need to include much discussion about case study research—just as a presentation of qualitative research does not need to include much discussion about survey, experimental, historical, or archival research.

The entire issue of whether case study research is automatically to be subsumed under qualitative research or whether and in what way it might be a separate method deserves much further explication. In psychology, case study research seems to appear entirely apart from qualitative research, as briefly discussed in Appendix A at the end of this book. However, in other disciplines and professions, the issue may assume contrasting forms. Likewise, the issue may have received varying treatments over major methodological eras, including the evolution of both case study research and qualitative research since the mid-1950s. To be authoritative, the desired explication will therefore need to embrace a broad literature, having both cross-disciplinary and historical perspectives. For these reasons, the complexity of the issue seems to represent another piece of

unfinished business.

A New and Companion Website

Despite the unfinished business, the sixth edition still represents a comprehensive introduction to case study research. If you want to learn about or do case study research, you will not find any comparable breadth or depth elsewhere. Nevertheless, the continuing advances in case study research methods create an ongoing challenge: how to balance the book's orientation between newcomers to case study research, compared with those already more experienced and accomplished in knowing about case study research.

As currently constituted, the sixth edition veers more toward the former audience. The book hopes to entice, expose, and even enthrall students and scholars who may not have previously done or been exposed to case study research.

To cater to the latter audience, Sage Publications has made a companion website, study.sagepub.com/yin6e, available to post supplementary materials. The website therefore contains the materials that might be more helpful and informative for scholars already advanced in their knowledge of case study research. Hopefully, such an arrangement will permit readers to make their own forays into case study research, and on their own terms. For instance, the fifth edition had contained several *tutorials* that explored some key issues, with authoritative references, in greater depth. This material, along with a lot of other reprints and writings that preceded even the first edition of this book, is now found on the website. The hope is that the website can help anyone who might want to know more but not to interfere with those of you just setting out on your initial journey with case study research.

One place where the sixth edition remains steadfastly consistent with all the earlier editions deserves repeated mention: Donald Campbell's insightful foreword. His succinct words, written more than 30 years ago, still stand as a masterpiece about social science methods. Within the context of today's research dialogues, Campbell's work continues, remarkably, to speak with freshness and direct relevance. His foreword also positions well the role of case study research as portrayed in this book. I continue to be deeply honored by the inclusion of this foreword and have attempted to return but a modest contribution, now to his memory, in a subsequent publication (Yin, 2000b).

The successful practicing of this edition's techniques and guidance means that case study research will be better than in the past. The ultimate goal, as always, is to improve our social science methods and practices over those of previous cohorts of scholars. Only in this manner can every cohort make its own mark, much less establish its own competitive niche.

As a final note, I conclude this preface by repeating a portion from the preface to the fourth edition. In it, I suggested that anyone's ideas about case study research—and about modes of social science inquiry more generally—must have deeper roots. Mine go back to the two disciplines in which I was trained: history as an undergraduate and brain and cognitive sciences as a graduate. History and historiography first raised my consciousness regarding the importance (and challenge) of methodology in the social sciences. The unique brand of basic research in brain and cognitive science that I learned at MIT then taught me that empirical

research advances only when accompanied by theory and logical inquiry, and not when only treated as a mechanistic data collection endeavor. This lesson turns out to be a basic theme in doing case study research. I have therefore dedicated this book to the person at MIT, Prof. Hans-Lukas Teuber, who taught me this best and under whom I completed a dissertation on face recognition, though he might only barely recognize the resemblances between past and present were he alive today.

Notes

1. The counts are based on the appearance of a given word or term in published books. Unfortunately, *Ngram Viewer* does not indicate the number of books covered during any particular period of time, so the website does not provide the number of books accessed from 1980 to 2008. Overall, *Ngram Viewer* claims that it has amassed about 4% of all books ever published (Michel et al., 2010).

2. I chose not to select a fifth term, "qualitative research," because its usage overlaps in some unknown way with "case study research." The inclusion would have clouded my main intended comparison, which was between "case study research" and the other three types of inquiries.

3. Avid supporters of the gold standard have nevertheless published a research article using "case study" in its title (Cook & Foray, 2007). Readers should not take this as an example of how to do case study research, however. The article mainly contains the authors' rendition of a set of events at the outset of the decade in question (a set that apparently could not be told with quantitative methods) but does not present much actual evidence to support that rendition. (The rendition may be insightful, but whether it should be accepted as an example of case study research or as a "popular" case study remains an open question.)

4. The Internet source of this tally does not indicate the time period that it covered, but Google *Scholar* started in 2004 and the source for the tally appeared in 2016, so an estimate of 2004 to 2015 as the years that were covered would be one guess.

5. An interesting side note would point to developments in one of the other social science methods—surveys. In contemporary political polls, note that the "margin of error" is now reported in the popular media every time a polling result is cited. Such reporting did not usually occur in the past. One offshoot of the reference to the margin of error is that it readily reminds (and educates) the audience that these data were based on surveys that respectfully followed relevant research procedures. What might be helpful in the (distant) future is for the popular case studies to contain an analogous reminder, if the case study indeed used any research procedures, such as triangulating data from two or more sources of evidence.

Acknowledgments

The publication of this sixth edition marks the 34th year since the book's original publication. During this time, many people have influenced my thinking—by asking questions, making suggestions, or just maintaining a healthy skepticism toward case study research. I am extremely grateful for all this interest and support. Unfortunately, the cumulative list of pertinent colleagues has become a bit lengthy. Especially because the five earlier editions have acknowledged many of them, I would therefore like to attend to a more recent set of colleagues, who knowingly or unknowingly had some influence on the words and concepts that appear in this sixth edition.

A prolonged set of interactions with the staff at The World Bank included working with two different groups. The first group focused on the development of a series of "service delivery case studies." Christos Kostopoulos and his staff challenged us all to think about the boundaries of the cases as well as some intriguing design and data collection procedures. I am grateful for having been part of his team, which also consisted of Vera A. Wilhelm, Sameh El-Saharty, Erica Wu, and Jeanette Murry, as well as Oliver Haas, who served as a bridge to a later phase of the work. The second group focused on various "country case studies" that were conducted in association with several different evaluation projects. The World Bank's evaluation staff with whom I interacted included Caroline Heider (the head of the evaluation group), Mark Sundberg, Susan Ann Cáceres, Erik A. Bloom, Pia Helene Schneider, Xubei Luo, Ann Elizabeth Flanagan, Guiseppe Iarossi, Anthony Martin Tyrrell, and Viktoriya Yevsyeyeva. Across four separate projects, Susan Ann Cáceres posed especially challenging issues that tested my own thoughts. I would like to thank all these persons at The World Bank for their having raised many questions about doing case studies—especially in contrast to their conventional economic methods.

In a different field, faculty and students in the Division of Special Education and disAbility Research at George Mason University have been collecting in-depth information about individual students as separate cases. Led by Prof. Sheri Berkeley and PhD students Anna Menditto and Amanda Luh, the team has confronted the question of how to analyze the data from the students, when only a small number have been studied. I have benefited enormously from joining in this venture and thank the team for sharing it with me. Also in a university setting, students enrolled in the School of Education's methodology course at Southern New Hampshire University, led by Prof. Nancy Charron and Mary Kim Lindley-Soucy, have broadened my view of case study research by posing questions over Skype Q&A sessions. Different groups of students have participated in these sessions, which have been held annually for several years. Serendipitously, the students' questions often produce nuggets of wisdom, and I thank the students for these nuggets and Nancy and Kim for initiating the entire arrangement.

In yet another field, a research team led by Katherine Patterson Kelly (PhD, RN, Nurse Scientist) at the Department of Nursing Research and Quality Outcomes, Children's National Health System, has been studying therapy groups in a series of case studies. Collecting and analyzing data from each group as a whole (as well as from the group's members individually) has led Kelly and her team into an innovative realm. I again

have been fortunate to participate in this work and thank Kelly and Pamela S. Hinds (PhD, RN, FAAN, and Professor of Pediatrics, The George Washington University), the director of the department, for sharing this research experience.

As part of the preparation of this sixth edition, Sage Publications invited reviewers to reflect upon their experiences in using the fifth edition. I thank them for their extensive and helpful comments, and I hope that they will see the adoption of at least some of their suggestions:

Michael A. Guerra, Lincoln University
Landon E. Hancock, Kent State University
Ellen S. Hoffman, University of Hawai'i at Mānoa
Barbara J. Holtzclaw, The University of Oklahoma Health Sciences Center, Fran and Earl Ziegler College of Nursing
Claretha Hughes, University of Arkansas
Kriss Y. Kemp-Graham, Texas A&M University–Commerce
Joseph McNabb, Professor of the Practice
Eva Mika, Northcentral University
David M. Sprick, Park University
Bruce E. Winston, Regent University, School of Business & Leadership
Asta Zelenkauskaite, Drexel University

Finally, the editors at Sage played an important role in reshaping this sixth edition so that it would include the applications. Vicki Knight started the process before retiring from Sage, and Leah Fargotstein carried the project forward thereafter. To them I owe a debt of gratitude as well as to several others at Sage who contributed to the production and sharpening process—Kelly DeRosa, Gillian Dickens, and Yvonne McDuffee. Nonetheless, as with the earlier versions of this book, I alone bear the responsibility for this sixth edition.

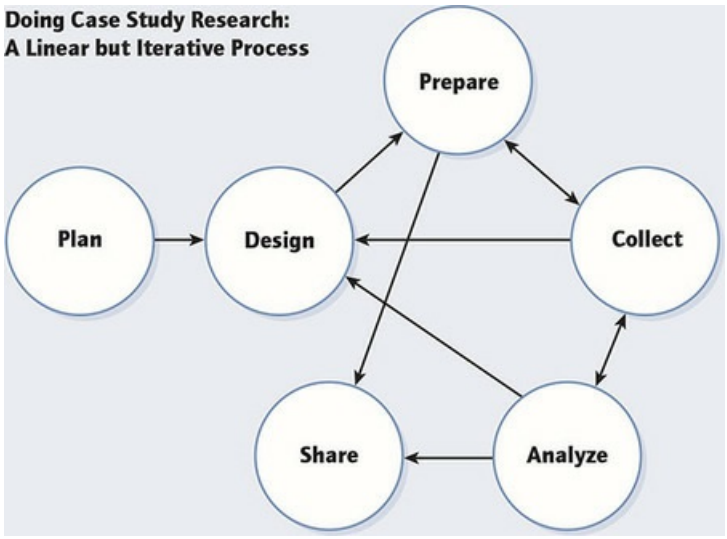
About the Author

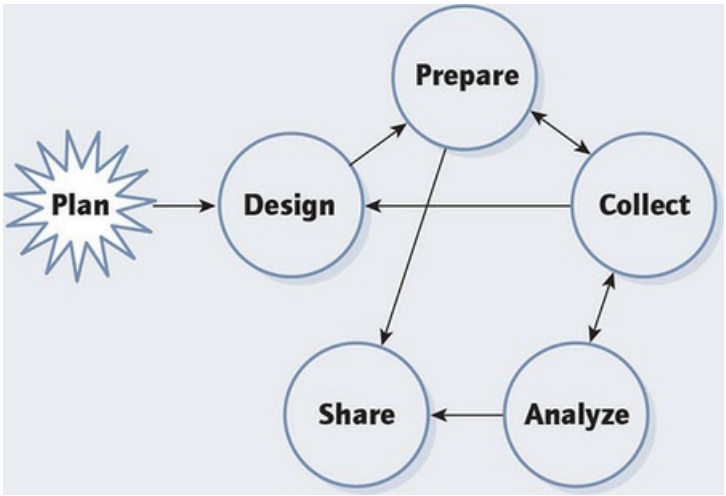
Robert K. Yin

is President of COSMOS Corporation, an applied research and social science firm. Over the years, COSMOS has successfully completed hundreds of projects for federal agencies, state and local agencies, and private foundations.

Outside of COSMOS, Dr. Yin has assisted numerous other research groups, helping to train their field teams or to design research studies. The most recent such engagements have been with The World Bank, the Division of Special Education and disAbility Research at George Mason University, the Department of Nursing Research and Quality Outcomes at the Children's National Health System (Washington, D.C.), and the School of Education, Southern New Hampshire University.

Dr. Yin has authored more than 100 publications, including authoring or editing 11 books (not counting the multiple editions of any given book). Earlier editions of the present book have been translated into eight languages (Chinese, Japanese, Korean, Swedish, Romanian, Italian, Polish, and Portuguese), and a second book on *Qualitative Research From Start to Finish* (2016) is in its second edition and has been translated into four languages (Chinese, Korean, Swedish, and Portuguese). Dr. Yin received his BA in history from Harvard College (magna cum laude) and his PhD in brain and cognitive sciences from MIT.




Prepare
Plan
Design
Collect
Share
Analyze

Chapter 1: Plan

- Identify the relevant situation for doing a case study, compared with other research methods
- Understand the twofold definition of a case study inquiry
- Address the traditional concerns over case study research
- Decide whether to do a case study

Abstract

You want to study something relevant but also exciting—and you want to use an acceptable if not esteemed social science method. Doing a "case study" strikes your fancy, but how you might do a good one remains a challenge, compared with doing an experiment, survey, history, or archival analysis (as in economic or statistical modeling). You are intrigued and want to learn more about doing a case study.

This chapter suggests that you might favor choosing case study research, compared with the others, when (1) your main research questions are "how" or "why" questions, (2) you have little or no control over behavioral events, and (3) your focus of study is a contemporary (as opposed to entirely historical) phenomenon—a "case." The chapter then offers a common definition to be applied to the ensuing case study. Among the variations in case studies, yours can include single or multiple cases, can even be limited to quantitative evidence if desired, and can be part of a mixed-methods study.

Properly doing a case study means addressing five traditional concerns—conducting the research rigorously, avoiding confusion with *non*research case studies (i.e., popular case studies, teaching-practice case studies, and case records), arriving at generalized conclusions if desired, carefully managing your level of effort, and understanding the comparative advantage of case study research. The overall challenge makes case study research "hard," although it has classically been considered a "soft" form of research.

Being Ready For The Challenge, And Setting High Expectations

Doing case study research remains one of the most challenging of all social science endeavors. This book will help you—whether an experienced or emerging social scientist—to deal with the challenge. Your goal is to design good case studies and to collect, present, and analyze data fairly. A further goal is to bring your case study to closure by composing a compelling article, report, book, or oral presentation.

Do not underestimate the extent of the challenge. Although you may be ready to design and do case study research, others may espouse and advocate other modes of social science inquiry. Similarly, prevailing federal or other research funds may favor methods other than case studies. As a result, you may need to have ready responses to some inevitable questions and set high expectations for yourself.

Following a clear methodological path.

First and foremost, you should explain how you are devoting yourself to following a clear methodological path. For instance, a conventional starting place would be to review literature and define your case study's research questions. Alternatively, however, you might want to start with some fieldwork first, prior to defining any theoretical concerns or even examining the relevant research literature. In this latter mode, you might be entertaining a contrary perspective: that what might be "relevant," as well as the pertinent research questions, may not be determinable ahead of knowing something about what's going on in the field. Regardless of your starting place, the path should explicitly show how you will adhere to formal and explicit procedures when doing your research.

Tip: How do I know if I should be doing case study research?

There's no formula, but your choice depends in large part on your research question(s). The more that your questions seek to *explain* some contemporary circumstance (e.g., "how" or "why" some social phenomenon works), the more that case study research will be relevant. Case studies also are relevant the more that your questions require an extensive and "in-depth" description of some social phenomenon.

What are some other reasons you might cite for doing or not doing case study research?

Along these lines, this book offers much guidance. It shows how case study research is distinctive but also covers procedures central to all modes of social science research. In shaping your case study, you might like to know whether to design and conduct a single- or a multiple-case study to investigate a research issue. You may only be doing a case study or you may be using it as part of a larger mixed-methods study. Whatever the choices, this book covers the entire range of issues in designing and doing case study research, including how to start and design a case study, collect case study evidence, analyze case study data, and compose a case study report.

Equally important, the book will help you deal with some of the more difficult questions still frequently neglected by available research texts. So often, for instance, the author has been confronted by a student or colleague who has asked (a) how to define the "case" being studied, (b) how to determine the relevant data to be collected, or (c) what to do with the data, once collected. This book addresses these and many other questions. The successful experiences of scholars and students from using this book, for more than 30 years, may attest to the potential payoffs.

Acknowledging strengths and limitations.

Second, you should understand and openly acknowledge the strengths and limitations of case study research. Such research, like any other, complements the strengths and limitations of other types of research.

Just as different types of research inquiries prevail in the physical and life sciences, different inquiries serve different needs when investigating social science topics. Note that the sciences do not follow a single method, such as the experimental method. Astronomy is a science but does not rely on the experimental method; nor do engineering and geology (Scriven, 2015). Similarly, many studies in neurophysiology and neuroanatomy do not rely on statistical methods. A diverse array of methods also marks the social sciences, and the next section of this chapter will contrast these methods to help you understand the methodological choices and differences.

Setting high expectations in your chosen field.

Case study research is commonly found in many social science disciplines as well as the practicing professions (e.g., psychology, sociology, political science, anthropology, social work, business, education, nursing, and community planning). As one result, your high expectations not only should follow a clear methodological path, as just discussed, but also can cater to your own field.

Figure 1.1 lists 15 such fields, along with illustrative texts that focus on the use of case study research in each

specific field. (Not cited are either of two other kinds of works: general methodological texts that discuss various types of research methods, even if including case study research, and general texts on case study research that are not directed at any specific field.) Checking the work(s) in your chosen field may point to some subtle ways of customizing your case study in relation to that field. For instance, Appendix A describes the case study's lengthy but peculiar history in one of the disciplines—psychology.

Whatever your field of interest, the distinctive need for case studies arises out of the desire to understand complex social phenomena. Case studies allow you to focus in-depth on a "case" and to retain a holistic and real-world perspective—such as in studying individual life cycles, small group behavior, organizational and managerial processes, neighborhood change, school performance, international relations, and the maturation of industries.

Comparing Case Studies With Other Social Science Research Methods

When and why would you want to use a case study to examine some social science topic? Should you consider doing an experiment instead? A survey? A history? An analysis of archival records, such as the statistical modeling of epidemiological trends or of student performance in schools?

These and other choices represent different research methods. Each is a different way of collecting and analyzing empirical evidence. Each follows its own logic and procedures. And each method has its own advantages and disadvantages. To get the most out of doing case study research, you may need to appreciate these distinctions.

Figure 1.1 Sampler of Works Devoted to Case Study Research in Specific Fields

Field	Illustrative Work(s)
ACADEMIC DISCIPLINES:	
Anthropology and Ethnography	Burawoy, 1991
Political Science	George & Bennett, 2005; Gerring, 2004
Psycholinguistics	Duff, 2008
Psychology	Bromley, 1986; Campbell, 1975; McLeod, 2010
Sociology	Feagin, Orum, & Sjoberg, 1991; Hamel, 1992; Mitchell, 1983; Platt, 1992
PRACTICING PROFESSIONS:	
Accounting	Bruns, 1989
Business and International Business	Dul & Hak, 2008; Farquhar, 2012; Gibbert, Ruigrok, & Wicki, 2008; Johnston, Leach, & Liu, 2000; Meyer, 2001; Piekkari, Welch, & Paavilainen, 2009; Vissak, 2010
Education	Hamilton & Corbett-Whittier, 2013; Yin, 2006a
Evaluation	U.S. Government Accountability Office, 1990
Health Care	Carolan, Forbat, & Smith, 2015; Walshe, 2011
Marketing	Beverland & Lindgreen, 2010
Nursing	Baxter & Jack, 2008; De Chesnay, 2017
Public Administration	Agranoff & Radin, 1991
Social Work	Gilgun, 1994; Lee, Mishna, & Brennenstuhl, 2010
Software Engineering	Runeson, Höst, Rainer, & Regnell, 2012

Relationships Among the Methods: Not Hierarchical

A common misconception is that the various research methods should be arrayed hierarchically. Many social scientists still implicitly believe that case studies are only appropriate for the exploratory phase of an investigation, that surveys and histories are appropriate for the descriptive phase, and that experiments are the only way of pursuing explanatory or causal inquiries. The hierarchical view reinforces the idea that case study research is only a preliminary mode of inquiry and cannot be used to describe phenomena or test propositions.

However, you need not automatically accept this hierarchical view. You would point to the fact that experiments with an exploratory motive have certainly always existed. In addition, the development of causal explanations has long been a serious concern of historians, especially reflected by the subfield known as historiography.

Likewise, you also would point out that case studies are far from being only an exploratory method. Some of the best and most famous case studies have been explanatory case studies (e.g., see BOX 1 for a vignette on Allison and Zelikow's *Essence of Decision: Explaining the Cuban Missile Crisis,* 1999; additional examples of explanatory case studies are found in **Applications 8 and 9** in Chapter 5 of this book). Similarly, famous descriptive case studies are found in major disciplines such as sociology and political science (e.g., see BOX 2 for two vignettes; additional examples of descriptive case studies are found in many of the other BOXES in this book). Thus, distinguishing among the various social science methods and their advantages and disadvantages may require going beyond the hierarchical stereotype.

Box 1 A Best-Selling, Explanatory, Single-Case Study

For more than 40 years, Graham Allison's (1971) original study of a single case, the 1962 Cuban missile crisis, has been a political science best seller. In this crisis, a U.S.–Soviet Union confrontation could have produced nuclear holocaust and doomed the entire world. The book posits three competing but also complementary theories to explain the crisis—that the United States and Soviets performed as (a) rational actors, (b) complex bureaucracies, or (c) politically motivated groups of persons. Allison compares the ability of each theory to explain the actual course of events in the crisis: why the Soviet Union placed offensive (and not merely defensive) missiles in Cuba in the first place, why the United States responded to the missile deployment with a blockade (and not an air strike or invasion—the missiles already were in Cuba!), and why the Soviet Union eventually withdrew the missiles.

The case study shows the explanatory and not just descriptive or exploratory functions of single-case studies. Furthermore, the authors contrast the lessons from the case study with prevailing alternative explanations in post–Cold War studies of foreign policy and international politics. In this way, the book, even more thoughtfully presented in its second edition (Allison & Zelikow, 1999), forcefully demonstrates how a single-case study can be the basis for insightful generalizations.

Box 2 Two Famous Descriptive Case Studies

2A. A Neighborhood Scene

Street Corner Society (1943/1993), by William F. Whyte, has for decades been recommended reading in community sociology. The book is a classic example of a descriptive case study. It traces the sequence of interpersonal events over time, describes a subculture that had rarely been the topic of previous study, and discovers key phenomena—such as the career advancement of lower income youths and their ability (or inability) to break neighborhood ties.

The study has been highly regarded despite its taking place in a small urban neighborhood (under the pseudonym of "Cornerville") and during a time period now nearly 100 years ago. The value of the book is, paradoxically, its generalizability even to contemporary issues of individual performance, group structure, and the social structure of neighborhoods. Later investigators have repeatedly found remnants of Cornerville in their work, even though they have studied different neighborhoods and different time periods (also see BOX 21, Chapter 4).

2B. A National Crisis

Neustadt and Fineberg's excellent analysis of a mass immunization campaign was issued originally as a government report in 1978, *The Swine Flu Affair: Decision-Making on a Slippery Disease,* and later published independently as *The Epidemic That Never Was* (1983). The case study describes the immunization of 40 million Americans that took place under President Gerald Ford's administration, when the United States was faced with a threat of epidemic proportions from a new and potentially lethal influenza strain. Because the case study has become known as an exceptionally well-researched case study, contemporary policy makers have continued to consult it for any generalizable lessons for understanding the quandaries of health crises and public actions in light of new threats by flu epidemics, such as the H1N1 strain of 2008–2010 and by viruses such as the Ebola and Zika outbreaks of 2013 to the present.

The more appropriate view may be an inclusive and pluralistic one: Every research method can be used for all three purposes—exploratory, descriptive, and explanatory studies. There may be exploratory case studies, descriptive case studies, or explanatory case studies. Similarly, there may be exploratory experiments, descriptive experiments, and explanatory experiments.

What distinguishes the different methods is not a hierarchy but the three important conditions discussed next. As an important caution, however, the clarification does not imply that the boundaries between the modes—or the occasions when each is to be used—are always sharp. Even though each mode of inquiry has its distinct characteristics, there are large overlaps among them. The goal is to avoid gross misfits—that is, when you are planning to use one mode of inquiry but another is really more advantageous.

Exercise 1.1 Defining Different Types of Research Case Studies

Define the three types of case studies used for research purposes: (a) explanatory case studies, (b) descriptive case studies, and (c) exploratory case studies. Compare the situations in which these different types of case studies would be most applicable. Now name a case study that you would like to conduct. Would it be explanatory, descriptive, or exploratory? Why?

When to Use the Different Methods

The three conditions consist of (a) the form of research question posed, (b) the control a researcher has over actual behavioral events, and (c) the degree of focus on contemporary as opposed to entirely historical events. Figure 1.2 displays these three conditions and shows how each is related to five social science research methods: experiments, surveys, archival analyses (e.g., economic modeling, or a statistical analysis in an epidemiological study), histories, and case studies. The importance of each condition, in distinguishing among the five methods, is as follows.

Figure 1.2 Relevant Situations for Different Research Methods

Method	(a) Form of Research Question	(b) Requires Control Over Behavioral Events?	(c) Focuses on Contemporary Events?
Experiment	how, why?	yes	yes
Survey	who, what, where, how many, how much?	no	yes
Archival Analysis	who, what, where, how many, how much?	no	yes/no
History	how, why?	no	no
Case Study	how, why?	no	yes

Source: COSMOS Corporation.

(a) Form of research question (see Figure 1.2, column a).

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

If research questions focus mainly on "what" questions, either of two possibilities arises. First, some types of "what" questions are exploratory, such as "What can be learned from a study of a startup business?" This type of question is a justifiable rationale for conducting an exploratory study, the goal being to develop pertinent hypotheses and propositions for further inquiry. However, as an exploratory study, any of the five research methods can be used—for example, an exploratory survey (testing, for instance, the ability to survey startups in the first place), an exploratory experiment (testing, for instance, the potential benefits of different kinds of business incentives to determine which type of incentive might be worthy of a more definitive experiment), or an exploratory case study (testing, for instance, the differences between "first-time" startups and startups by entrepreneurs who had previously started other firms, as a prelude to selecting the case(s) for a subsequent case study).

The second type of "what" question is actually a form of a "how many," "how much," or "to what extent" line of inquiry—for example, "What have been the ways that communities have assimilated new immigrants?" Identifying such ways is more likely to favor survey or archival methods than others. For example, a survey can be readily designed to enumerate the "what," whereas a case study would not be an advantageous method in this situation.

Similarly, like this second type of "what" question, "who" and "where" questions (or again their derivatives —"how many," "how much," and "to what extent") are likely to favor survey methods or the analysis of archival data, as in economic studies. These methods are advantageous when the research goal is to describe the incidence or prevalence of a phenomenon or when it is to track certain outcomes. The investigation of prevailing political preferences (in which a survey or a poll might be the favored method) or of the spread of a disease like Ebola or Zika (in which an epidemiologic analysis of health statistics might be the favored method) would be typical examples.

In contrast, "how" and "why" questions are more explanatory and likely to lead to the use of a case study, history, or experiment as the preferred research method. This is because such questions deal with the tracing of operational processes over time, rather than mere frequencies or incidence. Thus, if you wanted to know how a community successfully avoided the potentially catastrophic impact of the closing of its largest employer—a military base (see Bradshaw, 1999, also presented in **Application 8**, Chapter 5 of this book)—you would be less likely to rely on a survey or an examination of archival records and might be better off doing a history or a case study. Similarly, if you wanted to know how research investigators may possibly (but unknowingly) bias their research, you could design and conduct a series of experiments (see Rosenthal, 1966).

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

Similarly, if you wanted to know "what" the outcomes associated with a new governmental program had been, you could answer this question by doing a survey or by examining economic data, depending on the type of program involved. Questions—such as "How many clients did the program serve?" "What kinds of benefits were received?" "How often were different benefits produced?"—all could be answered without doing a case study. But if you needed to know "how" or "why" the program had worked (or not), you would lean toward a case study or a field experiment.

To summarize, the first and most important condition for differentiating among the five social science research methods is to classify the form of the research question being asked. In general, "what" questions may be either exploratory (in which case, any of the methods could be used) or about prevalence (in which surveys or the analysis of archival records would be favored). "How" and "why" questions are likely to favor using a case study, experiment, or history.

Exercise 1.2 Defining a Case Study Research Question

Develop a "how" or "why" question that would be the rationale for a case study that you might conduct. Instead of doing a case study, now imagine that you only could do a history, a survey, or an experiment (but not a case study) to address this question. What would be the distinctive advantage of doing a case study, compared with these other methods, in order to address the question?

Defining your research question(s) is probably the most important step to be taken in a research study, so you should be patient and allow sufficient time for this task. The key is to understand that your research questions have both *substance*—for example, What is my study about?—and *form*—for example, am I asking a "who," "what," "where," "how," or "why" question?

Other scholars have focused on some of the substantively important issues (see Campbell, Daft, & Hulin, 1982). The point of the preceding discussion is that the *form* of the question can provide an important clue regarding the appropriate research method to be used. Remember, too, that the methods can overlap. Thus, for some questions, a choice among methods might actually exist. Be aware, finally, that you (or your academic department) may be predisposed to favor a particular method regardless of the study question. If so, be sure to create the form of the study question best matching the method you were predisposed to favor in the first place.

Exercise 1.3 Identifying the Research Questions When Other Research Methods Are Used

Locate a research study based solely on the use of a survey, history, or experiment (but not a case study). Identify the research question(s) addressed by the study. Does the type of question differ from those that might have appeared as part of a case study on the same topic, and if so, how?

(b) Control over behavioral events (see Figure 1.2, column b)—and focus on contemporary as opposed to entirely historical events (see Figure 1.2, column c).

Assuming that "how" and "why" questions are to be the focus of study, these two remaining conditions help to distinguish further among a history, a research case study, and an experiment.

A history has virtually no such control and deals with the "dead" past—that is, when direct observations of the event(s) being studied are not possible and when no relevant persons are alive to report, even retrospectively, what occurred. The historian must then rely on primary documents, secondary documents, and cultural and physical artifacts as the main sources of evidence. A more contemporary version of historical research can study the recent but not quite "dead" past, as in conducting an *oral history* (e.g., Janesick, 2010). In this situation, historical research begins to overlap with case study research.

Case studies are preferred when the relevant behaviors still cannot be manipulated and when the desire is to study some contemporary event or set of events ("contemporary" meaning a fluid rendition of the recent past and the present, not just the present). The case study relies on many of the same techniques as in a history, but it also relies heavily on two sources of evidence not usually available as part of the conventional historian's repertoire: direct observation of the events being studied and interviews of the persons who may still be involved in those events. Again, although case studies and histories can overlap, the case study's unique strength is its ability to deal with a full variety of evidence—documents, artifacts, interviews, and direct observations, as well as participant-observation (see Chapter 4)—beyond what might be available in a conventional historical study.

Finally, experiments call for an investigator to manipulate behavior directly, precisely, and systematically. This can occur in a laboratory setting, in which an experiment may focus on one or two isolated variables (and presumes that the laboratory environment can "control" for all the remaining variables beyond the scope of interest), or it can be done in a field setting, where the term *field* (or *social*) *experiment* has emerged to cover research where investigators "treat" whole groups of people in different ways, such as providing (or not providing) them with different kinds of vouchers to purchase services (Boruch & Foley, 2000).

The full range of experimental research also includes those situations in which the experimenter cannot manipulate behavior but in which the logic of experimental design still may be applied. These situations have been commonly regarded as *quasi-experimental research* (e.g., Campbell & Stanley, 1966; Cook & Campbell, 1979) or *observational studies* (e.g., Rosenbaum, 2002, 2009). They differ from case study research because of

their adherence to experimental principles and inferences.

Summary.

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

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

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

Variations In Case Studies, But A Common Definition

Our discussion has progressed without formally defining *case study*. In addition to a need for a definition, three commonly asked questions about variations in case studies still have to be addressed. For example, (1) Is it still a case study when more than one case is included in the same study? (2) Does a case study preclude the use of quantitative evidence? (3) Can a case study be used to do evaluations? Let us now attempt first to define the case study as a research method and then to address these three questions.

Definition of the Case Study as a Research Method

Some definitions of case studies have merely repeated the types of topics to which case studies have been applied. For example, in the words of one scholar,

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

This definition thus cites cases of "decisions" as the major focus of case studies. Other common cases can include "individuals," "organizations," "processes," "programs," "neighborhoods," "institutions," and even "events." However, dwelling on the definition of a case study by interest in an individual case, not by the methods of inquiry used (e.g., Stake, 2005, p. 443), would seem insufficient to establish the complete basis for case studies as a *research* method. Outside of social science research, notice that the everyday use of case studies in the popular literature and media (*popular case studies*—see the Preface) further blurs the issue.

In fact, many of the earlier social science textbooks failed to consider case studies as a formal method at all. As discussed previously, one common shortcoming was to consider case studies as the exploratory stage of some other type of research method.

Another definitional shortcoming had been to confuse case studies with doing "fieldwork," as in participant-observation. Thus, early textbooks limited their discussion of case studies to descriptions of participant-observation or of fieldwork as a data collection process, without elaborating further on a definition of case study research (e.g., Kidder & Judd, 1986; Nachmias & Nachmias, 2014).

In a historical overview of the case study in American methodological thought, Jennifer Platt (1992) explains the reasons for these treatments. She traces the practice of doing case studies back to the conduct of life histories, the work of the Chicago school of sociology, and casework in social work. She then shows how *participant-observation* emerged as a data collection technique, effectively eliminating any further recognition of case study research. Thus, she found ample references to case study research in methodological textbooks up to 1950 but hardly any references to case studies or to case study research in textbooks from 1950 to 1980 (Platt, 1992, p. 18). Finally, Platt explains how the first edition of this book (1984) definitively dissociated case study research from the limited perspective of only doing some kind of fieldwork. She then also showed how a renewed discussion of case study research began to emerge in textbooks, largely occurring from 1980 to 1989 and continuing thereafter. Case study research, in her words, had now come to be appreciated as having its own "logic of design . . . a strategy to be preferred when circumstances and research problems are appropriate rather than an ideological commitment to be followed whatever the circumstances" (Platt, 1992, p. 46).

A twofold definition of case study as a research method.

And just what is this research method? The critical features first appeared in earlier publications (Yin, 1981a, 1981b, and reproduced on the companion website, study.sagepub.com/yin6e), predating the first edition of this book. The resulting definition as it has evolved over the five previous editions of this book reflects a twofold definition. The first part begins with the *scope* of a case study, when doing case study research:

1. A case study is an empirical method that
    - investigates a contemporary phenomenon (the "case") in depth and within its real-world context, especially when
    - the boundaries between phenomenon and context may not be clearly evident.

    In other words, you would want to do a case study because you want to understand a real-world case and assume that such an understanding is likely to involve important contextual conditions pertinent to your case (e.g., Yin & Davis, 2007).

    This first part of the definition therefore helps you to continue distinguishing case studies from the other modes of inquiry that have been discussed. Experimental research, for instance, deliberately separates a phenomenon from its context, attending only to the phenomenon of interest (usually as represented by a few variables). Typically, experiments ignore the context by "controlling" it in a laboratory environment. Historical research, by comparison, does deal with the entangled situation between phenomenon and context but usually in studying *non*contemporary events. Finally, survey research can try to deal with phenomenon and context, but a survey's ability to investigate the context is extremely limited. The survey designer, for instance, constantly struggles to limit the number of items in a questionnaire (and hence the number of questions that can be analyzed) to fall safely within the allotted degrees of freedom (usually constrained by the number of respondents who are to be surveyed as well as the presumed variability in the likely response sets).

    The second part of the definition of case studies arises because phenomenon and context are not always sharply distinguishable in real-world situations. Therefore, other methodological characteristics become relevant as the *features* of a case study, when doing case study research:
2. A case study
    - copes with the technically distinctive situation in which there will be many more variables of interest than data points,[1] and as one result
    - benefits from the prior development of theoretical propositions to guide design, data collection, and analysis, and as another result
    - relies on multiple sources of evidence, with data needing to converge in a triangulating fashion.

In essence, the twofold definition—covering the scope and features of a case study—shows how case study research comprises an all-encompassing mode of inquiry, with its own logic of design, data collection techniques, and specific approaches to data analysis. In this sense, case studies are not limited to being a data collection tactic alone or even a design feature alone (Stoecker, 1991). How case study research is practiced is the topic of this entire book. See Tutorial 1.1 on the companion website at study.sagepub.com/yin6e for an

elaboration of the definition of "case study."

Exercise 1.4 Finding and Analyzing an Existing Case Study From the Research Literature

Retrieve an example of case study research from the research literature. The case study can be on any topic, but it must have some empirical method and present some empirical (qualitative or quantitative) data. Why is this a research case study? 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?

Applicability of different epistemological orientations.

This all-encompassing mode of inquiry also can embrace different epistemological orientations—for example, embracing a *relativist* or *interpretivist* orientation, compared with a *realist* orientation.[2]

Much of case study research as it is described in this book appears to be oriented toward a *realist* perspective, which assumes the existence of a single reality that is independent of any observer. However, case study research also can excel in accommodating a *relativist* perspective (e.g., Boblin, Ireland, Kirkpatrick, & Robertson, 2013; Leppäaho, Plakoyiannaki, & Dimitratos, 2015)—acknowledging multiple realities and having multiple meanings, with findings that are observer dependent.

By pursuing a *relativist* perspective, you might pursue a *constructivist* approach in designing and conducting your case study—attempting to capture the perspectives of different participants and focusing on how their different meanings illuminate your topic of study. Although this book may not offer comprehensive guidance on pursuing a relativist or constructivist approach, many of the book's topics still offer helpful and relevant ideas for doing such case studies. For instance, Chapter 2 will later discuss the importance of "theory" in designing case studies and alert you to the optional choices.

Variations in Case Studies as a Research Method

Certain other characteristics of case studies are not critical for defining the method. They may be considered variations in case studies, which now also provide the opportunity to address the three questions posed at the outset of this subsection.

Yes, case studies include both single- and multiple-case studies (e.g., Stake, 2006). Although some fields, such as political science and public administration, have tried to distinguish between these two situations (and have used such terms as the *comparative case method* as a distinctive form of multiple-case studies; see Agranoff & Radin, 1991; Dion, 1998; Lijphart, 1975), single- and multiple-case studies are in reality but two variations of case study designs (see Chapter 2 for more). BOX 3 contains two examples of multiple-case studies.

Box 3 Multiple-Case Studies: Case Studies Containing Multiple "Cases"

The same case study can cover multiple cases and then draw a single set of "cross-case" conclusions. The following two examples both focused on a topic of continuing public interest: identifying successful programs to improve U.S. social conditions.

3A. A Cross-Case Analysis Following the Presentation of Separate, Single-Case Studies

Jonathan Crane (1998) edited a book that has nine social programs as separate case studies. Each case study had a different author and was presented in its own chapter. The programs had in common strong evidence of their effectiveness, but they varied widely in their focus—from education to nutrition to drug prevention to preschool programs to drug treatment for delinquent youths. The editor then presented a cross-program analysis in a final chapter, attempting to draw generalizable conclusions that could apply to many other programs.

3B. A Book Whose Entire Text Is Devoted to the Multiple-Case ("Cross-Case") Analysis

Lisbeth Schorr's (1997) book is about major strategies for improving social conditions, illustrated by four policy topics: welfare reform, strengthening the child protection system, education reform, and transforming neighborhoods. The book continually refers to specific cases of successful programs, but these programs do not appear as separate, individual chapters or case studies. Also citing data from the literature, the author develops numerous generalizations based on the cases, including the need for successful programs to be "results oriented." Similarly, she identifies six other attributes of highly effective programs (also see BOX 44A and 44B, Chapter 6).

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

As an important caveat to the preceding paragraph, the relationship between case study research and qualitative research still has not been fully explored. Some have recognized case studies as being among the viable choices in doing qualitative research (e.g., Creswell & Poth, 2017). Nevertheless, and in contrast, the features and core characteristics of case studies—for example, the necessity for defining a "case," the triangulation among multiple sources of evidence, and the ability to rely on quantitative data—seem to push case study research beyond being a type of qualitative research. As a further example, case study research need not always engage in the *thick description* (Geertz, 1973) or detailed observational evidence that marks many forms of qualitative research. And as yet another challenge, qualitative research (almost by definition) may not be limited to quantitative evidence. Not surprisingly, some disciplines such as psychology have tended to allow case study research and qualitative research to stand apart from each other (see Appendix A of this book).

And yes (and as discussed in greater detail in Appendix B of this book), case study research has its own place in doing evaluations (see Cronbach & Associates, 1980; Patton, 2015; Stufflebeam & Shinkfield, 2007, pp. 309–324; U.S. Government Accountability Office, 1990; Yin, 2013). There are at least four different applications (U.S. Government Accountability Office, 1990). The most important is to *explain* the presumed causal links in real-world interventions that are too complex for survey or experimental methods. A second application is to *describe* an intervention and the real-world context in which it occurred. Third, a case study can *illustrate* certain topics within an evaluation, again in a descriptive mode. Fourth, case study research may be used to *enlighten* those situations in which the intervention being evaluated has no clear, single set of outcomes. Whatever the application, one constant theme is that program sponsors—rather than researchers alone—may have a prominent role in defining the evaluation questions and relevant data categories.

Addressing Traditional Concerns About Case Study Research

Although case study research is a distinctive mode of social science inquiry, many researchers nevertheless disdain case studies. As an illustration, case studies have been viewed as a less desirable research method than either an experiment or a survey. Why is this?

Rigorous enough?

Perhaps the greatest concern has arisen over a presumed need for greater rigor in doing case study research. Too many times, a case study researcher has been sloppy, has not followed systematic procedures, or has allowed equivocal evidence to influence the direction of the findings and conclusions. In doing case study research, you need to avoid such practices.

Confusion with "nonresearch" case studies.

As discussed in the preface to this book, case studies have played a prominent role *outside of* the research realm. These include case studies that (a) serve teaching or professional development functions (*"teaching-practice" case studies*), (b) appear in the popular literature and media (*"popular" case studies*), or (c) appear as an integral part of various administrative archives (*"case records"*).

Although all three types of case studies have great value, they nevertheless may be considered *non*research case studies. They do not claim to follow a research method, and they may not be concerned with conventional social science procedures—as in formally describing their methodologies. Thus, in each of the three *non*research situations, the producer of the case study was not necessarily conducting the case study as a research endeavor but was serving some other purpose. The ensuing case study might have been carefully crafted and well written, and it might have led to informative conclusions, but the producer may not have been trying to follow any explicit research method.

For instance, the use of case studies as a teaching tool, originally popularized as "teaching cases" in the fields of law, business, medicine, or public administration (e.g., Ellet, 2007; Garvin, 2003; Llewellyn, 1948; Stein, 1952; Towl, 1969; Windsor & Greanias, 1983) now embraces virtually every professional field and subspecialty, including those in the physical and life sciences.[3] The *teaching-practice case study* may dominate a professional course curriculum (e.g., in business schools or law schools) or may appear as a supplement in a pedagogical setting (e.g., continuing education courses in medicine or other fields). Either way, for teaching purposes, this kind of case study need not contain a complete rendition of all the critically relevant events or perspectives. Rather, the purpose of the teaching-practice case study is to establish a framework for student discussion and debate around some critical professional issue. The criteria for developing good teaching and training case studies—usually of the single- and not multiple-case variety—are therefore different from those for doing case study research (e.g., Caulley & Dowdy, 1987).

The same confusion also may extend to the unknown quality of case studies when they appear in the popular literature or media (*popular case studies*). The presented case study may span an entire magazine article or

appear as a brief vignette or video. Under any of these circumstances, the writers still readily refer to their work as a "case study." As one result, many people, including scholars in non–social science fields, may then inappropriately derive their impression of case study research from these popular works that in fact do not claim to have followed any research method.

Finally, case studies may appear as *case records*. Medical records, social work files, and other case records can be used to facilitate some administrative practice, such as a case-based procedure involving child custody evaluation (e.g., Vertue, 2011). Although the creation of a case record or case evaluation may follow a similar procedure as if doing a research case study, in fact the criteria for developing case records differ from those for doing case study research. In particular, Bromley (1986) suggests that the content of case records may be undesirably influenced by "expectations regarding accountability rather than factual data" (p. 69)—also see Appendix A of this book.

You need to be alert to the possibility that some people's only prior exposure to case studies may have been to these three types of *non*research case studies. Such an exposure may taint a person's view of the case study as a research method. For instance, because the teaching-practice case studies exist in great number and are used nowadays so routinely in professional training (preservice and inservice), the experience can have a disparaging effect on one's impressions of case studies as a research method.

When doing a *research* case study, you need to overcome this confusion by highlighting your methodic procedures, especially the reporting of all evidence fairly. You also need to be transparent and explicit about limiting or eliminating any biases, similar to efforts in the other modes of social science inquiry, such as in avoiding the "experimenter effect" (see Rosenthal, 1966), in designing unbiased survey questions (Sudman & Bradburn, 1982), or in searching for evidence when doing historical research (Gottschalk, 1968). The challenges are not different, but in case study research, they may occur more frequently and demand greater attention. In essence, your procedures and documentation need to distinguish your research case study from the other kinds of *non*research case studies.

Exercise 1.5 Examining Teaching-Practice Case Studies

Obtain a copy of a case study designed for teaching purposes (e.g., a case study in a textbook used in a business school course). Identify the specific ways in which this type of "teaching case" is different from research case studies. Does the teaching case fully cite its primary sources, contain all the relevant evidence, or display data so you can arrive at your own interpretation of the conclusions? Does the teaching case discuss how the evidence resulted in substantive findings and conclusions and compare them with rival interpretations? What appears to be the main objective of the teaching case?

Generalizing from case studies?

A third common concern about case study research is an apparent inability to generalize from case studies. "How can you generalize from a single-case study?" is a frequently heard question. The answer is not simple.

However, consider for the moment that the same question had been asked about an experiment: "How can you generalize from a single experiment?" In fact, generalizations in the physical and life sciences are rarely based on single experiments. They are usually based on a multiple set of experiments that have replicated the same phenomenon under different conditions. Even then, the generalizations from experimental research can vacillate enormously over time (think of the many reversals regarding the presumed nutritional consequences from consuming caffeine or other foods).

The same approach can be used with case studies, as discussed in detail in Chapter 2. The short answer is that case studies, like experiments, are generalizable to theoretical propositions and not to populations or universes. In this sense, neither the "case" nor the case study, like the experiment, represent "samples." Rather, in doing case study research, your goal will be to expand and generalize theories (analytic generalizations) and not to extrapolate probabilities (statistical generalizations). Or, as three notable social scientists describe in their *single*-case study done years ago, the goal is to do a "generalizing" and not a "particularizing" analysis (Lipset, Trow, & Coleman, 1956, pp. 419–420).[4]

Unmanageable level of effort?

A fourth frequent concern about case study research is that case studies can potentially take too long and result in massive, unreadable documents. This concern may be appropriate, given the way case studies have been done in the past (e.g., Feagin et al., 1991), but this is not necessarily the way case studies must be done in the future. Chapter 6 discusses alternative ways of composing a case study (whether presenting the case study in writing or orally)—including an option in which the traditional, flowing (and potentially lengthy) narrative even can be avoided, if desired.

Nor need case studies take a long time. This incorrectly confuses case study research with a specific method of data collection, such as ethnography (e.g., O'Reilly, 2012) or participant-observation (e.g., DeWalt & DeWalt, 2011). Ethnographies usually require long periods in the field and emphasize detailed observational and interview evidence. Participant-observation may similarly assume a hefty investment of field effort. In

contrast, case study research is a form of inquiry that does *not* depend solely on ethnographic or participant-observer data.

Comparative advantage?

A fifth possible concern with case study research has to do with its unclear comparative advantage, in contrast to other research methods. This issue especially emerged during the first decade of the 21st century, which favored randomized controlled trials (RCTs) or "true experiments," especially in education and related topics. These kinds of experiments were esteemed because they aimed to establish the effectiveness of various treatments or interventions (e.g., Jadad & Enkin, 2007). In the eyes of many, the emphasis led to a downgrading of case study research because case studies (and other types of nonexperimental methods) cannot directly address the effectiveness issue.

Overlooked has been the possibility that case studies can nevertheless offer important insights not provided by RCTs. Noted quantitative scholars suggest, for instance, that RCTs, though addressing the effectiveness question, are limited in their ability to explain "how" or "why" a given treatment or intervention necessarily worked (or not), and that case studies can investigate such issues (e.g., Shavelson & Towne, 2002, pp. 99–106)—or, as succinctly captured by the subtitle of an excellent article on evaluating public programs, "not whether programs work, but how they work" (Rogers, 2000).[5] In this sense, case study research does indeed offer its own advantage. At a minimum, case studies may be valued "as adjuncts to experiments rather than as alternatives to them" (Cook & Payne, 2002). In clinical psychology, a "large series of single case studies," confirming predicted behavioral changes after the initiation of treatment, may augment the evidence of efficaciousness from a field trial (e.g., Veerman & van Yperen, 2007). Finally, in a similar manner, case study research can readily complement the use of other quantitative and statistical methods (see BOX 4).

Box 4 Complementarity of Case Study and Statistical Research

In the field of international politics, a major proposition has been that "democracies seldom if ever make war upon one another" (George & Bennett, 2005, p. 37). The proposition has been the subject of an extensive body of research, involving statistical research as well as case study research. An excellent chapter by George and Bennett (2005, pp. 37–58) shows how statistical studies may have tested the correlation between regime types and war, but how case studies have been needed to examine the underlying processes that might explain such a correlation. For instance, one of the more prominent explanations has been that democracies are able to make formal commitments with each other that make the use of military force unnecessary for resolving disputes (p. 57). The review shows how the relevant research has taken place over many decades, involving many different scholars. The entire body of research, based on both the statistical and case studies, illustrates the complementarity of these methods.

Summary.

Despite the fact that these five common concerns can be allayed, as above, one major lesson is that good case study research is still difficult to do. The inability to screen for a researcher's ability to do a good case study further compounds the problem. People know when they cannot play music; they also know when they cannot do mathematics beyond a certain level, and they can be tested for other skills, such as the bar examination in law. Somehow, the skills for doing good case study research have not yet been formally defined. As a result,

"most people feel that they can prepare a case study, and nearly all of us believe we can understand one. Because neither view is well founded, the case study receives a good deal of approbation it does not deserve" (Hoaglin, Light, McPeek, Mosteller, & Stoto, 1982, p. 134). This quotation is from a book by five prominent *statisticians*. Surprisingly, from another field, even they recognize the challenge of doing a good case study.

Summary

This chapter has introduced the relevance and importance of case study research. Like other social science research methods, case studies investigate an empirical topic by following a set of desired procedures. Articulating these procedures dominates the remainder of this book.

The chapter has provided an operational definition of case studies and has identified some of the known variations. The chapter also has distinguished the case study from other social science methods, suggesting the situations in which doing a case study may be preferred, for instance, to doing a survey. Some situations may have no clearly preferred method, as the strengths and weaknesses of the various methods may overlap. The basic goal, however, is to consider all the methods in an inclusive and pluralistic fashion—before settling on your method of choice in conducting a new social science study.

Finally, the chapter has addressed some of the major concerns about case study research, offering possible responses to these concerns. However, we must all work hard to overcome the problems of doing case study research, including the recognition that some of us were not meant, by skill or disposition, to do such research in the first place. Case study research is remarkably hard, even though case studies have traditionally been considered to be "soft" research, possibly because researchers have not followed systematic procedures. By offering an array of such procedures, this book tries to make case study research easier to follow and your own case study better.

Notes to Chapter 1

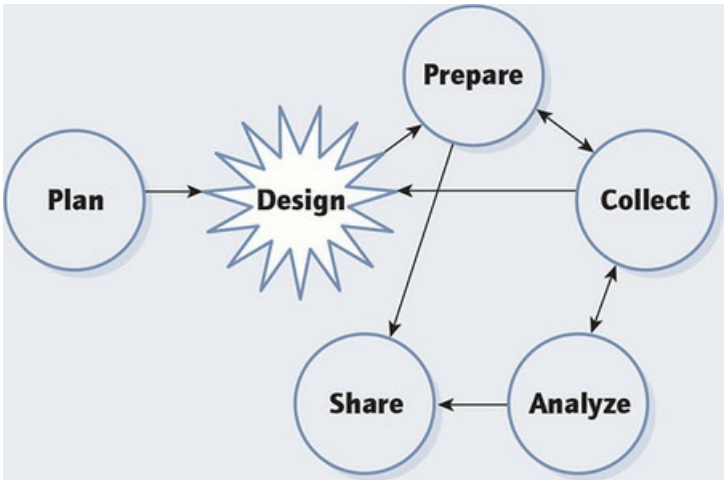
1. Appendix A has a full discussion of the reasons for the large number of variables in a case study.

2. These terms were deliberately chosen even though they oversimplify two contrasting perspectives. Ignored are the many more subtle orientations that investigators may bring to their research. For brief definitions, see Schwandt's (2015a) dictionary of qualitative inquiry, which characterizes *realism* as "the doctrine that there are real objects that exist independently of our knowledge of their existence," *relativism* as "the doctrine that denies that there are universal truths," and *interpretivism* as a term that has occasionally been used as a synonym for all qualitative inquiry. For a fuller discussion of the worldviews more generally, see Creswell (2014).

3. For instance, see the case studies made available by the National Center for Case Study Teaching in Science, at the University of Buffalo, SUNY, a resource supported by the National Science Foundation.

4. There nevertheless may be exceptional circumstances when a single-case study is so unique or important that a case study investigator has no desire to generalize to any other case studies. See Stake's (2005) "intrinsic" case studies, Lawrence-Lightfoot and Davis's (1997) "portraits," and Abma and Stake's (2014) "naturalistic" case studies.

5. Scholars also point out that the classic experiments only can test simple causal relationships—that is, when a single treatment such as a new drug is hypothesized to produce an effect. However, for many social and behavioral topics, the relevant causes may be complex and involve multiple interactions, and investigating these may well be beyond the capability of any single experiment (George & Bennett, 2005, p. 12).


Prepare
Plan
Design
Collect
Share
Analyze

Chapter 2: Design

- Define the case(s) to be studied
- Develop theory, propositions, and related issues to guide the anticipated case study and generalize its findings
- Identify the case study design (single or multiple, holistic or embedded cases)
- Test the design against four criteria for maintaining the quality of a case study

Abstract

A research design links the data to be collected (and the conclusions to be drawn) to the initial questions of study. Every empirical study has an implicit, if not explicit, research design. You can strengthen case study designs by articulating a "theory" about what is to be learned. The theoretical propositions also lay the groundwork for making *analytic* rather than *statistical generalizations* from your case study.

Critical to the design will be to define the "case" to be studied and to set some limits or bounds to the case. You can then examine the quality of your emerging design in relation to four tests commonly used in social science research: (a) construct validity, (b) internal validity, (c) external validity, and (d) reliability.

Among the specific case study designs, four major types follow a 2 × 2 matrix. The first pair consists of single-case study and multiple-case study designs. The second pair, occurring in combination with either of the first pair, distinguishes between holistic and embedded designs. Whether holistic or embedded, single-case studies can be invaluable when the single-case has any of five characteristics—being a critical, extreme or unusual, common, revelatory, or longitudinal case. Again whether holistic or embedded, the selection of the cases in a multiple-case study should follow a replication rather than sampling logic. Although single-case studies can yield invaluable insights, most multiple-case studies are likely to be stronger than single-case studies. Compared with doing a single-case study, trying even a "two-case" design is therefore a worthy objective. Case studies also can be used in combination with other methods, as part of a larger mixed-methods study.

General Approach To Designing Case Studies

Chapter 1 has shown when you might choose to do case study research, as opposed to other types of research, to carry out a new study. The next step is to design your case study. For this purpose, as in designing any other type of research, you need a *research design.*

The research design will call for careful craftwork. Unlike other research methods, a standard catalog of case study designs has yet to emerge. There are no textbooks, like those in the biological and psychological sciences, covering such design considerations as the assignment of subjects to different groups, the selection of different stimuli or experimental conditions, or the identification of various response measures (see Cochran & Cox, 1992; Fisher, 1990; Sidowski, 1966). In an experiment, each of these choices reflects an important logical connection to the issues being studied. Nor have any common case study designs emerged—such as the *panel studies,* for example—used in surveys (see Kidder & Judd, 1986, chap. 6).

One pitfall to be avoided, however, is to consider case study designs as a subset or variant of the research designs used for other methods, such as quasi-experiments (e.g., Campbell & Stanley, 1966; Cook & Campbell, 1979). For a long time, scholars incorrectly thought that the case study was but one type of quasi-experimental design (the "one-shot post-test-only" design—Campbell & Stanley, 1966, pp. 6–7). Although the misperception lingers to this day, it was later corrected when one of the original authors made the following statement in the revision to his original work on quasi-experimental designs:

> Certainly the case study as normally practiced should not be demeaned by identification with the one-group post-test-only design. (Cook & Campbell, 1979, p. 96)

Tip: How should I select the case(s) for my case study?

You need sufficient access to the data for your potential case—whether to interview people, review documents or records, or make field observations. Given such access to more than a single candidate case, you should choose the case(s) that will most likely illuminate your research questions. Absent sufficient access, you may want to consider changing your research questions, hopefully leading to new candidates to which you do have access.

Do you think access should be so important?

In other words, the one-shot, posttest-only design as a quasi-experimental design still may be flawed, but case studies have now been recognized as something different, with their own research designs.

Unfortunately, case study designs have not been codified. The following chapter therefore expands on the ground broken by earlier editions of this book and describes a basic set of research designs for doing single- and multiple-case studies. Although these designs will need to be modified and improved in the future, they will nevertheless help you to design more rigorous and methodologically sound case studies.

Definition of Research Designs

Every type of empirical research study has an implicit, if not explicit, research design. In the most elementary sense, the design is the logical sequence that connects the empirical data to a study's initial research questions and, ultimately, to its conclusions. Colloquially, a research design is *a logical plan for getting from here to there,* where *here* may be defined as the set of questions to be addressed, and *there* is some set of conclusions about these questions. Between *here* and *there* may be found a number of major steps, including the collection and analysis of relevant data. As a summary label, another textbook has labeled a research design as a *logical model of proof* (Nachmias & Nachmias, 2014).

Another way of thinking about a research design is as a "blueprint" for your research, dealing with what questions to study, what data are relevant, what data to collect, and how to analyze the results (Philliber, Schwab, & Samsloss, 1980).

Note that a research design is more than a work plan. The design's main purpose is to avoid the situation in which the evidence does not address the research questions. In this sense, the design deals with a *logical, not* a *logistical,* problem. For example, suppose you want to study a single organization. Your research questions have to do with the organization's competitive or collaborative relationships with other organizations. You can properly address such questions only if you collect information from the other organizations, not just the one you started with. If you examine the relationships from the vantage point of only one organization, you cannot draw unbiased conclusions. This is a flaw in your research design, not in your work plan.

Components of Research Designs

In case study research, five components of a research design are especially important:

1. A case study's questions;
2. Its propositions, if any;
3. Its case(s);
4. The logic linking the data to the propositions; and
5. The criteria for interpreting the findings.

Study questions.

This first component has already been described in Chapter 1, which suggested that the *form* of the question —in terms of "who," "what," "where," "how," and "why"—provides an important clue regarding the most relevant research method to be used. Case study research is most likely to be appropriate for "how" and "why" questions, so your initial task is to clarify precisely the nature of your study questions in this regard.

More troublesome may be your having to come up with the substance of the questions. Many students take an initial stab, only to be discouraged when they find the same question(s) already well covered by previous research. Other less desirable questions focus on too trivial or minor parts of an issue.

A helpful hint is to move in three stages. In the first, try to use the literature to narrow your interest to a key topic or two, not worrying about any specific research questions. In the second, examine closely—even dissect —a few key studies on your topic of interest. Identify the questions in those few studies and whether they conclude with new questions or loose ends for future research. These may then stimulate your own thinking and imagination, and you may find yourself articulating some potential questions of your own. In the third stage, examine another set of studies on the same topic. They may reinforce the relevance and importance of your potential questions or even suggest ways of sharpening them.

As a brief reminder, Chapter 1 also mentioned that, even in the absence of defining your research questions, you could start with some fieldwork first. What's going on in the field might then suggest relevant questions for study. However, be careful about this alternative. You may be unduly swayed by transient conditions that won't lead to insightful research questions. Also, a lot is going on in the field, so knowing where to focus your attention may be no easier than culling the literature to identify good questions.

Study propositions.

As for the second component, each proposition directs attention to something that should be examined within the scope of study. For instance, assume that your research, on the topic of interorganizational partnerships, began with the following question: How and why do organizations collaborate with one another to provide joint services (e.g., a manufacturer and a retail outlet collaborating to sell certain computer products)? These "how" and "why" questions, capturing what you are really interested in addressing, led you to case study research as the appropriate method in the first place. Nevertheless, these "how" and "why" questions may not

sufficiently point to what you should study.

Only if you are forced to state some propositions will you move in the right direction. For instance, you might think that organizations collaborate because they derive mutual benefits. This proposition, besides reflecting an important theoretical issue (that other incentives for collaboration do not exist or are unimportant), also begins to tell you where to look for relevant evidence (i.e., to define and ascertain the extent of specific benefits to each organization).

At the same time, exploratory studies may have a legitimate reason for not having any propositions. Every exploration, however, should still have some purpose. Instead of propositions, the design for an exploratory study should state this purpose, as well as the criteria by which an exploration will be judged successful (or not). One successful outcome might include the identification of the propositions to be examined in the later study. Consider the analogy in BOX 5 for exploratory case studies. Can you imagine how you would ask for support from Queen Isabella to do your exploratory study?

Box 5 "Exploration" as an Analogy for an Exploratory Case Study

When Christopher Columbus went to Queen Isabella to ask for support for his "exploration" of the New World, he had to have some reasons for asking for three ships (Why not one? Why not five?), and he had some rationale for going westward (Why not south? Why not south and then east?). He also had some (mistaken) criteria for recognizing the Indies when he actually encountered them. In short, his exploration began with some rationale and direction, even if his initial assumptions might later have been proved wrong (Wilford, 1992). This same degree of rationale and direction should underlie even an exploratory case study.

For an example of an exploratory case study, see **Application 1** at the end of this chapter.

The "case."

This third component deals with your identifying the "case" to be studied—a problem that rightfully confronts many researchers at the outset of their case studies (e.g., Ragin & Becker, 1992). You will need to consider at least two different steps: defining the case and bounding the case.

In *defining the case,* the classic case studies usually focus on an individual person as the case (e.g., Bromley, 1986, p. 1). Jennifer Platt (1992) has noted how the early case studies by scholars in the Chicago school of sociology were life histories of such persons as juvenile delinquents or derelict men. You also can imagine case studies of clinical patients (e.g., Brice, Wallace, & Brice, 2014; Johansen, Tavakoli, Bjelland, & Lumley, 2017), exemplary students (e.g., Jett, Curry, & Vernon-Jackson, 2016; Schmitt & Goebel, 2015), teachers (e.g., Parsons, 2012), or different leaders. In each situation, an individual person is the case being studied. Information about the relevant individual would be collected, and several such individuals or "cases" might be included in a multiple-case study.

You would still need study questions and study propositions to help identify the relevant information to be collected about this individual or individuals. Without such questions and propositions, you might be tempted to cover "everything" about the individual(s), which is impossible to do. For example, the propositions in studying these individuals might be limited to the influence of early childhood or the role of peer

relationships. Such seemingly general topics nevertheless represent a vast narrowing of the relevant scope and subsequent need for data. The more a case study contains specific questions and propositions, the more it will stay within feasible limits.

Of course, the "case" also can be some event or entity other than a single person. Case studies have been done about a broad variety of topics, including small groups such as families (e.g., Kindell, Sage, Wilkinson, & Keady, 2014), citizen participation (e.g., Frieling, Lindenberg, & Stokman, 2014; Wang & Breyer, 2012), communities, decisions, programs (e.g., Gavaravarapu & Pavarala, 2014), nonprofit organizations (e.g., Kohl-Arenas, 2016), organizational learning (e.g., Ohemeng & Owusu, 2015), schools (e.g., Dimartino & Jessen, 2016), and events such as social movements (e.g., Vos & Wagenaar, 2014) and disaster recovery efforts (e.g., Chung, 2017; Downey, 2016). Feagin et al. (1991) also contains some classic examples of these single-cases in sociology and political science.

Beware of these types of cases—none is easily defined in terms of the beginning or end points of the "case." For example, a case study of a specific program may reveal (a) variations in program definition, depending on the perspective of different actors, and (b) program components that preexisted the formal designation of the program. Any case study of such a program would therefore have to clarify whether these conditions form part of the case (or not). Similarly, you might at first identify a specific locale, such as a "city," as your case. However, your research questions and data collection might in fact be limited to tourism in the city, city policies, or city government. These choices would differ from defining the geographic city and its population as your case.

As a general clue, the tentative definition of your case can derive from the way you define your initial research question(s). Suppose, for example, you want to study the role of the United States in the global economy. Years ago, Peter Drucker (1986) wrote a provocative essay (but not a case study) about fundamental changes in the world economy, including the importance of "capital movements" independent of the flow of goods and services. If you were interested in doing a case study on this topic, Drucker's work would only serve as a starting point. You would still need to define the research question(s) of interest to you, and each question might point to a different type of case. Depending on your question(s), the appropriate case might be a country's economy, an industry in the world marketplace, an economic policy, or the trade or capital flow between countries. Each case and its related questions and propositions would call for a different case study, each having its own research design and data collection strategy.

If your research questions do not lead to the favoring of one case over another, your questions may be too vague or too numerous—and you may have trouble doing a case study. However, when you eventually arrive at a definition of your case(s), do not consider closure permanent. Your case definition, as with other facets of your research design, can be revisited as a result of discoveries during your data collection (see discussion and cautions about maintaining an adaptive posture, throughout this book and at the end of this chapter).

Sometimes, the case may have been defined one way, even though the phenomenon being studied actually follows a different definition. For instance, investigators might have confused case studies of neighborhoods with case studies of small groups. How a geographic *area* such as a neighborhood copes with racial transition,

upgrading, and other phenomena can be quite different from how a small *group* copes with these same phenomena. For instance, two classic case studies, *Street Corner Society* (Whyte, 1943/1993; see BOX 2A in Chapter 1 of this book) and *Tally's Corner* (Liebow, 1967; see BOX 9, this chapter), frequently have been mistaken for being case studies of neighborhoods when in fact they are case studies of small groups (note that in neither book is the neighborhood geography described, even though the small groups lived in a small area with clear neighborhood definitions if not boundaries). In contrast, BOX 6 presents a good example of how cases can be defined in a more discriminating manner—in the field of world trade.

Box 6 Defining the Case

Ira Magaziner and Mark Patinkin's (1989) book, *The Silent War: Inside the Global Business Battles Shaping America's Future,* presents nine individual case studies. Each case study helps the reader to understand a real-life situation of international economic competition.

Two of the cases appear similar but in fact represent different types of cases. One case covers a firm—the Korean firm Samsung—and the critical policies that make it competitive. Understanding Korean economic development is part of the context, and the case study also contains a nested entity—Samsung's development of the microwave oven as an illustrative product. The other case covers a country—Singapore—and the policies that make it competitive. Within the country case study also is a nested unit—the development of an Apple computer factory in Singapore, serving as an illustrative example of how the national policies influence foreign investments.

To reduce the confusion and ambiguity in defining your case, one recommended practice is to discuss your potential case selection with a colleague. Try to explain to that person what questions you are trying to address and why you have chosen a specific case or group of cases as a way of addressing those questions. This may help you to avoid incorrectly identifying your case.

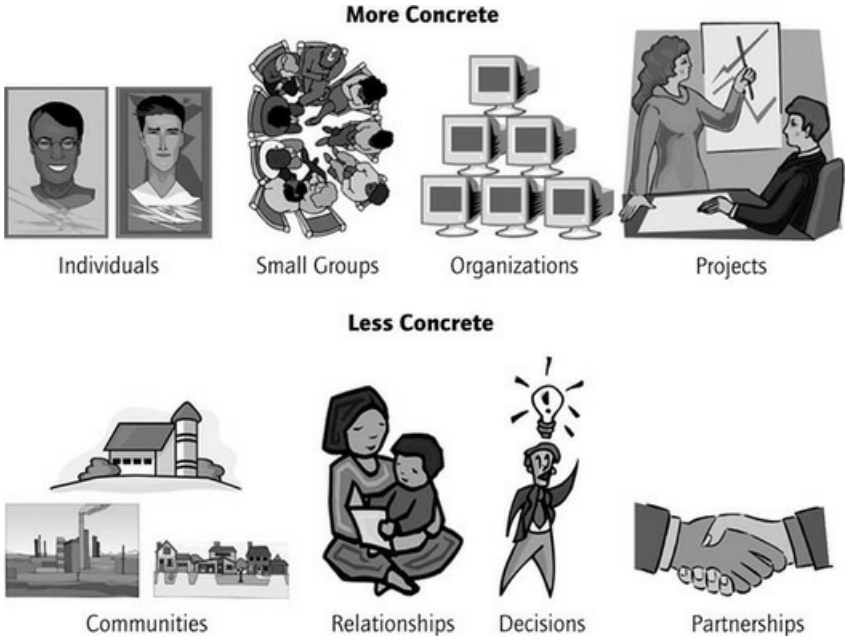
Once you have defined your case, other clarifications—sometimes called *bounding the case*—become important. For instance, if the case is a small group, the persons to be included within the group (they will become the immediate topic of your case study) must be distinguished from those who are outside of it (they will become part of the context for your case study). Similarly, if the case is about the local services in a specific geographic area, you need to decide which services to cover. Also desirable, for almost any topic that might be chosen, are the specific time boundaries to define the estimated beginning and ending of the case, for the purposes of your study (i.e., whether to include the entire or only some part of the life cycle of the entity that will become the case). Bounding the case in these ways will help to determine the scope of your data collection and, in particular, how you will distinguish data about the subject of your case study (the "phenomenon") from data external to the case (the "context"). The bounding also should tighten the connection between your case and your research questions and propositions.

Exercise 2.1 Defining the Boundaries of a Case

Select a topic for a case study you would like to do. Identify some research questions to be answered or propositions to be examined by your case study. Does the naming of these questions or propositions clarify the boundaries of your case with regard to the time period covered by the case study; the relevant social group, organization, or geographic area; the type of evidence to be collected; and the priorities for data collection and analysis? If not, should you sharpen the original questions?

These latter cautions regarding the need for spatial, temporal, and other explicit boundaries underlie a key but subtle aspect in defining your case. The desired case should be a real-world phenomenon that has some concrete manifestation. The case cannot simply be an abstraction, such as a claim, an argument, or even a hypothesis. These abstractions could rightfully serve as the starting points for research studies using other kinds of methods and not just case study research. To justify doing case study research when only starting with an abstraction, you need to go one step further: You need to define a specific, real-world "case" to be the concrete manifestation of any abstraction. (For examples of more concrete and less concrete case study topics, see Figure 2.1.)

Figure 2.1 Illustrative Cases for Case Studies



Source: Clip Art © Jupiter Images.

Take the concept of "neighboring." Alone, it could be the subject of research studies using methods other than the case study method. The other methods might include a survey of the relationships among neighbors, a history of the evolution of the sense of neighboring and the creation of neighborhood boundaries, or an experiment in which young children do tasks next to each other to determine the distracting effects, if any, of their "neighbors" in a classroom. These examples show how the abstract concept of "neighboring" does not

alone produce the grounds for a case study. However, the concept could readily become a case study topic if it were accompanied by your selecting a specific neighborhood ("case") to be studied and posing study questions and propositions about the neighborhood in relation to the concept of "neighboring." (For a discussion of how the "case" was defined to start a case study, see **Application 2** at the end of this chapter.)

One final point pertains to the role of the available research literature. Most researchers will want to conclude their case studies by comparing their findings with previous research. For this reason, the key definitions used at the outset of your case study should not be unknowingly idiosyncratic. Rather, the terminology used to define the case should be relatable to those previously studied by others—or should innovate in clear, operationally defined ways. In this manner, the previous literature also can become a guide for defining the case, whether you are trying to emulate or to deviate from the literature.

Exercise 2.2 Defining the "Case" for a Case Study

Examine Figure 2.1. Discuss each subject, which illustrates a different kind of case. Find a published case study on at least one of these subjects, indicating the specific case that was studied. Understanding that each subject involves the selection of different cases to be studied, do you think that the more concrete units might be easier to define than the less concrete ones? Why?

Linking data to propositions.

The fourth component has been increasingly better developed in doing case study research. The component foreshadows the data analysis steps in your case study. Chapter 5 covers these steps and the various analytic techniques and choices in detail. However, during the design stage, you need to be aware of the choices and how they might suit your case study. In this way, your research design can create a more solid foundation for the later analysis.

All the analytic techniques in Chapter 5 represent ways of *linking data to propositions:* pattern matching, explanation building, time-series analysis, logic models, and cross-case synthesis. The actual analyses will require that you combine or assemble your case study data as a direct reflection of your study propositions. For instance, knowing that some or all of your propositions cover a temporal sequence would mean that you might eventually use some type of time-series analysis. If you note this strong likelihood during the design phase, you might make sure that your planned data collection includes the collection of appropriate time markers as part of the case being studied.

As a caution, if you have had limited experience in conducting empirical studies, at the design stage you may not easily identify the likely analytic technique(s) or anticipate the needed data to use the techniques to their full advantage. Even more experienced researchers may find that they have either (a) collected too much data that was not later used in any analysis, or (b) collected too little data that prevented the proper use of a desired analytic technique. Sometimes, the latter situation may force researchers to return to their data collection phase (if they can), to supplement the original data. The more you can avoid either of these situations, the better off you will be.

Criteria for interpreting the strength of a case study's findings.

For other research methods, a common illustration of this fifth component arises when statistical analyses are relevant. For instance, by convention, quantitative studies consider a p level of less than .05 to demonstrate that observed differences are "statistically significant" and therefore associated with more robust findings. In other words, the statistical benchmarks serve as the criteria for interpreting the findings. However, much case study analysis will not rely on statistics, leading to the need to find other ways of thinking about such criteria.

When doing case study research, a major and important alternative strategy is to identify and address rival explanations for your findings. Addressing such rivals becomes a criterion for interpreting the strength of your findings: The more rivals that have been addressed and rejected, the stronger will be your findings. Again,

Chapter 5 discusses this strategy and how it works. At the design stage of your work, the challenge is to anticipate and enumerate the potentially important rivals. You will then want to include data about them as part of your data collection. If you think of rival explanations only after data collection has been completed, your thinking will help to justify and design a *future* study, but you will not be helping to complete your *current* case study. For this reason, specifying important rival explanations is a part of a case study's research design work.

Summary.

A research design should include five components. The first three components—that is, defining your study's questions, propositions, and case(s)—will lead your research design into identifying the data that are to be collected. The last two components—that is, defining the logic linking the data to the propositions and the criteria for interpreting the findings—will lead the design into anticipating your case study analysis, suggesting what is to be done after the data have been collected.

The Role Of Theory In Research Designs

Covering the preceding five components of research designs can happen to move you toward constructing some preliminary theory or theoretical propositions related to your topic of study. At the same time, and as suggested previously, you may want to do some preliminary fieldwork before trying to specify any theory or propositions in greater detail. However, and also as pointed out previously, starting with some fieldwork first also has its perils. For instance, you cannot start as a true *tabula rasa*. You already will have some implicit theoretical orientation in deciding whom to contact in the field, in your opening perspective about what's going on in the field, and in choosing what to observe and how to converse with participants. Without these predilections, you may get lost in your preliminary fieldwork. However, ignoring them can lead to a bias in your case study. As a result, you may at least want to acknowledge some preliminary theoretical considerations first.

Theory Development

The needed theory can be plain and simple. For example, a case study on the implementation of a new management information system (MIS) started with the following straightforward theoretical statement:

> The case study will show why implementation only succeeded when the organization was able to re-structure itself, and not just overlay the new MIS on the old organizational structure. (Markus, 1983)

The statement presents the nutshell of a theory of MIS implementation—that is, that implementing an MIS goes beyond adding a new technology to an existing organization but requires some organizational restructuring to work.

The same MIS case study then added the following theoretical statement:

> The case study will also show why the simple replacement of key persons was not sufficient for successful implementation. (Markus, 1983)

This second statement presents the nutshell of a *rival* theory—that is, that successful MIS implementation mainly calls for overcoming individuals' resistance to change (and not any organizational restructuring), leading to the rival theory that the replacement of such people will permit implementation to succeed.

You can see that elaborating these two initial statements can help to shape the upcoming case study. The stated ideas will increasingly cover the questions, propositions, specifications for defining and bounding the case, logic connecting data to propositions, and criteria for interpreting the findings—that is, the five components of the needed research design. In this sense, the research design can come to embrace a "theory" of what is being studied.

The desired theory should by no means be considered with the formality of grand theory in social science. Nor are you being asked to be a masterful theoretician. Rather, the simple goal is to have a sufficient blueprint for your study, usefully noted by Sutton and Staw (1995) as "a [hypothetical] story about why acts, events, structure, and thoughts occur" (p. 378). However, you also should be prepared to heed Diane Vaughan's (1992) wise words of caution:

> The paradox of theory is that at the same time it tells us where to look, it can keep us from seeing. (p. 195)

Your theoretical propositions can represent key issues from the research literature. Alternatively, they can represent practical matters, such as differing types of instructional leadership styles or interpersonal relationships in a study of families and social groups.

Ultimately, the propositions will lead to a complete research design—and will provide surprisingly explicit ideas for determining the data to collect and the strategies for analyzing the data. For this reason, some theory development prior to the collection of any fieldwork is desirable. Paul Rosenbaum notes that, for nonexperimental studies more generally, the preferred theoretical statements should elaborate a complex pattern of expected results—the more complex the better (Rosenbaum, 2002, pp. 5–6 and 277–279). The benefit of the complexity will be a more articulated design and a heightened ability to interpret your eventual data.

However, theory development in case study research takes time and can be difficult (Eisenhardt, 1989; Rule & John, 2015). For some topics, existing works may provide a rich theoretical framework for designing a specific case study. Alternatively, if you desire your propositions to fill mainly descriptive functions (rather than trying to do an explanatory case study), your concern should focus on such issues as (a) the purpose of the descriptive effort, (b) the full but realistic range of topics that might be considered a "complete" description of what is to be studied, and (c) the likely topic(s) that will be the essence of the description. Good answers to these questions, including the rationales underlying the answers, will help you go a long way toward developing the needed theoretical base—and research design—for your study.

For some topics, the existing knowledge base may be poor, and neither the available literature nor the prevailing practical experiences will provide any conceptual ideas or hypotheses of note. Such a knowledge base does not lend itself to the development of good theoretical statements, and you should not be surprised if your new study ends up being an exploratory study. Nevertheless, as noted earlier with the illustrative case in BOX 5, even an exploratory case study should be preceded by statements about what is to be explored, the purpose of the exploration, and the criteria by which the exploration will be judged successful (or not).

Overall, you may want to gain a richer understanding of how theory is used in case studies by reviewing specific case studies that have been successfully completed. You can do this either by examining the completed case studies for their initial propositions or, as a more daring venture, by trying to understand the significance of the case study's findings and conclusions. The findings and conclusions should be couched within some theoretically important issues, even if they may not have been openly stated at the outset of the case study.

Illustrative Topics for Theories

In general, to overcome the barriers to theory development, you should try to prepare for your case study by doing such things as reviewing the literature related to what you would like to study (e.g., see Cooper, 1984), discussing your topic and ideas with colleagues or teachers, and asking yourself challenging questions about what you are studying, why you are proposing to do the study, and what you hope to learn as a result of the study.

As a further reminder, you should be aware of the full range of theories that might be relevant to your study. For instance, note that the earlier MIS example illustrated MIS "implementation" theory and that this is but one type of theory that can be the subject of study. Other types of theories for you to consider include the following:

- Individual theories—for example, theories of individual development, cognitive behavior, personality, learning and disability, individual perception, and interpersonal interactions;
- Group theories—for example, theories of family functioning, informal groups, work teams, supervisory-employee relations, and interpersonal networks;
- Organizational theories—for example, theories of bureaucracies, organizational structure and functions, excellence in organizational performance, and interorganizational partnerships; and
- Social justice theories—for example, theories of housing segregation, international conflicts, cultural assimilation, uneven access to technologies, and marketplace inequities.

Other examples cut across these illustrative types. Decision-making theory (Carroll & Johnson, 1992), for instance, can involve individuals, organizations, or social groups. As another example, a common topic of case study research is the evaluation of publicly supported programs, such as federal, state, or local programs. In this situation, the development of a theory of how a program is supposed to work is essential to the design of the evaluation. In this situation, Bickman (1987) reminds us that the theory needs to distinguish between the substance of the program (e.g., how to make education more effective) and the process of program implementation (e.g., how to install an effective program). The distinction would avoid situations where policy makers might want to know the desired substantive remedies (e.g., findings about a newly effective curriculum) but where an evaluation unfortunately focused on managerial issues (e.g., the need to hire a good project director). Such a mismatch can be avoided by giving closer attention to the substantive theory of interest.

Using Theory to Generalize From Case Studies

Besides making it easier to design your case study, having some theory or theoretical propositions will later play a critical role in helping you to generalize the lessons learned from your case study. This role of theory has been characterized throughout this book as the basis for *analytic generalization* and has been contrasted with another way of generalizing the results from empirical studies, known as *statistical generalization*. Understanding the distinction between these two types of generalization may be your most notable accomplishment in doing case study research.

Let us first take the more commonly recognized way of generalizing—*statistical* generalization—although it is the less relevant one for doing case study research. In statistical generalization, an inference is made about a population (or universe) on the basis of empirical data collected from a sample from that universe. This is shown graphically as a Level One inference in Figure 2.2.[1] This method of generalizing is commonly followed when doing surveys (e.g., Fowler, 2014; Lavrakas, 1993) or analyzing archival data such as in studying housing or employment trends. As another example, political polls need to generalize their findings beyond their sample of respondents and to apply to the larger population, and research investigators readily follow statistical procedures to determine the confidence with which such extrapolations can be made.

A fatal flaw in doing case studies is to consider statistical generalization to be the way of generalizing the findings from your case study. This is because your case or cases are not "sampling units" and also will be too few in number to serve as an adequately sized sample to represent any larger population.

Generalizing from the case study, not from the case(s).

Rather than thinking about your case(s) as a sample, you should think of your case study as the opportunity to shed empirical light on some theoretical concepts or principles. The goal is not unlike the motive of a laboratory investigator in conducting and then learning from a new experiment. In this sense, both a case study and an experiment have an interest in going beyond the specific case or experiment. Both kinds of studies are likely to strive for generalizable findings or lessons learned—that is, analytic generalizations—that go beyond the setting for the specific case or experiment that had been studied. (Also see Tutorial 2.1 on the companion website at study.sagepub.com/yin6e for more detail about defining "analytic generalization.")

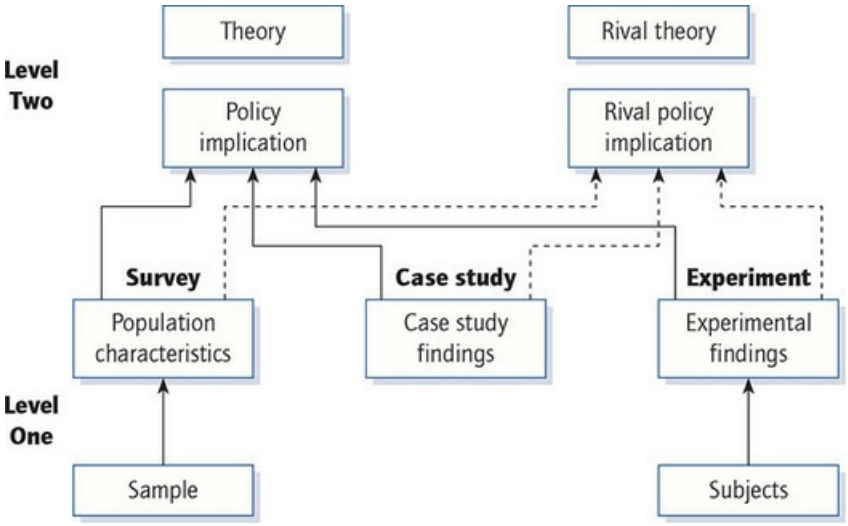
For example, the lessons learned could assume the form of a *working hypothesis* (Cronbach, 1975), either to be applied in reinterpreting the results of existing studies of other concrete situations (i.e., other case studies or experiments) or to define new research focusing on yet additional concrete situations (i.e., new case studies or experiments). Note that the aim of an analytic generalization is still to generalize to these other concrete situations and not just to contribute to abstract theory building. Also note that the generalizations, principles, or lessons learned from a case study may potentially apply to a variety of situations, well beyond any strict definition of the hypothetical population of "like cases" represented by the original case (Bennett, 2010).

The theory or theoretical propositions that went into the initial design of your case study, as empirically enhanced by your case study's findings, will have formed the groundwork for your analytic generalization(s).

Alternatively, a new generalization may emerge from the case study's findings alone. In other words, the *analytic generalization* may be based on either (a) corroborating, modifying, rejecting, or otherwise advancing theoretical concepts that you referenced in designing your case study or (b) new concepts that arose upon the completion of your case study.

The important point is that, regardless of whether the generalization was derived from the conditions you specified at the outset or uncovered at the conclusion of your case study, the generalization will be at a conceptual level higher than that of the specific case (or the subjects participating in an experiment[2])—shown graphically as a Level Two inference in Figure 2.2. By moving to this higher conceptual level, also realize that you need to make an analytic generalization as a claim, by providing a supportive argument. Your experience will be far different from simply applying the numeric result emanating from the use of some formulaic procedure, as in making statistical generalizations. However, the implications for your analytic generalization can lead to greater insight about the "how" and "why" questions that you posed at the outset of your case study.

Figure 2.2 Making Inferences: Two Levels



Illustrative examples.

Several prominent case studies illustrate how analytic generalizations can use a case study's findings to implicate new situations. First, consider how the two initial case studies highlighted in BOXES 1 and 2A of Chapter 1 of this book treated the generalizing function:

- BOX 1**:** Allison's (1971) case is about the Cuban missile crisis, but he relates the three theoretical models from his case study to many other situations, first to other international confrontations, such as between the United States and North Vietnam in the 1960s (p. 258). The later edition of his case study (Allison & Zelikow, 1999) then discusses the models' relevance to the "rethinking of nuclear threats to Americans today" (p. 397) as well as to the broader challenge of inferring the motives underlying actions taken by a foreign power.
- BOX 2**A:** Whyte's study (1943/1993) is well known for uncovering the relationship between individual performance and group structure, highlighted by a bowling tournament where he directly experienced

the impact on his own performance ("as if something larger than myself was controlling the ball"— p. 319) and observed how the gang members' bowling scores, with one notable exception, emulated their standing in the gang. Whyte generalizes his findings by later commenting that "I believed then (and still believe now) that this sort of relationship may be observed in other group activities everywhere" (p. 319).

Second, BOX 7 contains four additional illustrations. All show how findings from a single-case study nevertheless can be generalized to a broad variety of other situations. The fourth of these case studies has one other notable feature: It demonstrates how an entire case study can be published as a journal article (the first three examples appeared in the form of rather lengthy books).

Analytic generalization can be used whether your case study involves one or several cases, which shall be later referenced as single-case or multiple-case studies. Also to come later in this chapter, the discussion under the topic of *external validity* adds a further insight about making analytic generalizations. The main point at this juncture is that you should try to aim toward analytic generalizations in doing case studies, and you should avoid thinking in such confusing terms as "the sample of cases" or the "small sample size of cases," as if a single- or multiple-case study were equivalent to respondents in a survey. In other words, again as graphically depicted in Figure 2.2, you should aim for Level Two inferences when generalizing from case studies.

In a like manner, even referring to your case or cases as a "purposive sample" may raise similar conceptual and terminological problems. You may have intended to convey that the "purposive" portion of the term reflects your selection of a case that will illuminate the theoretical propositions of your case study. However, your use of the "sample" portion of the term still risks misleading others into thinking that the case comes from some larger universe or population of like cases, undesirably reigniting the specter of statistical generalization. The most desirable posture may be to state a clear caveat if you have to refer to any kind of sample (purposive or otherwise). (The preferred criteria and terminology for selecting cases, as part of either a single- or a multiple-case study, are discussed later in this chapter under the topic of "case study designs.") In this sense, case study research directly parallels experimental research: Few if any people would consider that a new experiment should be designed as a sample (of any kind) from a larger population of like experiments—and few would consider that the main way of generalizing the findings from a single experiment would be in reference to a population of like experiments.

Box 7 Generalizing From Single-Case Studies: Four More Examples

7A. A Sociology of "Mistake"

The tragic loss of the space shuttle *Challenger* in 1986, vividly shown in repeated TV replays of the spaceship's final seconds, certainly qualifies as a unique case. The causes of this loss became the subject of a Presidential Commission and of a case study by Diane Vaughan (2016). Vaughan's detailed study shows how the social structure of an organization (the NASA space agency) had, over time, transformed deviance into acceptable and routine behavior.

Vaughan's ultimate explanation differs markedly from that of the Presidential Commission, which pointed to individual errors by middle managers as the main reasons for failure. In Vaughan's words, her study "explicates the sociology of mistake"—that "mistakes are systemic and socially organized, built into the nature of professions, organizations, cultures, and structures." She shows how deviance is transformed into acceptable behavior through the institutionalization of production pressures (originating in the organizational environment), leading to "nuanced, unacknowledged, pervasive effects on decisionmaking." Her final discussion applies this generalization to a diverse array of other situations. As examples, she cites studies showing the research distortions created by the worldview of scientists, the uncoupling of intimate relationships, and the inevitability of accidents in certain technological systems. All these illustrate the process of making analytic generalizations.

7B. The Origins of Social Class

The second example (which comes from **Application 3**) is about the uncovering and labeling of a social class structure based on a case study of a medium-sized American city, Yankee City (Warner & Lunt, 1941). This classic case study in sociology made a critical contribution to social stratification theory and an understanding of the social differences among "upper," "upper-middle," "middle-middle," "upper-lower," and "lower" classes. Over the years, the insights from these differences have applied to a broad range of social structures, by no means limited to other medium-sized cities (or even to cities).

7C. Contribution to Urban Planning

The third example is Jane Jacobs and her famous book, *The Death and Life of Great American Cities* (1961). The book is based mostly on experiences from a single-case, New York City. The book's chapters then show how these New York experiences can be used to develop broader theoretical principles in urban planning, such as the role of sidewalks, the role of neighborhood parks, the need for primary mixed uses, the need for small blocks, and the processes of slumming and unslumming.

Jacobs's book created heated controversy in the planning profession. New empirical inquiries were made about one or another of her rich and provocative ideas. These inquiries helped to test the broader applicability of her principles to other concrete settings, and in this way Jacobs's work still stands as a significant contribution in the field of urban planning.

7D. Government Management of "Spoiled" National Identity

The fourth example creatively extended Erving Goffman's well-known sociological theory, regarding the management of stigma by individual people, to an institutional level (Rivera, 2008). A field-based case study of Croatia showed how the stigma created by the wars of Yugoslav secession had demolished the country's image as a desirable tourist destination, but then how the country successfully used an impression management strategy to revive the tourism. Croatia thus presented "an exciting case of reputation management in action" (p. 618). The author suggests that her adapted theoretical model can be used as "a launching point for understanding the public representation dilemmas faced by other states and organizational actors that have undergone reputation-damaging events" (p. 615). In so doing, the case study has provided another illustration of analytic generalization.

The challenge of making analytic generalizations involves understanding that the generalization is not statistical (or numeric) and that you will be making an argumentative claim. In so doing, you need to give explicit attention to the potential flaws in your claims and therefore discuss your analytic generalizations, not just state them. And to repeat an earlier point, remember that you are generalizing from your case study, not from your case(s).[3]

Summary

This section has suggested that a complete research design, while including the five components previously described, will benefit from the development of theoretical propositions. A good case study researcher should pursue such propositions and take advantage of this benefit, whether the case study is to be exploratory, descriptive, or explanatory. The use of theory and theoretical propositions in doing case studies can be an immense aid in defining the appropriate research design and data to be collected. Equally important, the same theoretical orientation also will become the main vehicle for generalizing the findings from the case study.

Criteria For Judging The Quality Of Research Designs

Because a research design is supposed to represent a logical set of statements, you also can judge the quality of any given design according to certain logical tests. Four tests have been commonly used to establish the quality of most empirical social research. Because case study research is part of this larger body, the four tests also are relevant to case study research.

An important innovation of this book is the identification of several tactics for dealing with these four tests when doing case study research. Figure 2.3 lists the tests and the recommended tactics, as well as a cross-reference to the phase of research when the tactic is to be used. (Each tactic is described in detail in the chapter of this book referenced in Figure 2.3.)

Because the four tests are common to most social science methods, the tests have been summarized in numerous textbooks (e.g., see Kidder & Judd, 1986, pp. 26–29). The tests also have served as a framework for assessing a large group of case studies in the field of strategic management (Gibbert et al., 2008). The four tests are

- ***Construct validity:*** identifying correct operational measures for the concepts being studied
- ***Internal validity*** (for explanatory or causal studies only and not for descriptive or exploratory studies): seeking to establish a causal relationship, whereby certain conditions are believed to lead to other conditions, as distinguished from spurious relationships
- ***External validity:*** showing whether and how a case study's findings can be generalized
- ***Reliability:*** demonstrating that the operations of a study—such as its data collection procedures—can be repeated, with the same results

Figure 2.3 Case Study Tactics for Four Design Tests

Tests	Case Study Tactic	Phase of Case Study Research in Which Tactic Is Addressed
Construct validity	• use multiple sources of evidence • have key informants review draft case study report	data collection (see Chap. 4) composition (see Chap. 6)
Internal validity	• do pattern matching • do explanation building • address rival explanations • use logic models	data analysis (see Chap. 5) data analysis (see Chap. 5) data analysis (see Chap. 5) data analysis (see Chap. 5)
External validity	• use theory in single-case studies • use replication logic in multiple-case studies	research design (see Chap. 2) research design (see Chap. 2)
Reliability	• use case study protocol • develop case study database • maintain a chain of evidence	data collection (see Chap. 3) data collection (see Chap. 4) data collection (see Chap. 4)

Each item on this list deserves explicit attention. For case study research, an important revelation is that the several tactics to be used in dealing with these tests should be applied throughout the subsequent conduct of a case study, not just at its beginning. Thus, the "design work" for doing case studies may actually continue beyond the initial design plans.

Construct Validity

This first test is especially challenging in case study research. People who have been critical of case studies often point to the fact that a case study researcher fails to develop a sufficiently operational set of measures and that "subjective" judgments—ones tending to confirm a researcher's preconceived notions (Flyvbjerg, 2006; Ruddin, 2006)—are used to collect the data.[4] Take an example such as studying "neighborhood change"—a common case study topic (e.g., Bradshaw, 1999; Keating & Krumholz, 1999): Over the years, concerns have arisen over how certain urban neighborhoods have changed their character. Any number of case studies have examined the types of changes and their consequences. However, without any prior specification of the significant, operational events that constitute "change," a reader cannot tell whether the claimed changes in a case study genuinely reflect the events in a neighborhood or whether they happen to be based on a researcher's impressions only.

Neighborhood change can cover a wide variety of phenomena: racial turnover, housing deterioration and abandonment, changes in the pattern of urban services, shifts in a neighborhood's economic institutions, or the turnover from low- to middle-income residents in revitalizing neighborhoods. The choice of whether to aggregate blocks, census tracts, or larger areas also can produce different results (Hipp, 2007).

To meet the test of construct validity, an investigator must be sure to cover two steps:

1. Define neighborhood change in terms of specific concepts (and relate them to the original objectives of the study) and
2. Identify operational measures that match the concepts (preferably citing published studies that make the same matches).

For example, suppose you satisfy the first step by stating that you plan to study neighborhood change by focusing on trends in neighborhood crime. The second step now demands that you select a specific measure, such as police-reported crime (which happens to be the standard measure used in the FBI Uniform Crime Reports) as your measure of crime. The literature will indicate certain known shortcomings in this measure, mainly that unknown proportions of crimes are not reported to the police. You will then need to discuss how the shortcomings nevertheless will not bias your study of neighborhood crime and hence neighborhood change.

As previously shown in Figure 2.3, three tactics are available to increase construct validity when doing case studies. The first is the use of *multiple sources of evidence,* in a manner encouraging convergent lines of inquiry, and this tactic is relevant during data collection (see Chapter 4). A second tactic is to establish a *chain of evidence,* also relevant during data collection (also Chapter 4). The third tactic is to have the draft case study report reviewed by key informants (a procedure described further in Chapter 6).

Internal Validity

This second test has been given the greatest attention in experimental and quasi-experimental research (see Campbell & Stanley, 1966; Cook & Campbell, 1979). Numerous "threats" to internal validity have been identified, mainly dealing with spurious effects. Because so many textbooks already cover this topic, only two points need to be made here.

First, internal validity is mainly a concern for explanatory case studies, when an investigator is trying to explain how and why event *x* led to event *y*. If the investigator incorrectly concludes that there is a causal relationship between *x* and *y* without knowing that some third event—*z*—may actually have caused *y,* the research design has failed to deal with some threat to internal validity. Note that this logic is inapplicable to descriptive or exploratory studies (whether the studies are case studies, surveys, or experiments), which are not concerned with this kind of causal situation.

Second, the concern over internal validity, for case study research, extends to the broader problem of making inferences. Basically, a case study involves an inference every time an event cannot be directly observed. An investigator will "infer" that a particular event resulted from some earlier occurrence, based on interview and documentary evidence collected as part of the case study. Is the inference correct? Have all the rival explanations and possibilities been considered? Is the evidence convergent? Does it appear to be airtight? A research design that has anticipated these questions has begun to deal with the overall problem of making inferences and therefore the specific problem of internal validity.

However, the specific tactics for achieving this result are difficult to identify when doing case study research. Figure 2.3 (previously shown) suggests four analytic tactics. All are described further in Chapter 5 because they take place during the analytic phase of doing case studies: *pattern matching, explanation building, addressing rival explanations,* and *using logic models.*

External Validity

The third test deals with the problem of knowing whether a study's findings are generalizable beyond the immediate study. For case studies, the issue relates directly to the earlier discussion of *analytic generalization* and the reference to Level Two in Figure 2.2. To repeat a key point from the earlier discussion, referring to *statistical generalization* and any analogy to samples and populations would be misguided.

Another insight on this issue derives from observing the form of the original research question(s) posed in doing your case study. The form of the question(s) can help or hinder the preference for seeking generalizations—that is, striving for external validity.

Recall that the decision to favor case study research should have started with the posing of some "how" and "why" question(s). For instance, many descriptive case studies deal with the "how" of a situation, whereas many explanatory case studies deal with the "why" of situations. However, if a case study has no pressing "how" or "why" questions—such as a study merely wanting to document the social trends in a neighborhood, city, or country or the employment trends in an organization (and essentially posing a "what" question)—arriving at an analytic generalization may be more difficult. To avoid this situation, augmenting the study design with "how" and "why" questions (and collecting the additional data) can be extremely helpful. (Alternatively, if a study's research interest is entirely limited to documenting social trends and has no "how" or "why" questions, using some method other than case study research might serve the study's objectives better.)

In this manner, the form of the initial research question(s) can directly influence the strategies used in striving for external validity. These research question(s) should have been settled during the research design phase of your case study. For this reason, Figure 2.3 as previously shown points to the research design phase, with the identification of appropriate theory or theoretical propositions, as being the most appropriate time for establishing the groundwork to address the external validity of your case study.

Reliability

Most people are probably already familiar with this final test. The objective is to be sure that, if a later researcher follows the same procedures as described by an earlier researcher and conducts the same study over again, the later investigator will arrive at the same findings and conclusions. To follow this procedure in case study research means studying the same case over again, not just replicating the results of the original case study by studying another case. The goal of reliability is to minimize the errors and biases in a study.

In reality, opportunities for repeating a case study rarely occur. However, you should still position your work to reflect a concern over reliability, if only in principle. The general need is to document the procedures followed in your case study. Without such documentation, you could not even repeat your own work (which is another way of dealing with reliability). In the past, case study research procedures were poorly documented, making external reviewers suspicious of the reliability of the case study method.[5] To overcome these suspicions, and going beyond sheer documentation, Figure 2.3 previously suggested two highly desirable tactics—the use of a *case study protocol* to deal with the documentation problem in detail (discussed in Chapter 3) and the development of a *case study database* (discussed in Chapter 4).

The general way of approaching the reliability problem is to make as many procedures as explicit as possible and to conduct research as if someone were looking over your shoulder. Accountants and bookkeepers always are aware that any calculations must be capable of being audited. In this sense, an auditor also is performing a reliability check and must be able to produce the same results if the same procedures are followed. A good guideline for doing case studies is therefore to conduct the research so that an auditor could in principle repeat the procedures and hopefully arrive at the same results.

Summary

Four tests may be considered relevant in judging the quality of a research design. In designing and doing case studies, various tactics are available to deal with these tests, though not all of the tactics occur at the design phase in doing a case study. In fact, most of the tactics occur during the data collection, data analysis, or compositional phases of the research and are therefore described in greater detail in the subsequent chapters of this book.

Exercise 2.3 Defining the Criteria for Judging the Quality of Research Designs

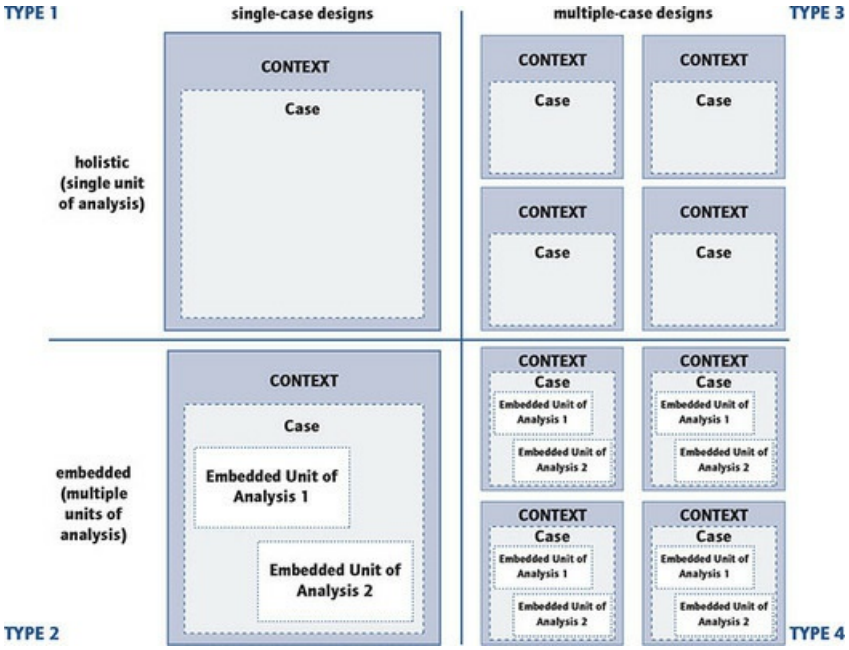
Define the four criteria for judging the quality of research designs: (a) construct validity, (b) internal validity, (c) external validity, and (d) reliability. Give an example of each type of criterion in a case study you might want to do.

Case Study Research Designs

Traditional case study research has not usually included the idea of having formal designs, as might be found when doing survey or experimental research. You still may successfully conduct a new case study without any formal design. However, attending to the potential case study research designs can make your case studies stronger and, possibly, easier to do. You might therefore find the remainder of this section to be useful. It covers four types of designs, based on the 2 × 2 matrix in Figure 2.4.

The matrix first shows that every type of design will include the desire to analyze contextual conditions in relation to the "case," with the dotted lines between the two signaling the likely blurriness between the case and its context. The matrix then shows that single- and multiple-case studies reflect different design situations and that, within these two variants, there also can be unitary or multiple units of analysis. The resulting four types of designs for case studies are (Type 1) single-case (holistic) designs, (Type 2) single-case (embedded) designs, (Type 3) multiple-case (holistic) designs, and (Type 4) multiple-case (embedded) designs. The rationale for these four types of designs is as follows.

Figure 2.4 Basic Types of Designs for Case Studies



Source: COSMOS Corporation.

What Are the Potential Single-Case Designs (Types 1 and 2)?

Five rationales for single-case designs.

A primary distinction in designing case studies is between *single-* and *multiple-*case study designs. This means the need for a decision, prior to any data collection, on whether you are going to have a single-case or multiple cases in your case study.

The single-case study is an appropriate design under several circumstances, and five single-case rationales—that is, having a *criical, unusual, common, revelatory,* or *longitudinal* case—are given below. Recall that a single-case study is analogous to a single experiment, and many of the same conditions that justify choosing a single experiment also can justify a single-case study.

Recall, too, that the selection of your case should be related to your theory or theoretical propositions of interest. These form the substantive context for each of the five rationales. Thus, the first rationale for a single-case—selecting a *critical case*—would be critical to your theory or theoretical propositions (again, note the analogy to the *critical experiment*). The theory should have specified a clear set of circumstances within which its propositions are believed to be true. You can then use the single-case to determine whether the propositions are correct or whether some alternative set of explanations might be more relevant. In this manner, like Graham Allison's comparison of three theories and the Cuban missile crisis (described in Chapter 1, BOX 1), the single-case can represent a significant contribution to knowledge and theory building by confirming, challenging, or extending the theory. Such a study even can help to refocus future investigations in an entire field. (See BOX 8 for another example, in the field of organizational innovation.)

Box 8 The Critical Case as a Single-Case Study

One rationale for selecting a single-case rather than a multiple-case design is that the single-case can represent the critical test of a significant theory. Gross, Bernstein, and Giacquinta (1971) used such a design by focusing on a single school in their book, *Implementing Organizational Innovations* (also see BOX 20B, Chapter 4).

The school was selected because it had a history of innovation and could not be claimed to suffer from "barriers to innovation." In the prevailing theories, such barriers had been prominently cited as the major reason that innovations failed. Gross et al. (1971) showed that, in this school, an innovation also failed but that the failure could not be attributed to any barriers. Implementation processes, rather than barriers, appeared to account for the failure.

In this manner, the book, though limited to a single-case, represented a watershed in organizational innovation theory. Prior to the study, analysts had focused on the identification of barriers to innovation; since the study, the literature has been much more dominated by studies of the implementation process, not only in schools but also in many other types of organizations.

A second rationale for a single-case arises when the case represents an *extreme* case or an *unusual* case, deviating from theoretical norms or even everyday occurrences. For instance, such cases can occur in clinical psychology, where a specific injury or disorder may offer a distinct opportunity worth documenting and analyzing. In clinical research, a common research strategy calls for studying these unusual cases because the findings may reveal insights about normal processes (e.g., Corkin, 2013). In this manner, the value of a case

study can be connected to a large number of people, well beyond those suffering from the original clinical syndrome.

Conversely, a third rationale for a single-case is the *common* case. Here, the objective is to capture the circumstances and conditions of an everyday situation—again because of the lessons it might provide about the social processes related to some theoretical interest. In this manner, a street scene and its sidewalk vendors can become the setting for learning about the potential social benefits created by informal entrepreneurial activity (e.g., Duneier, 1999), and the social and institutional structure within a single, low-income urban neighborhood can provide insights into the relationship between poverty and social capital (e.g., Small, 2004).

A fourth rationale for a single-case study is the *revelatory* case. This situation exists when a researcher has an opportunity to observe and analyze a phenomenon previously inaccessible to social science inquiry, such as Whyte's (1943/1993) *Street Corner Society,* previously described in Chapter 1, BOX 2A. Another example is Phillippe Bourgois's (2003) study of crack and the drug-dealing marketplace in Spanish Harlem, a neighborhood in New York City. The author gained the trust and long-term friendship of two dozen street dealers and their families, revealing a lifestyle that few had been able to study up to that time. For another example, see Elliot Liebow's (1967) famous case study of unemployed men, *Tally's Corner* (BOX 9). When researchers have similar types of opportunities and can uncover some prevalent phenomenon previously inaccessible to social scientists, such conditions justify the use of a single-case study on the grounds of its revelatory nature.

Box 9 The Revelatory Case as a Single-Case Study

Another rationale for selecting a single-case is that the researcher has access to a situation previously inaccessible to empirical study. The case study is therefore worth conducting because the descriptive information alone will be revelatory.

Such was the situation in Elliot Liebow's (1967) sociological classic, *Tally's Corner.* The book is about a single group of African American men living in a poor, inner-city neighborhood. By befriending these men, the author was able to learn about their lifestyles, their coping behavior, and in particular their sensitivity to unemployment and failure. The book provided insights into socioeconomic conditions that have prevailed in many U.S. cities for a long time, but that had been only vaguely understood. The single-case showed how investigations of such topics could be done, thus stimulating much further research and eventually the development of needed public policy actions.

A fifth rationale for a single-case study is the *longitudinal* case: studying the same single-case at two or more different points in time. The theory of interest would likely specify how certain conditions and their underlying processes change over time. The desired time intervals would presumably reflect the anticipated stages at which the changes would most likely reveal themselves. They may be prespecified time intervals, such as prior to and then after some critical event, following a before-and-after logic. Alternatively, they might not deal with specific time intervals but cover trends over an elongated period of time, following a developmental course of interest. Under exceptional circumstances, the same case might be the subject of two consecutive case studies, such as occurred with *Middletown* (Lynd & Lynd, 1929) and *Middletown in Transition* (Lynd & Lynd, 1937). Whatever the time intervals or periods of interest, the processes being studied should nevertheless reflect the theoretical propositions posed by the case study.

These five serve as major rationales for selecting a single-case study. There are other situations in which the single-case study may be used as a pilot case that might be the beginning of a multiple-case study. However, in this latter situation, the single-case portion of the study would not be regarded as a complete case study on its own.

Whatever the rationale for doing single-case studies (and there may be more than the five mentioned here), a potential vulnerability of the single-case design is that a case may later turn out not to be the case it was thought to be at the outset. Single-case designs therefore require careful investigation of the candidate case, to minimize the chances of misrepresentation and to maximize the access needed to collect the case study evidence. A fair warning is not to commit yourself to any single-case study until these major concerns have been covered.

Holistic versus embedded single-case studies.

The same single-case study may involve units of analysis at more than one level. This occurs when, within a single-case (the first level), attention is also given to a subunit or subunits (a second level)—see BOX 10. For instance, even though a case study might be about a single organization, such as a hospital and the nature of its service culture, the analysis might include systematic data from some element within the hospital (e.g., a survey of the hospital's staff). In an evaluation study, the single-case might be a single public program that nevertheless involves large numbers of funded projects—which would then be the embedded subunits (see Appendix B for more details). In either situation, these embedded subunits can be selected through sampling or cluster techniques (McClintock, 1985). No matter how the subunits are selected, the resulting design would be called an *embedded case study design* (see Figure 2.4, Type 2).

Box 10 An Embedded, Single-Case Design

Union Democracy (1956) is a highly regarded case study by three distinguished academicians—Seymour Martin Lipset, Martin Trow, and James Coleman. The case study is about the inside politics within a single, large, but complex entity, the International Typographical Union. The case study had several subunits of analysis. The main unit was the organization as a whole (the "case"), and the smallest unit was the individual member. In addition to these two units, the case study also collected data about several intermediary units (in ascending order): the leaders among the individuals; the "shops" to which specific groups of members belonged; and the "locals," or union chapters. Different data came from different sources of evidence, including member surveys, leader interviews, shop records, voting histories of the locals, and union archives.

As an important caveat, however, note that the embedded subunits need to be *within* (or part of) the original single-case. A mistake would be to consider other cases, similar to the original single-case, as if they were the embedded subunits in a single-case study. In that situation, all the cases in fact would rightfully be considered part of a multiple-case design, receiving equal empirical treatment (see upcoming discussion of multiple-case designs), compared with the data collection differences between a case and its subunits in a truly embedded, single-case design.

In contrast to the embedded case study design, if a single-case study only examined the global nature of an organization or of a program, a *holistic design* would have been used (see Figure 2.4, Type 1). The embedded

and holistic designs both have their strengths and weaknesses. The holistic design is advantageous when no logical subunits can be identified or when the relevant theory underlying the case study is mainly of a holistic nature. Potential problems arise, however, when a global approach is too holistic (e.g., studying a "good" organization), allowing a researcher to avoid operationalizing the relevant data. Thus, a typical problem with the holistic design is that the entire case study may be conducted at an unduly abstract level, lacking sufficiently clear measures.

A further problem with the holistic design is that the entire nature of the case study may shift, unbeknownst to the researcher, during the course of the study. The initial study questions may have reflected one orientation, but as the data collection proceeds, the original case study unwittingly assumes a different orientation, with the evidence gradually addressing different research questions (e.g., what started as a study of the "good" organization shifts to being a study of the "promising" organization).

Although some people have claimed such flexibility to be a strength of case study research, in fact the largest criticism of case studies arises when this type of shift occurs unknowingly (see Yin, Bateman, & Moore, 1985). Because of this problem, you need to avoid such unsuspected slippage. If the relevant research questions really do change in a desirable way, as in producing a case study with different insights and new discoveries, you need to recognize the shift openly (see the discussion under "Staying Adaptive" in Chapter 3). Having acknowledged the shift, you should try to start over again with a new research design and a fair data collection plan.

One way to increase the awareness of such slippage is to have a set of subunits. Thus, an embedded case study design can serve as an important device for maintaining a case study's focus. An embedded design, however, also has its pitfalls. A major one occurs when the case study focuses only on the subunit level and fails to return to the larger unit of analysis, or the original "case." For instance, an evaluation of an education program consisting of multiple school projects may include the projects' characteristics as subunits of analysis. The project-level data may even be highly quantitative if there are many projects. However, the original evaluation becomes a school project study (i.e., either a multiple-case study of different projects or even a survey study of the projects) if little investigating is done at the level of the original program, such as completing an in-depth inquiry about its goals, implementation, and outcomes. A likely result, differing entirely from the intent of the original case study about an education program, would be migration to a study of school projects, with some scanty information about the program serving as the background information in the migrated study.

Similarly, a study of organizational climate may involve individual employees as subunits of study. However, if the resulting findings only draw upon the aggregated employee data, the study may in fact migrate and become an employee but not an organizational study. In both examples (an embedded case study of either an education program or of organizational climate), what has happened is that the original case—that is, the original phenomenon of interest (a program or an organization)—has become the context for and not the target of the study.

Summary.

Single-case studies are a common design for doing case study research, and two variants have been described: those using holistic designs and those using embedded units of analysis. Overall, the single-case design is eminently justifiable under certain conditions—where the case represents (a) a critical test of existing theory, (b) an extreme or unusual circumstance, or (c) a common case, or where the case serves a (d) revelatory or (e) longitudinal purpose.

A major step in designing and conducting a single-case study is defining the case itself. An operational definition is needed, and some caution must be exercised—before a total commitment to the whole case study is made—to ensure that the case to be studied is in fact relevant to the original issues and questions of interest.

Subunits of analyses may be incorporated within the single-case study, thereby creating a more complex (or embedded) design. The subunits can often add significant opportunities for extensive analysis, enhancing the insights into the single-case. However, if too much attention is given to these subunits, and if the larger, holistic aspects of the original case begin to be ignored, the case study itself will have shifted its orientation and changed its nature. If the shift is justifiable, you need to address it explicitly and indicate its relationship to the originally intended inquiry.

What Are the Potential Multiple-Case Study Designs (Types 3 and 4)?

The same case study may contain more than a single-case. When this occurs, the case study has used a multiple-case study design, and such designs have increased in frequency in recent years. A common example is a case study of a small group of public versus private hospitals. Each hospital would be the subject of its own fieldwork, and the multiple-case study would first cover each hospital as a single-case study before arriving at findings and conclusions across the individual case studies.

Multiple- versus single-case designs.

In some fields, multiple-case studies have been considered a different methodology from single-case studies. For example, both anthropology and political science have developed one set of rationales for doing single-case studies and a second set for doing what have been considered "comparative" (or multiple-case) studies (see Eckstein, 1975; Lijphart, 1975).

This book, however, considers single- and multiple-case study designs to be variants within the same methodological framework. No broad distinction is made between the so-called classic (i.e., single) case study and multiple-case studies. The choice is considered one of research design, with both being included as a part of case study research.

Multiple-case study designs have distinct advantages and disadvantages in comparison with single-case study designs. The evidence from multiple cases is often considered more compelling, and the overall multiple-case study is therefore regarded as being more robust (Herriott & Firestone, 1983). At the same time, the rationale for single-case designs cannot usually be satisfied by the multiple cases. By definition, the unusual or extreme case, the critical case, and the revelatory case all are likely to involve only single-case studies. Moreover, the conduct of a multiple-case study can require extensive resources and time beyond the means of a single student or independent research investigator. Therefore, the decision to undertake a multiple-case study cannot be taken lightly.

Selecting the multiple cases also raises a new set of questions. Here, *a major insight is to consider multiple-case studies as one would consider multiple experiments*—that is, to follow a "replication" design. This is far different from the misleading analogy that incorrectly considers the multiple cases to be similar to the multiple respondents in a survey (or to the multiple subjects within an experiment)—that is, to follow a "sampling" design. The methodological differences between these two views are revealed by the different rationales underlying the replication as opposed to sampling designs.

Replication, not sampling logic, for multiple-case studies.

The replication logic is directly analogous to that used in multiple experiments (see Barlow, Nock, & Hersen, 2008). For example, upon uncovering a significant finding from a single experiment, an ensuing and pressing priority would be to replicate this finding by conducting a second, third, and even more experiments. Some of the replications might attempt to duplicate the exact conditions of the original experiment. Other replications might alter one or two experimental conditions considered challenges to the original finding, to see whether

the finding can still be duplicated. With both kinds of replications, the original finding would be strengthened.

The design of multiple-case studies follows an analogous logic. Each case must be carefully selected so that the individual case studies either (a) predict similar results (a *literal replication*) or (b) predict contrasting results but for anticipatable reasons (a *theoretical replication*). The ability to conduct 6 or 10 individual case studies, arranged effectively within a multiple-case design, is analogous to the ability to conduct 6 to 10 experiments on related topics: A few case studies (2 or 3) might aim at being literal replications, whereas a few other case studies (4 to 6) might be designed to pursue two different patterns of theoretical replications. If all the individual case studies turn out as predicted, these 6 to 10 cases, in the aggregate, would have provided compelling support for the initial set of propositions pertaining to the overall multiple-case study.[6] If the individual case studies are in some way contradictory, the initial propositions must be revised and retested with another set of case studies. Again, this logic is similar to the way researchers deal with conflicting experimental findings.

The logic underlying these replication procedures also should reflect some theoretical interest, not just a prediction that two cases should simply be similar or different (e.g., in a health care setting, see Dopson, Ferlie, Fitzgerald, & Locock, 2009). As another example, consider the problem of advice-giving to city governments, on the part of external expert groups. The typical experience is for an expert group to conduct some research and then to present its advice in a report to a city agency. However, the common outcome is for such reports to receive little attention, much less to lead to any appropriate action. BOX 11 describes how a multiple-case study addressed this issue.

Box 11 A Multiple-Case, Replication Design

Peter Szanton's (1981) book, *Not Well Advised,* reviewed the experiences of numerous attempts by university and nonuniversity research groups to advise city officials. The book is an excellent example of a multiple-case replication design.

Szanton starts with eight case studies, showing how different university groups produced credible research but nevertheless all failed to help city governments. The eight cases are sufficient "replications" to convince the reader of a general phenomenon—the typical supposition being that the differences between the academic and public policy cultures create an insurmountable communication barrier. Szanton then provides five more case studies, in which *non*university groups also failed, concluding that failure was therefore not necessarily inherent in the academic enterprise. Yet a third group of cases shows how university groups have, in contrast, successfully and repeatedly advised sectors other than city government, such as businesses and engineering firms. A final set of three cases shows that those few groups able to help city government were concerned with *implementation* and not just with submitting a research report containing new research-based ideas. The findings from all these case studies led to Szanton's major conclusion, which is that city governments may have peculiar needs in receiving advice but then also putting it into practice.

Within each of the four groups of case studies, Szanton has illustrated the principle of literal replication. Across the four groups, he has illustrated theoretical replication. This potent case study design can and should be applied to many other topics.

The replication logic, whether applied to experiments or to case studies, must be distinguished from the sampling logic commonly used in surveys. The sampling logic requires an operational estimation of the entire universe or pool of potential respondents and then a statistical procedure for selecting a specific subset of

respondents to be surveyed. The resulting data from the sample that is actually surveyed are assumed to reflect the entire universe or pool, with inferential statistics used to establish the confidence intervals for presuming the accuracy of this representation. The entire procedure is commonly used when a researcher wishes to determine the prevalence or frequency of a particular phenomenon.

Any application of this sampling logic to case study research would be misplaced. First, case studies are not the best method for assessing the prevalence of phenomena. Second, each individual case study would have to cover both the phenomenon of interest and its context, yielding a large number of potentially relevant variables (see Appendix B for a more detailed discussion). In turn, this would require an impossibly large sample of cases—too large to allow more than a superficial examination of any given case.

Third, if a sampling logic had to be applied to all types of research, many important topics could not be empirically investigated, such as the following problem: Your investigation deals with the role of the presidency of the United States, and you are interested in doing a multiple-case study of (a few) presidents to test your theory about presidential leadership. However, the complexity of your topic means that your choice of a small number of cases could not adequately represent all the 45 presidents since the beginning of the Republic. Critics using a sampling logic might therefore deny the acceptability of your study. In contrast, if you use a replication logic, a study is eminently feasible.

The replication approach to multiple-case studies is illustrated in Figure 2.5. The figure indicates that the initial step in designing the study should preferably consist of theory development and then shows that case selection and the definition of specific measures are important steps in the design and data collection process. Each individual case becomes the subject of a whole case study, in which convergent evidence is sought regarding the findings and conclusions for the study; each case study's conclusions are then considered to be the information needing replication by the other individual case studies. Both the individual case studies and the multiple-case results can and should be the focus of a summary report. For each individual case study, the report should indicate how and why a particular proposition was demonstrated (or not demonstrated). Across case studies, the report should indicate the extent of the replication logic and why certain case studies were predicted to have certain results, whereas other case studies, if any, were predicted to have contrasting results.

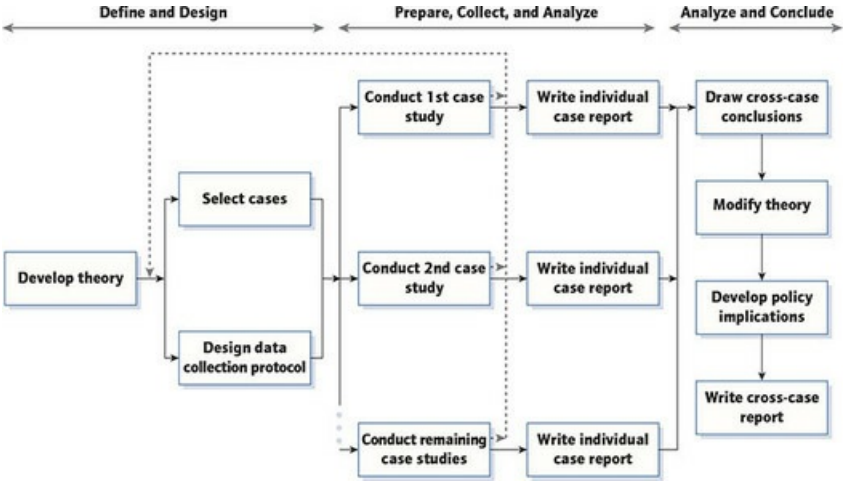
An important part of Figure 2.5 is the dashed-line feedback loop. The loop represents the situation where important discovery occurs during the study of one of the individual cases (e.g., one of the cases deviated unexpectedly from the original design). Such a discovery may require you to reconsider one or more of the multiple-case study's original theoretical propositions. At this point, "redesign" should take place before proceeding further. Such redesign might involve the selection of alternative cases or changes in the case study protocol (see Chapter 3). Without such redesign, you risk being accused of distorting or ignoring the discovery, just to accommodate the original design. This condition leads quickly to a further accusation—that you have been selective in reporting your data, to suit your preconceived ideas (i.e., the original theoretical propositions).

Overall, Figure 2.5 depicts a different logic from that of a sampling design. The logic as well as its contrast with a sampling design may be difficult to follow and is worth extensive discussion with colleagues before

proceeding with any multiple-case study.

When using a multiple-case design, a further question you will encounter has to do with the *number* of cases deemed necessary or sufficient for your study. However, because a sampling logic should not be used, the typical criteria regarding the use of a power analysis to determine the desired sample size (e.g., Lipsey, 1990) also are irrelevant. Instead, you should think of the number of case replications—both literal and theoretical—that you need or would like to have in your study.

Figure 2.5 Multiple-Case Study Procedure



Source: Cosmos Corporation.

Your judgment will be a discretionary, not formulaic, one. Such discretionary judgments are not peculiar to case study research. They also occur in non–case study research, such as in setting the criterion for defining a "significant effect" in experiments. Thus, designating a "$p < .05$" or "$p < .01$" likelihood of detection, to set the confidence level for accepting or rejecting the null hypothesis, is not based on any formula but is a matter of a discretionary, judgmental choice. Note that when patient safety and well-being are at stake, as in a clinical trial, investigators will usually not settle for a "$p < .01$" significance level but may choose to attain a "$p < .0001$" or even more stringent level.

Analogously, designating the number of replications depends upon the certainty you want to have about your multiple-case results. For example, you may want to settle for two or three literal replications when your theory is straightforward and the issue at hand does not demand an excessive degree of certainty. However, if your theory is subtle or if you want a higher degree of certainty, you may press for five, six, or more replications.

In deciding upon the number of replications, an important consideration also is related to your sense of the strength and importance of rival explanations. The stronger the rivals, the more additional cases you might want, each case showing a different but predicted result when some rival explanation had been taken into account. For example, your original hypothesis might be that summer reading programs improve students' reading scores, and you already might have shown this result through two to three programs whose case

studies served as literal replications. A rival explanation might be that parents also work more closely with their children during the summer and that this circumstance can account for the improved reading scores. You would then find another case, with parent participation but no summer reading program, and in this theoretical replication, you would predict that the scores would not improve. Having two such theoretical replications would provide even greater support for your findings.

Rationale for multiple-case designs.

In short, the rationale for multiple-case designs derives directly from your understanding of literal and theoretical replications (refer again to BOX 11). The simplest multiple-case design would be the selection of two or more cases that are believed to be literal replications, such as a set of case studies with exemplary outcomes in relation to some evaluation question, such as "how and why a particular intervention has been implemented smoothly." Selecting such cases requires prior knowledge of the outcomes, with the multiple-case inquiry focusing on how and why the exemplary outcomes might have occurred and hoping for literal (or direct) replications of these conditions from case to case.[7]

More complicated multiple-case designs would likely result from the number and types of theoretical replications you might want to cover. For example, investigators have used a "two-tail" design in which cases from both extremes (of some important theoretical condition, such as extremely good and extremely bad outcomes) have been deliberately chosen. Multiple-case rationales also can derive from the prior hypothesizing of different types of conditions and the desire to have subgroups of cases covering each type. These and other similar designs are more complicated because the study should still have at least two individual cases within each of the subgroups, so that the theoretical replications across subgroups are complemented by literal replications within each subgroup.

Multiple-case studies: Holistic or embedded.

The fact that a design calls for multiple-case studies does not eliminate the variation identified earlier with single-case studies: Each individual case study may still be holistic or contain embedded subunits. In other words, a multiple-case study may consist of multiple holistic cases (see Figure 2.4, Type 3) or of multiple embedded cases (see Figure 2.4, Type 4). The difference between these two variants depends upon the type of phenomenon being studied and your research questions. In an embedded multiple-case design, a study even may call for the conduct of a survey at each case study site.

For instance, suppose a study is concerned with the impact of the training curriculum adopted by different nursing schools. Each nursing school may be the topic of a case study, with the theoretical framework dictating that nine such schools be included as case studies, three to replicate a direct result (literal replication) and six others to deal with contrasting conditions (theoretical replications).

For all nine schools, an embedded design is used because surveys of the students (or, alternatively, examination of students' archival records) are needed to address research questions about the performance of the schools. However, the results of each survey will *not* be pooled across schools. Rather, the survey results will be part of the findings for the individual case study of each nursing school. The results may be highly

quantitative and even involve statistical tests, focusing on the attitudes and behavior of individual students, and the data will be used along with information about the school to interpret the success and operations with the training curriculum at that particular school. If, in contrast, the survey data are pooled across schools, a replication design is no longer being used. In fact, the study has now become a mixed-methods study (see discussion of mixed-methods designs at the end of this chapter), the collective survey providing one set of evidence and the nine case studies providing a separate set. Such a turn of events would create a pressing need to discard the original multiple-case design. The newly designed mixed-methods study would require a complete redefinition of the main unit of analysis and entail extensive revisions to the original theories and propositions of interest.

Summary.

This section has dealt with situations in which the same investigation calls for multiple cases and their ensuing case studies. These types of designs are becoming more prevalent, but they are more expensive and time-consuming to conduct.

Any use of multiple-case designs should follow a replication, not a sampling, logic, and a researcher must choose each case carefully. The cases should serve in a manner similar to multiple experiments, with similar results (a literal replication) or contrasting results (a theoretical replication) predicted explicitly at the outset of the investigation.

The individual cases within a multiple-case study design may be either holistic or embedded. When an embedded design is used, each individual case study may in fact include the collection and analysis of quantitative data, including the use of surveys within each case study.

Exercise 2.4 Defining a Case Study Research Design

Select one of the case studies described in the BOXES of this book, reviewing the entire case study (not just the material in the BOX). Describe the research design of this case study. How did it justify the relevant evidence to be sought, given the main research questions to be answered? What methods were used to identify the findings, based on the evidence? Is the design a single- or multiple-case design? Is it holistic or does it have embedded units of analysis?

Modest Advice In Selecting Case Study Designs

Now that you know how to define case study designs and are prepared to carry out design work, you might want to consider three pieces of advice.

Single- or Multiple-Case Designs?

The first word of advice is that, although all designs can lead to successful case studies, when you have the choice (and resources), multiple-case designs may be preferred over single-case designs. If you can do even a "two-case" case study, your chances of doing a good case study will be better than using a single-case design. Single-case designs are vulnerable if only because you will have put "all your eggs in one basket." More important, the analytic benefits from having two (or more) cases may be substantial.

To begin with, even with two cases, you have the possibility of direct replication. Analytic conclusions independently arising from two cases, as with two experiments, will be more powerful than those coming from a single-case (or single experiment) alone. Alternatively, you may have deliberately selected your two cases because they offered contrasting situations, and you were not seeking a direct replication. In this design, if the subsequent findings support the hypothesized contrast, the results represent a strong start toward theoretical replication—again strengthening your findings compared with those from a single-case study alone (e.g., Eilbert & Lafronza, 2005; Hanna, 2005; also see BOX 12).

Box 12 Two, "Two-Case" Case Studies

12A. Contrasting Cases for Community Building

Chaskin (2001) used two case studies to illustrate contrasting strategies for capacity building at the neighborhood level. The author's overall conceptual framework, which was the main topic of inquiry, claimed that there could be two approaches to building community capacity—using a collaborative organization to (a) reinforce existing networks of community organizations or (b) initiate a new organization in the neighborhood. After thoroughly airing the framework on theoretical grounds, the author presents the two case studies, showing the viability of each approach.

12B. Contrasting Strategies for Educational Accountability

In a directly complementary manner, Elmore, Abelmann, and Fuhrman (1997) chose two case studies to illustrate contrasting strategies for designing and implementing educational accountability (i.e., holding schools accountable for the academic performance of their students). One case represented a lower cost, basic version of an accountability system. The other represented a higher cost, more complex version.

In general, criticisms about single-case studies usually reflect fears about the uniqueness or artifactual conditions surrounding the case (e.g., special access to a key informant). As a result, the criticisms may turn into skepticism about your ability to do empirical work beyond having done a single-case study. Having two cases can begin to blunt such criticism and skepticism. Having more than two cases will produce an even stronger effect. In the face of these benefits, having at least two cases should be your goal. If you do use a single-case design, you should be prepared to make an extremely strong argument in justifying your choice for the case.

Exercise 2.5 Establishing the Rationale for a Multiple-Case Study

Develop some preliminary ideas about a "case" for your case study. Alternatively, focus on one of the single-case studies presented in the BOXES in this book. In either situation, now think of a companion "case" that might augment the single-case. In what ways might the companion case's findings supplement 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?

Closed or Adaptive Designs?

Another word of advice is that, despite this chapter's details about design choices, you should not think that a case study's design cannot be modified by new information or discovery during data collection. Such revelations can be enormously important, leading to your altering or modifying your original research design.

As examples, in a single-case study, what was thought to be a critical or unusual case might have turned out not to be so, just after initial data collection had started; ditto a multiple-case study, where what was thought to be parallel cases for literal replication turn out not to be so. With these revelations, you have every right to conclude that your initial design needs to be modified. However, you should undertake any alterations only given a serious caution. The caution is to understand precisely the nature of the alteration: Are you merely going to select different cases, or are you going to change your original theoretical propositions and objectives? The point is that the needed adaptiveness should not lessen the rigor with which case study procedures are followed.

Mixed-Methods Designs: Mixing Case Studies With Other Methods?

Researchers have given increasing attention to *mixed-methods research*—a "class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a *single* study" (Johnson & Onwuegbuzie, 2004, p. 17, emphasis added). Avid interest in mixed-methods research over the past decade or two has led to a large and still growing literature, as well as the formation of new and active professional groups in many social science fields (e.g., Hesse-Biber & Johnson, 2015).

Confinement to a single study forces the methods being mixed into an integrated mode. The mode differs from the conventional situation whereby different methods are used in *separate* studies that may later be synthesized. In effect, the single study forces the methods to share the same research questions, to collect complementary data, and to conduct counterpart analyses (e.g., Yin, 2006b).

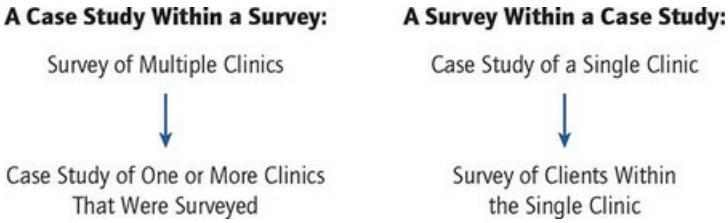
As such, mixed-methods research can permit researchers to address more complicated research questions and collect a richer and stronger array of evidence than can be accomplished by any single method alone. Depending upon the nature of your research questions and your ability to use different methods, mixed-methods research opens a class of research designs that deserve your attention (e.g., Yin, 2015b).

The earlier discussion of embedded case study designs in fact points to the fact that certain kinds of case studies already may represent a form of mixed-methods research: Embedded case studies may rely on holistic data collection strategies for studying the main case and then call upon surveys or other quantitative techniques to collect data about the embedded subunit(s) of analysis. In this situation, other research methods are embedded within case study research.

The opposite relationship also can occur. Your case study may be part of a larger, mixed-methods study. The main investigation may rely on a survey or other quantitative techniques, and your case study may help to investigate the conditions within one of the entities being surveyed.

The contrasting relationships (survey within case or case within survey) are illustrated in Figure 2.6 (also see Chapter 6, pp. 235–236; in addition, Appendix B discusses these two arrangements in relation to evaluation studies).

Figure 2.6 Mixed Methods: Two Nested Arrangements



At the same time, mixed-methods research need not include the use of case study research at all. For instance, a clinical study could be combined with historical work that embraces the quantitative analysis of archival records, such as newspapers and other file material. Going even further, two scholars claim that mixed-

methods research need not be limited to combinations of quantitative and qualitative methods but could employ a mix of two quantitative methods: a survey to describe certain conditions, complemented by an experiment that tries to manipulate some of those conditions (e.g., Berends & Garet, 2002).

By definition, studies using mixed-methods research are more difficult to execute than studies limited to single methods. However, mixed-methods research can enable you to address broader or more complicated research questions than case studies alone. As a result, mixing case study research with other methods should be among the possibilities meriting your consideration.

Notes to Chapter 2

1. Figure 2.2 focuses only on the formal research design process, not on data collection activities. For all three types of research (survey, case study, and experiment), data collection techniques might be depicted as the level below Level One in the figure. For example, for case study research, this might include using multiple sources of evidence, as described further in Chapter 4. Similar data collection techniques can be described for surveys or experiments—for example, questionnaire design for surveys or stimulus presentation strategies for experiments.

2. Whether experiments also need to address statistical generalizations has been the topic of sharp debate in psychology. According to the statistical argument, the human subjects in an experiment should be considered a population sample, with the experimental results therefore limited to the universe of the same population. The debate began over the excessive use of college sophomores in behavioral research (e.g., Cooper, McCord, & Socha, 2011; Gordon, Slade, & Schmitt, 1986; McNemar, 1946; Peterson, 2001; Sears, 1986) and has since extended to an awareness that the subjects in most behavioral research have been White males from industrialized countries (Henrich, Heine, & Norenzayan, 2010), even though the experimental findings are intended to apply as "the norm for all human beings" (Prescott, 2002, p. 38).

3. Mary Kennedy (1979) may have been the first to call attention to the analogous process in the field of law: Interpretations made from a single legal case may be used as precedents (i.e., generalizations) for future cases. Indeed, the body of legal knowledge appears to grow in this manner. However, the interpretations (i.e., generalizations) are about the ideas or principles established by the case, not about the case and its potentially idiosyncratic demographic features itself. Obviously, whether a case would be accepted as precedent-setting then becomes the subject of legal claims and debate.

4. One of the anonymous reviewers of the third edition of this book pointed out that construct validity also has to do with whether interviewees understand what is being asked of them.

5. For other suggested guidelines for reviewers of case study proposals or manuscripts, see Yin (1999).

6. Although this modestly large array of cases may at first appear difficult to garner, Small (2009) calls attention to the situation in which a survey study might originally have planned to conduct open-ended interviews of 20 to 30 people, only to find later that—from a survey standpoint—the sample size was too small. However, he points out that if the same number of interviewees happened to suit a multiple-case study replication design, such a number would be more than adequate in arriving at some important findings and conclusions—given appropriate adjustments to the research design and data collection procedures.

7. Strictly quantitative studies that select cases with known outcomes follow the same design and have alternatively been called "case-control," "retrospective," or "case referent" studies (see Rosenbaum, 2002, p. 7).

Application #1: An Exploratory Case Study: How New Organizational Practices Become Routinized

Inappropriate impressions of case study research can result from the overly informal use of exploratory case studies. However, even they should follow a methodic procedure. ***Application 1*** *shows how an exploratory case study was conducted in such a manner, leading to the development of a conceptual framework and data collection procedures for a later case study.*

Every organization engages in a broad variety of practices. They cover the full range of the organization's activities, ranging from (a) hiring and other human resource procedures, to (b) the methods for producing its products and services, and even to (c) routine logistical arrangements. In public service organizations, such as schools, police departments, and fire departments, a notable challenge has been to put new technologies, such as computers or other specialized equipment, into practice.

At first, the public services adopt these new practices as "innovations." The organization may later stop using some of the innovations, but other innovations become a part of the organization's core fabric. At this later stage, the practices are no longer innovations but might be considered as having become "routinized" or "sustained." However, remarkably little is known about how a new practice or innovation, once adopted by an organization, eventually becomes a routine practice. In short, how does routinization occur?

Equally challenging is the problem of how to study such a process. It may be a gradual transition that takes place over a period of years, and the signs of becoming routinized or achieving routinization may not be readily recognized. As a result, how to study the transitions can remain difficult. An exploratory study may be one way of figuring out how to do the desired study.

Application 1 involved such an exploratory effort.[1]. One purpose was to identify the specific practices that were to be covered by the later study. Another purpose was to operationalize the actual organizational changes that mark a routinization process. The organizational changes were to go beyond an alternative approach, commonly found in the literature of that time, on people's perceptions of whether routinization has occurred or not. However, these inquiries about perceptions did not try to identify whether any actual organizational changes had occurred. Finally, the exploratory study needed to specify the data collection procedures to be used in the later study. In short, the goal of the exploratory study was to develop the conceptual framework for the final study.

1. This application, with minor edits, originally appeared as part of Chapter 3 in Yin (2012a), Applications of Case Study Research.

A field-based protocol for the exploratory study.

In the exploratory study, the study team spent an extended time collecting data from seven cases (none of which were used in the final study). A key procedure was the use of a special pilot protocol that elaborated alternative features about the life cycle of an innovation. The study team understood that adoption-implementation-routinization potentially constituted the entire life cycle but had not developed specific hypotheses or measures of the organizational changes, to facilitate empirical study. In this sense, the protocol fostered the development of operational concepts, not just methodological issues.

The study team modified this pilot protocol after every pilot site study was completed. The iterative process forced the team to address several questions repeatedly: Had sufficient information been learned that an existing exploratory question could now be dropped? Had new problems emerged, requiring the framing of a new question? Did an existing question need to be modified? The team also deliberately explored a variety of innovations, ultimately leading to the selection of the final six technologies (two in each of three urban services, which included the use of breathalyzers by law enforcement agencies, computer-assisted instruction by schools, and mobile intensive care units by fire departments). More important, the pilot study helped refine the conceptual framework for the final study. Ultimately, the research questions and instrumentation for studying the routinization process emerged.

Illustrative results and key lessons.

The exploratory study led to identifying the feasibility of studying the six technologies. A second important result of the exploratory study was the development of operational measures for the hypothesized routinization process. Measurable organizational events related to each of the practices at any given site became identified as "cycles" or "passages," as illustrated in Exhibit App. 1.1.

A third important result was the formation of tentative hypotheses about an innovation's life history and the sequence of these cycles and passages—as some were hypothesized to occur earlier in the routinization process and others later. Based on the actual findings from the later study—which covered case studies of 12 innovative practices and a telephone survey of 90 practices at other sites

—Exhibit App. 1.2 shows the way that the life history of an innovation can be depicted. This exhibit should be read in the following manner: (1) The two axes suggest that an innovation can move from left to right (as time passes) and from bottom to top (as it becomes routinized); (2) moving in both directions at the same time produces a diagonal direction, reflecting an innovation passing through an "improvisation stage" (bottom left of the exhibit), to an "expansion stage" (middle), and finally to a "disappearance stage" (top right), with the attainment of the latter two stages defined by the passages and cycles listed in each box; (3) the diagonal movement is spurred by the initiatives and conditions listed next to the vertical arrows pointing to each of the three stages; and (4) during this entire process, a preexisting practice, now being displaced by the innovative one, declines in the opposite diagonal direction.

For Class Discussion or Written Assignment

Using Specialized Terminologies in Case Study Protocols

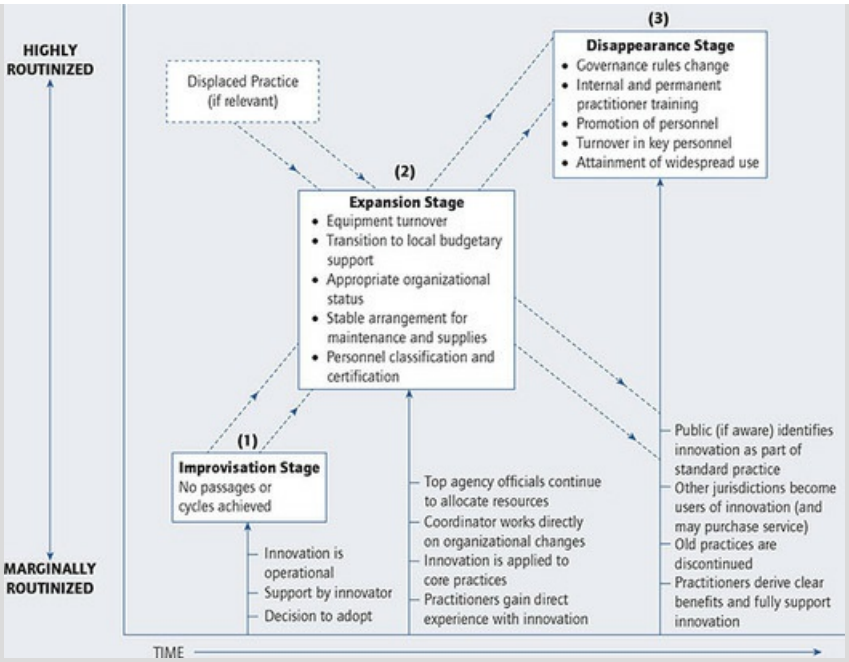
The six practices in **Application 1** covered three urban services that differed strongly in their organizational cultures, procedures, personnel—and terminologies. Although the case study dwelled on the same routinization processes in each service, the diversity of the services called for different data collection protocols. This was especially true in conducting the telephone survey, where the three services' terminology and procedures were sufficiently different that a generic set of questions could not be used. This realization created much unanticipated work for the study team; in fact, the team resisted the finding throughout the exploratory study because of the known consequences in workload. However, no single questionnaire would work.

Examine the protocols that you might have developed in your own previous or ongoing studies. Highlight key words or terms that appear to be specialized in some sense that might confuse people unfamiliar with your topic of study. Is your protocol sufficiently cast in terms of "plain English," or do the specialized terms appear with some frequency? If frequent, what would be the trade-offs if you replaced them with more generic terms? Would your fieldwork now suffer more?

Exhibit App. 1.1 Organizational Passages and Cycles Related to Routinization

Type of Operation or Resource	Passages	Cycles
Budget	Support for the innovation changes from external to internal sources of funds	Survives annual budget cycles involving internal sources of funds
Personnel: Jobs	Innovation functions become part of formal job descriptions and hiring prerequisites	—
Incumbent turnover	—	Survives introduction of new personnel; survives promotion of key personnel away from the innovation
Training: Prepractice	Skills become part of professional standards and inservice or professional school curriculum	—
Inservice	—	Skills taught during many training cycles
Organizational governance	Innovative activity attains appropriate organizational status	Attains widespread use throughout the organization
Supply and maintenance	Supply and maintenance are provided by agency or on long-term (contract) basis	Survives equipment turnover

Exhibit App. 1.2 Complete Life History of a Local Service Innovation



Source: Yin (1981c).

Application #2: Defining the "Case" in a Case Study: Linking Job Training and Economic Development Initiatives at the Local Level

How to define the case(s) to be studied in a case study can require some careful thinking. Sometimes, the candidate cases are known beforehand. In many situations, however, you may have to struggle conceptually to define the cases. ***Application 2*** *shows how the procedure for identifying the actual candidate cases took place for one case study.*

Application 2 called for a case study that would investigate how local initiatives might explicitly coordinate job training (for the hard-to-employ) with economic development objectives.[1] This kind of initiative offered an attractive dual benefit.

1. A version of this application originally appeared as part of Chapter 3 in Yin (2012a), Applications of Case Study Research.

For the training participants in such an initiative, the potential advantage is that placement is more likely to occur in jobs in economically growing industries and occupations, resulting in more enduring job placements. Conversely, for employers in growing lines of business, such programs might produce a larger pool of appropriately trained employees, thereby making recruitment easier. In contrast, when job training or economic development efforts occur in isolation of each other, neither of the preceding benefits is likely to be realized: Job training efforts alone can easily lead to placements in low-growth and transient jobs for the hard-to-employ; economic development efforts alone can focus too heavily on employers' facilities and capital needs, overlooking their potential employment needs.

The purpose of the case study was to examine the coordinated type of initiative, to determine how the desired combination of outcomes is produced. However, although coordination was straightforward in concept, it was difficult to define operationally. What kinds of cases would be relevant?

An initial requirement was to define the "case." The study team readily understood that the case would not necessarily be a single organization or initiative. To study coordination, a joint organizational effort (between two or more organizations) or joint initiatives (job training and economic development) would likely be the "case." The identification of such joint efforts, therefore, became the first task, before any case selection was possible.

Optional choices.

A troubling characteristic involved the optional ways of organizing such joint efforts. At the local level, the efforts can be represented by at least three different options: a joint project, a joint program, or an interorganizational arrangement. Illustrative joint projects include a community college offering a course focusing on the skills needed for the entry-level jobs of specific local firms in a high-growth industry, in collaboration with those firms. The study team found numerous examples of these *joint projects* in the published literature. *Joint programs* included statewide training programs for dislocated workers. In general, these programmatic efforts were more sustained than single projects, with many states undertaking such initiatives. In contrast, *interorganizational arrangements* did not necessarily focus on a single project or program. Rather, the qualifying criterion was that two or more organizations had joined in some arrangement—by forming a joint venture, initiating a consortium, or using interagency agreements among existing organizations—to coordinate training and economic development activities.

With regard to these three options, both theory and policy relevance played the critical role in the study team's final choice. First, the existing literature indicated that the three options were different—cases of one were not to be confused with cases of the others. For instance, programs call for more significant outlays than projects, and interorganizational arrangements may be the most troublesome but can then result in multiple programs and projects.

Second, the literature had given less attention to interorganizational arrangements, even though these had more promise of local capacity building in the long run. Thus, a local area with a workable interorganizational arrangement may sustain many initiatives and may not be as vulnerable to the sporadic nature of single projects or programs.

Third, the study team was interested in doing a case study that would advance knowledge about interorganizational arrangements. Over the years, increasing attention was being devoted to "public-private partnerships," not just in employment and economic development but also in many services for specific population groups (e.g., in housing, education, social services, health care, mental health care, and community development). Yet, the available literature was shallow with regard to the workings of interorganizational arrangements—how they are formed, what makes them thrive, and how to sustain them.

Finally, a study of interorganizational arrangements also could cover component programs or projects—within the arrangements—as embedded units of analysis. In this way, the study could still touch on the other two options. For all these reasons, the study team selected the interorganizational arrangement as the definition of the case to be studied.

Screening for eligible cases.

At the same time, this definition created a challenge in identifying and screening candidate cases. Interorganizational arrangements do not announce themselves in any prominent way, leading to a troublesome risk: What might at first appear to be such an arrangement might later turn out to be a complex but nevertheless single organization and not a partnership of multiple organizations. Some extended effort is needed, prior to doing the case study, to confirm the desired disposition of each "case." Yet, if not properly controlled, the screening of any given candidate can become too extensive. The amount of screening data would begin to resemble the amount used in the actual case study—which would be far too much (you cannot do a case study of every candidate case). Nevertheless, proper screening requires the collection and analysis of actual empirical data at this preliminary stage.

The study team began its screening process by contacting numerous individuals in the field and consulting available reports and literature. These sources were used to suggest candidates who fit the selection criteria, resulting in 62 nominees. The study team then attempted to contact these nominees, both in writing and by phone. The team obtained information on 47 of them.

The screening information included the responses to a structured interview of about 45 minutes, using a formal instrument. Each of the candidate arrangements also was encouraged to submit written materials and reports about its operations. The final review determined that 22 of the 47 candidates were eligible for further consideration. From these 22, the study team then selected a final group of 6, based on the thoroughness of the documentation and accessibility of the site.

For Class Discussion or Written Assignment

Defining and Bounding the "Case" in Doing Case Studies

The "cases" in a case study can appear to be more straightforward (e.g., individual people, groups of people, organizations, and neighborhoods) or more fluid (e.g., decisions, processes, social relationships, and sequences of events, such as political campaigns). Enumerate some of the cases that have appeared in an array of case studies that appeared in the BOXES in this book. Discuss the possibility that cases are not readily bounded but may have blurry definitions. For instance, even studying the relationship between two people as a "case" might involve defining how different time periods and social situations will be recognized as falling either within the case or outside of it. Given the potential complexities, do you find that strong differences persist between the type of cases that initially appear straightforward and those that appear fluid?

Application #3: How "Discovery" Can Occur in the Field: *Social Stratification in a Midsized Community*

In doing case study research, the initial fieldwork may challenge some original assumption about the study design. Such an occurrence needs to be reviewed carefully, because the challenge may lead to some important revelation, benefiting the case study. ***Application 3*** *discusses the field evidence that led a case study team to revisit its original thinking about social stratification, and their work has become a now-classic case study.*

Nearly every social group—whether a family, a community, or an organization—has a social structure, however organized or disorganized. The components of this social structure, such as family members, community groups, or organizational units, have arrayed themselves in some informal order. In a pluralistic arrangement, all members have equal statuses. In a hierarchical arrangement, some of the members assume more superordinate positions and other members remain in more subordinate positions. These arrangements are but two of many possible arrangements and can be a way of characterizing a group's social structure. In studying communities, research on social structure remains of great interest to this day.

Application 3 is based on a study of the social structure of Yankee City. The original study appeared as a five-volume series in the mid-20th century and represents one of the best-known sociological case studies.[1] The community was situated at the mouth of a large river in New England, just north of Boston. At the time, the community had a population of 17,000. Slightly over 50% of the residents were born in or near Yankee City, 24% were foreign born, and the rest were born elsewhere in the United States. About one fourth of the employable people were in the shoe industry, with other smaller economic activities in silverware manufacturing, the building trades, transport, and electric shops.

1. Warner, W. L., & Lunt, P. S. (1941). The social life of a modern community. New Haven, CT: Yale University Press. This application is the present author's summary excerpt from the original text, which first appeared as Chapter 4 in Yin (2004), The Case Study Anthology.

When the research on Yankee City began, the research team explicitly hypothesized that the social structure of the community would largely revolve around an economic order. The team believed that such an order represented "the fundamental structure of our society . . . and that the most vital and far-reaching value systems which motivate Americans are to be ultimately traced to an economic order" (Warner & Lunt, 1941, p. 81).

The interviews in the initial fieldwork tended to support this hypothesis. Interviewees considered bankers, large property owners, people with high salaries, and those in professional occupations as being of high status, whereas interviewees considered laborers, ditchdiggers, and low-wage earners as being of low status. However, "other evidences began to accumulate which made it difficult to accept a simple economic hypothesis" (p. 81).

For instance, people with similar professional backgrounds were not always accorded the same status. Some physicians had a higher status than others who were nevertheless recognized as being better physicians, and similar inequalities of status were found among ministers, lawyers, and bankers, as well as in the business and industrial world. Occupation and wealth seemed to contribute greatly to the rank status of an individual, but other conditions also prevailed. Something else was at work, leading the research team to develop a "class" hypothesis: "two or more orders of people who are believed to be, and who are accordingly ranked by the members in the community, in socially superior and inferior positions" (p. 82).

The research team found that people tended to marry within their own class, with the children being born into the same status as their parents. Society appeared to distribute rights and privileges, as well as duties and obligations, unequally among the classes. However, unlike a system of castes, the social structure also set the conditions "for movement up and down the social ladder" (p. 82). Overall, the research team now hypothesized that the social structure of Yankee City was dominated by a class order rather than a strictly economic and occupational one.

For instance, the interviewees did not accord the wealthiest man in the town with the highest status because he and his family, though exhibiting acceptable moral behavior, did not "act right" (p. 82) or "do the right things" (p. 83). Conversely, people could be ranked socially high even though they had little money or modest occupational status because they spent their money in the right manner, possibly also belonging to the preferred associations and clubs.

Following this emerging line of thinking, the research team also "made a valuable discovery" (p. 84): In the interviewees' expressions of the higher and lower valuations, the team "noticed that certain geographical terms were used not only to locate people in the city's geographical space but also to evaluate their comparative place in the rank order" (p. 84). In sorting out these references, the team concluded that individuals were being designated in the following manner: "Hill Street was roughly equivalent to upper class, Homeville to at least a good section of the middle class, and Riverbrook to the lowest class" (p. 86).

Interestingly, the team also discovered that the class designations and geographic references only matched in an approximate manner. Not all people living on Hill Street were considered "Hill Streeters," and many people who were considered by class as "Hill Streeters" lived elsewhere in the city. The same pattern existed for Homeville and Riverbrook.

At the same time, the interviews suggested that, within the three main class designations, there existed higher and lower subdivisions. For instance, the interviewees "made frequent references to people of 'old family' and to those of 'new families'" (p. 86). The team labeled these subdivisions as "upper-upper" and "lower-upper" and eventually came to recognize six such subdivisions within the original three classes. (The notions underlying these subdivisions later became a major contribution to the entire social stratification literature.)

Given such a hypothesized class structure, the research team found that membership in various associations could be used as further evidence in classifying the residents within such a structure. For instance, the interviews suggested that "certain clubs . . . were ranked at such extreme heights by people highly placed in the society that most of the lower classes did not even know of their existence, while middle-class people showed that they regarded them as much too high for their expectations" (p. 87).

The diversity of associations within Yankee City, as well as the high rate of participation by the residents, meant that many people belonged to some association, and the people from different classes appeared to belong to different associations. For instance, people designated as "Hill Streeters" did not belong to occupational associations, but Homevillers did. Homevillers also favored fraternal orders and semi-auxiliaries. When the same resident belonged to two or more associations that tended to cross class lines, the research team did a small amount of further interviewing to help clarify an assignment.

The research team used explicit statements in the interviews (e.g., "she does not belong," or "they belong to our club"—p. 90), the residential patterns, and the association membership patterns as the groundwork for assigning the Yankee City residents into the six classes. The team wanted to make these assignments because it defined the need to make them a precondition for doing "a complete study" (p. 91). At the same time, the team recognized that there were many borderline cases and that shifts between the classes were constantly occurring.

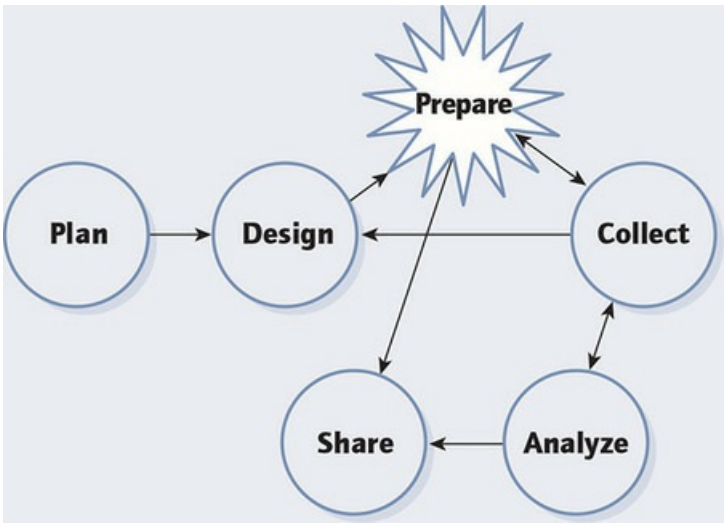
For Class Discussion or Written Assignment

Letting Fieldwork Findings Challenge Your Thinking

The field-based nature of case study research can create a built-in tension. On one hand, the startup of a case study requires some careful planning. Based on reviewing the literature as well as your own interests, you will need to have some preliminary research questions and even possibly a tentative case study design. On the other hand, once you start collecting data, the information from the field may override if not challenge your original thinking. Under that circumstance, you wouldn't want to miss important new insights or discoveries, as in **Application 3**'s switching from a straightforward economic to a social class orientation.

The tension occurs when you are not sure of whether the new information should cause you to revise your original thinking, partly because, if you already have been collecting data from the field, by definition you will be midway through your study. You will want to honor the new insights that may have arisen, but at the same time, you won't want to overreact by unnecessarily disrupting your research procedures. Discuss whether there are ways of distinguishing big surprises from little ones, so that you can give close attention to the big ones but relegate the little ones to some sort of footnote status. Also discuss whether there is a middle ground, whereby you can continue with your original plans but also let the new leads enhance those plans for a little while—that is, until you can decide whether or not to change your original thinking and formally alter your procedures.

3 Preparing to Collect Case Study Evidence What You Need to Do Before Starting to Collect Case Study Data



Chapter 3: Prepare

- Hone skills as a case study researcher
- Train for specific case study
- Develop case study protocol
- Along with the general strategy, consider five analytic techniques
- Throughout, address rival explanations and interpretations

Abstract

Your existing skills and values already reflect your initial preparation for collecting case study evidence. Subsequent preparation then extends to implementing the steps needed for doing a planned case study, including the steps for protecting human subjects.

In doing a case study, you can expect to make many judgment calls—sometimes on a moment's notice, but always demanding care and minimal bias. You therefore need to feel comfortable in addressing a host of procedural uncertainties that might arise. Other desirable research skills include the ability to ask good questions, to "listen," to be adaptive, to have a firm grasp of the issues being studied, and to know how to bring high ethical standards to the research.

With regard to the steps needed for doing a planned case study, you should expect to deal with several tasks. First will be to obtain the needed institutional approval of your procedures for protecting the human subjects in your case study. Second will be the implementation of an intensively designed training for the entire case study team. Third will be the screening of the candidate cases to be part of the case study, and fourth will be the conduct of a pilot case study.

The most important part of the training will cover the development of a case study protocol, to guide the actual data collection. The protocol is especially critical if a case study uses a multiple-case design, involves multiple researchers, or both.

Even though you probably started your case study by tentatively naming one or more research questions and sketching out a case study design, most people associate the doing of a case study with the collection of the case study data. To this end, the present and following chapters focus on data collection. This chapter deals with the needed preparation. The next covers the actual data collection techniques.

Preparing for data collection can be complex. If not done well, the entire case study can be jeopardized, and all of the earlier work—in defining the research questions and designing the case study—will have been for naught. Moreover, showing how the human subjects in your case study will be protected can pose another challenge.

Good preparation begins with (1) the *desired skills and values* on the part of the case study investigator. These have seldom been the topic of explicit attention in the past. Yet, some are critical and can be learned or practiced. Four additional topics also should be a formal part of any case study preparation: (2) *training* for a specific case study, (3) developing a *protocol* for the study, (4) *screening* candidate cases, and (5) conducting a *pilot case study*. The protocol is an especially effective way of dealing with the overall problem of increasing the reliability of case studies. However, success with all five topics will ensure that your data collection will proceed smoothly. The following chapter therefore covers each topic.

The Case Study Researcher: Desired Skills And Values

Too many people are still drawn to case study research because they believe case studies are easy to do. Possibly because of the confusion between research case studies and nonresearch case studies (e.g., the "popular case studies" discussed in Chapter 1), many social scientists—especially emerging ones—think case study research can be mastered without much difficulty. They believe that they only will have to learn a minimal set of technical procedures; that any of their own shortcomings in formal, analytic skills will be unimportant; and that a case study will allow them simply to "tell it like it is." No beliefs could be further from the truth.

In actuality, the demands of a case study on your intellect, ego, and emotions are far greater than those of any other research method. This is because the data collection procedures are *not* routinized. In laboratory experiments or in surveys, for instance, the data collection phase of a research project can be largely, if not wholly, conducted by one (or more) research assistant(s). The assistant(s) will carry out the data collection with a minimum of discretionary behavior. In this sense, the activity is routinized—and analytically boring.

Conducting case studies offers no such parallel. Rather, a well-trained and experienced researcher is needed to conduct a high-quality case study because of the continuous interaction between the issues being studied and the data being collected. Mediating this interaction will require delicate judgment calls. They can involve technical aspects of the data collection but also ethical dilemmas, such as dealing with the sharing of private information or coping with unexpected field conflicts. Only an alert researcher will be able to take advantage of unexpected opportunities rather than being trapped by them.

Unfortunately, there are no tests for distinguishing those persons likely to become good case study researchers from those who are not. Compare this situation with that in mathematics or even a profession such as law. In math, people are able to screen themselves from further advancement because they simply cannot carry out higher levels of math problems. To practice law, a person must pass the bar examination in a particular state. Again, many people screen themselves out of the field by failing to pass this test.

No such gatekeepers exist for assessing the skills and values needed to do good case studies. However, a basic list of desired attributes might be the ability to

- *Ask good questions*—and interpret the answers fairly.
- *Be a good "listener"* not trapped by existing ideologies or preconceptions.
- *Stay adaptive,* so that newly encountered situations can be seen as opportunities, not threats.
- *Have a firm grasp of the issues being studied,* even when in an exploratory mode.
- *Conduct research ethically,* from a professional standpoint but also by being sensitive to contrary evidence.

Any absence of these attributes is remediable, as anyone missing one or more of them can work on developing them. But everyone must be honest in assessing their capabilities in the first place. You might therefore check yourself against the following profiles.

Tip: When am I ready to start collecting the case study data?

You have just designed your case study, following the suggestions in Chapter 2, and you are anxious to start collecting data because time is short, and available data collection opportunities are present. Your readiness, however, should not be defined by external time constraints or conditions. Instead, your "readiness" depends upon your own skill levels for doing case studies, as well as your having completed formal and preparatory procedures prior to collecting actual data, such as having properly selected the case to be studied.

Have you practiced these skills, and do you think case study research needs to follow specific procedures in preparing for data collection?

Asking Good Questions

More than with the other research methods discussed in Chapter 1, case study research requires an inquiring mind *during* data collection, not just before or after the activity. The ability to pose and ask good questions is therefore a prerequisite for case study researchers. The desired result is for the researcher to create a rich dialogue with the evidence, an activity that encompasses

> pondering the possibilities gained from deep familiarity with some aspect of the world, systematizing those ideas in relation to kinds of information one might gather, checking the ideas in the light of that information, dealing with the inevitable discrepancies between what was expected and what was found by rethinking the possibilities of getting more data, and so on. (Becker, 1998, p. 66)

Case study data collection does follow a formal protocol, but the specific information that may become relevant to a case study is not readily predictable. As you collect case study evidence, you must quickly review the evidence and continually ask yourself why events or perceptions appear as they do. Your judgments may lead to the immediate need to search for additional evidence.

If you are able to ask good questions throughout the data collection process, a good prediction is that you also will be *mentally and emotionally* exhausted at the end of each day when doing fieldwork. This depletion of analytic energy is far different from the experience in collecting experimental or survey data—that is, testing "subjects" or administering questionnaires. In these situations, data collection is highly routinized, and the data collector must complete a certain volume of work while exercising minimal discretionary behavior. Furthermore, any substantive review of the evidence does not come until some later time. The result is that such a data collector may become *physically* exhausted but will have been mentally untested after a day of data collection. If you have been doing case study fieldwork and have become only physically but not mentally exhausted, you probably have not been asking enough or good enough questions.

One insight into asking good questions is to understand that research is about questions and not necessarily about answers. If you are the type of person for whom one tentative answer immediately leads to a whole host of new questions, and if these questions eventually aggregate to some significant inquiry about how or why the world of your case works as it does, you are likely to be a good asker of questions.

Being a Good "Listener"

For case studies, "listening" means receiving information through multiple modalities—for example, making keen observations or sensing what might be going on—not just using the aural modality. Being a good listener means being able to assimilate large amounts of new information without bias. As an interviewee recounts an incident, a good listener hears the exact words used by the interviewee (sometimes, the terminology reflects an important perspective), captures the mood and affective components, understands the context from which the interviewee is perceiving the world, and infers the meaning intended by the interviewee (not by the researcher). In other words, you want to follow not only what might have been said but also what was meant.

The listening skill also needs to be applied to the inspection of documentary evidence, as well as to observations of field situations. In reviewing documents, listening takes the form of worrying whether the originator of the document intended any important messages *between* the lines; any inferences, of course, would need to be corroborated with other sources of information, but important insights might be gained in this way. Poor "listeners" may not even realize that there can be information between the lines. Other listening deficiencies include having a closed mind, being selective in what is retained, or simply having a poor memory.

Staying Adaptive

Few case studies will end exactly as planned. Inevitably, you will have to make minor if not major changes, ranging from the need to pursue an unexpected lead (potentially minor) to the need to identify a new "case" for study (potentially major). The skilled researcher must remember the original purpose of the case study but then must be willing to adapt procedures or plans if unanticipated events occur (see BOX 13).

Box 13 Adaptiveness in Designing a Case Study

Peter Blau's study of behavior in large government agencies (*The Dynamics of Bureaucracy,* 1955) is still valued for its insights into the relationship between the formal and informal organization of work groups, even more than 60 years later.

Although his study focused on two government agencies, that was not Blau's initial design. As the author notes, he first intended to study a single organization and later switched to a plan to compare two organizations—a public one and a private one (Blau, 1955, pp. 272–273). However, his initial attempts to gain access to a private firm were unsuccessful, and in the meanwhile, he had developed a stronger rationale for comparing two different kinds of government agencies.

This shift in Blau's initial plan is an example of the kind of change that can occur in the design of a case study. Blau's experience shows how a skilled researcher can take advantage of changing opportunities, as well as making adaptations in theoretical concerns, to produce a classic case study.

When a shift is made, you must maintain an unbiased perspective and acknowledge those situations in which, in fact, you may have inadvertently begun to pursue a totally new study. When this occurs, many completed steps—including the initial design of the case study—must be repeated and redocumented. As mentioned in Chapter 2, one of the worst complaints about the conduct of case study research is that researchers change directions without knowing that their original research design was inappropriate for the eventual case study, thereby leaving unknown gaps and biases. Thus, your need to balance adaptability with *rigor*—but not rigidity—cannot be overemphasized.

The desired adaptability also should not result in any exploitative tendencies on your part. For instance, if an interviewee wants to take more time to respond to your questions, being adaptive should not then mean extending the interview time far beyond what appears to have been the interviewee's original commitment to the interview. Similarly, if an organization pleasantly surprises you by permitting you to retrieve and read some key documents previously withheld from you, you should not think immediately of copying them, unless your host voluntarily signals that this would be an acceptable procedure.

Maintaining an adaptive posture can lead to an invaluable result: discovering an unexpectedly revealing line of thinking that ultimately helps your case study to make a major contribution to the literature. Thus, if you had started your case study with certain predispositions but some preliminary fieldwork challenged them, only an adaptive posture will make you sensitive to the challenge. For example, Application 3 at the end of Chapter 2 showed how preliminary fieldwork led to an invaluable insight for a case study.

Having a Firm Grasp of the Issues Being Studied

The main way of staying on target is to recall the purpose of the case study in the first place. Every case study researcher must understand the relevant theoretical or policy issues because analytic judgments have to be made throughout data collection. Again, even if you are doing an exploratory case study, you should still remember the rationale for your exploration.

Without a firm grasp of the issues, you could miss important clues and would not know when a deviation was acceptable or even desirable. The point is that case study data collection is not merely a matter of *recording* data in a mechanical fashion, as it is in some other types of research. You must be able to *interpret* the information as it is being collected and to know immediately if several sources of information contradict one another and lead to the need for additional evidence—much like a good detective.

In fact, the detective role offers some keen insights into case study fieldwork. Note that the detective arrives on a scene *after* a crime has occurred and is basically being called upon to make *inferences* about what actually transpired. The inferences, in turn, must be based on convergent evidence from witnesses and physical evidence, as well as some unspecifiable element of common sense. Finally, the detective may have to make inferences about multiple crimes, to determine whether the same perpetrator committed them. This last step is analogous to the replication logic underlying multiple-case studies.

Conducting Research Ethically

All the preceding conditions will be negated if a researcher only seeks to use a case study to substantiate a preconceived position. Independent of the method of choice, all researchers are prone to this problem because they must understand the issues beforehand (see Becker, 1958, 1967). Such an understanding may undesirably sway a researcher toward supportive evidence and away from contrary evidence. In the most undesirable situation—to be avoided wherever possible—you may have knowingly elected to do a case study to enable you (wrongly) to pursue or (worse yet) advocate a particular orientation to the issues.[1]

One test of this potential bias is the degree to which you are open to contrary evidence. For example, researchers studying "nonprofit" organizations may be surprised to find that many of these organizations have entrepreneurial and capitalistic motives, though the organizations don't formally make profits. If such findings are based on compelling evidence, the conclusions of the case study would have to reflect these contrary findings. At a more micro level, you may have disregarded some of the interviewee's words in an interview because you thought the words were spoken unclearly, when in fact you did not give them sufficient attention because they did not fit your preconceptions.

To test your tolerance for contrary findings, report your preliminary findings—possibly while still in the data collection phase—to two or three critical colleagues (now occasionally referenced as "critical friends"). The colleagues should offer alternative explanations and suggestions for data collection. If the quest for contrary findings can produce documentable rebuttals, the likelihood of bias will have been reduced.

Avoiding bias is but one facet of a broader set of values that falls under the rubric of "research ethics." A good case study researcher, like any other social scientist, will strive for the highest ethical standards while doing research. These include having a responsibility to scholarship, such as neither plagiarizing nor falsifying information, as well as being honest, avoiding deception, and accepting responsibility for your own work. These also include maintaining a strong professional competence that includes keeping up with related research, ensuring accuracy, striving for credibility, and understanding and divulging the needed methodological qualifiers and limitations to your work.

You can learn more about the particular ethical standards that have been promoted by different academic disciplines by familiarizing yourself with any one of several documents: American Anthropological Association (2012); American Association of University Professors (2013); American Educational Research Association (2011); American Evaluation Association (2004); American Political Science Association Committee on Professional Ethics, Rights, and Freedom (2012); American Psychological Association (2010); and American Sociological Association (2008).

Exercise 3.1 Identifying the Skills for Doing Case Study Research

Name the various skills that are important for a case study researcher to have. Do you know any people who have been successful in doing case study research? What strengths and weaknesses do they have as research investigators? Are these similar to the ones you have just named?

Exercise 3.2 Analyzing Your Own Skills for Doing Case Study Research

What distinctive skills do you believe equip you to do a case study? Have you done previous studies requiring the collection and analysis of original data? Have you done any fieldwork, and if so, in what ways are you a good "listener" or an observant person? If you identify some case study skills that you still might need to strengthen, how would you go about the task?

Preparation And Training For A Specific Case Study

Protecting Human Subjects

Specific ethical considerations arise for all research involving human "subjects"—the people who will participate in your study or about whom you might collect previously recorded data, such as personnel or client records or students' grades. As a result, sometime between the completion of your design and the start of your data collection, you will need to show how you plan to protect the human subjects in your case study. You will need to obtain formal approval for your plan, and you should not view such approval as a nominal oversight process. (And, as a preview of the upcoming portions of this chapter, even if the prevailing authorities ultimately lift many human subjects requirements, the earlier practices already have been around long enough that many participants will probably expect you to follow the "old" rules.)

The need for protecting human subjects comes from the fact that nearly all case studies are about human affairs. In this manner, you and other social scientists differ from scientists who study physical, chemical, or other nonhuman systems or from historians who may be studying the "dead past." The study of "a contemporary phenomenon within its real-world context" obligates you to important ethical practices akin to those followed in medical research.

As part of the protection, you are responsible for conducting your case study with special care and sensitivity. The care usually involves the following (National Research Council, 2003, pp. 23–28):

- Gaining *informed consent* from all persons who may be part of your case study, by alerting them to the nature of your case study and formally soliciting their volunteerism in participating in the study;
- Protecting those who participate in your study from any *harm,* including avoiding the use of any *deception* in your study;
- Protecting the *privacy and confidentiality* of those who participate so that, as a result of their participation, they will not be unwittingly put in any undesirable position, such as being placed on a list to receive requests to participate in some future study, whether conducted by you or anyone else;
- Taking special precautions that might be needed to protect *especially vulnerable groups* (for instance, research involving children); and
- Selecting participants *equitably,* so that no groups of people are unfairly included or excluded from the research.

Formal approval of your plan will come from an institutional review board (IRB). Universities and other research organizations create such boards. They review and approve all human subjects research before the research can proceed. As a result, the most imperative step before proceeding with your case study is to seek out the IRB at your institution, follow its guidance, and obtain its approval. At the same time, the approval process has been evolving over the past several years, and the possibility of a modified process for case study research as well as qualitative research may emerge. You should consult your IRB for the latest developments.[2]

The board's review will cover the objectives and design of your study and how you plan to protect the human subjects in it. Note that your interactions with the specific human subjects in your study take place through

both direct contact (as in interviews) and the use of archival records (such as employee or school records). Compared with its review of studies using other methods, an IRB may devote extra attention to a proposed case study because of a lack of familiarity with case study research. For instance, case study interviews may be more challenging because the interactions are not as structured as in survey interviews' closed-ended questionnaires. The board will want to know how you plan to interact with those being studied, the protocols for the data collection instruments you are planning to use, and how you will ensure such protections as informed consent, avoidance of harm, and privacy and confidentiality. (See Tutorial 3.1 on the companion website at study.sagepub.com/yin6e for more detail about preparing for and interacting with an IRB.)

More general guidance comes from your own professional ethics and professional research associations that promulgate their own standards for doing human subjects research, not just case studies (e.g., Yarbrough, Shulha, Hopson, & Caruthers, 2011—and also see the seven professional association documents cited previously on p. 87). Also important, your institutional setting will have its own expectations—whether you are part of a university or of an independent research organization—and you need to follow its guidance and procedures.

Training to Do the Case Study

Training is a necessary step in doing case study research. The timing of the training, relative to the timing for seeking human subjects approval, will not always be linear. You need to have some data collection plans before seeking approval, but, as pointed out below, the finalization of the plans cannot occur until after the approval has been granted. The training activities described below may therefore take place over an extended period of time, starting before but ending after the approval process.

Training to be a "senior" researcher.

Key to understanding the needed training is to understand that every case study researcher must be able to operate as a "senior" researcher. Once you have started collecting data, you should think of yourself as an independent researcher who cannot rely on a rigid formula to guide your inquiry. You must be able to make intelligent decisions throughout the data collection process.

In this sense, training to do a case study actually begins with the definition of the research questions being addressed and the development of the case study design. If these steps have been satisfactorily conducted, as described in Chapters 1 and 2, only minimal further effort may be needed, especially if there is only a single case study researcher.

However, it often happens that a case study needs to be conducted by a *case study team,*[3] for any of three reasons:

1. A single-case study calls for intensive data collection at the same site, requiring a "team" of researchers (see BOX 14);
2. A case study involves multiple cases, with different persons being needed to cover each site or to rotate among the sites (Stake, 2006, p. 21); or
3. A combination of the first two conditions.

Box 14 The Logistics of Field Research, Circa 1924–1925

Arranging schedules and gaining access to relevant sources of evidence are important to the *management* of a case study. The modern researcher may feel that these activities have only emerged with the growth of "big" social science during the 1960s and 1970s.

In a famous field study done decades ago, however, many of the same management techniques already had been practiced. The two principal investigators and their staff secretary opened a local office in the city they were studying. This office was used by other project staff for extended periods of time. From this vantage point, the research team participated in local life, examined documentary materials, compiled local statistics, conducted interviews, and distributed and collected questionnaires. This extensive fieldwork resulted 5 years later in the publication of the now-classic study of small-town America, *Middletown* (1929), by Robert and Helen Lynd.

Under these circumstances, all team members should have contributed to the development of a draft case study protocol. This draft would then have been the version submitted for IRB approval, with the IRB-approved version subsequently being considered the final version of the protocol.

When multiple researchers or team members participate in the same case study, all need to learn to be "senior" researchers. Training takes the form of group collaboration rather than didactic instruction: Much time has to be allowed for reading, preparing for the training, and holding the training. (See Figure 3.1 for an agenda of an illustrative training session.)

Typically, the training will cover all phases of the planned case study, including readings on the subject matter, the theoretical issues that led to the case study design, and the case study methods and tactics. You might review examples of the tools used in other case studies (see BOX 15) to add as illustrations to the methodological portion of the training.

Figure 3.1 Multisession Agenda for Case Study Training

Preparatory Readings: Should include the original case study proposal, if any; a field-oriented methodological text; several works on the substance of the case study; and sample case studies (reports or publications) from previous case study research.

Session 1: Discussion of the Purpose of the Case Study, the Main Research Questions, and the Selection of the Case(s)

Session 2: Review of the Case Study Protocol

A. Discussion of relevant theoretical frameworks and literature
B. Development or review of the research design and logic, if relevant
C. In-depth discussion of protocol topics (discuss importance of topic and possible types of evidence to be collected in relation to each topic)
D. Anticipated topics to be covered in the eventual case study report (creates preliminary expectations about the study's end goals)

Session 3: Methodological Review

A. Arrangements for contacting field informants (e.g., draft email or confirmation letter)
B. Fieldwork procedures (discuss methodological principles)
C. Use of evidence (review types of evidence and need for convergence)
D. Note taking and other field practices
E. Follow-up activities (e.g., exit communications with field contacts)
F. Study schedule, including key deadlines

Box 15 Reviewing the Tools and Methods Used in Other Case Studies, Circa the 21st Century

Websites have provided new opportunities to access the tools and methods used in case studies. For example, in online versions of articles, academic journals may reproduce supplementary materials that might not have appeared in the printed version of the article. For one case study, the supplementary materials included the formal case study protocol, the case study coding book, evidentiary tables linking claims to sections of the case study database, and a list of documents in the case study database (Randolph & Eronen, 2007).

The training goal is to have all team members understand the basic concepts, terminology, and methodological issues relevant to the study. Each team member needs to know

- Why the case study is being done,
- What evidence is being sought,
- What procedural variations can be anticipated (and what should be done if such variations occur), and
- What would constitute supportive or contrary evidence for any given proposition.

Discussions, rather than lectures, are the key part of the training effort, to test whether the desired level of understanding has been achieved.

This approach to case study training can be contrasted with the training for other types of data collection—for example, group training for survey interviewers. The survey training does involve discussions, but it mainly emphasizes a didactic approach that covers the questionnaire items or terminology to be used. The survey training may or may not cover the global or conceptual concerns of the study, as interviewers may not need to have any broader understanding beyond the mechanics of the survey instrument. Survey training rarely involves any outside reading about the substantive issues, and the survey interviewer generally does not know how the survey data are to be analyzed or what issues are to be investigated. Such an approach may feed the strengths of doing surveys but would be insufficient for case study training.

Problems to be addressed during training.

The training also provides an important opportunity for uncovering problems within the case study plan or with the research team's capabilities. If such problems do emerge, one consolation is that they will be more troublesome if they are only recognized later, after the data collection begins. Good case study researchers should therefore press to be certain, during the training period, that potential problems are brought into the open.

The most obvious problem is that the training may reveal flaws in the case study design or even the initial definition of the study questions. If this occurs, you must be willing to make the necessary revisions, even if more time and effort are necessary. Sometimes, the revisions will challenge the basic purpose of the case study, as in a situation in which the original objective may have been to investigate a technological phenomenon, such as the use of personal computers, but in which the case study really turns out to be about an organizational phenomenon, such as poor supervision. Any revisions, of course, also may lead to the need to review a slightly different literature and to recast the entire case study and its audience. You also should check your IRB's procedures to see whether it will need to conduct a new human subjects review. Despite these unexpected developments, changing the basic premise of your case study is fully warranted if the training has demonstrated the unrealistic (or uninteresting) nature of the original plan.

A second problem is that the training may reveal incompatibilities among the team members—and in particular, the fact that some team members may not share the perspective of the study or its sponsors. In one multiple-case study of community organizations, for instance, team members varied in their beliefs regarding the efficacy of such organizations (U.S. National Commission on Neighborhoods, 1979). When such biases are discovered, one way of dealing with the differing orientations is to suggest to the team that contrary evidence will be respected if it is collected and verifiable. A team member still has the choice, of course, of continuing to participate in the study or deciding to drop out.

A third problem is that the training may reveal some impractical time deadlines or expectations regarding available resources. For instance, a case study may have assumed that 20 persons were to be contacted for open-ended interviews during fieldwork, as part of the data collection. The training may have revealed,

however, that the time needed for meeting with these persons is likely to be much longer than anticipated. Under such circumstances, any expectation for interviewing 20 persons would have to depend on revising the original fieldwork schedule.

Regardless of the problems that might have to be addressed, the training should have the effect of creating a group norm for the ensuing data collection activity. This norm-building process is more than an amenity; it will help ensure supportive reactions, should unexpected problems arise during the data collection.

Exercise 3.3 Conducting Training for Doing a Case Study

Describe the major ways in which the preparation and training to do a case study are *different* from those for doing studies using other types of research methods (e.g., surveys, experiments, histories, and archival analysis). Develop a training agenda to prepare for a case study you might be considering, in which two or three persons are to collaborate.

The Case Study Protocol

A case study protocol has only one thing in common with a survey questionnaire: Both are directed at a single focus for data collection—either a single case (even if the case is part of a larger, multiple-case study) or a single respondent.

Beyond this similarity are major differences. First and foremost, the protocol does contain a set of substantive questions to be used in collecting the case study evidence, but the questions are directed at an entirely different party than that of a survey questionnaire, explained below. In this sense, the protocol is more than a conventional questionnaire or instrument. Second, the protocol also contains the procedures and general rules to be followed when using the protocol. Third, having a case study protocol is desirable under all circumstances but is essential if you are doing a multiple-case study.

Figure 3.2 gives a *table of contents* from an illustrative protocol, which was used in a study of innovative law enforcement practices supported by federal funds. The practices had been defined earlier through a careful screening process (see later discussion in this chapter for more detail on "screening case study nominations"). Furthermore, because data were to be collected from 18 such cases as part of a multiple-case study, the information about any given case could not be collected in great depth, and thus the number of data collection questions—only 10 in all (see Section C, Figure 3.2)—was to be modest.

As a general matter, and as suggested by the illustrative example in Figure 3.2, a case study protocol should have four sections:

- Section A: an overview of the case study (objectives and auspices, case study issues, and relevant readings about the topic being investigated)
- Section B: data collection procedures (procedures for protecting human subjects, identification of likely sources of data, presentation of credentials to field contacts, and other logistical reminders)
- Section C: protocol questions (the specific questions that the case study researcher must keep in mind in collecting data and the potential sources of evidence for addressing each question—see Figure 3.4 later in this chapter for an example)
- Section D: a tentative outline for the case study report (e.g., format for the data, use and presentation of other documentation, and bibliographic information)

A quick glance at these topics will indicate why the protocol is so important. First, it keeps you targeted on the topic of the case study. Second, preparing the protocol forces you to anticipate several problems, including the way that the case study reports are to be completed. This means, for instance, that you will have to identify the *audience(s)* for your case study report even before you have conducted your case study. Such forethought will help to avoid mismatches in the long run.

The table of contents of the illustrative protocol in Figure 3.2 reveals another important feature of the case study report: In this instance, the desired report outline starts by calling for a description of the innovative practice being studied (see Item D2 in Figure 3.2)—and only later covers the agency context and history

pertaining to the practice (see Item D5). This choice reflects the fact that many case study researchers write too extensively about history and background conditions. While these are important, the description of the subject of the study (in the illustrative protocol, the innovative practice) demands the primary attention. In other words, you can help the audience by delving directly into the case and only later providing the relevant background conditions indicating how the case came to be.

Figure 3.2 Table of Contents of Protocol for Conducting Case Studies of Innovative Law Enforcement Practices

Section A. Overview of the Case Study

1. Mission and goals reflecting the interests of the case study's sponsor (if any) and audience
2. Case study questions, hypotheses, and propositions
3. Theoretical framework for the case study; key readings
4. Role of protocol in guiding the case study researcher (*notes that the protocol serves as the agenda for the researcher's line of inquiry*)

Section B. Data Collection Procedures

1. Names of contact persons for doing fieldwork
2. Data collection plan (*covers the type of evidence to be expected, including the roles of people to be interviewed, the events to be observed, and any documents to be reviewed in the field*)
3. Expected preparation prior to fieldwork (*identifies specific information to be reviewed and issues to be covered prior to fieldwork*)

Section C. Protocol Questions

1. The practice in operation and its innovativeness:
   a. Describe the practice in detail, including the deployment of personnel and technologies, if any.
   b. What is the nature, if any, of collaborative efforts across communities or jurisdictions that have been needed to put the practice into place?
   c. How did the idea for the practice start?
   d. Was there a planning process, and how did it work? What were the original goals and target populations or areas for the practice?
   e. In what ways is the practice innovative, compared with other practices of the same kind or in the same jurisdiction?
   f. Describe whether the practice has been supported from the jurisdiction's regular budget or as a result of funding from an external source.
2. Evaluation of the innovative practice:
   a. What is the design for evaluating the practice, and who is doing the evaluation?
   b. What part of the evaluation has been implemented?
   c. What are the outcome measures being used, and what outcomes have been identified to date?
   d. What rival explanations have been identified and explored, for attributing the outcomes to the investment of the federal funds?

Section D. Tentative Outline for the Case Study Report

1. Audience(s) for the report and stylistic preferences for communicating with the audience(s)
2. The law enforcement practice in operation
3. Innovativeness of the practice
4. Outcomes from the practice, to date
5. Law enforcement agency context and history pertaining to the practice
6. Exhibits to be developed: chronology of events covering the implementation and outcomes of the practice at this site, logic model[4] for the practice, arrays for presenting outcome and other data, references to relevant documents, and list of persons interviewed

Overall, the protocol is a major way of increasing the *reliability* of the case study and is intended to guide you in carrying out the data collection from a single case (again, even if the single case is one of several in a multiple-case study). The protocol's four sections are elaborated further, as follows.

Overview of the Case Study (Section A of the Protocol)

Section A of the protocol should cover the background information about the case study, its substantive issues, and the relevant readings about the issues.

The background information can start by articulating the mission and goals of the case study's sponsor (if any) and audience (e.g., a thesis committee). For instance, a sponsor or audience may desire the case study to show its relationship to certain other previous studies, use certain general formats for writing the case study report, or fit within a certain time schedule. Explicit recognition of these conditions belongs in the overview section.

A procedural portion of this background section in Section A is a statement about the case study that you can share with anyone who may want to know about the case study, its purpose and sponsor, and the people involved in conducting the case study. This statement can even be accompanied by a letter of introduction, to be sent to all major interviewees and organizations that may be the subject of study. (See Figure 3.3 for an illustrative letter.)

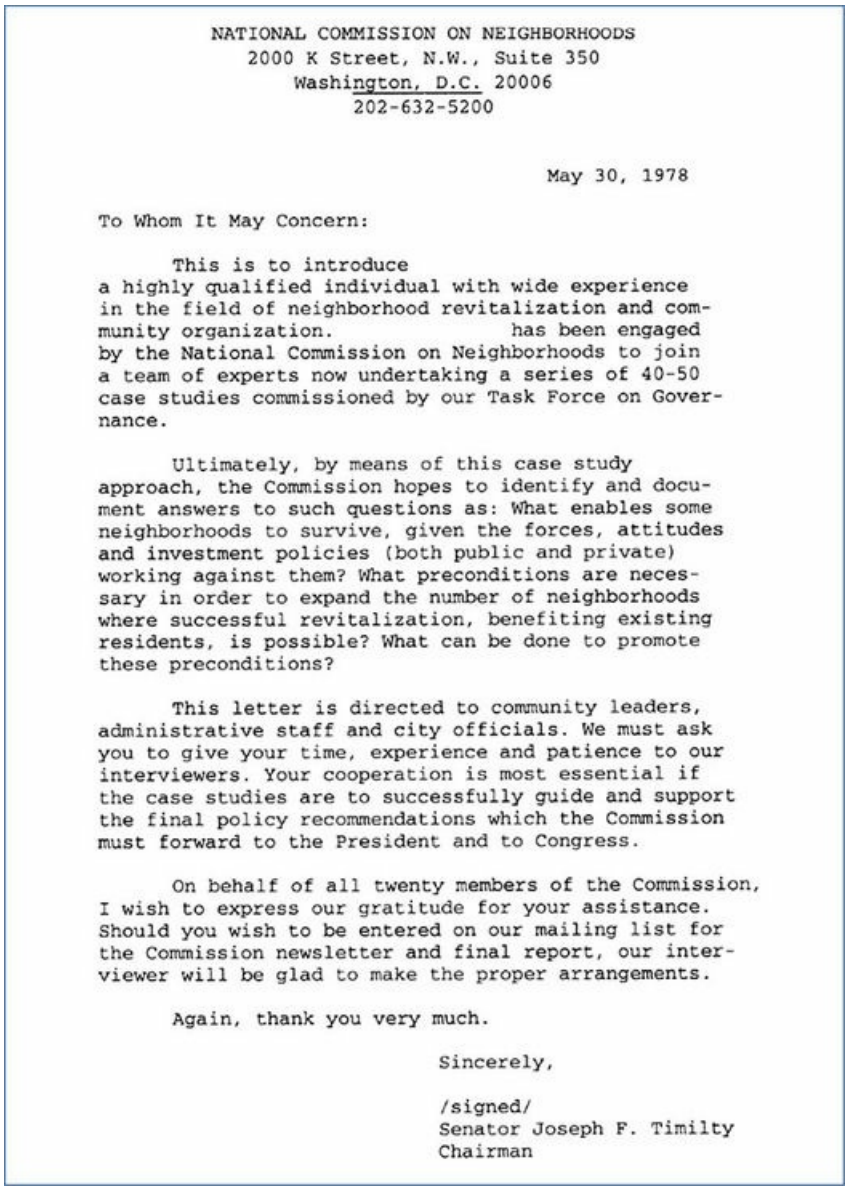
The bulk of the overview, however, should be devoted to the case study's substantive issues. The material may include the rationale for selecting the case(s), the propositions or hypotheses being examined, and the broader theoretical or policy relevance of the inquiry. For all topics, Section A should cite the relevant references, and the essential materials should be made available to everyone on the case study team.

A good overview will communicate to the informed reader (i.e., someone familiar with the general topic of inquiry) the case study's purpose and setting. Some of the materials (such as a summary describing the case study effort) may be needed for other purposes, such as IRB approval, anyway—so that producing Section A should be seen as a doubly worthwhile activity. In the same vein, a well-conceived overview even may later form the basis for portions of the final case study report.

Data Collection Procedures (Section B of the Protocol)

Chapter 1 has previously defined case studies as being about phenomena within their *real-world* contexts. For data collection, this characteristic of case studies raises an important issue, making properly designed field procedures essential. You will be collecting data from people and institutions in *their* everyday situations, not within the controlled confines of a laboratory, the sanctity of a library, or the structured limitations of a survey questionnaire. In a case study, you must therefore learn to integrate real-world events with the needs of your data collection plan. In this sense, you do not have the control over the data collection environment as others might have in using the other methods discussed in Chapter 1.

Figure 3.3 Illustrative Letter of Introduction



NATIONAL COMMISSION ON NEIGHBORHOODS
2000 K Street, N.W., Suite 350
Washington, D.C. 20006
202-632-5200

May 30, 1978

To Whom It May Concern:

This is to introduce a highly qualified individual with wide experience in the field of neighborhood revitalization and community organization. has been engaged by the National Commission on Neighborhoods to join a team of experts now undertaking a series of 40-50 case studies commissioned by our Task Force on Governance.

Ultimately, by means of this case study approach, the Commission hopes to identify and document answers to such questions as: What enables some neighborhoods to survive, given the forces, attitudes and investment policies (both public and private) working against them? What preconditions are necessary in order to expand the number of neighborhoods where successful revitalization, benefiting existing residents, is possible? What can be done to promote these preconditions?

This letter is directed to community leaders, administrative staff and city officials. We must ask you to give your time, experience and patience to our interviewers. Your cooperation is most essential if the case studies are to successfully guide and support the final policy recommendations which the Commission must forward to the President and to Congress.

On behalf of all twenty members of the Commission, I wish to express our gratitude for your assistance. Should you wish to be entered on our mailing list for the Commission newsletter and final report, our interviewer will be glad to make the proper arrangements.

Again, thank you very much.

Sincerely,

/signed/
Senator Joseph F. Timilty
Chairman

Source: U.S. Government.

Note that in a laboratory experiment, human subjects are solicited to enter into a laboratory—an environment controlled nearly entirely by the research investigator. The subject, within ethical and physical constraints, must follow the researcher's instructions, which carefully prescribe the desired procedure. Similarly, the human respondent to a survey questionnaire cannot deviate (far) from the agenda set by the questions. Therefore, the respondent also is constrained by the researcher's ground rules. Naturally, the subject or respondent who does not wish to follow the prescribed behaviors may freely drop out of the experiment or survey. Finally, in collecting data from a historical archive, pertinent documents may not always be available, but a researcher can inspect what exists at her or his own pace and at a time convenient to her or his schedule. In all three situations, the research investigator closely controls the formal data collection activity.

Collecting data for case studies differs entirely. To interview key persons, you must cater to the interviewees' schedules and availability, not yours. The nature of the interview is open-ended, and an interviewee may not necessarily stick to your line of questions. Similarly, in making observations of real-world activities, you are intruding into the participants' world rather than the reverse; under these conditions, you are the one who may have to make special arrangements to become an observer or a participant-observer. As a result, your behavior—and not that of the field participants—is the one likely to be constrained.

This contrasting process of doing data collection leads to the need for Section B of the protocol to have explicit and well-planned field procedures, including guidelines for "coping" behaviors. Imagine, for instance, sending a youngster to camp; because you do not know what to expect, the best preparation is to have the resources to be used under a variety of circumstances. Case study field procedures should be the same way.

With the preceding orientation in mind, Section B's procedures need to emphasize several major tasks, including

- Gaining access to key organizations or interviewees;
- Having sufficient resources while doing fieldwork—including a tablet or personal computer, writing instruments, paper, paper clips, and a preestablished, quiet place to render notes privately;
- Developing a procedure for calling for assistance and guidance, if needed, from other team members or colleagues;
- Making a clear schedule of the data collection activities that are expected to be completed within specified periods of time; and
- Providing for unanticipated events, including changes in the availability of interviewees as well as changes in your own energy, mood, and motivation while doing fieldwork.

These are the kinds of topics that can be included in Section B. Depending upon the actual case study, the specific procedures will vary.

The more operational these procedures are, the better. To take but one minor issue as an example, case study data collection frequently results in the accumulation of numerous documents at the field site. The burden of carrying such bulky documents can be reduced by two procedures. First, given sufficient rapport with the informants at the field site, the case study team may request that electronic versions of the documents be

emailed. Second, and especially where electronic versions do not exist, the team may have to go to a local copier facility to make pdf copies of the relevant pages of each document. Section B can contain a reminder about these or other options.

A final part of Section B should carefully describe the procedures for protecting human subjects. First, the protocol should repeat the rationale for the IRB-approved field procedures. Then, the protocol should include the scripted words or instructions for obtaining informed consent or otherwise informing case study participants of the risks and conditions associated with the research.

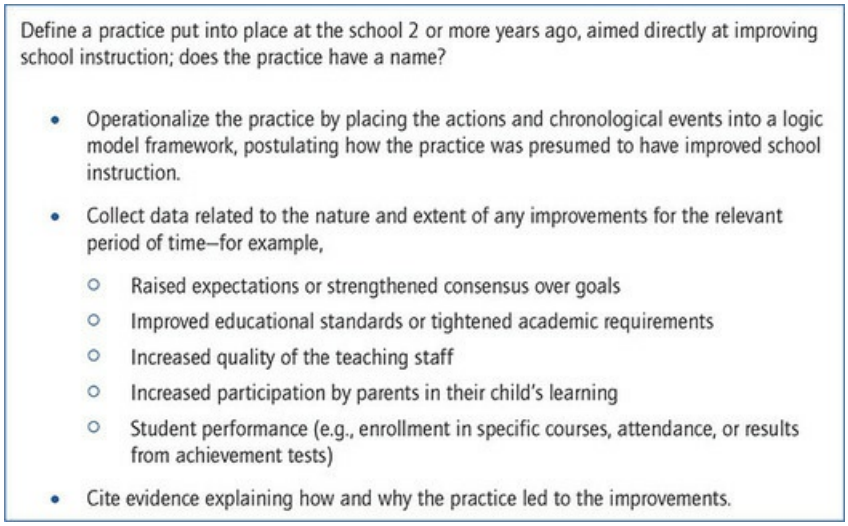
Protocol Questions (Section C of the Protocol)

The heart of the protocol is a set of substantive questions appearing in Section C. They reflect your actual line of inquiry. Some people may consider this part of the protocol to be the case study "instrument." However, two critical features distinguish the protocol's questions from those in a survey instrument.

General orientation of the protocol's questions.

First and most critically important, Section C's questions are posed *to you, the researcher*, not to an interviewee. In this sense, the questions are directed at an entirely different party than in a survey instrument. In essence, Section C contains queries to you, helping to remind you of the data to be collected, and why. In some instances, you also may use the questions as prompts in asking questions during a case study interview. However, the main purpose of the protocol's questions is to keep you on track as data collection proceeds, serving as your line of inquiry (see Figure 3.4 for an illustrative question from a study of a school program; the complete protocol included dozens of such questions).

Figure 3.4 Illustrative Protocol Question (From a Study of School Practices)



Each question in Section C should be accompanied by a list of likely sources of evidence. Such sources may include the names of individual interviewees, documents, or observations. This crosswalk between the questions of interest and the likely sources of evidence is extremely helpful in collecting case study data. Just before starting a field interview, for instance, you can quickly review the major protocol questions that might pertain to the anticipated interviewee.

Five levels of questions.

As the second critical feature, the content of Section C should not confuse five different levels of questions:

Level 1: questions verbalized to specific interviewees;
Level 2: questions about each case, which represent your line of inquiry, as just discussed;
Level 3: questions asked of the pattern of findings across multiple cases;

Level 4: questions asked of an entire study—calling on information beyond the case study evidence and including other literature or published data that may have been reviewed; and
Level 5: normative questions about policy recommendations and conclusions, going beyond the narrow scope of the study.

Of these five levels, Section C of the protocol should concentrate on Level 2.

The difference between Level 1 and Level 2 questions is highly significant. The two types of questions are most commonly confused because case study researchers think that their questions of inquiry (Level 2) are synonymous with the specific questions they will emote to the interviewees in the field (Level 1).

To disentangle these two levels in your own mind, think about a clinician. Based on previous experience, the clinician may silently entertain ideas about the course of events in an illness (Level 2), but the actual questions that the clinician poses to the patient (Level 1) do not directly reflect the clinician's conjectures. The clinician's *verbal* line of inquiry differs from the *mental* line of inquiry, and this is the difference between Level 1 and Level 2 questions. For the case study protocol, accurately articulating the Level 2 questions in Section C is therefore of much greater importance than any attempt to identify the Level 1 questions.

In the field, retaining the Level 2 questions in the back of your mind, while simultaneously articulating Level 1 questions in conversing with an interviewee, is not easy. In a like manner, you can lose sight of your Level 2 questions even when examining a detailed document that will become part of the case study evidence (the common revelation occurs when you ask yourself, "Why am I reading this document?"). To overcome these problems, successful participation in the earlier training helps. Remember that being a "senior" investigator means maintaining a working knowledge of the entire case study inquiry. The (Level 2) questions in the case study protocol embody this inquiry.

The other levels also should be understood clearly. A cross-case question for a multiple-case study of organizational units, for instance (Level 3), may be whether the larger organizational units among your multiple cases are more responsive than the smaller ones, or whether complex bureaucratic structures make the larger ones more cumbersome and less responsive. However, this Level 3 question should not be part of the protocol for collecting data from the single case, because the single case only can address the responsiveness of a single organizational unit. The Level 3 question can only be addressed after the data from all the single-case studies (in a multiple-case study) have been examined. Thus, only the multiple-case analysis can cover Level 3 questions. Similarly, the questions at Levels 4 and 5 go well beyond the empirical data from the full case study, and you should be aware of this limitation if you include such questions in the case study protocol (they will most likely fit somewhere in Section A of the protocol). Remember: *The protocol is for the data collection from a single case (even when part of a multiple-case study) and is not intended to serve the entire project.*

Undesired confusion between unit of analysis and unit of data collection.

Related to the distinction between Level 1 and Level 2 questions, a more subtle and serious problem can arise in articulating Section C's questions. They should cater to the unit of analysis of the case study (the "case"), which may be at a different level from the unit of data collection of the case study (a particular source of

evidence about the case). Confusion will occur if, under these circumstances, the data collection process leads to an (undesirable) distortion of the unit of analysis.

The common distortion begins because the data collection sources may be individual people (e.g., interviews with individuals), whereas your unit of analysis (the "case") may be a collective (e.g., the organization to which the individual belongs)—a frequent design when a case study is about an organization, community, or social group. Even though your data collection may have to rely heavily on information from individual interviewees, your conclusions cannot be based entirely on the interviews as a source of information (your case study would have transformed into an open-ended survey, not a case study). In this example, Section C's protocol questions need to be about the organization, not the individuals. The second row in Figure 3.5 covers such an organizational case study, indicating the kind of evidence that might be obtained from either individual interviewees (Cell 1) or the organization's policy records and documentable outcomes (Cell 2).

However, the reverse situation also can be true. Your case study may be about an individual, and the sources of information can include archival evidence (e.g., personnel files or student records) from an organizational source (Cell 3). In this situation, you also would want to avoid basing your conclusions about the individual on the organizational sources of information only. In this example, Section C's protocol questions therefore need to be about the individual, not the organization. The first row in Figure 3.5 covers such a case study about an individual person.

Figure 3.5 Design Versus Data Collection: Different Units of Analysis

Other data collection devices.

The questions in Section C can include *empty table shells* (for more detail, see Miles & Huberman, 1994). An empty table shell defines the axes of a table, by precisely labeling its rows and columns—prior to having any data in the table's cells. In this way, an empty table shell indicates the data to be collected, and your job is to collect the data called forth by the axes. The relevant data may be quantitative (numeric) or qualitative (categorical or narrative). If the latter, you would refer to the empty and completed table shell as a *word table*.

Empty table shells can help in several ways. First, the table shells force you to identify exactly what data are being sought. Second, the table shells ensure that parallel information will be collected from the different cases, when you are doing a multiple-case study. Finally, the table shells aid in understanding what might be

done with the data once they have been collected, as the completed table shell can actually become the basis for analysis.

Tentative Outline for the Case Study Report (Section D of the Protocol)

This topic is generally missing from most case study plans. Researchers neglect to think about the outline, format, or audience for the case study report until after the data have been collected. Yet, some planning at this preparatory stage—admittedly out of sequence in the typical conduct of most research—means that a tentative outline can (and should) appear in the case study protocol. (Such planning accounts for the arrow between "prepare" and "share" in the figure at the outset of this chapter.)

Again, one reason for the conventional linear sequence—that is, to complete data collection and only then to think about a report—comes from the practices with other research methods. For instance, there is less need to worry about the report of an experiment because the report's format and likely audience will be dictated by the formats of academic journals. Thus, most reports of experiments follow a similar outline: the posing of the research questions and hypotheses; a description of the research design, apparatus, and data collection procedures; the presentation of the data collected; the analysis of the data; and a discussion of findings and conclusions.

Unfortunately, case study reports do not have such a uniformly acceptable outline. For this reason, you should give at least a few preliminary thoughts, prior to the conduct of a case study, to the design of the final case study report (Chapter 6 further discusses such report preparation). One possibility can derive from the expectation that the quality of the final case study will warrant its publication in an academic journal. Anticipating and identifying a possible journal or two would then be a useful step, because the case study report could emulate what is believed to be acceptable to the journals. Another possibility is that a case study has been commissioned by some sponsor who already has a knowable reporting format and preference.

For either of the preceding possibilities, the development of the protocol will benefit from your perusing earlier works—for example, previous case studies that have appeared in the candidate journals or existing reports that have appeared under the sponsor's auspices. The outline in Section D of the protocol can then point to the likely audience, topics, and length of the final case study report. For example, some sponsors of case studies might have an interest in reports that are peppered with interesting vignettes if not anecdotes, and the outline would emphasize the need to be alert for opportunities to collect such data. Such a contingency would have been lost entirely had the conventional linear preparation been followed, with no attention given to the outline prior to data collection.

In addition to a brief outline for the report, Section D of the protocol can indicate the extent of documentation for the case study report. Properly done, the data collection may lead to large amounts of documentary evidence, in the form of published reports, publications, memoranda, and other documents collected about the case. What is to be done with this documentation, for later presentation? In most studies, the documents are filed away and seldom retrieved. Yet, this documentation is an important part of the "database" for a case study (see Chapter 4). One possibility is to have the final case study report include an *annotated bibliography* itemizing each of the available documents. The annotations would help an inquisitive reader to identify the documents that might be relevant for further inspection.

In summary, to the extent possible, Section D of the protocol should contain an initial outline of the case study report. This can facilitate the collection of relevant data, reducing the possibility that a return visit to a fieldwork site will be necessary. At the same time, the existence of such an outline should not imply rigid adherence to a predesigned protocol. In fact, case study plans can change as a result of the initial data collection, and you are encouraged to consider having an adaptive posture—if used properly and without bias—as an advantage of doing case study research.

With regard to the protocol as a whole, remember that the overarching training objective aims for the entire case study team to develop a deep understanding of the protocol. To reinforce such an understanding, each team member may be assigned to one portion of the topics covered by the protocol (e.g., one or more questions appearing in Section C of the protocol)—reviewing the relevant materials and leading a discussion clarifying that portion. In this manner, the team members might more likely have mastered the content of the protocol and done so as part of a collaborative effort.

Exercise 3.4 Developing a Case Study Protocol

Select some phenomenon in need of explanation from the everyday life of your university or organization (past or present). Illustrative topics might be, for example, why the university or organization changed some policy or how it makes decisions about its curriculum or training requirements. For these illustrative topics (or a topic of your own choosing), design a case study protocol to collect the information needed to produce an adequate explanation. What would be your main research questions or propositions? What specific sources of data would you seek (e.g., persons to be interviewed, documents to be sought, and field observations to be made)? Would your protocol be sufficient in guiding you through the entire process of collecting the data for your case study?

Screening The Candidate Cases For Your Case Study

Another preparatory step is the final selection of the case(s) to be the centerpiece(s) of your case study. Sometimes, the selection is straightforward because you have chosen to study an unusual case whose identity has been known from the outset of your inquiry. Or you already know the case you will study because of some special arrangement or access that you have. However, at other times, there may be many qualified case candidates, and you must choose your final single case or array of multiple cases from among them (e.g., Elman, Gerring, & Mahoney, 2016). The goal of the screening procedure is to be sure that you identify the final cases properly, prior to formal data collection. The worst scenario would occur when, after having started formal data collection, the case turns out not to be viable or to represent something other than what you had intended to study.

A one-phased approach.

When you have only a dozen or so possible candidates that can serve as your cases (whether these candidates are organizations, individuals, or some other entity depends on your unit of analysis), the screening may consist of querying people knowledgeable about each candidate. You even may collect limited documentation about each candidate. To be avoided, at all costs, is an extensive screening procedure that effectively leads to a "mini" case study of every candidate case. In short, the screening procedure should be as streamlined as possible.

Prior to collecting the screening data, you should have defined a set of operational criteria whereby candidates will be deemed qualified to serve as cases. If doing a single-case study, choose the case that is likely, all other things being equal, to have the most available data sources; if doing a multiple-case study, select cases that best fit your (literal or theoretical) replication design.

A two-phased approach.

A large number of eligible candidates (e.g., 12 or more) warrant a two-phased screening procedure. The first phase should consist of collecting relevant quantitative data about the entire pool, from some archival source (e.g., statistical databases about individual schools or firms). You may have to obtain the archival data from some central source (e.g., a federal, state, or local agency or a national association). Once obtained, you should define some relevant criteria for either stratifying or reducing the number of candidates. The goal is to reduce the number of candidates to 12 or fewer and then to conduct the one-phased procedure described in the previous paragraph. BOX 16 describes how one study followed this two-phased approach. Such a two-phased procedure also took place in a case study of local economic development (see Application 2, presented previously at the end of Chapter 2).

In completing the screening process, you may want to revisit your earlier decision about the total number of cases to be studied. Respecting your resource constraints, if multiple candidates are qualified to serve as cases, the larger the number you can study, the better.

BOX 16 A Methodic Procedure for Selecting Cases

A study of revitalizing urban neighborhoods began with the proposition that community organizations play a significant role in this process (Marwell, 2007). The study took place in two neighborhoods, with intense fieldwork covering the work of four different types of community organizations in each neighborhood.

A detailed appendix describes the procedure for selecting the neighborhoods, which first used demographic data to reduce an initial array of 59 neighborhoods to 14 candidates and then used four additional criteria to select the two finalists from the 14 (pp. 241–247). Subsequently, the author canvassed these two neighborhoods for their community organizations, with the appendix giving the specific criteria for choosing these finalists (pp. 247–248). The descriptions provide good examples of how case selection procedures can work, as well as the unexpected issues that can arise (e.g., see Footnote 6, p. 244).

The Pilot Case Study

A pilot case study will help you to refine your data collection plans with respect to both the content of the data and the procedures to be followed. In this regard, it is important to note that a *pilot test* is not a *pretest.* The pilot case is more formative, assisting you to develop relevant lines of questions—possibly even providing some conceptual clarification for the research design as well. In contrast, the pretest is the occasion for a formal "dress rehearsal," in which the data collection plan that is used is as faithful to the final plan as possible. As a result, the pilot test might preferably occur before seeking final approval from an IRB, discussed earlier in this chapter.

You may identify a pilot case in a number of ways. For example, you may know that the informants at a fieldwork site are unusually congenial and accessible, or the site may be geographically convenient or may have an unusual amount of documentation and data. Another possibility is that a pilot case might represent a complicated case, compared with the likely real cases, so that nearly all relevant data collection issues will be encountered in the pilot case. Under some circumstances, the pilot case study can be so important that substantial resources may be devoted to this phase of the research. For this reason, several subtopics are worth further discussion: the selection of pilot cases, the nature of the inquiry for the pilot cases, and the nature of the reports from the pilot cases.

Selection of Pilot Cases

In general, convenience, access, and geographic proximity can be the main criteria for selecting a pilot case or cases. This will allow for a less structured and more prolonged relationship between yourself and the participants than might occur in the "real" cases. The pilot case can then assume the role of a "laboratory" in detailing your protocol, allowing you to observe different phenomena from many different angles or to try different approaches on a trial basis.

One study of technological innovations in local services (see Application 1, presented as an exploratory study at the end of Chapter 2) actually had seven pilot cases, each focusing on a different type of technology. Four of the cases were located in the same metropolitan area as the research team's and were visited first. Three of the cases, however, were located in different cities and were the basis for a second set of visits. The cases were not chosen because of their distinctive technologies or for any other substantive reason. The main criterion, besides proximity, was the fact that access to the cases was made easy by some prior personal contact on the part of the research team. Finally, the interviewees in the cases also were congenial to the notion that the research team was at an early stage of its research and would not have a fixed agenda.

In return for serving as a pilot case, the main informants usually expect to receive some feedback from you about their case. Your value to them is as an external observer, and you should be prepared to provide such feedback. To do so, even though you should already have developed a draft protocol representing the topics of interest to your case study, you should adapt parts of the protocol to suit the pilot informants' needs. You should then conduct the pilot case by following (and pilot-testing) your formal field procedures.

Scope of the Pilot Inquiry

The scope of the inquiry for the pilot case can be much broader than the ultimate data collection plan. Moreover, the inquiry can cover both substantive and methodological issues.

In the above-mentioned example involving Application 1, the research team conducted seven pilot cases to improve its conceptualization of different types of technologies and their related organizational effects. The pilot studies were done prior to the selection of specific technologies for the final data collection—and prior to the final articulation of the study's theoretical propositions. Thus, the pilot data provided considerable insight into the basic issues to be studied. This information was used in parallel with an ongoing review of relevant literature, so that the final research design was informed both by prevailing theories and by a fresh set of empirical observations. The dual sources of information helped to ensure that the actual case study reflected significant theoretical or policy issues as well as questions relevant to real-world cases.[5]

Methodologically, the work on the pilot cases can provide information about relevant field questions and about the logistics of the field inquiry. In the technology pilot cases, one important logistical question was whether to observe the technology in action first or to collect information about the prevailing organizational issues first. This choice interacted with a further question about the deployment of the field team: If the team consisted of two or more persons, what assignments required the team to work together and what assignments could be completed separately? Variations in these procedures were tried during the pilot case studies, the trade-offs were acknowledged, and eventually a satisfactory procedure was developed for the formal data collection plan.

Reports From the Pilot Cases

The pilot case reports are mainly of value to the research team itself and need to be written clearly, even if only in the form of memos. One difference between the pilot reports and the actual case study reports is that the pilot reports should be explicit about the lessons learned from each pilot case about both the research design and the field procedures.

If more than a single pilot case is planned, the report from one pilot case also can indicate the modifications to be attempted in the next pilot case. In other words, the report can contain the agenda for the ensuing pilot case. If enough pilot cases are done in this manner, the agenda for the final pilot case may actually become a good prototype for the final case study protocol.

Exercise 3.5 Selecting a Case for Doing a Pilot Study

Define the desired features for a pilot case, as a prelude to a new case study. How would you go about contacting potential participants and using such a case? Describe why you might want only one pilot case, as opposed to two or more pilot cases.

Summary

This chapter has reviewed the preparations for data collection. Depending upon the scope of a case study—whether single or multiple cases will be involved or whether single or multiple researchers will be involved—the preparatory tasks will be correspondingly straightforward or complex.

The major topics have been the desired skills and values of the case study researcher, the preparation and training of the case study team for a specific case study, the nature of the case study protocol, the screening of candidate cases, and the role and purpose of a pilot case study. Every case study should follow these different steps to varying degrees, depending upon the specific inquiry.

As with the management of other affairs, your expertise in conducting these activities will improve with practice. Thus, one desirable sequence is for you to complete a relatively straightforward case study before attempting to do a more complex one, from a managerial standpoint. With the successful completion of each case study, the preparatory tasks may even become second nature. Furthermore, if the same case study team has conducted several different studies together, the team will work with increasing efficiency and professional satisfaction with each ensuing case study.

Notes to Chapter 3

1. Thacher (2006) argues forcefully in support of what he calls "normative" case studies. In such studies, the researchers deliberately use case studies to advocate specific issues, at the risk of being challenged about the fairness of their data collection and analysis. Such risks may be best left to very senior investigators but are not recommended for those with less experience—much less novices—in doing case studies.

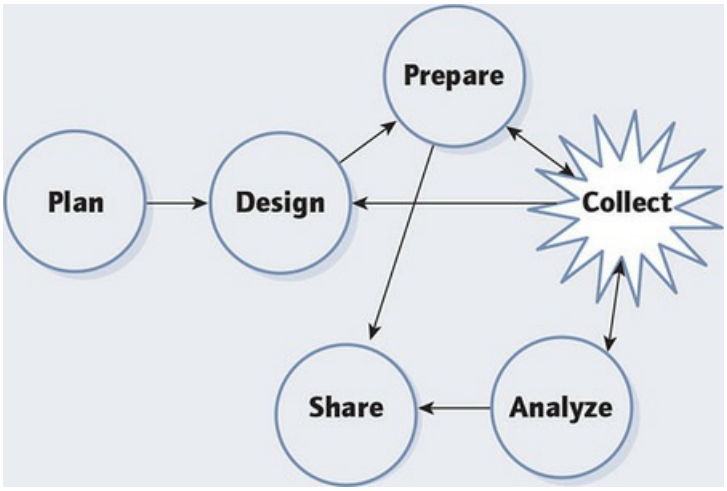
2. You also can check online for the latest developments, starting with the advanced notice of proposed rulemaking, published in the *Federal Register* on March 8, 2015. Also see Office for Human Research Protections (2015).

3. The difference between having a single case study researcher and needing multiple researchers can create a significantly different orientation to the entire case study. The classic single researchers frequently have been brilliant and creative—quickly and intuitively adapting to new conditions during data collection or finding newly appealing patterns during data analysis. With multiple researchers, such talents may have to be curbed because of the need for consistency across researchers, but the discipline is rewarded by minimizing the likelihood of introducing bias into the case study.

4. See Chapter 5 for an explanation of logic models.

5. The later study (Yin, 1981c) received the William E. Mosher Award, presented by the American Society for Public Administration, for the best article published in the journal (the *Public Administration Review*) that year. Since then, the article and its key theoretical concepts have been cited in many subsequent research studies.

4 Collecting Case Study Evidence The Principles You Should Follow in Working With Six Sources of Evidence



Chapter 4: Plan

- Array and display data in different ways
- Watch for promising patterns, insights,and concepts
- Develop a general analytic strategy
- Along with the general strategy, consider five analytic techniques
- Throughout, address rival explanations and interpretations

Abstract

Case study evidence can come from at least six sources: documents, archival records, interviews, direct observations, participant-observation, and physical artifacts. Using these six sources calls for you to master different data collection procedures—such as being able to conduct a series of interviews with the same participant over multiple sittings, or being able to make astute field observations. Your procedures can follow either realist or relativist perspectives (or both)—that is, by aiming to collect data about actual human events and behavior (realist) or trying to capture the distinctive perspectives of the case study participants (relativist).

In addition to appreciating how to work with the six sources, four overriding principles are important to any data collection effort in doing case study research. One principle is to use multiple sources of evidence (evidence from two or more sources, converging on the same findings). Another is to create a case study database—a formal assembly of evidence, distinct from the final case study report, containing all of your case study notes, the documents and tabular materials from the field, and your preliminary narratives or memos about the data. The third and fourth principles cover your sensitivity in maintaining a chain of evidence and exercising care when using social media as a proxy for the six sources (e.g., conducting an interview by chatting with a participant). By incorporating all these principles into your case study, you will increase its quality substantially.

Case study evidence can come from many sources. This chapter discusses six of them: documentation, archival records, interviews, direct observations, 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. A second purpose is to convey four 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 reviewed in this chapter, 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, you can find guidance in books devoted entirely to data collection (e.g., Pole & Hillyard, 2016; Schatzman & Strauss, 1973; Wolcott, 2005). These books usually have "fieldwork" or "field research" as part of their titles and are not oriented toward specific academic disciplines. Besides reviewing basic data collection procedures, the books also offer useful guidance on the logistics of planning and conducting fieldwork. Although the books do not focus directly on case study research, the similarity of the procedures makes the books valuable because they are easy to use.

Second, other textbooks are readily available but make your choices more complicated. These books may cover only limited types of sources or even specialize in only a single one, such as field interviewing (e.g., Rubin & Rubin, 2011; Weiss, 1994), participant-observation (e.g., DeWalt & DeWalt, 2011; Jorgensen, 1989), or documentary evidence (e.g., Barzun & Graff, 2003), thereby losing the benefit of seeing how multiple sources might complement each other. Other works covering a broader variety of sources may nevertheless come with a dominant disciplinary orientation that may not match yours, such as clinical research or research in primary care settings (e.g., Crabtree & Miller, 1999), program evaluations (e.g., Patton, 2015), social work research (e.g., Rubin & Babbie, 2014), or anthropology (e.g., Robben & Sluka, 2012).

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 cutoff 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 cutoff points for other methods, and would they work in doing case study research?

Third, books that might at first appear to be comprehensive methodological texts also cover many topics in addition to data collection (e.g., Bryman, 2012). Some devote only a small fraction of their entire text to data collection procedures (e.g., Creswell, 2014, and 1 of 28 chapters in Silverman, 2010). 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 (e.g., Bickman & Rog, 2009).

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, the latter part of this chapter gives much emphasis to its second purpose, the discussion of four principles of data collection.

These principles have received only infrequent attention in the past and are discussed at length: (a) using multiple, not just single, sources of evidence;y (b) creating a case study database; (c) maintaining a chain of evidence; and (d) exercising care in using data from electronic sources of evidence, such as social media. 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, these principles will help you deal with the problems of construct validity and reliability, as previously noted in Chapter 2 (see Figure 2.3).

Exercise 4.1 Identifying Sources of Evidence in Other Case Studies

Select and retrieve one of the case studies cited in the BOXES of this book. Go through the case study and identify five findings important to the case study. For each finding, indicate the source or sources of evidence, if any, used to support the finding. In how many instances was there more than a single source of evidence?

Six Sources Of Evidence

All six sources discussed here are commonly found in case study research: 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 tests; proxemics; kinesics; "street" ethnography; and life histories (Marshall & Rossman, 2016).

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 rely on as many sources as possible (see the later discussion in this chapter on "multiple sources of evidence").

Documentation

Our record-keeping society means that documentary information (whether paper or electronic) is likely to be relevant to every case study topic.[1] This type of information should be the object of explicit data collection plans. For instance, consider the following variety of documentation:

- Emails, memoranda, letters, and other personal documents, such as diaries, calendars, and notes;
- Agendas, announcements and minutes of meetings, and other reports of events;
- Administrative documents, such as proposals, progress reports, and other internal records;
- Formal studies or evaluations related to the case that you are studying; and
- News clippings and other articles appearing in the mass media or in community newspapers.

Figure 4.1 Six Sources of Evidence: Strengths and Weaknesses

Source of Evidence	Strengths	Weaknesses
Documentation	• Stable—can be reviewed repeatedly • Unobtrusive—not created as a result of the case study • Specific—can contain the exact names, references, and details of an event • Broad—can cover a long span of time, many events, and many settings	• Retrievability—can be difficult to find • Biased selectivity, if collection is incomplete • Reporting bias—reflects (unknown) bias of any given document's author • Access—may be deliberately withheld
Archival records	• *[Same as those for documentation]* • Precise and usually quantitative	• *[Same as those for documentation]* • Accessibility due to privacy reasons
Interviews	• Targeted—can focus directly on case study topics • Insightful—provides explanations as well as personal views (e.g., perceptions, attitudes, and meanings)	• Bias due to poorly articulated questions • Response bias • Inaccuracies due to poor recall • Reflexivity—e.g., interviewee says what interviewer wants to hear
Direct observations	• Immediacy—covers actions in real time • Contextual—can cover the case's context	• Time-consuming • Selectivity—broad coverage difficult without a team of observers • Reflexivity—actions may proceed differently because participants know they are being observed • Cost—hours needed by human observers
Participant-observation	• *[Same as above for direct observations]* • Insightful into interpersonal behavior and motives	• *[Same as above for direct observations]* • Bias due to participant-observer's manipulation of events
Physical artifacts	• Insightful into cultural features • Insightful into technical operations	• Selectivity • Availability

These and other types of documentation all are increasingly available through Internet searches.

The documentation is useful even though it is 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. congressional hearings have been deliberately edited—by the congressional staff and those 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 study research, the most important use of documentation is to corroborate and augment evidence from other sources. First, documents are helpful in verifying the correct spellings and titles or names of people and organizations that might have been mentioned in an interview. Second, documents can provide 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 any 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 its overall value, documentation can play a prominent role in any data collection in doing case study research. Systematic searches for relevant documents are important in any data collection plan. For example, prior to doing fieldwork, an Internet search can produce invaluable preparatory and orienting information. During fieldwork, you should arrange access to examine the files of any organizations being studied, including a review of documents that may have been put into "cold storage" by an organization. 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 17 and 18.

BOX 17 Combining Personal Participation With Extensive News Articles

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 benefited from having been a member of the system's school board for three elected, 4-year terms. He presents a personal account, not trying to be a social science analyst. At the same time, the book contains numerous references to local news articles to corroborate events. The result is one of the most readable but also well-documented case studies that readers will encounter.

Box 18 Comparing Evidence From Two Archival Sources Covering 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 similar sequence of events has been repeated all too frequently in more contemporary times.)

A case study of this crisis (Jacobs, 1996) 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. 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 narratives 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 documentation in case study research. This is probably because the casual researcher may mistakenly assume that all kinds of documents—including proposals for projects or programs—contain the unmitigated truth. In fact, essential 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 researcher is a vicarious observer, because the documentary evidence reflects a communication among other parties attempting to achieve some other objectives. By constantly trying to identify these objectives, you are less likely to be misled by documentary evidence and more likely to be correctly critical in interpreting the contents of such evidence.[2]

A newer problem has arisen because of the abundance of materials available through Internet searches. You may get lost in reviewing such materials and actually waste a lot of time on them. Note, however, that the problem is not that different from having an overabundance of numeric data about your case, as might be available from sources such as the U.S. census (also see discussion of archival records, next). 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 forward to other case study tasks.

Archival Records

For many case studies, archival records—often taking the form of data 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 produced by others (e.g., about your case study'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 the cost data used in **Application 10,** at the end of Chapter 6 of this book). In other studies, they may be of only passing relevance.

For relevant archival evidence, you 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 archival records based on crimes reported by law enforcement agencies, as well as the shortcomings in other social service, business, or public agency records. 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 your case study, 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 evidence is the interview. You may be surprised by this assertion because of the usual association between interviews and surveys. However, interviews are commonly found in case studies. Interviews can especially help by suggesting explanations (i.e., the "hows" and "whys") of key events, as well as the insights reflecting participants' relativist perspectives.

Case study interviews will resemble guided conversations rather than structured queries. Although you will be pursuing a consistent line of inquiry, your actual stream of questions in a case study interview is likely to be fluid rather than rigid (Rubin & Rubin, 2011). This type of interview has alternatively been called an "intensive interview," "in-depth interview," or "unstructured interview" (Weiss, 1994, pp. 207–208).

Note that this means you have two jobs throughout a case study interview: (a) following your own line of inquiry, as reflected by your case study protocol, and (b) verbalizing your actual (conversational) questions in an unbiased manner that serves the needs of your line of inquiry (see the 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 between posing a "why" question to an interviewee (which, in his view, creates defensiveness on the interviewee's part) and asking a "how" question—the latter therefore 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, nonthreatening, but also relevant questions in your open-ended interviews (Level 1 questions).

A common question about doing case study interviews is whether to record them. Using recording devices is a matter of personal preference. Audio recordings certainly provide a more accurate rendition of any interview than taking your own notes. 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) a researcher is clumsy enough with mechanical devices that the recording procedure creates distractions during an interview, or (d) a researcher thinks that the recording device is a substitute for "listening" closely throughout the course of an interview.

Given the preceding points, you may want to appreciate that there can be three types of case study interviews: prolonged interviews, shorter interviews, and survey interviews.

Prolonged case study interviews.

These interviews may take place over 2 or more hours, either in a single sitting or over an extended period of time covering multiple sittings. You can ask interviewees about their interpretations and opinions about people and events or their insights, explanations, and meanings related to certain occurrences. You can then use such propositions as the basis for further inquiry, and the interviewee 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 participant. Key informants are often critical to the success of a case study. Such persons can provide you with insights into a matter and also give you access to other interviewees who may have corroboratory or contrary evidence. Such a person, named "Doc," played an essential role in the conduct of the famous case study presented in *Street Corner Society* (Whyte, 1943/1993; see BOX 2A, Chapter 1). 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 reflexive influence—frequently subtle—that the informant may have over you. A reasonable way of dealing with this pitfall is to rely on other sources of evidence to corroborate any insight by such informants and to search for contrary evidence as diligently as possible.

Shorter case study interviews.

Rather than occurring over an extended period of time or over several sittings, many case study interviews may be more focused and take only about 1 hour or so. In such situations, the interviews may still remain open-ended and assume a conversational manner, but you are likely to be following your case study protocol (or a portion of it) more closely. For an example of fieldwork based on shorter field interviews, see **Application 4** at the end of this chapter.

For example, a major purpose of such an interview might simply be to corroborate certain findings 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 uninformed 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 possibly conspiratorial way.[3] Further probing is needed. One way is to test the genuineness of the views 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, you might even jot this down in your notes, citing the fact that a person was asked but declined to comment, as done in good journalistic accounts.

As an entirely different example, your case study protocol might have called for you to pay close attention to an interviewee's personal rendition of an event. In this case, the interviewee's perceptions and own sense of meaning are the material to be understood. This type of single interview has a group counterpart, known as a *focus group,* first used to study military morale during World War II and later popularized in doing market research, such as obtaining consumer reactions to prospective radio programs (Merton, Fiske, & Kendall, 1990). The focus group procedure calls for you to recruit and convene a small group of persons. You would then moderate a discussion about some aspect of your case study, deliberately trying to surface the views of each person in the group (Krueger & Casey, 2015; Ryan, Gandha, Culbertson, & Carlson, 2014). To obtain the views of a larger group of persons, you would not enlarge the focus group but would instead assign interviewees to several smaller focus groups.

In both of the preceding examples, whether using an interview to corroborate certain findings or using it to capture an interviewee's own sense of reality and its meaning, you need to minimize a methodological threat created by the conversational nature of the interview. The conversation can lead to a mutual and subtle influence between you and the interviewee—previously referred to as *reflexivity:* Your perspective unknowingly influences the interviewee's responses, but those responses also unknowingly influence your line of inquiry. The result is an undesirable coloring of the interview material.

Whereas you are likely to be aware that any prolonged interviews may create a relationship between you and the interviewee—which needs to be monitored—the shorter interviews also pose a reflexive threat. You may not be able to overcome the threat fully, but just being sensitive to its existence should allow you to do better case study interviews.

Survey interviews in a case study.

Yet another type of case study interview is in fact the typical survey interview, using a structured questionnaire. The 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 19).

BOX 19 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.

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 conventional surveys, and it would subsequently be analyzed in a similar manner. The difference would be the survey's role in relation to the 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 your overall judgment about the neighborhood's condition.

Summary.

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

At the same time, when your interviews focus on actions because they are a key ingredient in your case study,

the interviews should always be considered *verbal reports* only. As such, even in reporting about such events or explaining how they occurred, the interviewees' responses are subject to the common problems of bias, poor recall, and poor or inaccurate articulation. Again, a reasonable approach is to corroborate interview data with information from other sources.

Other situations typically follow a more relativist path. In these latter situations, the interviewee's meanings and verbal reports become the main evidence. You will in fact be directly interested in an interviewee's personal views (e.g., opinions, attitudes, and meanings), including the interviewee's perspective in explaining behavioral events. As a result, corroborating these views against other sources would not be relevant. However, you might still want to corroborate an interviewee's stated views by asking about them in more than one way or on more than a single occasion—and hope to receive a consistent set of responses.

Direct Observations

Because a case study will likely take place in the real-world 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 social or environmental conditions will be available for observation. Such observations serve as yet another source of evidence in doing case study research (e.g., Morgan, Pullon, MacDonald, McKinlay, & Gray, 2016).

BOX 20 Using Observational Evidence

20A. 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 (1986) 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.

20B. Combining Field Observations With Other Types of Case Study Evidence

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

One example of a case study that used such a variety is a book by Gross et al. (1971) covering events in a single school (also see BOX 8, Chapter 2). 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.

The observations can range from formal to casual data collection activities. Most formally, you can develop observational instruments as part of the case study protocol, to assess the occurrence of certain types of behaviors during certain periods of time in the field (see the two examples in BOX 20). This can involve observations of meetings, sidewalk activities, factory work, classrooms, and the like. Less formally, direct observations might be made throughout your fieldwork, including those occasions during which other evidence, such as that from interviews, is being collected. For instance, the condition of the immediate environment or of workspaces may suggest something about the culture 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.[4]

Observational evidence is often useful in providing additional information about the topic being studied. If a case study is about a patient care group, for instance, observations about the group in action can yield invaluable data to complement interviews with individual group members (or even an interview of the group as a whole). Similarly, observations can add new dimensions for understanding the actual uses of a new technology or of a new curriculum and any problems being encountered. The observations can be so valuable that you may even consider taking photographs at a fieldwork site. At a minimum, these photographs will help to convey important case characteristics to outside observers (see Dabbs, 1982). Note, however, that in most situations—even in outdoor settings, such as photographing students in a public school playground or people walking on a sidewalk—you will need explicit 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, case study data collection should allow for the use of multiple field persons, at least in conducting the observational aspect of the fieldwork.

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 fieldwork situation and may actually participate in the actions being studied (see DeWalt & DeWalt, 2011, chap. 2). 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 the neighborhood that is the subject of a case study (see BOX 21);
- Taking some other functional role in a neighborhood, such as serving as a store clerk;
- Serving as a staff member in an organizational setting; and
- Being a key decision maker in an organizational setting.

BOX 21 Participant-Observation in a Neighborhood Near "Street Corner Society"

Participant-observation has long 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 spouse, in 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 (1943/1993) *Street Corner Society* some 20 years earlier (also see BOX 2A, Chapter 1).

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 a variety of everyday settings, such as in a large organization (see BOX 22) or in informal small groups.

Box 22 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* (2001). The case study traces the introduction and passage of the legislation that created the National Health Service Corps.

Redman's account, from the vantage point of an author who was on the Senate staff of one of the bill's main supporters, 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 congressional session under a lame-duck president.

The account is an excellent example of participant-observation in a contemporary setting. It contains information about insiders' roles that few researchers had been privileged to share. The subtle legislative strategies, the overlooked role of committee clerks and lobbyists, and the interaction between the legislative and executive branches of government all were 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 challenges. 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" a case 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 researcher. 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 challenges related to participant-observation have to do with the potential biases produced (see Becker, 1958). First, the researcher 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 previously 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 challenges have to be considered seriously in undertaking any participant-observation fieldwork. 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 can be threatened.

Physical Artifacts

A final source of evidence is a physical or cultural artifact—for example, 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, including studies of children.

Physical artifacts may 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 study. 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—a computer printout—also was available. Students displayed these printouts as the finished product of their work and maintained notebooks of their printouts. Each printout showed the type of schoolwork that had been done as well as the date and amount of computer time used to do the work. By examining the printouts, the case study researchers 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 classroom 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, you should be acquainted with the procedures associated with using each source of evidence—or have colleagues who have the needed expertise and who can collaborate as part of the case study team.

Exercise 4.2 Identifying Specific Types of Evidence in Your Case Study

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 interviews, which interviewees and what questions? If an archival record, what records and what details? If wanting to highlight participants' different perspectives and meanings, what specific participants?

Four Principles Of Data Collection

The benefits from these six sources of evidence can be maximized if you follow four principles of data collection. 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 evidence. The four 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 a researcher should choose the single most appropriate source or the one that bears the greatest familiarity. Thus, on many an occasion, researchers 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 when doing case study research. On the contrary, a major strength of case study data collection is the opportunity to use many different sources of evidence (see BOX 23 and—earlier in this chapter—BOX 20B for examples of such studies). Moreover, 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; Yin et al., 1985).

Box 23 A Case Study Combining Personal Experience With Extensive Field Research

Many people across the country by now have heard of the federal Head Start program. Its early development and growth into one of the most successful 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 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.

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.

Of course, each of these strategies can be modified, creating hybrid strategies in which multiple sources of evidence are accessed. An example of this is the evolution of "oral history" studies in the past several decades. Such studies can involve extensive interviews with key political leaders who have retired, on the stipulation that the interview information will not be reported until after their 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 case study research inherently tries to deal with a wide variety of evidence, whereas the other methods do not.

A major rationale for using multiple sources of evidence in case study research relates to the basic motive for doing a case study in the first place: to do an in-depth study of a phenomenon in its real-world context. Being both in-depth and contextual—a context that potentially includes events over a period of time—means collecting a variety of relevant data and hence relying on multiple sources.

Using multiple sources of evidence permits going beyond appreciating the breadth of a case study's scope. You also will have an opportunity to pursue a critical methodological practice—to develop *converging lines of inquiry*. The desired triangulation follows from the principle in navigation, whereby the intersection of lines from different reference points is used to calculate the precise location of an object (Yardley, 2009). 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 similar convergence (see BOX 24).

Box 24 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 the work and image were only 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.

In doing evaluation studies, Patton (2015) discusses four types of triangulation—the triangulation

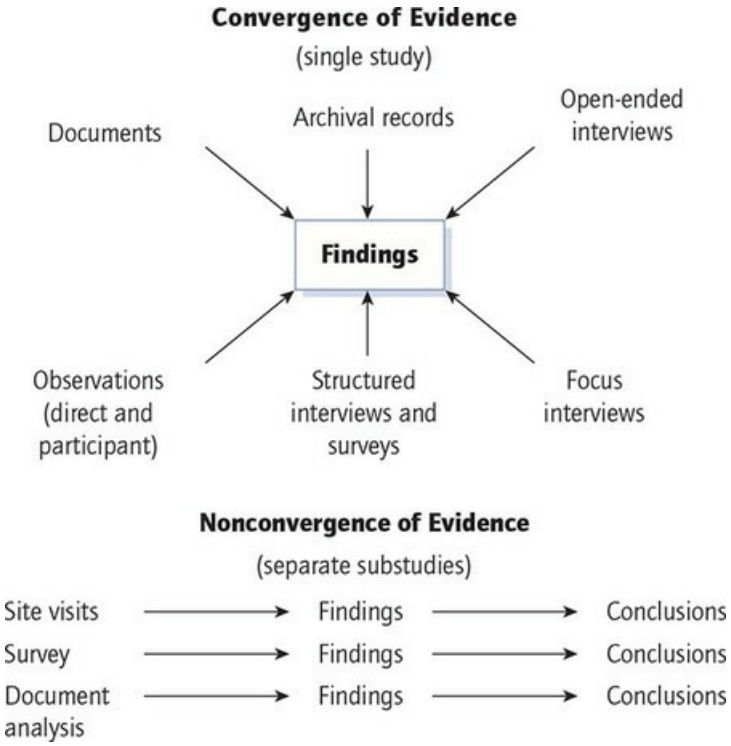
1. Of data sources (*data triangulation*),
2. Among different evaluators (*investigator triangulation*),
3. Of perspectives to the same data set (*theory triangulation*), and
4. Of methods (*methodological triangulation*).

The present discussion pertains mainly to the first of these four types (*data triangulation*), encouraging you to collect information from multiple sources that also can corroborate the same finding. In pursuing such corroboratory strategies, Figure 4.2 distinguishes between two conditions—when you have really triangulated the data (upper portion of Figure 4.2) and when you have multiple sources as part of the same study but that nevertheless address *different* findings (lower portion). Figure 4.2 shows that when you have really triangulated the data, a case study's findings will have been supported by more than a single source of evidence. In contrast, when you have used multiple sources but analyzed each source of evidence separately, the procedure resembles the comparison of conclusions from separate studies (each based on a different source)—but no data triangulation has taken place.

By developing convergent evidence, data triangulation helps to strengthen the *construct validity* of your case study. The multiple sources of evidence essentially provide multiple measures of the same phenomenon. The

phenomenon of interest may differ in different kinds of case studies. First, in many case studies, the phenomenon of interest may pertain to a behavioral or social event, with the converged finding implicitly assuming a *single reality.* Use of evidence from multiple sources would then increase confidence that your case study had rendered the event accurately.

Figure 4.2 Convergence and Nonconvergence of Multiple Sources of Evidence



In other kinds of case studies, the phenomenon of interest may be a participant's distinctive meaning or perspective—because you have adopted a relativist orientation to appreciate the possibility of *multiple realities.* Triangulation would still be important, to ensure that the case study had rendered the participant's perspective accurately. If nothing else, you should at a minimum have queried the same participant several times or on several occasions—which would then serve in its own way as a set of "multiple" sources.

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 researcher. First is that the collection of data from multiple sources is more expensive than if data were collected from only a single source (Denzin, 1978, p. 61). Second and more important, you will need to know how to carry out the full variety of data collection techniques. For example, you may have to collect and analyze documentary evidence as in doing history, to retrieve and analyze archival records as in economics, 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 a case study researcher.

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 with a multidisciplinary research team, not necessarily 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 you to practice the different techniques.

No matter how the experience is gained, every case study researcher 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 case study research 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 for your data and give 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 some facet 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? Could multiple perspectives be relevant in recalling and defining this facet of the incident?

Principle 2: Create a Case Study Database

A second principle has to do with organizing and documenting the data collected for case studies. Here, case study research has 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 researcher's report, whether in article, report, book, oral, or visual form.

The use of computer files makes the distinction between these two collections 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, such as the behavioral responses or test scores in psychology, the itemized responses to various survey questions, or the indicator data in economics. The database then can be the subject of separate, secondary analysis, independent of any reports by the original researcher.

With case study research, the distinction between a separate database and the case study report has only slowly become an everyday but not yet universal practice. Too often in the past, the case study data—mainly taking a narrative form—were embedded in the text presented in a case study report. This left a critical reader no recourse for inspecting the raw data that had led to a case study's conclusions, because the narrative in the case study report was commingled with the author's interpretations of the data.

The needed case study database will be a separate and orderly compilation of all the data from a case study. The data—in both narrative and numeric form—will represent all your sources of evidence. You may use some *c*omputer-*a*ssisted *q*ualitative *d*ata *a*nalysis *s*oftware (CAQDAS) or more routine word-processing tools (e.g., Word or Excel files) to arrange the narrative and numeric data. Other persons can then inspect the entire database (electronic files and portfolio) apart from reading your later case study report. In this manner, the creation of a case study database markedly increases the *reliability* of your entire case study.

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 extract enough data from the database that a reader can second-guess the interpretations and conclusions in the case study report, as in reading any other research report. Highly motivated readers can then take the further step of inspecting the database, because it contains the full array of data, not just the evidence that was extracted for the report.

Your case study database should be orderly but need not be highly polished. The database's main function is to preserve your collected data in a retrievable form. A well-organized database not only will serve external readers but also will make your own later analysis easier, too.

Unfortunately, the problem of establishing a case study database has not been recognized by most of the books on field methods. Thus, the subsections below represent an extension of a continually evolving state of the art.

The challenge in developing the database is described in terms of four components: notes, documents, tabular materials, and narratives.

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, audio- or videotaped, or in word-processing or other electronic files. They may have first appeared as jottings in a field diary or recorded in some less organized fashion.

Regardless of their form or content, these 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 topics—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 your 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 polish the notes. 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 (see BOX 25).

Box 25 Varieties of Field Notes

Jottings created during actual fieldwork should be converted into more formal field notes on a daily or nightly basis. Both the jottings and formal notes would then become part of a case study database. Four examples follow.

The notes in the first example cover an initial day spent in an urban neighborhood with a community relations officer from the local firehouse. To show how these notes were rendered, see **Application 5** at the end of this chapter. The notes focus on the physical condition of the neighborhood during an initial day in the field. Similar notes were then compiled about subsequent days spent in the same neighborhood.

The other three examples come from a single book (DeWalt & DeWalt, 2011, Appendix). Each example happens to cover a different study: a study of women's social power and economic strategies in Manabi, Ecuador; a study of the nutritional strategies of older adults in rural Kentucky; and an evaluation of a community forestry project in Mexico. All the examples show a high level of detail, reflecting a lot of hard fieldwork.

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. Besides providing a compact overview of these documents, an annotated bibliography also can serve as an index, facilitating the documents' storage and retrieval, so that later investigators can inspect or share the database and so that you can readily find your own

documents. (Storage and retrieval will be more efficient if you use a consistent citation format, such as the format to be used later in the formal bibliography of your case study—thereby saving you a copyediting headache when you are composing your report.)

Tabular materials.

The database may consist of tabular materials, either extracted directly (and cited properly) from a particular source of evidence or created by the research team. Such materials also need to be organized and stored to allow for later retrieval.

The materials may include survey and other quantitative data. For example, a survey may have been conducted at a fieldwork site 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 observed phenomena, commonly known as a *windshield survey* (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.

New narrative compilations.

Finally, you may compile your own new narrative material as part of your database. The material can take several forms. The first, already mentioned, would consist of annotated bibliographies, cross-references, or other classifications that help to organize the other materials in the database so you can retrieve them more easily.

A second type of narrative material would compile the evidence dealing with particular themes or ideas that might have caught your attention during or just after data collection. The compilations would help you to sort your evidence more methodically to determine the strength of the empirical support for these themes and ideas. This entire activity may resemble the *memo writing* promoted by researchers practicing *grounded theory* (e.g., Corbin & Strauss, 2015). Although the themes and ideas in these narratives or memos might at first appear to be somewhat isolated from each other, the compilation can provide suggestive first steps for later analyzing your data more fully.

Also potentially moving you toward analysis would be a third type of narrative, which calls for you to compose your own *open-ended answers to the questions in the case study protocol.* Each answer represents your attempt to compile the evidence related to the particular findings in response to one of the protocol's questions. Depending on the nature of any given question, a compilation may either converge on the facts of the matter or strive to appreciate your interviewees' multiple realities and their tentative interpretations. 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 researcher are the respondent, and your goal is to cite the relevant evidence—whether from interviews, documents, observations, or archival evidence—in composing an adequate response.

The main purpose of the open-ended response is to document the connection between specific pieces of

evidence and the various issues in the case study, generously using footnotes and citations.

The entire set of responses can be considered part of the case study database and can even become the start of the actual case study report (for a single case). However, until the responses actually become part of the case study report, they remain part of the case study database, and you should not spend much time trying to polish them. In other words, you need not perform the standard editing and copyediting chores. The most important attribute of good responses is that they indeed connect the pertinent information to the original questions in the case study protocol. For an example of a question-and-answer database, see **Application 6** at the end of this chapter.

Exercise 4.4 Practicing the Development of a Database

For the topic you covered in Exercise 4.3 (covering some facet of an everyday incident), write a short report (no more than two double-spaced pages) that adheres to the following outline: Start the report by stating a research question that you were attempting to address (about the facet). Now provide your response, citing the evidence you had used (your format should include formal citations and footnotes). Repeat the procedure for a second research question. Envisage how this question-and-response sequence might be one of many in your total case study database.

Principle 3: Maintain a Chain of Evidence

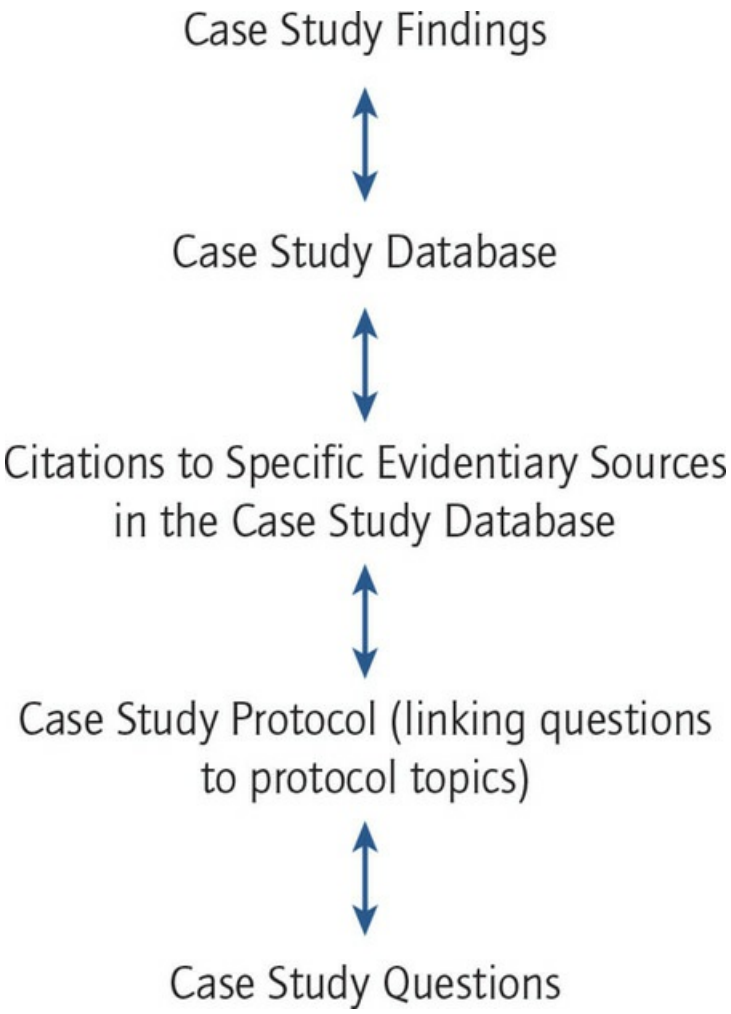
A third principle to be followed, to increase the *construct validity* of the information in a case study, is to maintain a chain of evidence. Such a principle is based on a notion similar to that used in forensic investigations.

The principle is to allow the reader of the case study to follow the derivation of any evidence from initial research questions to ultimate case study findings (see Figure 4.3). Moreover, the reader should be able to trace the steps in either direction (from findings back to initial research questions or from questions to findings). As with forensics evidence, the process should be tight enough that evidence presented in "court"—the findings in your case study report—is assuredly based on the same evidence that was collected from the case study site 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 findings in a case study. Equally important, the evidence at the earlier stages (e.g., research questions) should reflect the concepts at the later stage (e.g., findings). If these objectives are achieved, a case study's evidence also should exhibit heightened construct validity, thereby increasing the overall quality of the case study.

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

First, the findings themselves should have tabular or narrative materials extracted from the case study database, in turn referring to specific documents, interviews, or observations. Second, these specific sources, upon inspection, should contain the actual evidence, as you might have highlighted the key phrases or words in the documents by marking them with a yellow pen. The database also should have indicated the circumstances under which the evidence had been 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 quick review of the protocol should indicate the link between the protocol questions and the original study questions.

Figure 4.3 Maintaining a Chain of Evidence



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 finding 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 finding. 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?

Principle 4: Exercise Care When Using Data From Social Media Sources

A broad array of social media.

Most of the six sources of evidence described at the outset of this chapter can be represented by social media. For instance, you can conduct interviews electronically just by conducting an online chat with another person. Similarly, you can simulate observations by asking a cooperative colleague who might be at an important scene to take live photographs and videos of a worldly event. Engaging in chat rooms and other online group dialogues offers a kind of participant-observation, and relevant physical artifacts can be depicted in online photographs and videos, such as recorded on YouTube. In other words, contemporary social media open a whole vista of sources of evidence, including access to previous studies and research.

For some case studies, a social media source may be your actual subject of study (e.g., when you are studying the dialogue and interpersonal interactions taking place over a Skype connection). Under that circumstance, you will be sure to take great care in doing your research. However, when you are using social media not as its own subject of study but as a secondary source for collecting any of the six types of evidence discussed at the outset of this chapter—such as retrieving a document, conducting an online interview, or observing an event remotely—you need to exercise great caution.

Cautions.

The social media information can overwhelm you, so the first caution is to set some limits. Deciding how much time to spend, setting priorities for navigating and drilling into various websites, and having some idea of the centrality of the information to your research all feed into these limits. Of course, your commitment can expand or contract as you gather new information, but try hard not to let matters get out of hand.

A second caution deals with your willingness to cross-check the sources you use and the information you derive from them. For instance, Wikipedia can be an easy starting point for gaining an understanding of a new concept or topic. However, although the website makes every effort to check the accuracy of the information in its postings, specific authors may nevertheless dominate the contributions to any particular concept or topic. As a result, the material is likely to have an interpretive slant, potentially revealed when (and if) you check these authors' other works. Cross-checking online material with other sources would be an important way of understanding a potential slant, incompleteness, or interpretive bias.

A third caution deals with your use of such sites as Facebook, Twitter, YouTube, and individual blogs. You should use the information from such sites with a highly skeptical view—for example, whether the person you are remotely chatting with is actually doing the chatting or in fact is being coached by someone else in the room. Similarly, be aware that claims about the authorship, places, or times attributable to some social media material may not be fully accurate. A final reminder is to inquire about the permission needed to use the materials from these sites, especially audio or video recordings, in your case study.

Summary

This chapter has reviewed six sources of case study evidence, how evidence can be collected from these sources, and four important principles regarding the data collection process.

The data collection process for case studies is more complex than that used in other research methods. You are likely to need a methodological versatility not necessarily required for using other methods and must follow certain formal procedures to ensure quality control during data collections. The four principles described in this chapter are steps in this direction. They are not intended to straitjacket the inventive and insightful researcher. They are intended to make the process as transparent 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 topic of the next chapter.

Notes to Chapter 4

1. The limited availability of print materials in low-income communities in the United States—even including signage in public places 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 (2003). An exemplary quantitative study of the authorship problem in relation to the *Federalist Papers* is found in Mosteller and Wallace (1984).

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

4. A serendipitous field observation occurred during fieldwork at a state university, involving the chancellor's formal conference room. The walls of the room had 11 large pictures, depicting the 11 campuses of the state university. Only when asked why pictures of the state's community colleges were not included was it revealed that the state university and community colleges were two entirely separate systems *within the same state*. Because the case study was about the attainment of advanced degrees in science in that state, the field team had not previously appreciated such separation but now understood the reasons for the lack of coordination over credits and curricula, in turn leading to a highly inefficient (and more expensive) pathway for students wanting to pursue advanced degrees by first attending one of the state's community colleges.

APPLICATION #4: Doing Interviews in the Field: *Citizens on Patrol*

Case study fieldwork can consist of short interviews with a variety of participants. **Application 4** *presents a case study whose data mainly came from interviews with the persons responsible for organizing a residential activity.*

As a crime prevention activity, the residents in many neighborhoods may organize some type of patrol, either by foot or in cars. Participation is entirely voluntary, and the activity is intended to complement the surveillance offered by the local police. These *citizen patrols* raise new issues worthy of field-based research. Questions include "How does a patrol operate?" "What connection does it have with the local police?" and "Under what circumstances might a patrol slide from acceptable *vigilant* behavior to less acceptable *vigilante* behavior?" **Application 4** examined these and other related questions.[1]

1. This application originally appeared in Chapter 5 in Yin (2012a), Applications of Case Study Research.

The Rangefield urban citizens patrol.

The Rangefield Patrol operates in a four-block area in the middle of a multiethnic community. The four blocks are dominated by renovated townhouses and their resident owners. The surrounding area, including adjacent neighborhoods, has faced constant threats from drug dealing, muggings, burglaries, and car thefts.

J. B. Compton, an artist and graphic designer, has lived in the neighborhood for 9 years and is a patrol member. He has had several personal experiences with crime since moving to Rangefield. First, he was a victim of what he described as "a spectacular burglary" in which his house was "virtually cleaned out." Second, his car was vandalized several times, and third, tools were stolen from his backyard on three separate occasions.

Compton's experiences are not unique. Two years earlier, there was a rash of housebreaks and muggings, and the residents in the four-block section met to discuss ways of stemming the crime wave. The area already was highly organized by neighbors who had banded together around environmental and political issues affecting them, and people already had experience working together. David High, a recognized community leader who later initiated the Rangefield Patrol, noted that "it's a neighborhood where everyone knows each other and a spirit of unity exists."

As an initial response to the crime wave, High said, the community at first requested additional surveillance by the local police. The community also discussed ways of increasing the residents' "security consciousness," resulting in many homeowners purchasing lights for the front and rear of their houses and installing burglar alarms. Although the local police promised increased protection, the residents felt no such increase, with several of them watching the streets and counting the presence of patrol officers and patrol cars.

"When we saw that we were getting no response from the police, we decided to see if we could stop crime in the streets ourselves," High recalled. Four residents volunteered to plan a citizen patrol. When they presented the plan at a neighborhood meeting, 15 to 20 persons immediately volunteered to participate. Soon, the volunteers numbered around 60. "It was not without some difficulty that we ultimately gained support from the broader community," High also noted. "Initially, we were charged with being vigilantes and as people with guns trying to preserve our homes."

The original and continuing goal of the Rangefield Patrol has been to make the four-block area safer. An independent organization, the patrol performs only crime prevention activities, although many of the members also belong to the larger Rangefield Neighborhood Association that sponsors many social, political, and service-oriented activities. All members of the patrol are adult males.

Patrol operations.

At the time of the case study fieldwork, the Rangefield Patrol worked from 9 p.m. to 1 a.m. every night but Friday (the local police have an augmented patrol on Friday nights). The 4-hour shift is manned by two volunteers on a rotating basis.

The most important instruction to all patrol members is to remain visible. "Visibility," explained High, "makes residents feel secure and also deters potential criminals." The main activities of the patrol include walking and standing around the four-block area, talking to and greeting residents as they approach their homes, escorting people into their homes or around the block if requested, and periodically checking the back alleys of the blocks. Compton said he did not feel that his patrol activities were dangerous. "You have to be careful because you don't know if a passerby is armed or not," he said, "but a little common sense eliminates most of the danger in this work."

If a patrol member witnesses a crime, his instructions are to call the police, blow his whistle, but, if at all possible, not become involved in any confrontation. "We will confront a criminal if we have to," High said, "but so far, we haven't had to do that because our whistle campaign has been so successful. Our neighborhood's show of force has successfully intervened in several incidents." All residents, whether on patrol or not, carry tin whistles, and upon hearing the sound of a whistle, all neighbors are instructed to call the police immediately and then to go outside and lend assistance to the patrol and any victims. According to High, at least five or six muggings and several auto thefts have been broken up by residents responding to the call of a whistle. "Response to whistle calls has been fantastic, even late at night," High said.

The inexpensive whistles are essentially the only equipment used by patrol members. They wear no special uniforms or badges and do not carry weapons.

Patrol organization.

The patrol's current membership hovers around 60 adult males. A woman, however, serves as a patrol coordinator, and several other

female residents assist in distributing flyers or doing other chores. The coordinator is responsible for shift scheduling, finding substitutes for absentees, keeping written records of patrol-related incidents, and convening the occasional meetings of the patrol members. In addition, she maintains close communication with the police and, as a representative of the neighborhood, frequently presents the local police with security-related requests and demands.

According to High, the patrol has no specific leadership positions or administrative infrastructure except for the coordinator's position. "Several of the more active volunteers have emerged, through their involvement, as patrol spokespersons," High explained, "but none have titles of any sort." Decisions, he added, usually are made by the coordinator or at meetings of the entire patrol. Likewise, Compton emphatically asserted that all patrol volunteers can have a voice in running the operation. "There are no real patrol leaders," he said, "and we usually have group meetings where people can criticize, make suggestions, or just talk out their problems."

During the past 2 years, the need for patrol recruitment has been minimal. The 60-person membership has remained constant. According to Compton, to join the patrol, all one must do is express an interest in getting involved. He himself joined the patrol a little over a year ago, hearing about it through the neighborhood grapevine. Most patrol members have joined because they are committed to making the area a safe, enjoyable place to live, he said, although some residents have not participated because they feel that the job is dangerous or because they are in poor health. "Others, especially renters, just aren't interested." When asked what members gain from being part of the patrol, Compton replied that more acquaintances are made with neighbors, fostering a heightened sense of community spirit. The greatest rewards, however, are passive ones, he noted, "such as everyone in my family simply being safe. When things are quiet, when nothing is happening, that's our best reward."

The only "dues" for patrol members are the hours pledged to patrol. High estimated that he spends about 12 hours per month on patrol efforts. Compton said that he usually patrols twice each month for a total of about 8 hours. "The patrol certainly can be a burden," he remarked, "but I try to work out my schedule accordingly."

Each patrol member is expected to be level-headed and willing to participate. Each novice is trained by a veteran volunteer who accompanies the novice on his first few patrol shifts. No written rules or behavioral guidelines exist. "The general tone for our patrol activities was set in our planning discussions," said High, "and we all have a sense of what we should or should not do. Foremost is an understanding of being careful for our personal self and of only getting involved in absolute emergencies." Since the patrol has been in existence, no members have been disciplined or discharged for acting with poor judgment.

Incipient attendance problems may be starting to arise, however. High said that "people are getting bored because things are so quiet." When the patrol first began, patrol members intervened in several muggings and attempted auto burglaries and turned away countless suspicious-looking loiterers. Now, people are beginning to lose interest because there is very little activity on the streets.

In general, the patrol seems to be widely supported by residents. "We get tons of feedback from neighbors who personally thank us for making the area safer," High said. Compton said he also feels that most residents have a positive opinion of the patrol, but he added, "I have no idea" what the local police think about the group. "Because our direct contact is so minimal, I sometimes get the feeling that they don't care that we exist."

Relationships with the local police.

The Rangefield Patrol sees itself as an organization that supplements the local police and that affords its neighborhood extra protection. Although there is no routine contact with the police, the coordinator keeps the police informed of all patrol activities. The police, in turn, try to provide the area with additional patrols on Friday nights. High rated the police as "fairly good" in responding to patrol calls and said that the quality of police protection probably has improved since the Rangefield Patrol began. "That may be, though, because our neighborhood has proven to be particularly vocal," High speculated. He added that overall police protection still is not adequate, "or we wouldn't be out there."

Officer Jon Lindh, the director of community relations at the local police station, said that the Rangefield Patrol has had no effect on the deployment of the local police in the area. Police officers are allocated according to crime levels in a neighborhood or in relation to police workload, he explained.

Officer Lindh said he has been in contact several times with members of the Rangefield Patrol. "As far as citizen patrols go, they behave themselves pretty well," he said, adding that he is unaware of any police complaints regarding the patrol's behavior or activities. However, contact between the local police and the patrol members is minimal. Officer Lindh said that the beat patrolmen

stop occasionally to chat briefly with a patrol member, but that is the exception rather than the rule. He did mention, however, that patrol members have come to the station several times to talk with the captain or "to present a list of grievances about things happening in their neighborhood."

In discussing the patrol's accomplishments, Officer Lindh said that they primarily have been twofold: The patrol has fostered a sense of community awareness and concern and also has kept the police informed of neighborhood happenings. In general, however, he does not think the concept of citizen patrols should be supported because "these people can't take the place of the police. They usually don't know what to look for or how to handle a serious problem." Basic crime reporting, he added, is a good thing. "We encourage people to do that." He said the police also have praised other citizen patrols' efforts at various crime prevention seminars throughout the city.

Compton said that the success of the patrol has far exceeded his original expectations. There has been a visible reduction in the neighborhood's crime rate, and increased community cohesion has accompanied the concern about security. In discerning the effect that the patrol has had on crime in the neighborhood, High asserted that "boredom is success." "There have been no housebreaks, muggings, or other criminal activity in the last 8 or 9 months," he said, "and there is no telling how many potential criminals we have deterred." Regarding crime displacement, Officer Lindh said that, although no figures exist to verify his statement, he feels that because of the Rangefield Patrol's activities, some criminals might have avoided the Rangefield neighborhood and victimized other neighborhoods instead.

FOR CLASS DISCUSSION OR WRITTEN ASSIGNMENT

Personal Security When Doing Fieldwork

Studying citizen patrols, much less accompanying residents while on a citizen patrol, poses a potential threat to your own security. Although you will not be able to avoid unexpected events and will have to exert extreme caution and care if such events occur, some preparatory steps still can be helpful.

Two steps can be extremely important. First, you should have received appropriate clearance to do the study and to carry out your specific field routines. For citizen patrols, the providers of such clearance will be persons of authority, such as the main persons responsible for organizing the citizen patrol and also local police officials. The least desired situation would be if you had obtained clearance only from the member of the patrol whom you were accompanying. (Such need for the higher clearance has counterparts in doing other kinds of fieldwork; for instance, you would want to obtain clearance from the principal of a school even if you were going to study only a single classroom and that classroom's teacher already had agreed to your presence in it.)

Second, you would want to let a trusted colleague (or two) know about the exact time of your planned fieldwork but request that they not call you during that period of time. As part of this procedure, you also would want your patrol companion to know that you had alerted your colleague(s), to deal with any unanticipated communication need.

Discuss other precautionary steps that might be taken when doing fieldwork in different settings. Speculate how fieldworkers should respond when an untoward event occurs (e.g., when a patrol member encounters a problem and confronts someone in some threatening manner). Should the fieldworker assist? Observe? Depart?

APPLICATION #5: Making Field Observations: *First Day in an Urban Neighborhood*

> *Taking field notes of some sort will be common to virtually every case study. The initial notes may take the form of "jottings" and not involve complete sentences. Regardless of the condition of the jottings, you should render them into more formal writing as soon as possible.* **Application 5** *exemplifies the reworking of earlier jottings, based on the fieldwork during the early stages of a new case study.*

Inner-city neighborhoods have commonly been the scene of stressful relationships between residents and first responders, in this case fire department personnel. **Application 5** comes from the overnight rewriting of the field jottings made during an initial visit to one such neighborhood. The present author accompanied a fire officer who was assigned to a firehouse in the neighborhood.[1] The text is largely descriptive, but in a few places my personal commentary appears in brackets (all names in the application are fictitious, and many details, such as the names of streets or additional persons, have been deleted in this version).

1. This application, with minor edits, originally appeared as Chapter 2 in Yin (2012a), *Applications of Case Study Research*.

Lt. Harry Erroll.

Harry Erroll has been with the city's fire department for about 25 years—the first 20 on fire duty [mostly in high-alarm neighborhoods] and the last four or five in community relations [limited-duty status due to injury]. He is one of the more unusual persons one will meet in the department, having (a) grown long hair [which he readily admits he combs back any time he is to meet with his fellow firefighters], (b) accepted a Taoist-like philosophy of life [the only button he wears is one with the yin-yang symbol], and (c) otherwise accepted the ways of the people [he also writes poetry]. A personal change seems to have occurred gradually over the past 10 years and is not based on any revelatory incident [as far as I can tell] but reflects the same interests in serving the community as those that led him to join the fire department in the first place.

In his role as community relations officer, Erroll serves one of the larger regions in the city, with three men working with him. Together, they attend community meetings, give lectures to schoolchildren and adults, and otherwise keep in touch with neighborhood events. Apparently, the four determine their own schedules, filing activity reports before and after any given period of time. The three other men cover designated subregional areas; Lt. Erroll freelances.

Firehouse No. 10.

Erroll has a desk here, which is also regional headquarters and hence has many men on limited duty on the top floor of the firehouse.

I spent the first hour of my fieldwork here, with Erroll showing me samples of the routine reports, materials, and pictures that he uses.

Some of the topics we covered briefly included the following: (1) harassment [the kids tell Harry that it's fun and, when told that they endanger other people's lives at fires, say they now throw rocks at the firefighters only when they are clearly *returning* to the firehouse], (2) the slight delay in response time caused by a new need to lock the firehouse because of the union requirement that all persons be on fire duty, and (3) some paperwork in which Erroll has been trying to encourage more neighborhood kids to think about job opportunities with city agencies and to encourage the agencies to develop adequate training programs.

Neighborhood streets.

The main feature of the streets around the firehouse and in the whole neighborhood is the garbage. I saw enough garbage to last for a long while. Most of it is not in garbage cans or bags and appears to come from a number of conditions. First, there are too many cars [including abandoned ones] blocking any garbage truck's routine access for collecting the garbage on the sidewalks. Second, the stores dump as much garbage as do the residents [evident from the number of crates and boxes among the garbage]. Third, not being in garbage cans or bags, the garbage is even more difficult to pick up. Fourth, the neighborhood's empty lots attract dumpers.

The parking problem is a source of aggravation between the firefighters and the community because the firefighters drive to work and like to park close to the firehouse. According to Harry, they consider their own violations of the parking regulations as part of their work, and there has been at least one fight between a firefighter and a local resident over a parking space. One outcome of the parking problem around the firehouse is that the firehouse's street is one of the dirtiest in the area.

Three community organizations [a study in contrasts?].

We visited three different community organizations: the Youth and Community Center, the Gotham Boys Club, and the Urban Task Force. The first is run by an active group of African Americans, is well furnished [carpet, desktop computers, modern furniture, sizable office copy machine] despite having a "poor" storefront, and has a good deal of business, with a staff of about four or five persons. The office is about 20 months old, active in developing neighborhood programs, supported by some sort of private foundation fund, and has been seeking further support.

The second is run by an old man, Mr. Mantos, and has a gym and other recreational facilities within the same building. The club is sponsored mostly by people with Italian names and includes summer camp programs. It is about 11 years old, and Mr. Mantos said that the first few years were the hardest because the staff had to overcome the hostility of the local gangs. The club discontinued dances about 5 years ago, but except for this change, I got the impression that things have improved, especially in comparison with the first few years. The fire department has recently started a "class" in the club, conducted every 2 weeks, in which the kids are taught about fire hazards and fire prevention. Harry characterized the club's staff as relatively strict and old-fashioned, and he said that he and the other firefighters running the classes make sure that the staff is not part of the classes.

The third organization is run by Al Ball of the city's youth agency and a secretary. Ball is a very "bourgeois" [Harry's word] African American and the office is very poorly furnished. Ball had a great deal of difficulty trying to relate the fire problem to other community problems. The minutes of one of the task force meetings [I have the minutes from the past five meetings] give some idea of the routine work of the task force [it does not appear to work closely with the Youth and Community Center]. Both the task force and Mr. Ball seem to be unsettled in their roles and not really involved in the community.

Around the neighborhood.

We drove and walked around many of the worst-appearing parts of the area. Harry showed me a vacant lot that he had asked to be tarred over because it provides rocks that the kids throw at nearby buildings and firefighters, but with no result. We ran into one of Harry's street friends, about 17 years old, who was on his way to court to bail someone out. He was not very talkative, but he was extremely friendly [he had once helped Harry in avoiding a confrontation between the firefighters and neighborhood residents]. He thought things had gotten much worse in the 7 years he had lived in the area but could point only to garbage as a concrete example of the deterioration [our conversation took place next to a pile of burnt rubbish and beer cans about 4 feet high, which he said had been there for about a month].

We drove by one of the better parts of the area, which has many frame houses and thus presumed homeowners. The street has a block association that is apparently highly active. In addition, we called on one of the schools where Harry had given a talk in the

past week. During our visit, Harry gave pictures of the earlier occasion to a teacher and in return was given a copy of a news clipping from the past Sunday's *Dispatch* about one of the fire dogs.

Fire hazards.

Most people mentioned poor electrical wiring as the main cause of fires. The old apartment houses were not built to accommodate irons, toasters, air conditioners, or other common electrical appliances. Mr. Ball of the Urban Task Force, being more knowledgeable about the housing situation, also said that there was little that a landlord stood to gain by improving his or her buildings, because the rent could be increased only by small amounts.

On the prevention side, Harry mentioned that there had been a well-staffed fire department program that addressed individual classrooms at various schools. As a result of union pressures, this program had been reduced. Now, Harry and the other community relations officers are usually in a school's auditorium with a large audience, and Harry feels there is less communication with the kids than when he used to visit individual classes. He also tries to distinguish between the roles of the fire and police departments, and he finds the firefighter's uniform to be a hindrance, because it is much like that of the police. However, Harry admits that the other firefighters probably prefer not to be dissociated from the police; many of the firefighters simply do not understand the need for communicating with the people or the kids in the neighborhoods.

Concluding remarks.

There are several things left to be said about Harry Erroll. His views, as I have indicated, are much closer to those of the community than to those of the firefighters, and he has been trying to educate both.

Harry is not highly opinionated, complains little about the services provided by other city agencies despite several frustrating experiences, and, though observant, does not stereotype his observations. I felt that I was able to see things for myself, and Harry did not in any way offer any running commentary. At the same time, he does have a few ideas, which he did try to promote.

The first is that better community relations would have to depend on more staff and money [but he doesn't belabor the point]. The second is that the city's employment must be opened much more to the city's residents, especially low-income residents, and that too many of the current employees do not live in the city or in the neighborhood they serve, and hence they are parasites of a sort. Third, he feels that landlords are obsolete and that perhaps the only way of getting people involved in their neighborhood is to have condominium or cooperative arrangements, without any kind of absentee ownership or management. This is probably not a new idea, but I found the thought intriguing in light of a recent, well-publicized report calling for greater financial returns for landlords.

Harry's involvement in his job is entirely on a personal basis. He can retire any time but enjoys his activities. His work can be understood only by observing his daily routine, as he is not prone to verbalizing it.

On the next fieldwork opportunity, I have asked him to show me around other neighborhoods that have not yet deteriorated as much as the one we saw today. We also will try to visit some of the block association leaders [there is at least one highly active group, composed of tenants, which came up in our discussions with Ball].

FOR CLASS DISCUSSION OR WRITTEN ASSIGNMENT

Developing the Research Questions for a New Study

The field notes in **Application 5** came from the outset of a new study of street life in an urban neighborhood. You may have observed that the notes do not contain any research questions. Nor do the notes appear to have much substantive direction, other than the visits to the community organizations. In fact, only known at that early juncture was that the study was to be about the relationships between firefighting officers and the communities they serve—because such relationships had declined to an unacceptably low point: Residents had been harassing the fire officers (e.g., throwing objects at the officers when they were fighting a fire), sending many false alarms that caused fire trucks to respond unnecessarily, and causing other forms of minor havoc. However, at the time of the field visit captured by the field notes, no one knew how the study was to be designed or conducted or even what types of data would be collected.

Given this circumstance, tentatively define two alternative studies, one based on the case study method and the other based on a survey method. In particular, identify some candidate research questions to be addressed by each of the two studies. Would the differences between the two methods lead to different types of questions being appropriate? Conversely, if the studies were to address the exact same questions, how might the methods differ in their comparative advantages in addressing those questions?

APPLICATION #6: Assembling a Question-and-Answer Database: *A Case Study of a Community Organization*

> *A case study database organizes the data that have been collected for a case study. The database should use a format that helps the data to be easily perused and retrieved. A question-and-answer format, based on the questions that were part of the original case study protocol, serves as one way of organizing a database.* **Application 6** *shows how this format works, although, to conserve space, much of the application has been abbreviated.*

Community organizations have long been important partners in revitalization, development, and service efforts. The organizations, usually drawing heavily on residents' voluntarism, may be found in all kinds of neighborhoods and can improve both the physical and social aspects of neighborhood life. As one result, case studies of such organizations—whether they are faith based, development oriented, or service organizations—frequently appear in the literature.

Although the community organization in **Application 6** is from an earlier era that might now be considered ancient by younger scholars, the data collected at that time demonstrate the continuing relevance of community organizations. The organization was known as Jeff-Vander-Lou, Inc. (JVL) (the name was derived from the three principal streets that bounded the area: Jeff from Jefferson Avenue, Vander from Vandeventer Avenue, and Lou from St. Louis Avenue). Its work, dealing with neighborhood housing, strongly resembles the activities of counterpart organizations today.

The question-and-answer format in **Application 6** shows one way of organizing a case study database.[1] In this application, the full set of questions reflected the topics of interest by the sponsors of a multiple-case study done at the time, covering 40 community organizations. The question-and-answer format also produced a major benefit: Because each database followed the same set of questions, a reader could conduct a personalized and targeted cross-case synthesis by examining the responses to, say, Question 10 in each database (because it was the same question).

1. Omitted from the original version are numerous footnotes, citing both the 25 persons who were interviewed and the 34 documents, reports, and printed materials that together comprised the sources of evidence for the case study.

The text in **Application 6** presents the full array of 49 questions from the original study that were then posed in each case study. By seeing all the questions, you can appreciate the full scope of the original databases. However, for illustrative purposes, the text in **Application 6** only contains a subset of the original responses,[2] starting with the response to Question 8.

2. Kenneth Snipes conducted the original JVL case study, under the direction of the present author, who designed and directed the original multiple-case study. This application, which originally appeared as Chapter 6 in Yin (2012a), Applications of Case Study Research, has been edited by the present author to conserve space. The entire application originally appeared in a government publication (U.S. National Commission on Neighborhoods, 1979).

INITIATION AND STRUCTURE OF THE ORGANIZATION

Organizational Origins

1. *In what year did the organization come into being?*
2. *What caused its creation, and who or what was the main source of support in the creation?*
3. *What was the original source of funding?*
4. *Was either mandated citizen participation or formal, legal grants of authority involved in initiating the target organization?*
5. *What was the early orientation of the organization?*
6. *What was the organization's main leadership structure?*
7. *What was the organization's membership and structure?*

Organizational Evolution

8. ***How has the organization changed since the early days?*** Jeff-Vander-Lou, Inc. (JVL) has changed in terms of the size of its staff, intensity, and greater organizational structure, stemming from a general increase in the number of activities, programs, and projects. In its fourth year, the intensity of JVL's housing development activities led to the creation of a separately incorporated entity called JVL Housing Corporation, exempted under IRS Section 501(c)(3). The organization has received tax-deductible contributions that have boosted its housing efforts. Businesses and foundations have given extensive support following the establishment of JVL Housing. . . .

Outside the housing field, important transitions by JVL have been as follows:

- In 1969, JVL set up an employment screening and referral office for the Brown Shoe Company, which had built a new factory in the JVL area.
- Early in the 1970s, JVL made public improvements through the Model Cities program, working with the Franklin Avenue Businessmen's Association.
- Also in 1970, JVL established a housing management program.
- In 1973, day-care activities were formalized.
- Later in 1973, the JVL Senior Citizens' Center was started.
- In the spring of 1974, JVL published its first paper, called the *Jeff-Vander-Look* [*Look Magazine* was a prominent national magazine in the United States at that time]. In November 1975, the paper was reorganized and renamed *JVL News*.
- In 1976, JVL began its Summer Youth Program, funded by the U.S. Department of Labor. An economic development staff was added that same year.
- In 1977, the JVL Communications Center, an outgrowth of the summer program, received funding.

Each of these activities, along with many issue-oriented tasks, caused changes in the organization, in turn helping ensure both supervision and continuity by adding professional staff and appropriate facilities. Throughout, JVL's geographic boundaries have remained the same, and housing development continues to be a high priority.

9. ***What were the events that led to these changes?***

10. ***Overall, has the organization become more independent or dependent?***

REVITALIZATION ACTIVITIES AND THEIR SUPPORT

11. ***What activities have been completed or are currently under way?*** JVL has had many accomplishments, especially in housing development:

- *1968:* Renovated first building, a 12-room house; completed five housing units repaid through a HUD [U.S. Department of Housing and Urban Development] mortgage insurance program; brought 10 private insurance companies together, agreeing to spread the risk of loss among themselves through a rotation process, to meet JVL's insurance needs to cover 88 units until the Missouri Fair Plan was created in 1969–1970.
- *1969:* Rehabilitated "Opportunity House," a complex consisting of six apartments completed at a cost of $85,000; renovated the Sheridan Medical Building, which was then operated by doctors for the benefit of the JVL area; and convinced the Brown Group, Inc., to build a shoe factory in the JVL neighborhood and began handling employment screening and referral for a peak employment level of 450 workers.
- *1967–1970:* Completed a total of 81 units under a HUD program; units were sold to families in the community with interest subsidy ranging from 1% to 3%.
- *1970:* Set up a housing management component with a grant from the national Self-Development of People Committee of the Presbyterian Church, allowing for the payment of salaries for the manager of the Spotts Apartments as well as a chief executive and an administrative assistant.
- *1971:* Completed construction of the Aritha Spotts Apartments, a 74-unit new construction project costing $1.5 million, including a two-story office and community building (the project was JVL's first development using a HUD rental housing program); also completed seven units of homebuyers' housing under a related HUD program.
- *1976:* Began rehabilitating 98 units (completed in mid-1978) of scattered-site housing under a HUD program in conjunction with the National Housing Partnership.
- *1978:* Currently, JVL is exploring tax-sheltered syndications for further developments in the community, and three more housing packages are in various stages of processing: package #16, 88 units of scattered-site infill new construction, already under way; package #17, a 100-unit HUD-supported elderly and handicapped project; and packages #18 and #19, 114 units of rehabilitated and newly constructed units.

12. ***How did the organization become involved in these activities?***

13. ***How were these activities planned?***

14. ***How were these activities implemented?***

15. ***Have there been difficulties with continued or new funding for these activities?***

16. ***Were different leaders/staff involved in the process of program planning and implementation as contrasted with the founding of the organization?***

17. ***What choices were required, if any, among the various activities?***

18. ***What problems has the organization chosen not to confront?***

19. ***What has been the effect of activities on the organization's basic character over time?***

RELATIONSHIP TO VOLUNTARY ASSOCIATIONS AND NETWORKS

20. ***Make a list of other organizations or individuals who have voluntarily assisted the organization in a major way.***

21. ***Name three major occasions on which the target organization has voluntarily assisted other groups.***

22. ***Has the organization ever worked in collaboration with other organizations in the same neighborhood?*** JVL is especially neighborhood bound. Housing rehabilitation, child care, and programs for the elderly all have involved joint planning and implementation with the Bethesda Mennonite Church. Mennonite labor and funds went into the earliest housing projects, and one of the JVL child-care centers is located in the church.

In other collaborative efforts, JVL's "meals on wheels" program for the elderly was created through the joint efforts of JVL and the Yeatman Corporation. This project was first conducted with resources from the Model Cities program and later received St. Louis Area Agency on Aging funding. Similarly, the JVL Communications Center, funded in part by the U.S. Department of Labor and the Mott Foundation, is being developed as a neighborhood resource and learning center in collaboration with the St. Louis public school system. Students in the program will spend part of their regular school day at the JVL Communications Center, with 64 youngsters studying such curriculum areas as television, radio, photography, and motion pictures. . . .

23. ***Is the organization part of a large umbrella organization?*** None of the respondents or any of the written material indicated that JVL is formally associated with a large umbrella organization. Through its principal leader, Macler Shepard, JVL is, however, included on many boards and councils. For instance, Shepard is a commissioner on the Bi-State Development Agency and a board member of the Mennonite Mutual Aid, the North Side Team Ministry, and the United Way, to mention a few such appointments.

24. ***Is the organization part of a larger citywide, regional, or national network?***

25. ***Describe the relationship between the target organization and other local organizations.*** JVL has the respect and admiration of other local organizations in terms of its accomplishments in housing development and other projects aimed at bettering the JVL area. However, a leader of the Lucas Heights Village housing development summarized the sentiments expressed by other respondents who are associated with the Yeatman Corporation and the Ward 19 alderman. Basically, areas of conflict and competition seemed to surface when discussing what can be accomplished as compared with what can be only dreamed about. Specifically, JVL is thought to be creating an island without adequate ties to other projects such as Lucas Heights, located within JVL's boundaries. Also, JVL depends heavily on HUD funds. These community leaders stated that JVL is very "turf" oriented and is unwilling to change the direction of its development plans to tie into the Lucas Heights project. A political leader expressed what might be considered jealousy among several strong-minded groups. Most respondents thought that the city should assume the role of developing cooperative planning among the several groups. . . .

26. ***Overall, have outside organizations played an important role in the target organization's life history?***

RELATIONSHIP TO CITY GOVERNMENT

27. ***Does the target organization have any relationship with specific officials or offices in city government?***

28. ***Is the relationship formal or informal?***

29. ***Has this relationship been productive*?** Mayor Conway indicated that JVL has been able to persuade both federal and private sources to be supportive. He said that the city recognizes JVL's positive contribution and that the city has no quarrels with JVL, generally. However, actions by JVL that have generated conflict were its opposition to both the north-south distributor highway and the rehabilitation of the Cochran Gardens public housing project. With the latter, JVL questioned the St. Louis Housing Authority's plans to rehabilitate one Cochran building at a cost of $3 million, after the authority had opposed a JVL plan to use similar financing mechanisms for four buildings in Pruitt-Igoe at a cost of $5.5 million. The mayor suggested that JVL's actions may have been to gain leverage. However, the mayor noted that the problem has been resolved to some extent, and JVL presently has a cooperative relationship with the Housing Authority.

An assistant to Mayor Conway said that the city's relationship with JVL has declined because JVL goes to the media in the middle of negotiations or discussions. He said he thinks that JVL becomes antagonistic rather than seeking accommodation. Further, he went on to describe political alliances that have been in opposition to the 19th Ward alderman, creating other sources of conflicts.

Despite the tensions and pressures that characterize the relationship between the city and JVL, the respondent said that JVL housing packages #16 and #18 had recently been placed at the top of the review list, indicating the city's desire to work with JVL. Despite such tensions, there are signs of a functional and productive relationship. A reporter for the *Globe Democrat* said that Macler Shepard has the respect of city officials.

30. ***Are there any examples of city government having thwarted the emergence of community organizations?***

31. ***Has the city made any structural changes in its own organization to be more supportive and competent with respect to neighborhood preservation and revitalization goals generally?***

32. ***What are the target organization's main relationships outside the city?***

33. ***Overall, has the city government played an important role in the target organization's life history?***

OUTCOMES

Condition of the Neighborhood

34. ***During the lifetime of the organization, has there been any tangible evidence of neighborhood improvement?*** Neighborhood improvement in the JVL area surveyed over its lifetime is significant, visible, and dramatic. Even those respondents whose views were critical of JVL's methods and plans clearly acknowledged its accomplishments. Housing development, both new and rehabilitated, is the foremost achievement of JVL. Housing units are developed in what is referred to as a "package" assembled by technical experts, including architects, general contractors, lending institution executives, insurance agents, and others, under the guidance of the JVL staff and board of directors. To date, 18 packages have been developed, containing a total of 623 units of new or rehabilitated housing. The packages have ranged in size from 4 to 100 units. Months of detailed work and negotiations are devoted to the creation and development of these packages. This writer observed many of the housing improvements during several field visits to the JVL neighborhood.

Capital improvements, with the exception of dwelling units, were not as evident. In the early 1970s, JVL advocated the use of Model Cities funds to improve the Martin Luther King shopping district. Capital improvements such as street paving, new sidewalks, tree planting, bus stops, and off-street parking were undertaken at a cost of several hundred thousand dollars, according to a JVL report. In 1976, the *JVL News* reported that the area suffered from neglect and poor maintenance. The plaza still lacks proper upkeep. JVL has included further development in the area as part of its economic reinvestment plan. According to the *JVL News,* the target organization has been responsible for getting the Metropolitan Sewer District to provide more and better service to the area.

This writer also observed that sidewalks and curbs are greatly deteriorated throughout the area. Vacant lots are trash-ridden and overgrown with high weeds. JVL puts continuous pressure on city departments to combat such problems. The *JVL News* is used effectively to criticize when nothing is done and to announce results as they occur. Currently, much of JVL's effort is focused on sidewalk improvements and construction of infill housing—new housing units on vacant lots.

In 1968, JVL influenced the Brown Shoe Company to build a shoe factory in the neighborhood. The factory provides 300 to 450 jobs. In the November 1976 edition of *JVL News,* the plant supervisor reported a 97% attendance record. Brown Shoe also has a training program for both foremen and supervisors. JVL maintains a personnel office to screen and test applicants for jobs. In terms of law enforcement, JVL summarizes resident complaints and periodically has identified the current "hot spot"—a corner or street that is then highlighted in the *JVL News* and reported to the police. Any subsequent improvements also are reported.

35. ***Has there been any evidence of the organization having blocked or prevented some change in the physical condition of the neighborhood?***

Residents' Perceptions

36. ***What do residents feel about the target organization?*** Many respondents noted that the activities and accomplishments of JVL have contributed to a significant decrease in every category of crime between 1970 and 1976. The decrease is evidenced by police statistics contained in a 1977 market study.

According to a reporter from the *Globe Democrat,* the JVL neighborhood lacks stores, shops, and cultural events and institutions of the type that would attract young, middle-income persons into the neighborhood, with the exception of those committed to repopulating the North Side and those believing in self-help in the Black community. He said that such persons also would be willing to take more risks—referring to a widespread belief that the JVL area is unsafe, despite the reported decrease in crime. The reporter does not live in the JVL area, but his reporting assignments include JVL.

A resident whose comments summarized the sentiments of a number of persons living in the JVL neighborhood said that, to him, the neighborhood is like a frontier. He noted that the people who own their homes take better care of them. He indicated that the basics for power (unity of the people in an organized effort) are in the JVL neighborhood. Residents said they felt positive about JVL, most often citing the physical improvements in housing and the continuous advocacy role played by JVL on behalf of the area. Several respondents described easy access to participation and involvement. For example, one resident went to a monthly meeting to hear about plans to improve vacant lots. He presented an idea, and city bulldozers arrived within 10 days. The resident now keeps the lot clean.

37. ***Do residents feel that the target organization has addressed the neighborhood's problems?*** All the residents interviewed said they felt that JVL has addressed the most significant area problems. Commercial development as well as general maintenance and cleanup are problems that were most often mentioned. Commercial reinvestment is anticipated based on the completion of the Martin Luther King Business District market study. Most respondents said they believe that JVL is presently working near its capacity, so commercial ventures must be delayed until new funding sources and other resources are obtained. Problems of inadequate city services have been attributed to the belief that the city has attempted to eliminate sections of the North Side community to allow for the development of an industrial park and a new highway.

38. ***Have the activities of the target organization resulted in increased residential activity?*** JVL activities for older adults have generated new and varied services for many elderly people. Films, speakers, transportation and escort services, shopping assistance, and welfare problem assistance bring together hundreds of elderly persons weekly. Teens and young adults have greater access to both recreational and educational activities as a result of the Summer Youth Program. The summer activities of the young people focused on the neighborhood. For instance, a visual arts project on display showed their concepts for a new recreational facility. Also, a film produced by the youth featured familiar locations in the area. The awards ceremony was filled to capacity with persons of all ages from the JVL neighborhood.

JVL holds monthly community meetings at the Mennonite Church. Respondents stated that the attendance fluctuates, based on the interest in the topics being discussed. The topics have included tax increases (with top city officials present), vacant lot programs, health issues such as alcoholism and sales tax on medicines, the election of JVL's board of trustees, and JVL's program plans. JVL residents contact city officials through formal meetings, telephone, and other direct interaction in part because JVL discloses the identities of the city officials directly responsible for various services. JVL publishes a telephone guide in the *JVL News* that gets heavy use, according to respondents. The guide includes many city hall telephone numbers. . . .

39. ***Are there any specific instances of a resident having become more influential outside the neighborhood because of the target organization?***

40. ***Has there been increased unity or fragmentation in the neighborhood since the founding of the organization?*** JVL's contribution to neighborhood unity seems to border on the spiritual. Macler Shepard at times appears to be a preacher and the neighborhood his congregation. The respect that he appears to enjoy is reinforced by a warm admiration felt for him by persons throughout the neighborhood. Shepard himself is certainly among the unifying factors in the JVL neighborhood. JVL has a reputation for being, in one word, "tenacious," according to respondents (including Mayor Conway and other city officials).

Race and Social Justice

41. ***How has the organization dealt with neighborhood problems of race and poverty?*** JVL's entire roster of activities has related to the plight of poor and Black people. Its record of accomplishments deals with the problems of being poor and Black in a large and older American city. This whole case study is a response to the issues of race and poverty.
42. ***How has the target organization responded to patterns of neighborhood transition—that is, displacement, integration, and resegregation?*** JVL has attempted to retain older residents through the development of newly subsidized housing for the elderly. In other cases, JVL has sold property back to renters under highly favorable terms, after renovation. JVL has sought to rehabilitate older, but sound, structures for habitation by persons in the middle- and upper-income levels. There is a clear pattern of economic integration under way in the JVL housing development program.

According to respondents who are White, there is no racial integration occurring in the JVL neighborhood. Although they live and work at a church in the area, they have broad contacts through the neighborhood. Prospects of racial integration may be related only to a school desegregation case that has been in the courts for several years. No other prospects seem imminent. The business community in the JVL area is integrated and works cooperatively with the organization. The JVL workforce also is integrated.

43. ***Have problems of race or ethnic division arisen in the target organization?*** Leaders and other respondents indicated that such divisions have not arisen. The unique team that provided the initial leadership for JVL was composed of Black and White as well as female and male persons. Leadership and support workforce members share similar diversity today. Problems that were mentioned related to personality differences.
44. ***Over time, have there been any changes in the organization's policies or activities with regard to any of the issues in the preceding four questions?***
45. ***How do the organization's leaders or members describe the accomplishments and disappointments from JVL's activities?*** [A list of 22 principal accomplishments appeared in the original case study, most of them already covered in earlier responses.]

The following are the principal disappointments:

- Demolition of the Pruitt-Igoe public housing complex and, in particular, the four buildings in the complex that JVL had proposed to rehabilitate and manage
- Demolition of other landmarks, such as the Divoll School, built in 1872
- Rejection of the Opportunity House funding request by the United Way of Greater St. Louis
- Failure to cause the city to take action against illegal junkyards and other blight scattered throughout the JVL area
- Failure to win local government support for large-scale funding of public improvements to enhance housing developments

46. ***How has the organization enhanced community leadership or increased the involvement of residents?***
47. ***Does the organization have a capability of dealing with multiple issues simultaneously?***
48. ***During the lifetime of the organization, what situations, if any, threatened the survival of the organization?*** The principal threat to JVL's survival over its lifetime has been the need to raise money to survive, according to its leaders. JVL has dealt with that threat by continuously developing new funding sources and structuring the organization's fiscal practices along the lines of business and industry, striving for increased levels of self-generated or self-controlled revenues for a $200,000 core budget.

Other threats have come from the constant battle with local government. JVL has a history of confronting local political issues directly and mobilizing its base of support and respect in the JVL neighborhood, according to both JVL writings and respondents.

49. ***Are there any specific incidents that best characterize the work of the organization?*** Macler Shepard claims that "we dedicated ourselves to the community," and words such as "inspiration" and "dedication" characterize much of the JVL spirit. One young adult respondent who plans to reside in the JVL area said that she wants "to build equity in the neighborhood and realize a return from it—not money, but the sense of satisfaction that comes when you go home in the evening and say, 'I've accomplished something'—whether it's picking up trash or responding to the questions of young people who involve themselves at the [Communications Resources] Center."

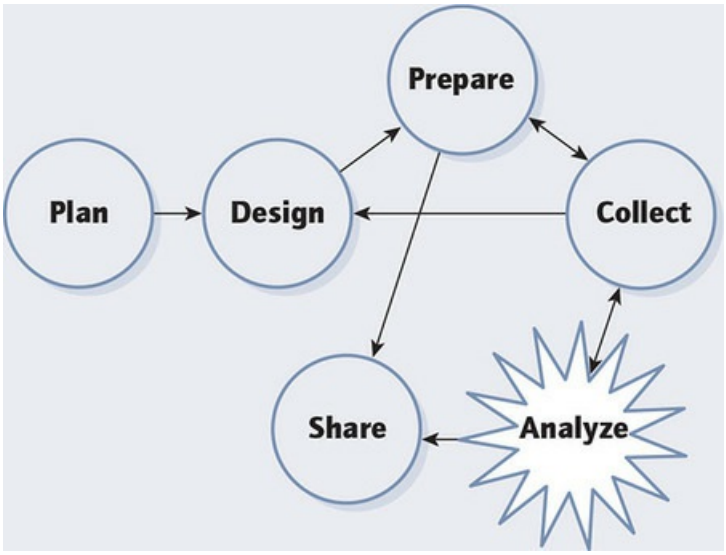
FOR CLASS DISCUSSION OR WRITTEN ASSIGNMENT

Presenting an Entire Case Study in a Question-and-Answer Format

Application 6 illustrates one way of structuring your database. The format calls for organizing all the information you might have collected according to the sequence of questions in your original case study protocol. The resulting compilation represents your "responses" to the protocol's questions, and you can now proceed to compose your case study.

Normally, you would compose your final case study by creating an alluring and more focused perspective, trying to make the findings and your methods appealing to your main presumed audience. However, there is another possibility: the organization of the case study database in **Application 6** also might be presented as the final case study. Although the structure of the database may not follow any creative path, the reader—by using the sequence of questions as a guide—can nevertheless locate specific findings readily. Discuss the pros and cons of presenting your final case study by using some sort of question-and-answer format instead of the more conventional narrative. Note that even if you don't follow the exact same sequence of questions or repeat all the questions that appeared in your database version, you will still have completed your case study.

5 Analyzing Case Study Evidence How to Start Your Analysis, Your Analytic Choices, and How They Work



Chapter 5: Plan

- Array and display data in different ways
- Watch for promising patterns, insights,and concepts
- Develop a general analytic strategy
- Along with the general strategy, consider five analytic techniques
- Throughout, address rival explanations and interpretations

Abstract

You can analyze case study data by pursuing any combination of procedures, such as by examining, categorizing, tabulating, testing, or otherwise recombining (narrative and numeric) evidence. However, you should not be surprised to learn that the analytic procedures have not been well defined or codified into automated software. On the contrary, case study research can free you from being constrained by overly restrictive rules, which may be part of the reason you were attracted to do such research in the first place.

You can start your own case study analysis by "playing" with the data and searching for promising patterns, insights, or concepts—the goal being to define your priorities for what to analyze and why. You also can get started by pursuing four other general strategies described in this chapter: relying on theoretical propositions, working your data from the "ground up," developing a case description, and examining rival explanations. Using various computer aids can help to manipulate large amounts of data, but you still will have to define the relevant codes and interpret any observed patterns. In this sense, the computer aids cannot substitute for having a general analytic strategy.

You can then adapt any of these general strategies in practicing five specific techniques for analyzing case studies: pattern matching, explanation building, time-series analysis, logic models, and cross-case synthesis. When a case study involves an embedded design and appropriately fine-grained data for the embedded unit of analysis, the analyses can incorporate statistical models for the embedded unit of analysis, but not for the case study as a whole. Throughout, your challenge is to attend to *all* the evidence collected, investigate plausible rival interpretations, address the most significant aspects of your case study, and demonstrate a familiarity with the prevailing thinking and literature about the case study topic.

An Analytic Strategy: More Than Relying On Analytic Tools

Need for an Analytic Strategy

Another challenge.

The analysis of case study evidence is one of the least developed aspects of doing case studies. Too many times, researchers 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 case studies easily become stalled at the analytic stage. The present 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 at the analytic stage, the experienced case study researcher is likely to have great advantages over the novice. Unlike statistical analysis, there are few fixed formulas or cookbook recipes to use as guides. Instead, much depends on a researcher's own style of rigorous empirical thinking, along with the sufficient presentation of evidence and careful consideration of alternative interpretations.

Researchers and especially novices nevertheless continue to search for case study formulas, recipes, or tools, hoping that relying alone on 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 or have an overall analytic strategy—which unfortunately returns you back to your original challenge, if you hadn't noticed.

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 and 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?

Computer-assisted tools.

For instance, computer-assisted routines with prepackaged software such as Atlas.ti, HyperRESEARCH, NVivo, or The Ethnograph all are examples of *c*omputer-*a*ssisted *q*ualitative *d*ata *a*nalysis *s*oftware (CAQDAS—e.g., Fielding & Lee, 1998). The software has become more diverse and functional over the past decade, covering both text and video-based data. Guidance on coding skills and techniques also has improved and become easier to follow (e.g., Auerbach & Silverstein, 2003; Saldaña, 2016). Essentially, the tools and guidance can help you code and categorize large amounts of data. Such data, when taking the form of narrative text, may have been collected from open-ended interviews or from large volumes of written materials, such as documents and news articles.

Key to your understanding of the value of these packages are two words: *assisted* and *tools.* The software will not do the finished analysis on its own, 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 your textual data all the words and phrases matching these codes, count the incidence or occurrence of the words or codes, and conduct Boolean searches to locate the multiple combinations of codes in your data files. You can do this process iteratively, gradually building more complex combinations, groups of codes, and higher-order concepts. 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 yourself, 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.

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, 2015). One strategy calls for reviewing your data with the explicit goal of surfacing a new concept or theme that can be highly valuable to your overall study (e.g., Charmaz, 2015). Although you can guide the software in this direction, even under the best of circumstances, noted scholars have expressed strong cautions (e.g., Patton, 2015): You must still be prepared to be the main analyst and to direct the tools; they are the assistant, not you. See Tutorial 5.1 on the companion website at study.sagepub.com/yin6e for an expanded discussion on using CAQDAS software.

Starting an analytic strategy.

Whether using computer-assisted software or not, one starting point for any analysis is to "play" with your data. You are searching for patterns, insights, or concepts that seem promising. These may emerge as you manipulate the data, for instance by juxtaposing the data from two different interviewees. Other ways of playing include the following (see Miles & Huberman, 1994):

- Putting information into different arrays, reflecting different themes and subthemes (e.g., see Exhibit App. 1.1 in Chapter 2 of this book for an analogous example)
- Making a matrix of contrasting categories and placing the evidence within such a matrix (e.g., see Figure 3.5)
- Creating visual displays—flowcharts and other graphics—for examining the data (e.g., see Figure 2.2)
- Tabulating the frequency of different events (e.g., see Exhibit App. 10.2, Chap. 6)
- Putting information in chronological order or some other sequence (e.g., see Figure 4.3)

Another way of getting started is to write memos or notes to yourself, already mentioned in Chapter 4, about what you might have observed in your data. The desired writing is akin to another helpful practice promoted in *grounded theory* (Corbin & Strauss, 2015), consisting of memo writing and diagramming (a graphic form of memo writing) that begins early—that is, when doing fieldwork or collecting data. Later, the memos can be attached to the computer codes and contain hints, clues, and suggestions about how to interpret some part of your data (Lempert, 2011). To start a memo, think of the classic nugget being the idea that serendipitously might come to you when you are taking a shower.

Any of these preliminary creations—such as arrays, displays, tabulations, memos, or diagrams—will help move you toward a general analytic strategy. The needed strategy should follow some cycle (or repeated cycles) involving your original research questions, the data, your defensible handling and interpretation of the data, and your ability to state some findings and draw some conclusions.

You actually can try to move backward or forward through this cycle, forcing a strategy to emerge. For instance, you can start a backward move by asking yourself what you think you might conclude from your case study, and then examining your data fairly to see how they might (or might not) support the conclusion. Any tentative relationship might suggest the kind of analysis that could reinforce the relationship further.

The needed strategy should guide you through your analysis. In addition to what you may come up with

yourself, consider the four strategies described below, after which five specific techniques for analyzing case study data are reviewed. These strategies and techniques are not mutually exclusive. You can use any of them in any combination. A continued alert is to be aware of these choices *before* collecting your data, to help make sure that your data will be analyzable.

Four General Strategies

Relying on theoretical propositions.

One 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 and a review of the literature.

The propositions would have shaped your data collection plan and therefore would have yielded analytic priorities. As an example, a study of intergovernmental relationships started with 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 agencies within local government.

The preceding proposition shows how a theoretical orientation guided the case study analysis. The proposition helped to organize the entire analysis, pointing to relevant contextual conditions to be described as well as explanations to be examined (BOX 26 has additional examples).

Box 26 Using Theory to Analyze Case Studies in Comparative Politics

Case studies in comparative politics show how case study analysis can proceed by addressing preexisting theories. Rogowski (2010) describes five classic case studies, explaining how they benefited from preexisting theories "precise enough to yield implications for single, or for very few observations" (p. 95). Each case study first provided empirical evidence showing important anomalies in the preexisting theory and then proceeded to "conjecture intelligently about a more satisfactory general theory that could avoid such anomalies" (p. 95). Three of the case studies had single cases (the Netherlands and its religious and social cleavages; a single midsized German town and its associational life, such as clubs, societies, and religious groups, prior to World War II; and the development of a central European state into the strongest state in the early modern world). The other two case studies had multiple cases (the economic progress of countries in postindependence Africa and the success in international markets by several smaller European states).

Working your data from the "ground up."

A second strategy contrasts directly with the first. Instead of thinking about any theoretical propositions, pour through your data. Whether as a result of your earlier "playing with the data" or whether noticing a pattern for the first time, you may now find that some part of your data suggests a useful concept or two. Such an insight can become the start of an analytic path, leading you further into your data and possibly suggesting additional relationships (see BOX 27).

This inductive strategy can yield appreciable benefits that have been demonstrated yet again in *grounded theory* research (Corbin & Strauss, 2015; Glaser & Strauss, 1967). The procedures assign various kinds of codes to

the data, each code representing a concept or abstraction of potential interest. You can apply such procedures to all case studies, not just those trying to emulate *grounded theory*.

For case studies, an inductive strategy offers additional promise if your case study happens to have called for collecting quantitative data, which might have been relevant for at least two reasons. First, the data may cover the behavior and 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 both situations, the quantitative data can surprisingly offer clues to the emergence of relevant or innovative concepts.

Box 27 Emergence of a Case Typology by Working Data From the Ground Up

A study of residential citizen patrols illustrates the inductive strategy (Yin, 2012a, chap. 5). Key concepts emerged by closely examining the data, not from prior theoretical propositions. The study's goal was to understand the circumstances under which patrols could become susceptible to undesired, vigilante-like behavior. The main criteria for selecting cases were that a patrol had to be implemented by a citizens' group (not a private security service) and directed at residential, not commercial, areas. Only after doing case studies of 32 such patrols did three types of patrols become evident: patrols limited to buildings or residential compounds (*building* patrols), patrols overseeing neighborhood streets more generally (*neighborhood* patrols), and patrols offering escort and other community services (*service* patrols). The neighborhood patrols appeared most prone to vigilante-like behavior, because, unlike the other patrols, patrol members could not readily distinguish residents living in the neighborhood from those who were strangers—and were more likely to appear vigilante-like when confronting persons exhibiting seemingly suspicious behavior (even residents belonging to the neighborhood).

So, imagine a case study about a school, neighborhood, organization, community, medical practice, or 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 incidence 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 will 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). Nevertheless, scanning the quantitative data for any patterns may suggest concepts for describing or explaining the events at this higher level.

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?

Developing a case description.

A third general analytic strategy is to organize your case study according to some descriptive framework (see BOX 28). This strategy can serve as another option if you are having difficulty using either of the first two strategies. In other words, you may somehow have collected a lot of data without having settled on an initial set of research questions or propositions (disabling your ability to rely on the first strategy) and you also may not have been able to surface any useful concepts from your data (making it difficult to follow the second, or inductive strategy).

Box 28 Organizing a Case Study According to a Descriptive Framework

A single-case study examined a Tanzanian village council's experience in exercising local control over natural resource management (Nathan, Lund, Gausset, & Andersen, 2007). The policy goal was to promote greater efficiency, equity, and democracy over forest regulation. The case study was organized according to four descriptive topics regarding the council's experience: the council's relation to higher levels of government, to other villages, and to the village's own residents and the limitations on the council's own capacities. Because the four topics reflected a relevant set of policy domains, the use of the descriptive framework gave credence to the case study's main findings—how and why a devolution of control needed to consist of a variety of related initiatives to overcome the constraints in natural resource management.

Sometimes, the original and explicit purpose of a 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 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 six 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. At first, the chapter titles may appear rather bland. However, you might find yourself challenged to create a better set and therefore appreciate the titles' potential insightfulness.

More important, note how the descriptive framework can organize the case study analysis—assuming 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 motives for doing the case study or your review of literature, which may have revealed gaps or topics of interest to you. For additional suggestions regarding descriptive frameworks, you should examine the structure of existing case studies (e.g., by querying in greater detail those cited in the BOXES throughout this book) and at a minimum review their tables of contents for clues to different descriptive frameworks.

In other situations, the original objective of the case study may not have been a descriptive one, but a descriptive approach may later help to identify the appropriate explanation to be analyzed. One notable case study was concerned with the complexity of implementing a local public works program in Oakland, California (Pressman & Wildavsky, 1973). Such complexity, the authors realized, could be *described* in terms of the multiplicity of public officials' decisions that had to occur in order for implementation to succeed. This descriptive insight later led to the enumeration and tabulation of the various decisions. In this sense, the descriptive approach was used to identify an overall pattern of complexity that the authors then used to "explain" why implementation had failed. The case study came to be regarded as one of the breakthrough contributions to the early research on policy implementation (Yin, 1982b).

Examining plausible rival explanations.

A fourth general analytic strategy, trying to define and test plausible rival explanations, generally works in combination with all of the previous three: Initial theoretical propositions (the first strategy above) might have included rival hypotheses, working from the ground up (the second strategy) may produce rival inductive frameworks, and case descriptions (the third strategy) may involve alternative descriptions (or interpretations, as in a constructivist representation) of the case. Note that the main focus should be on *plausible* rivals, not all rivals. Although you will have some leeway in deciding what is plausible, you should cover those rivals that appear to yourself and others as being the most threatening to your original propositions.

For instance, the typical hypothesis in an evaluation is that the observed outcomes are the result of the intervention or activity that has been the main subject of study. The simple or direct rival explanation would be that the observed outcomes were in fact the result of some other influence and not the intervention or activity. Being aware (ahead of time) of this direct rival, your case study data collection should then have included attempts to collect evidence about the plausible "other influences." Furthermore, you should have pursued your data collection about them vigorously—as if you were in fact trying to prove the potency of the other influences rather than finding a reason to reject them (Patton, 2015; Rosenbaum, 2002, pp. 8–10). Then, if you had found insufficient evidence, you would be less likely to be accused of stacking the deck in favor of the original hypothesis.

The direct rival—that some other influence rather than the original intervention or activity being studied was the reason for the observed outcomes—is but one of several types of plausible rival explanations. Figure 5.1 classifies and lists many types (Yin, 2000b), grouped under two categories. The first category reminds us of

three "craft" rivals that underlie all of our social science research, and textbooks have given much attention to these craft rivals. The second category covers six real-world or substantive types of rivals (for each of the six, an informal and more colloquial descriptor appears in parentheses and quotation marks in Figure 5.1, hopefully making the gist of the rival clearer).

Figure 5.1 Brief Descriptions of Different Kinds of Rival Explanations

Type of Rival	Description or Examples
Craft Rivals:	
1. The Null Hypothesis	The observation is the result of chance circumstances only
2. Threats to Validity	e.g., history, maturation, instability, testing, instrumentation, regression, selection, experimental mortality, and selection-maturation interaction
3. Investigator Bias	e.g., "experimenter effect"; reflexivity in field research
Real-World Rivals:	
4. Direct Rival	An intervention ("suspect 2") other than the target (practice or policy) intervention ("suspect 1") accounts for the results (*"the butler did it"*)
5. Commingled Rival	Other interventions and the target intervention both (practice or policy) contributed to the results (*"it wasn't only me"*)
6. Implementation Rival	The implementation process, not the substantive intervention, accounts for the results (*"did we do it right?"*)
7. Rival Theory	A theory different from the original theory explains the results better (*"it's elementary, my dear Watson"*)
8. Super Rival	A force larger than but including the intervention accounts for the results (*"it's bigger than both of us"*)
9. Societal Rival	Social trends, not any particular force or intervention, account for the results (*"the times they are a-changin'"*)

Source: Yin (2000b).

Surprisingly, the real-world rivals have received virtually no attention by other textbooks (nor, unfortunately, do most texts intensely discuss the challenges and benefits of rival thinking or the use of rival explanations). These real-life rivals are the ones that you should try to carefully identify prior to your data collection (while not ignoring the craft rivals). Some real-world rivals 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 two of the case studies already contained in the BOXES cited earlier (BOXES 1 and 11 in Chapters 1 and 2, pp. 7 and 56, respectively). The authors of these case studies used the rivals to drive their entire case study analysis, one being a single-case study and the other a multiple-case study. An additional example covers the demise of a *Fortune 50* firm (presented later in BOX 50, Chapter 6). For an example of using a case study to compare a directly competing rival hypothesis, see **Application 7** at the end of this chapter (the same application also appears in BOX 29 later in this chapter).

Summary.

The best preparation for conducting case study analysis is to have a general analytic strategy. The purpose of the analytic strategy is to link your case study data to important concepts of interest, and then to have the concepts give you a sense of direction in analyzing the data. You can develop your own strategy but also can consider the four just described: relying on theoretical propositions, working your data from the ground up, developing case descriptions, and examining rival explanations.

Within any general strategy, including one you might develop yourself, you should consider using any of five analytic techniques now to be described in the remainder of this chapter. As will be shown, the techniques are especially intended to deal with the previously noted problems of developing *internal validity* and *external validity* (see Chapter 2) when doing case study research. The specific techniques are (1) pattern matching, (2) explanation building, (3) time-series analysis, (4) logic models, and (5) cross-case synthesis.

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 remaining stalled at this analytic step, skip 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.

1. 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—that is, one based on the findings from your case study—with a predicted one (or with several alternative predictions, including rivals) made before you collected your data. In political science research, a technique similar to pattern matching has been called the *congruence method* (see George & Bennett, 2005, chap. 9). If the empirical and predicted patterns appear to be similar, 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 "how's" and "why's" of your case study (e.g., "how and why an organization operates the way it does, and how and why the operations have led to certain results"). If the case study is a descriptive one, pattern matching is still relevant, as long as the pattern of predicted descriptive features was defined prior to data collection.

Pattern matching for processes and outcomes.

Focusing on the processes and outcomes in a given case study serves as one way of initially casting the "how's" and "why's" to be pattern-matched. As a specific example, consider a single-case study in which you are positing how a decentralized office computer system works. Your major proposition is that—because each workstation stands alone and can work independently of any file-sharing server—a certain pattern of organizational processes and outcomes will occur. Among them, you specify the following fourfold pattern, based on propositions derived from your prior review of existing decentralization theory:

- Employees will create *new applications* for their computers, 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,
- *Employee productivity* will increase over the levels experienced prior to the installation of the new system.

In this example, you would then assess each of these four conditions by using different quantitative or qualitative measures. If the pattern of results is as predicted, you can draw a conclusion about how decentralization works. However, if the results fail to show the entire pattern as predicted—that is, even if one condition is not corroborated as predicted—your initial proposition would have to be questioned (see BOX 29 for another example).[1]

Box 29 Pattern Matching on a Set of Different 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 with 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. Also see **Application 7** at the end of this chapter for an abbreviated version of the case study cited in BOX 29.

Continuing the same example, this first case study of a decentralized office computer system could then be augmented by a second case study, in which another new office system had been installed, but of a centralized nature—that is, all the workstations' procedures and operations were controlled by the same server. Now you would predict a contrasting pattern involving the same four conditions 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 a stronger conclusion about the "how's" and "why's" of decentralization. In this situation, you have made a *theoretical replication* across two cases. (In other situations, you might have sought a *literal replication* by identifying and developing two or more case studies of decentralized systems.)

Pattern matching for rival explanations.

Finally, you might be aware of the existence of certain threats to this logic. For example, as a contextual condition covered by your case study, you found that a new corporate executive had assumed office in Case A, leaving room for the counterargument that the processes and outcomes were actually attributable to this executive's leadership and not to the newly installed decentralized office system.

To deal with this threat, you would have to identify one or more of the four conditions 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 had only 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 highly plausible threat to validity. Given the existence of a second case study, as in our hypothetical example, you also could show that the claim 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 case studies.

The relevant rival conditions may involve several 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 empirically based pattern still matches the predicted one. In such a situation (see BOX 30 for an example), several cases may be known to have had a certain type of outcome, and your multiple-case study has focused on how and why this outcome occurred in each case.

This type of pattern matching can be done either in a single-case study or in a multiple-case study. With a single-case study, successful matching would be evidence for concluding that an original proposition was the

better one (and that the rivals were less acceptable). However, 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 had failed to occur in yet a second group of cases, but due to predictably different circumstances, *theoretical replication* would have been accomplished, and the initial result would stand yet more robustly. Whether dealing with a single- or multiple-case study, other threats to validity—basically constituting another group of rival explanations—also should be identified and ruled out.

BOX 30 Replicating Across Multiple Cases by Pattern Matching for Rival Explanations

A common policy problem is to understand the conditions under which new research findings can be made useful to society (e.g., through commercialization or implementation processes). This topic was the subject of a multiple-case study of nine different natural hazards research projects (Yin, 2012a, chap. 3). The case study first provided definitive evidence that important research findings had indeed been put into practical use in every project, ranging from reducing life loss due to earthquakes to new irrigation methods.

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 the presence of a different pattern of rival events. 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 stipulated by 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.

Precision of pattern matching.

At this point in the state of the art, the actual pattern-matching procedure may not involve any statistical comparisons or tests. (The available statistical techniques are likely to be irrelevant because each aspect of a pattern will probably represent a single data point that will not have the variance needed to satisfy the statistical need.) However, you can still strive for a numeric result if your case study sets some preestablished benchmarks (e.g., "productivity will increase by 10% or more") and you then compare the value of an observed outcome with this benchmark, combined with your pattern-matched explanation of the how and why conditions that led to achieving this benchmark.

Nevertheless, other researchers will not consider the pattern-matching procedures to be as precise as the statistical testing that can be done with suitable quantitative data. The lower levels of precision will allow some interpretive discretion on the part of a case study researcher, 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 as well as stipulating some benchmarks as just mentioned. 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 interpretations are less

likely to be challenged.

2. 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 your case study data by building an explanation about the case. (Again, a counterpart to explanation building in political science research has been called *process tracing*—see Beach & Pedersen, 2013; Bennett, 2010; Bennett & Checkel, 2015; George & Bennett, 2005.)

As used in this chapter, the procedure is mainly relevant to explanatory case studies. An analogous 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 sequences about it, or "how" or "why" some outcome has occurred. The causal sequences may be complex and difficult to measure in any precise manner (see BOX 31), because in most case studies, explanation building occurs in a narrative form. For a nutshell example of an explanatory case study, see **Application 8** at the end of this chapter.

BOX 31 Explaining the Successful Implementation of a Large-Scale Public Initiative

The Indonesian government implemented a program for community-based total sanitation from 2008 to 2013. About 17.5 million rural people living in more than 18,000 villages started using household latrines rather than defecating in open areas. The participatory scale, as well as the improved public health outcomes, far surpassed the results of the government's earlier efforts. Whereas the earlier policy only had emphasized infrastructure, the newer one also involved deliberate efforts to change household and individual behavior.

In their case study, Glavey and Haas (2015) build a detailed explanation of how and why the policy shift had occurred. Prominent among the government's newer initiatives were a partnering with leading philanthropic and international organizations as well as the emulation of techniques learned from neighboring countries. Prominent at the local level was a village-by-village campaign whereby health workers helped to empower communities in desiring healthier villages.

Given the likely imprecision of such narratives, case studies of greater interest are those whose explanations reflect some theoretically significant propositions. For example, the causal sequences may reflect critical insights into public policy processes or into social science theory. The public policy propositions, if correct, could lead to presumed insights into future policy actions (see BOX 32 for an example); the social science propositions, if correct, could lead to major contributions to theory building.

Box 32 Explanation Building in Multiple-Case Studies

In a multiple-case study, one goal is to build a general explanation that fits each individual case, even though the cases will vary in their detail.

Martha Derthick's (1972) *New Towns In-Town: Why a Federal Program Failed* is about a housing program under President Lyndon

Johnson's administration. The federal government was to give its surplus land—located in choice inner-city locations—to local governments for housing developments. But after 4 years, little progress had been made at the seven sites—San Antonio, Texas; New Bedford, Massachusetts; San Francisco, California; Washington, D.C.; Atlanta, Georgia; Louisville, Kentucky; and Clinton Township, Michigan—and the program was considered a failure.

Derthick's (1972) account first analyzes the events at each of the seven sites. Then, a general explanation—that the projects failed to generate sufficient local support—is found unsatisfactory because the condition was not dominant at all of the sites. 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).

Iterative nature of explanation building.

The explanation-building process has not been well documented in operational terms. However, the eventual explanation is likely to result from a series of iterations:

- Making an initial but tentative theoretical statement or explanatory proposition
- Comparing the data from your case study against such a statement or proposition
- Revising the earlier statement or proposition
- Comparing other details of the case against the revision
- If doing a multiple-case study, comparing the revision from the first case with the data from *a second, third, or more cases,* leading to further revisions
- Repeating this process with the other cases as many times as needed

Others have pointed to the challenges and pitfalls of this iterative process, as in Diane Vaughan's apt, thoughtful, and helpful rendition of her notion of "theory elaboration" (Vaughan, 1992). In essence, the final explanation may not have been fully stated at the beginning of a study and therefore differs from the pattern-matching approaches previously described. Rather, as the case study evidence is examined, explanatory propositions are revised, and the evidence is examined once again from a new perspective in this iterative mode. For an example of an explanatory case study, see **Application 9** at the end of this chapter.

Note that the procedure is partly deductive (based on the statements or propositions at the outset of the case study) and partly inductive (based on the data from the case study). If you were doing only a single-case study, the procedure would not necessarily end conclusively, but it could become more compelling if you could apply the revised explanation to additional cases, as part of a multiple-case study.

The gradual building of an explanation is similar to the process of refining a set of ideas. An important procedure again will be for you to entertain other *plausible or rival explanations.* The clearest result would be if your case study data do not support these rival explanations.

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?

3. Time-Series Analysis

A third analytic technique is to conduct a time-series analysis, analogous to the time-series analyses conducted in behavioral and clinical psychology. The analyses have been the subject of several major textbooks, generally under the topic of *single-subject research* (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 a time-series analysis can lay a firm foundation for the conclusions of the case study.

Simple time series.

Compared with 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 relevant measure that needs to be tracked over time. In these circumstances, when the single measure is nevertheless represented by a large number of time data points, statistical tests can 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 the time series may not be clear. As one undesirable possibility, the available data points may only be a truncated segment of a broader (and opposing) trend. Such a possibility deserves consideration and discussion as part of your case study, even if the broader trend data are not available.

Despite this potential complication, 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 33).

Box 33 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.

Kelling and 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 attend in detail to 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 important trend specified before the onset of the case study or (b) some rival trend, also specified earlier. Within the same single-case study, for instance, two opposing time patterns may have been hypothesized. This is what 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 time 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 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. For instance, you can postulate not merely a rising or declining (or flat) trend 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 using nonlinear models. As always, the strength of case study research would not merely be in assessing this type of time series (with or without statistics) but in developing a rich explanation for the complex time series.

Greater complexities also arise when a multiple set of measures—not just a single one—is relevant to a case study and when each measure 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 2.4). BOX 34 contains two examples. The first (see BOX 34A) was a single-case study about one school system, and hierarchical linear models were used to analyze a detailed set of student achievement data. The second (see BOX 34B) was about a single neighborhood revitalization strategy, alternatingly implemented in some neighborhoods but not others; the authors used regression models to analyze time trends for the sales prices of single-family houses to compare the targeted and comparison neighborhoods and thereby assessed the outcomes of the strategy.

Box 34 More Complex Time-Series Analyses: Using Quantitative Methods When Single-Case Studies Have an Embedded Unit of

Analysis

34A. Evaluating the Impact of Systemwide Reform in Education

Supovitz and Taylor (2005) conducted a case study of a single 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 a far-reaching 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.

34B. Evaluating a Neighborhood Revitalization Strategy

Galster, Tatian, 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) 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 area 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 lead to a stronger analysis. Any match of a predicted with an actual time series, when both are complex, will produce better evidence for an initial theoretical proposition.

Chronological sequences.

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

You should not think of the chronological array as a descriptive device only. The procedure can have an important analytic purpose—to investigate presumed causal relationships—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 events (e.g., behavioral events but also the timing of participants' perceptions). 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, 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 with other cases, as well as the explicit addressing 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 with observe the time trends alone. An interruption in a time series will be the occasion for postulating potential causal relationships; similarly, a chronological sequence can 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 measure(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 risk becoming *chronicles*—descriptive renditions of events that lack any explanatory value.

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's 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?

4. Logic Models

This fourth technique has become increasingly useful in recent years, especially in doing case study evaluations (e.g., Mulroy & Lauber, 2004) and in studying theories of change (e.g., Funnell & Rogers, 2011). The logic model stipulates and operationalizes a complex chain of occurrences or events over an extended period of time, trying to show how a complex activity, such as implementing a program, takes place. The events are staged in repeated cause-effect-cause-effect patterns, whereby an outcome (event) at an earlier stage can become the stimulus (causal event) for the next stage (Peterson & Bickman, 1992; Rog & Huebner, 1992), in turn producing another outcome that becomes yet another stimulus.

Researchers also have demonstrated the benefits when logic models are developed collaboratively—that is, when researchers and the officials implementing a program being studied 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 follows a supportable logic in accomplishing the goals.

As an analytic technique, the use of logic models still 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 complex chains, 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*).

The entire example shows how a logic model helps to explain the ultimate outcome, exceeding the capability of the common experimental design, which skips the intervening steps and essentially (but only) tests the relationship between the first and last steps—that is, the presence of the school intervention and the occurrence of the higher test scores. Because of the inability to explain how the intervention produced the ultimate outcome, such an experimental design is commonly considered a "black box" evaluation (e.g., Rogers,

2000, p. 213). By using logic models, case study research can "open" the black box.

Going beyond Wholey's (1979) approach and using the strategy of plausible 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. Now returning to the preceding example, if the data supported the role of the extra hour of schooling, and if no rivals could be substantiated, the analysis could claim a causal effect between the initial school intervention and the later test scores. Alternatively, the conclusion might be reached that the specified series of events was *illogical*—for instance, that the school intervention had involved students enrolled during the school year prior to the one whose student achievement scores had been assessed. In this situation, the logic model would have helped to explain a spurious finding.

Program logic models can apply to a variety of situations, such as research on organizational change (e.g., Burke, 2014) or on community and economic development (e.g., Phillips & Pittman, 2009), not just those where an intervention is the topic of a case study. The key ingredient is the claimed existence of a repeated cause-and-effect sequence of events, linked together.

A qualitative analysis would first compare the consistency between the observed and the originally stipulated sequence for each case, affirming (or rejecting or modifying) the original sequence. The complete analysis would then proceed to provide additional data, explaining in a fair manner why the sequence had been affirmed (or rejected or modified). With a large number of cases, the initial comparison could be made quantitatively, by using a path model, such as a structural equation model (e.g., Bryk, Bebring, Kerbow, Rollow, & Easton, 1998). After having affirmed (or rejected or modified) the original sequence, the analysis would again add new data, potentially assuming the form of augmenting the initial structural equation model, to explain why the sequence had been affirmed (or rejected or modified).

These analytic strategies both apply to the three types of logic models described next. The three types vary according to the type of case in your case study—an individual person, an organization, or a program.

For illustrative purposes, the graphics for all three types depict a linear sequence or progression of events over time. Such a straightforward rendition can graphically serve the needs of most case studies, even though real-world events are certainly more complex. More important than the graphics per se is the increasing appreciation that a case study analysis can examine nonlinear interdependencies and interrelationships, as described in using case studies in both health care (e.g., Anaf, Drummon, & Sheppard, 2007; Anderson, Crabtree, Steele, & McDaniel, 2005) and business (e.g., Dubois & Gadde, 2002). For readers who want to press further into the graphic complexities, Tutorial 5.2 on the companion website at study.sagepub.com/yin6e depicts a more complicated, nonlinear logic model.

Individual-level logic model.

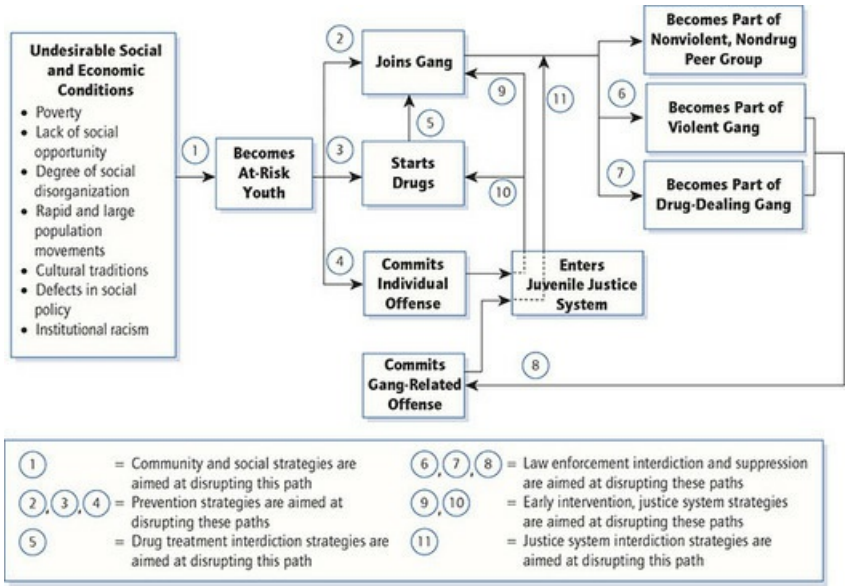
The first type of logic model assumes that your case study is about an individual person, with Figure 5.2 depicting the behavioral course of events for a hypothetical youth. The events flow across a series of boxes and arrows reading from left to right in the figure. The model suggests that the youth 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. The logic model also has a set 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.

Disregarding the interventions for a moment, your case study might simply have tracked a youth's path through the stipulated sequence of boxes in Figure 5.2, ending with the youth committing a gang-related offense (you might have tracked the sequence backward, collecting retrospective data about a youth who had already committed such an offense). Your case study might have found that the sequence was not accurate, and after analyzing the paths taken by several different youths (i.e., replications), your case study might have arrived at a contrary sequence. If it provided new insights into youth development, your findings would have made a contribution to new knowledge, for either research or practical purposes.

Alternatively, your case study might have focused on the 11 interventions in Figure 5.2. The analysis would have examined how a particular youth might have encountered and dealt with them, either confirming or reaching new conclusions about the role of these interventions. Whether dealing with a youth's path through the sequence of boxes alone or also with the interventions, you can see how the logic model represents an initial theory about your case(s) and then provides a framework for analyzing your data.

Figure 5.2 Youth Behavior and 11 Possible Interventions



Organizational-level logic model.

A second type of logic model traces events taking place in a single organization, such as a manufacturing firm. Figure 5.3 shows how changes in a firm (Boxes 5 and 6 in Figure 5.3) 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 (Boxes 2 and 3). 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.

Program-level logic model.

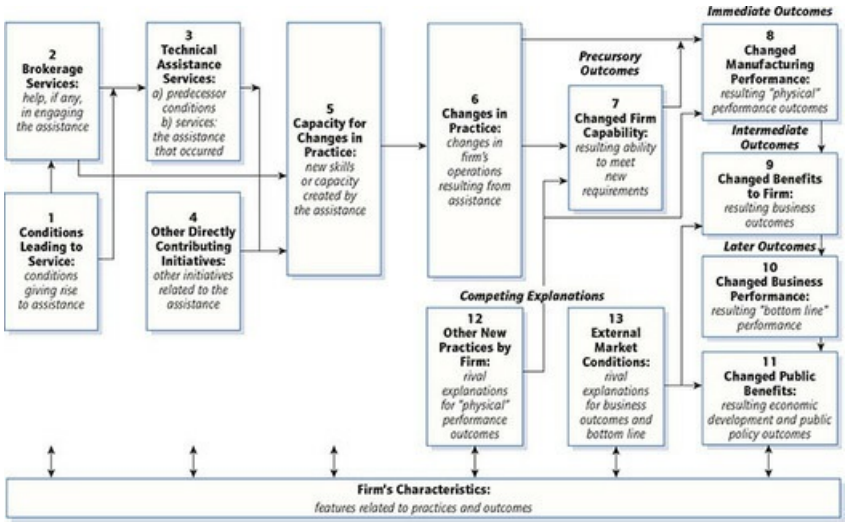
Figure 5.4 contains a third type of logic model. Here, the model depicts the rationale underlying a public program aimed at reducing the incidence of HIV/AIDS, by supporting community planning and prevention initiatives. The depicted program provided funds and technical assistance to 65 state and local health departments across the United States. 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, 2012a, chap. 15, for the entire multiple-case study). In like manner, you could develop a program-level logic model to study any other public program in any other country.

Sharpening your use of logic models.

The examples thus far have provided you with the basic principles for using logic models as analytic tools, going beyond their common role in designing a new study (texts devoted solely to logic models may emphasize the models' role in starting a new study and only give fleeting attention to the analytic phase—e.g., Knowlton & Phillips, 2013). The following two topics, illustrated by Figures 5.5 and 5.6, now may sharpen your use of logic models to an even greater degree.

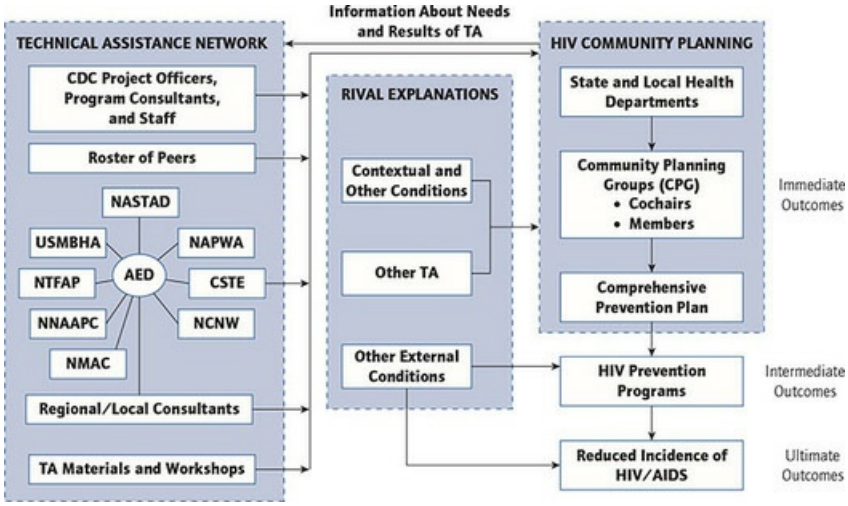
The two portions of Figure 5.5 illustrate the first topic: highlighting *the transitions, not just the activities,* in logic models. Both portions of the figure repeat the same logic model, which stipulates how the work of an education partnership might support appropriate activities that eventually could produce desirable K–12 student outcomes. However, the bottom portion of Figure 5.5 accentuates the "arrows" between the "boxes," alerting you to the need for case studies to offer actual explanations for how events transition from one stage to another. In other words, the data from most case studies tend to address only the "boxes," treating the occurrence of the events in a correlational manner but overlooking the transitions.

Figure 5.3 Changes in Performance in a Manufacturing Firm



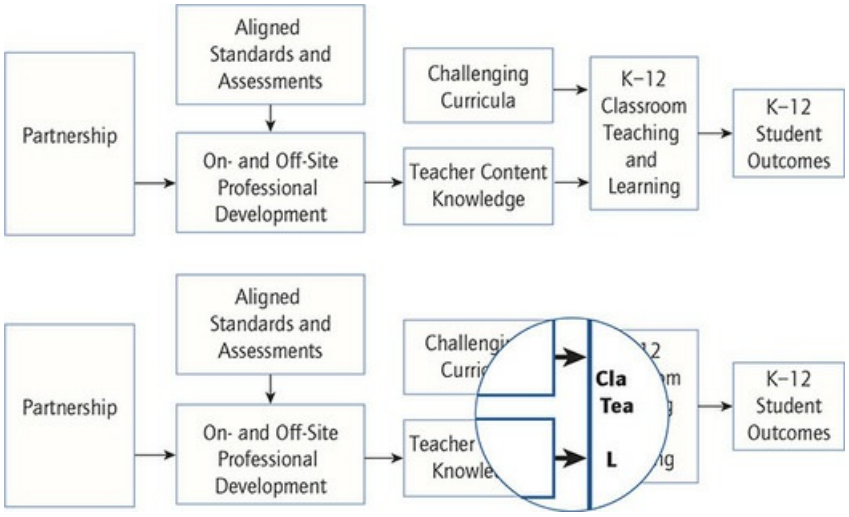
Source: Yin and Oldsman (1995).

Figure 5.4 Improving Community Planning for Hiv/Aids Prevention



Source: Yin (2012a, chap. 15).

Figure 5.5 Highlighting Transitions, Not Just Activities

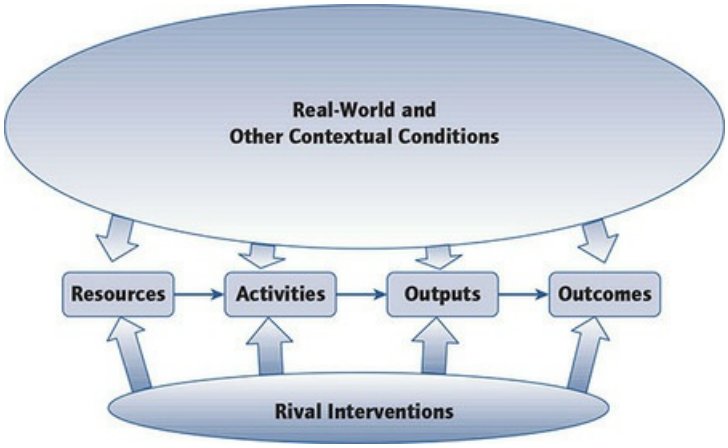


For instance, qualitative data might have covered the chronological sequence of events, which might then have been found to match (or not) the sequence in the original logic model. Quantitatively, a structural equation model similarly might have assessed the strength and sequence among the boxes. However, neither the qualitative nor quantitative situations may have tried to explain the transitions—for example, how and why an event (in one box) appeared to have produced a subsequent event (in the next box). Such explanations produce a more compelling and stronger test of a logic model, so the lesson here is to collect and present data about the transitions (i.e., the "arrows"), not just the events (i.e., the "boxes").[2]

Figure 5.6 illustrates the second topic: attending to *contextual conditions* as an integral part of logic models. Many logic models, such as the ones presented previously, only barely attend to contextual conditions. These conditions not only are likely to be an important part of every case study but in some situations may even overwhelm the "case" being studied. Neglecting those conditions therefore may yield a case study with an incomplete if not misleading understanding of the case.

For instance, the logic model in Figure 5.6 portrays a generic intervention with an assumed progression from the investment of "resources" to the occurrence of "outcomes." Such an intervention might serve as the case in a case study, and—with one exception—the logic model shares a similar structure with the logic models previously presented in Figures 5.1 and 5.2. The exception is that, unlike the earlier logic models, the one in Figure 5.6 purposely expands the potential scope of the case study by calling explicit attention to the possibility of a whole host of relevant real-world and other contextual conditions, including rival interventions. Though external to the case, such conditions and rivals might in fact be found to influence strongly an intervention's outcomes, possibly outweighing the effects of the resources and activities supported by the intervention.

Figure 5.6 Attending to Contextual Conditions and Rivals



The specific contextual conditions needing to be specified and then monitored in a case study will vary from case to case. For instance, case studies of individual people should be wary of family, peer, and community conditions—all of which might have enriched an understanding of the hypothetical youth's progression in Figure 5.2. Similarly, case studies of organizations such as businesses should be wary of the role of competitors, conditions in the industry at large, and regulatory conditions—again barely hinted at in Figure 5.3.

Summary.

Using logic models, whether to examine a theory of change (i.e., a presumed sequence of events as in a neighborhood revitalization process) or to assess an intervention, represents a fourth technique for analyzing case study data. The analysis can use qualitative or quantitative data (or both), and three types of illustrative models have been discussed. Each differs in relation to the type of case being studied (an individual, an organization, or a program).

5. Cross-Case Synthesis

A fifth technique only applies to the analysis of multiple-case studies (the previous four techniques can be used with either single- or multiple-case studies). The technique is especially relevant even if, as encouraged in Chapter 2, a case study consists of only two cases (for a synthesis of six cases, see Ericksen & Dyer, 2004). For example, BOX 35 shows how an important topic was addressed by having a "two-case" case study. As another example, BOX 36 contains a cross-case synthesis of 11 individual cases.

Box 35 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 with other countries. For instance, the United States was considered to have no counterpart support structures. However, Gregory Hooks's (1990) excellent case study revealed a counterpart frequently overlooked by advocates of that position: 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—thereby showing that the United States had a competitive edge like that of Japan. The existence of both cases, and not the aeronautics industry alone, makes the author's entire argument powerful and persuasive.

BOX 36 Eleven Program Evaluations and a Cross-Case Synthesis

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 interventions were selected because nearly all had shown positive results. A cross-case synthesis was conducted by the present author (Yin, 1986), treating each intervention as if it were a separate "case." The analysis arrayed the evidence from the 11 interventions in the form of word tables that captured the prevention-oriented pattern of features of each case. Generalizations about successful community crime prevention, independent of any specific intervention, were then derived by using a replication logic, given that nearly all the evaluations had shown positive results.

The desired cross-case synthesis would at first appear to be similar to other research syntheses—aggregating findings across a series of individual studies. However, the desired cross-case procedure in fact differs markedly from conventional research syntheses (e.g., Cooper, Hedges, & Valentine, 2009) or meta-analyses (e.g., Lipsey, 1992), as follows.

Using a "case-based" approach to cross-case synthesis.

The typical quantitative approaches implicitly depend on reductionist orientations: to identify key variables and then to aggregate the cross-case data for each variable. A similar aggregating procedure will occur whether you are (1) conducting a survey (and tallying the responses to the survey), (2) doing an experiment

(and aggregating the behavioral responses to the subjects in the experiment), or (3) performing meta-analyses of large numbers of previously conducted studies. Note that in all three situations, the reductionist approach disregards the wholeness of any single respondent, experimental subject, or previously conducted study. However, in a cross-case synthesis, ignoring the holistic feature of the cases by decomposing them into separate variables is precisely what is to be avoided. Moreover, you are not likely to have a sufficient number of case studies to create any meaningful tallies at the variable level. (If you do happen to have a large number of cases, Tutorial 5.3 on the companion website at study.sagepub.com/yin6e introduces two techniques for synthesizing the findings across the cases that in fact are variable-based techniques.)

Instead, the desired cross-case synthesis should resemble what has been called a "case-based" rather than a "variable-based" approach (Byrne, 2009; Ragin, 1992). In a case-based approach, the goal is to retain the integrity of the entire case and then to compare or synthesize any within-case patterns across the cases. In this sense, the preferred approach to cross-case synthesis contrasts with the data aggregation approaches in the conventional research syntheses, which aim to reach conclusions about the variables but not necessarily about the cases.

Several examples.

For instance, in a multiple-case study involving the reading behavior of seven persons serving as case studies, an inappropriate variable-based thinking might start by (1) assuming that any age, gender, and racial differences among the individuals have been "controlled" through the case selection procedure and then by (2) investigating whether grade level or other variables of interest seem to account for variations in reading performance. Such an analytic sequence examines the cross-case patterns of variables and largely ignores any important within-case patterns—qualitative or quantitative. At the same time, the small number of case studies will defeat such an approach, precluding any meaningful cross-case tallying, much less statistical testing.

Instead, a cross-case synthesis would initially identify the within-case patterns, as in determining whether the individuals' reading behavior had followed different reading strategies. Only after drawing some tentative conclusion about these within-case patterns would the analysis proceed to examine whether there appeared to be replicative (literal or theoretical) relationships across the case studies. Continuing further with this line of inquiry, the initial within-case queries could have involved analyzing "how" and "why" each individual person engaged in the chosen strategy, and the subsequent cross-case comparisons would be checked further for literal and theoretical replications.

The entire preceding exercise could gain more meaning, in a deductive sense, if the multiple-case study had begun with some theoretical propositions about different types of reading strategies and how they might work. However, the cross-case synthesis also could have been conducted from an inductive perspective, whereby the goal of the case study had been to uncover new processes or reading strategies.

Sometimes, the desired cross-case synthesis can actually lead to the elevation of any cross-case patterns to a higher conceptual plane. A second hypothetical example, involving seven groups of people as cases, illustrates

the emergence of this higher plane.

The multiple-case study tried to determine whether and how each group could arrive at a consensus about taking a course of action (in this example to agree upon a course of medical treatment for one member of the group who was a patient, with the other members of the group being family members and medical providers). The data came from observations of the groups' interactions as well as interviews of each of the group's members, attending mainly to each group's consensus-making or consensus-resisting efforts. The main findings consisted of a judgment regarding whether consensus had been achieved by each group and, if so, how and why.

Out of the cross-case synthesis emerged the finding that consensus appeared to occur when all members of a group had developed not just an agreement over a course of action, but a common vision. Most important, the vision needed to embrace a broad set of health care and social issues and values—topics that transcended any sheer agreement. The higher plane concept that emerged was one of "shared empowerment." The concept provoked a deeper voice and broader applicability than a consensual process that only depended on a simple voting procedure among the group's members. The emergence of the "shared empowerment" concept led the study to return to the existing literature. Whereas the earlier review had emphasized consensus building, this later review tried to determine the extent to which "shared empowerment" might have been studied (and operationalized) in previous research. To the extent that the research had not dealt with the concept, the case study of the seven groups made a potentially important contribution to theory building in group dynamics, much less in public health.

This second example should alert you to an important bottom line: that when doing cross-case synthesis, be prepared to think upward conceptually, rather than downward into the domain of individual variables. You decided to do case study research because you favored its holistic feature and wanted to understand phenomena in their real-world settings. The desired cross-case synthesis should strive to retain the holistic feature rather than settle for any variable-based approach.[3] BOX 37 followed this path and discusses a multiple-case study based on both literal and theoretical replications across 10 case studies.

BOX 37 A Cross-Case Synthesis, Using Replication Logic and Program Theory to Strive for Generalizability

Mookherji and LaFond (2013) conducted a multiple-case study involving immunization programs in three African countries. Within each country, they collected data from four districts and conducted a case study about each district. The districts were selected so that, in each country, three districts had demonstrated *improved immunization rates* following the implementation of the programs, but, in contrast, one had only a *steady rate* over the same time period. The authors also specified a detailed theory of change, describing six complex institutional drivers. They were hypothesized to explain the improved rates in the nine districts but to be missing in the three steady districts. The final synthesis represented two sets of direct replications (within the nine and within the three districts) and one set of theoretical replications (the nine districts compared with the three).

The findings supported the overall theory of change and its drivers. The results enabled the study to claim generalizations about the process of implementing immunization programs that could lead to improved rates. The results also covered the role of relevant contextual conditions, as represented by the differences among the three countries. Not claimed by the authors, but suggested by the substance of the theory of change, is the possibility that the findings also may pertain to other public health initiatives, not just immunization programs.

Highly important in a cross-case synthesis is your ability to discuss the potentially contaminating differences among the individual cases in your multiple-case study. No two cases are identical. Therefore, helpful if not essential will be a discussion of how the individual cases were sufficiently comparable along important dimensions (e.g., their cultural or institutional settings) to warrant a presumed common finding between them.

Similarly, the discussion needs to show how marked differences among the cases, if any, do not plausibly undermine the presumed multiple-case findings. Similar discussions have been critical in related fields such as in case law, where the individual legal cases are inevitably unique (at a minimum, they will differ in temporal and locational dimensions). Arguments about the similarities in the material nature of any related cases must then be made to support the applicability of the legal principles or interpretations from one case to another (Kennedy, 1979).

An overall and important caveat in conducting cross-case syntheses is that the cross-case patterns will rely strongly on argumentative interpretation, not numeric tallies. The procedure is similar to that of making an analytic generalization, and Chapter 2 has previously pointed out that the approach is directly analogous to aggregating lessons across multiple experiments. Those lessons also have no numeric properties when only a small number of experiments is available for synthesis.

A challenge you must be prepared to meet in doing a cross-case synthesis is therefore to know how to develop strong, plausible, and fair arguments that are supported by your data. Among such arguments should include sensitivity to any dissimilarities or oddities among your cases that might be associated with plausible rival interpretations. As discussed earlier in this chapter, you need not attend to all rivals—just those that are the most plausible. Similarly, your cases are bound to exhibit dissimilarities, but you only need to focus on those that appear to undermine the findings from your synthesis.

The concluding section of this chapter offers some ideas for you to consider, regardless of whether you are doing a cross-case synthesis or following any of the other analytic techniques discussed in this chapter. These ideas may help to boost the quality of your entire case study analysis.

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 (e.g., Lincoln & Guba, 1985; Yin, 2013, 2015a) and deserve 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 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 investigate, if possible, *all plausible rival interpretations.* If someone else has an alternative interpretation for one or more of your findings, make this alternative into a rival. Is there evidence to address the 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 (whether defined at the outset of the case study or by working with your data from the "ground up"). By avoiding excessive detours to lesser issues, your analysis will be less vulnerable to the accusation that you diverted attention away from the main issue because of potentially contrary findings.

Fourth, you should demonstrate a familiarity with the prevailing thinking and discourse about the case study topic. If you know your subject matter as a result of your own previous research and publications, so much the better.

The case study in BOX 38 was done by a research team with academic credentials as well as strong and relevant practical experience. In their work, the authors demonstrate a degree of care 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 receive appropriate respect and recognition.

BOX 38 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 5, Chapter 2).

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, working with your data from the ground up, using descriptive frameworks, or checking on rival explanations. 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. Attending 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 researchers are 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.

Notes to Chapter 5

1. The earlier editions of this book drew a parallel between this procedure and a potent quasi-experimental design, labeled a "nonequivalent, dependent variables design" (Cook & Campbell, 1979, p. 118). According to this design, an intervention may have a variety of relevant outcomes. If a study finds all of them as initially predicted, a conclusion may be reached regarding the effects of the intervention. For instance, in public health studies, some outcomes may have been predicted to be affected, whereas other outcomes may have been predicted *not* to be affected (Rosenbaum, 2002, pp. 210–211). The empirically determined pattern can then be compared with the initially stipulated pattern. In the quasi-experimental design, 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, causal inferences can be entertained.

2. The lack of attention to the transitions has possibly arisen because of the graphic confusion between a *logic model* and a *flowchart*. A flowchart, as used in its original applications in industrial engineering, merely indicates that one box is followed by another—analogous to an assembly line. In a logic model, the lines presuppose more than a simple sequential relationship. The lines also represent some kind of triggering process—that one box *produces* the next one. How the triggering occurs is then the transition requiring careful explanation when using logic models.

3. Researchers who have previously been heavily engaged in doing quantitative research may struggle with the case-based approach, because variable-based thinking may be a subconscious part of their natural research orientation. Such a speculation may be unfair. However, my consultations with different research teams have suggested that researchers accustomed to doing quantitative studies (but who then plan to do a multiple-case study) readily think in terms of variables as the key elements in any analysis. Such thinking then leads to wanting to do any analysis according to those variables, despite the small number of cases available.

APPLICATION #7: Using a Case Study to Compare Directly Competing Rival Hypotheses: *Whether Military Base Closures Produce Catastrophic Economic Impacts or Not*

In experimental research, the use of a control group represents an attempt to rule out all rivals—but without specifying or investigating them. Although case study research does not offer the same opportunity, the number of plausible rivals may be small, and investigating them directly still can be manageable. As a result, entertaining and directly examining individual rival hypotheses can markedly strengthen a case study. ***Application 7*** *shows how a case study addressed its main proposition and its main rival, indicating how the evidence supported one but not the other.*

Military bases located throughout this country not only fulfill important military functions but also can make valuable contributions to local economies. By employing portions of the local civilian population and consuming local resources, and especially by being located in small jurisdictions, a military base can play a substantial economic role in a jurisdiction.

When such bases are then closed, usually in relation to the reorganization and consolidation of bases across the country, the closures pose a dire threat to the local economy. Such was the case with an Air Force base in a rural county in California, and the base's closure was the subject of a case study by Ted K. Bradshaw.[1]

1. Bradshaw, T. K. (1999). Communities not fazed: Why military base closures may not be catastrophic. Journal of American

Planning Association, 65, 193–206. The present author summarized this article, which then appeared as Chapter 18 in Yin (2004), The Case Study Anthology. Readers should consult the original journal article to appreciate its full scope, covering six sectors and containing supporting tables and graphs. Due to space limitations, these materials are not reproduced in this Application 7.

Hypothesis 1.

The initial hypothesis was that the base closure would have a "catastrophic" impact on the county, for the following reasons.

The base was a well-established Strategic Air Command facility for B-52 bomber and K-135 tanker crews. It employed more than 6,000 persons (5,000 military and 1,000 civilian), making it the county's largest employer, representing 10% of the county's employees. Similarly, 11,000 military personnel, spouses, and dependents were associated with the base, representing 6% of the county's population. Moreover, the county's broader economy was dominated by agriculture and related industries and did not have other large employers or other federal government facilities to which the base's 1,000 civilian employees could transfer.

The base closure, following the typical congressional and public objections over such closures, had been one of those recommended by the Base Realignment and Adjustment Commission. As a result, the base's operations and most of its personnel were transferred to other military installations located in Oklahoma and Louisiana, during the year prior to the formal closing of the base.

At that time, a formal task force report predicted the dire economic consequences that soon would occur. The report said that the county would suffer a loss of 3,700 civilian jobs, a population loss of 18,000 persons, and a loss of $105 million in retail sales. The county's unemployment rate, already chronically high at 14.4%, was predicted to rise to 21.7%. All these potential job, population, sales, and unemployment levels were interpreted as representing a *catastrophic outcome* for the county's economy.

Hypothesis 2.

In support of a contrary hypothesis, the case study started by pointing to the findings from studies of other base closures that had taken place several years earlier.

One of the studies had examined the impacts of closures of three bases in the same state as the Strategic Air Command facility. This study as well as the others all suggested that these base closures had not been accompanied by catastrophic effects, even in the short run. Although some economic decline did occur, the impact was not as severe as had been predicted. Furthermore, in the long run, the abandoned base facilities also provided the opportunity for renewed economic development.

Bradshaw's case study then examined the two competing rival hypotheses. He collected and presented a variety of quantitative (economic) data before, during, and after the year of the base closure, in six important economic sectors: retail sales, local equipment suppliers, hospital and health care services, employment and unemployment, housing, and population change. In each sector, the case study found that strong negative effects had been avoided, and the main conclusion was that the closure had *not* produced a catastrophic outcome.

More important were the author's explanations of why a catastrophic outcome had not occurred, at the same time showing how qualitative data readily complemented the economic data. These explanations were based on Bradshaw's interviews with key local officials, community and business representatives, and military staff. Illustratively, for the purposes of this **Application 7**, the experiences in three of the sectors are discussed next, involving *retail sales*, *local equipment suppliers*, and *employment and unemployment* [the original case study presented data for all six sectors—see footnote 1 above].

Explanations for changes in three illustrative economic sectors.

In the *retail sales* sector, the original fear of a great reduction in sales, loss of retail jobs, and diminished local tax revenue was not realized because much of the base's retail purchasing had been done at the base's commissaries, not the county's local outlets. Except for a number of outlets located near the base, such purchasing power, therefore, had not been part of the local economy in the first place. Moreover, a modestly sized population group associated with the base—military retirees—remained in the community after the base operations had transferred. These retirees then had to shift their purchasing from the (closed) commissaries to the local outlets, thereby creating a small positive impact on the county's retail sales.

With regard to *local equipment suppliers*, the base had been undergoing a major construction project that had led to the Air Force's procuring of local equipment and equipment services. This activity did cease with the base closure, but instead of creating a total void, the remaining base operations involved the initiation of a new program, to clean up the toxic waste left behind by the closed

base. Although the original suppliers might not have been involved in the new program, the overall economic effect was more balanced than had been expected.

The *employment and unemployment* trends had been examined over a 5-year period, bracketing the year of the base closure. Strong seasonal effects had required that year-to-year comparisons be made, focusing on the comparable months from one year to the next. Such comparisons for the month of April, the actual month of the base closure, had indicated a slight increase in the unemployment rate from before the closure to the year of the closure and then a slight decline in the ensuing 2 years. Comparisons for the several Octobers or for Januarys had resulted in similar patterns.

At the same time, a potential difficulty in interpreting the employment and unemployment trends was that the county was in an economically growing state and region. Therefore, a claim could be made that the employment-unemployment picture would have been rosier, rather than roughly neutral, had the base not been closed. Bradshaw explored this possibility by examining data from the neighboring counties. Although their trends were better, the differences were far from dramatic, much less supporting any catastrophic interpretation related to the base closure.

Conclusion.

The author concluded that, although catastrophic effects had not occurred in this case, such effects still could occur in other cases. For instance, the consequences could differ if the military base involved a large manufacturing or research-and-development component that employed many civilian workers. Nevertheless, such conditions did not exist in the present case, and the case study aptly explained the reasons that the catastrophic effects predicted by Hypothesis 1 had not occurred.

FOR CLASS DISCUSSION OR WRITTEN ASSIGNMENT

Thinking About Follow-up Studies

No single-case study (or any other type of research study, for that matter) is likely to present such a final set of findings and conclusions that no further inquiries will be relevant. On the contrary, to complement and augment earlier studies, additional studies should always be welcome. For instance, as your own research study draws to an end, you should be thinking about the ways of doing another study (e.g., to replicate the original findings, to strengthen them, or to extend them to a newer set of issues or even situations).

Application 7 appears to have produced a sound set of findings in support of its major conclusion. Especially notable is that the research drew upon extensive quantitative (economic) data and also involved an array of interviews with relevant local officials, community representatives, and military staff [remember again that much of the original work had to be omitted from this application due to space limitations]. The study also cites complementary findings by other studies of base closures, conducted several years earlier.

Discuss how you might think about doing a follow-up study, expanding the original study design and not just augmenting the array of evidence. One possibility would be to go outside the target community and to conduct another case study in a comparable community where a similar base closure had occurred. Another possibility would be to collect fresh data from the original target community, but at a later date. For instance, residents who might still remain in the community might be asked in a survey to describe their current living and working situations as well as to recollect the earlier events as closure was being announced and taking place. Are there yet other possibilities?

APPLICATION #8: A Nutshell Example of an Explanatory Case Study: *How a Federal Award Affected a University Computer Department*

> ***Application 8*** *was not originally a case study but comes from the abstract of a final grant report, submitted by the grant's principal investigator.*[1] *The abstract is presented in its original form, with methodological comments* ***[in bold and brackets]*** *added by the present author.*
>
> 1. This application, with minor edits, originally appeared as Chapter 7 in Yin (2012a), *Applications of Case Study Research.*
>
> *In the abstract, the original author attempts to attribute significant organizational changes in a university computer science department to the use of funds from the federal grant. Because of the abstract's limited two-page (and originally single-spaced) length, the abstract does not try to present the data or evidence to support its claims. However, the essence of the logic serves as an excellent point of departure for understanding how to frame an explanatory case study, even though the illustration comes from an earlier era in the evolution of academic computer science.*

During the past seven years, the Computer Science Department at Cornell was radically transformed from theoretical, pencil-and-paper research operation to one with a high degree of experimental computing. The departmental computing facility grew from a VAX/780 and a PDP11/60 to an integrated complex of almost 100 workstations and UNIX mainframes **[the funded initiative]**. All faculty and graduate students now use these computers daily **[a sequentially earlier outcome, further itemized below],** and much research that was hitherto impossible for us is now being performed **[a sequentially later outcome, operationalized further below]**.

The change in emphasis was due to the maturing of computer science **[a potential rival explanation, to be examined had there been more space],** to commensurate changes in the interests of the faculty **[another potential rival explanation],** and to hardware and software advances that made flexible computing available at an affordable price **[a third rival].** However, without the National Science Foundation's five-year grant, it would not have been possible **[the main hypothesized explanation].** The grant provided the wherewithal that allowed the department to change with the times; it provided equipment and maintenance, gave us leverage with vendors for acquiring other equipment, and funded staffing of the faculty **[critical how-and-why enhancement of the main explanation, indicating how the grant worked to produce the outcomes described next].**

The influence of the grant can be seen by mentioning just a few of the more important projects that it has stimulated. Turing Award winner John Hopcroft changed his interests **[with additional space, the text could have explained how and why the grant led to these**

changed interests] from the theory of algorithms and computational complexity to robotics and now heads a growing and forceful group that is experimenting with robotics and solid modeling **[operational outcome].** Theoretician Robert Constable and his group have been developing a system of "mechanizing" mathematics. This system, which has inspired many theoretical as well as experimental advances, has as one of its goals the extraction of a program from a mathematical proof; it gives a glimpse into how professional programming might be done 20 years from now **[a second operationalized outcome].** Tim Teitelbaum and his group generalized his work on the well-known Program Synthesizer into a system that is able to generate such a programming environment from a formal description of a language; the resulting Synthesizer Generator has been released to more than 120 sites worldwide **[a third].** Ken Birman's group is developing an experimental distributed operating system for dealing with fault tolerance **[a fourth].** And visitor Paul Pritchard used the facility for his work on prime numbers, resulting in the first known arithmetic progression of 19 primes **[a fifth].**

The grant enabled the department to attract bright young faculty who would not have joined a department with inadequate facilities **[beginning of a broader explanation, suggesting how the grant affected the whole department].** As a result, the department has been able to branch out into new areas, such as VLSI, parallel architectures and code optimization, functional programming, and artificial intelligence **[continued explanation].** The grant program did what it set out to do: It made it possible for the department to expand its research activity, making it far more experimental and computing intensive while still maintaining strong theoretical foundations **[summary explanation].**

FOR CLASS DISCUSSION OR WRITTEN ASSIGNMENT

Relying on Self-Reports

When a document takes the form of the grant report just cited in **Application 8**, you would consider it to be one type of "self-report." The author of the document has narrated a particular version of events and ideas. The document is a form of self-report because no references are made to other sources that might corroborate the document's contents. Another type of self-report arises when you interview a single person and cite her or his rendition of reality without trying to corroborate the information.However, sometimes the document or the interview is the entirety of the reality. In other words, the document's author or the interviewee is expressing her or his own perspective, opinion, or attitude, without regard to any external reality. Furthermore, your case study might have been highly interested in capturing and examining just that particular point of view, especially if, for instance, you were doing a social justice study. In those situations, what might appear to be limited to being considered a "self-report" might contain revealing and precious insights that by definition are not subject to any corroboration.

Possibly citing some of your own research, clarify and discuss the situations when corroborating self-reports appears important, compared with when it does not appear to be needed, much less wanted.

APPLICATION #9: An Explanatory Case Study: *Transforming a Business Firm Through Strategic Planning*

> *Explanatory case studies can examine a complexity of activities and events, such as the transformation of a business firm.* ***Application 9*** *contains a complete explanatory case study about one firm, defining the breadth of changes covered by the transformation and suggesting how a strategic planning process was instrumental in the transformation.*

The business firm in **Application 9,** Bolt, Inc., was a family-owned machine shop and components manufacturer located in Grand Prairie, Texas.[1] The firm had been pressured by its major customer to improve its production system or risk losing new orders. In response, implementation of cellular manufacturing solved the firm's initial production problems and resulted in a 300% capacity increase and a rise in employee skill levels and problem-solving capabilities. However, in addition to the improved manufacturing processes, the firm's management team developed a shared, common direction about what to do with the company's extra capacity. The team undertook a strategic planning process that set the course for achieving important long-range company goals and objectives in marketing, information systems, manufacturing, and human resources.

1. This application originally appeared as Chapter 9 in Yin (2012a), *Applications of Case Study Research,* in which the present author composed a condensed and edited version of a complete case study by Jan Youtie. She had worked under the direction of the present author, who designed the original multiple-case study. To conserve space, several exhibits and numerous footnotes (citing specific interview and documentary sources) in the original case study have been omitted.

The case study documents the changes undertaken by the firm, showing how the combined effect of the changes went far beyond mere manufacturing improvement—effectively transforming the whole firm and its original organizational culture. Besides describing these processes, the case study explains how they led to the firm's successful growth in sales and profits.

Defense industry consolidation, leadership change, and rising production volumes spur changes.

Bolt's internal and external business environment experienced major changes in the early 1990s. First, Bolt's founder and president turned the company over to his son, John Wilson. Second, Bolt's major customer, Air Turbine, Inc., began aggressively consolidating its supply chain, reducing the number of its vendors from roughly 1,600 to 400 over a 2-year period.

Having survived this round of cuts, Bolt received orders for several thousand additional parts, but the new orders choked Bolt's production system, which emphasized long production runs, long setup times, manufacturing to inventory, and the shipping of parts regardless of their quality. In an interview, Wilson stated, "The Company worked seven days a week for a year, with no letup." Wilson had trouble locating orders and did not have enough file cabinets for all the paperwork. Work in process was so extensive that walking through the facility was difficult. Occasionally, Bolt's quality rating dipped below Air Turbine's supplier specifications. Wilson's initial solution (to buy shelves and file cabinets) added to the clutter. He even formed a team of 25 expeditors to meet each morning, to determine the jobs needed to be completed by the end of the day.

Change process begins with solving production system problems.

Wilson said, "It wasn't fun to come to work." He recognized the need for change but did not have a specific plan. Instead, he took steps to solve his immediate problem, which ultimately led to broad-based changes. Wilson turned to third-party resources for problem-solving assistance and for validating the ideas he had read about. Air Turbine provided some help—seminars and hotlines—but it did not have an assistance program in the manufacturing process area.

At about that time, Wilson and his management team attended a breakfast workshop series sponsored by a federally supported, regional manufacturing assistance center. The workshop series stressed creating a vision, changing company culture and dealing with human resource issues, and then adopting process and technology improvements. The series ended with a call for volunteers for in-company assessments, to be conducted by the center. Wilson volunteered his company for such an assessment.

A specialist from the manufacturing assistance center later conducted the assessment. As part of the assessment, the specialist helped Wilson set up a process improvement team. The team first decided to work on paperwork issues and the ability to locate order information. The team, however, found that the paperwork problems were symptomatic of deeper production-floor problems.

Subsequently, Wilson had a chance to tour another small manufacturer. It had experienced similar problems and had solved them with cellular manufacturing. Wilson concluded that cellular manufacturing might be what his operation needed. Cellular manufacturing emphasizes small production runs, groupings of diverse equipment and machines, and manufacturing functions performed in close proximity to workers. These attributes represented a significant change from Bolt's production system. Wilson decided to begin by implementing a three-person prototype cell in the metal extrusions area. The cell was successful, achieving a 200% improvement in throughput by its second week of operation.

Because of this success and spurred by requests from other Bolt workers to become involved in cells, Wallace implemented cellular manufacturing throughout the facility during the following year. Bolt's workers took 2 months to design the new facility layout. The 2 months of preparation allowed Bolt to implement the new cells speedily, with minimal financial losses and downtime. Employees tore down the old workplaces overnight and implemented the new cells within a week. They created five manufacturing cells, one assembly team, and two plating teams, supported by five functional teams responsible for scheduling, quality, human resources, maintenance, and supplies.

The rollout also involved training managers and production-level workers in team processes and problem solving so that the cells could assume responsibility for each part. This level of responsibility required further training to enable team members to operate several types of machines and to manage different processes. Wilson set a goal of two qualified operators for each piece of equipment in each cell and promoted on-the-job cross-training to meet this "two-deep" goal. Designed to be self-directed, the teams eliminated the need for a foreman and moved Bolt toward a flat organizational structure.

Within the first year after converting to cellular manufacturing, Bolt saw significant process improvements. Cellular manufacturing reduced work in process by 65%, material transport by 35%, and lead time by 87%. First-run yields improved by 77%. Cycle times for videoconferencing card products declined from 120 days to 3 days, and production capacity increased by 300% without additional equipment or personnel. These improvements also led to a reduced need for inventory, freeing 5,000 square feet of additional space.

The productivity improvements also reduced the need for workers, so Bolt terminated 36 workers. Other employees, unable to handle the changes, decided to leave on their own. Shop-floor workers themselves made the remaining staffing decisions, based on factors such as performance, skills, and the ability to be a team player.

Strategic plan transforms the business.

Manufacturing processes had improved, but Bolt's management team did not have a shared vision of what to do with the company's extra capacity. In the past, Bolt's founder had made all decisions about where to allocate company resources. However, Wilson's management style, as evidenced by the manufacturing cells and self-directed work teams, was more participatory. Within the management team, members held diverse ideas about where to take the company and where its resources should be invested. The sales manager suggested that investments be made in new equipment, based on his discussions with customers about upcoming opportunities. Wilson's experience with cellular manufacturing identified the need for major expenditures on workforce training and quality certification. He said, "Management was going in many different directions because we disagreed and lacked focus."

Once Wilson was able to spend less time solving daily production problems, he turned his attention to the development of a strategic plan. He asked the manufacturing assistance center to facilitate a strategic planning process for the company. The planning process

involved developing a statement of purpose, assessing external strengths and weaknesses (including a customer profile), assessing internal strengths and weaknesses, establishing strategic goals, identifying obstacles to realizing the goals, and developing actions for overcoming the obstacles. Members of the management team—representing human resources, finance, operations, customer service, and quality control—met weekly to produce the document.

The primary outcome of the strategic planning process was not just a planning document. Management team members reported that communications had improved. Team members achieved consensus on issues of company direction and the allocation of company resources. "We were all on the same page," Wallace said. The customer service manager said that the planning process "brought everything to light."

The team decided to move from the company's traditional production-driven strategy to one oriented to customer needs. An analysis of costs and revenues by customer and by product identified those customer needs that resulted in the most profitable business for Bolt. To obtain this business, the planning team identified desirable strategic attributes: performing quick turnaround; developing advanced capabilities, such as five-axis machine technology for complicated surface parts; providing whole subassemblies; and offering full-service in-house capabilities in areas such as machine shop, painting, and plating.

These attributes distinguished Bolt from other machine shops. Thus, far beyond Bolt's adoption of cellular manufacturing, the strategic plan helped the firm to transition more comprehensively, with changes occurring in marketing, manufacturing, human resources, information systems, and community involvement, as described next.

Marketing: Targeting valued customers.

In the marketing area, and prior to the strategic plan, the defense industry cutbacks and lack of long-term relationships with key customers had made the company believe it had to "respond rapidly to the constant, unanticipated changing needs" of its customers. Bolt's move to cellular manufacturing made it more agile so that the account managers could "quote anything if the quantity was large enough." However, this approach produced large numbers of potential buyers. All had to be dealt with and provided with quotes. Managing these multiple diverse relationships was difficult and time-consuming. Wilson, who served as account manager for most of the smaller accounts, endeavored to treat these 60 to 70 customers equally in terms of account management and delivery dates promised. This effort diverted his time from broader leadership efforts and impeded service to the larger accounts.

In contrast, the strategic plan showed that Bolt had a small number of key profitable customers. Bolt's customer services unit therefore changed its practices to focus on these customers. The customer services manager now had time to produce more accurate quotes and could obtain in-depth understanding of the customers' current and future needs. For example, Air Turbine had shared information with its Bolt account manager about the amount of business it expected to subcontract in certain product areas. Bolt became a sole-source provider to Air Turbine for a number of parts and started to sell a larger number of products at higher margins. Monthly revenues from major customers tripled from $20,000 to $60,000. Becoming a preferred provider effectively reduced the uncertainty in Bolt's sales revenues. Focusing on major customers also enabled Wilson to devote less time to minor customer account management and more time to broader strategic issues.

Bolt's strategic plan also called for diversifying into commercial aerospace markets. The planning team determined that the commercial aerospace industry was a good fit with Bolt's existing defense business. The plan called for understanding the needed conditions for doing business with aerospace firms. Bolt then targeted its marketing and quality efforts at this new customer segment.

Manufacturing: Supporting customers' needs.

Bolt's traditional approach to manufacturing systems was to invest in machines that could run large volumes of parts. With the introduction of cellular manufacturing, the company arranged equipment and workers to improve efficiency and free up space, but what the company was to do with its additional capacity and space was not clear.

The strategic plan played an important role in guiding the company to use this newly found capacity. A significant number of new business opportunities now guide plant layout and investment decisions. For example, the improved understanding of a major customer's plating needs led Bolt to purchase new plating equipment. Another example involved Bolt's new "penetrant inspection" cell, built to conduct nondestructive testing for cracks, leak paths, and other structural defects. An account manager had learned that Air Turbine needed quick turnaround service in this area. Wilson decided to use the excess space from the cellular manufacturing implementation to build a penetrant inspection room. These two examples illustrated Bolt's ability to rearrange manufacturing cells

based on the likely sources of new sales and revenue.

To meet the other goal of the strategic plan—diversifying into commercial aerospace markets—Bolt's quality manager pursued Boeing D1-9000 certification. Wilson said that, before the process changes and strategic plan, "we didn't have enough confidence to get certified." Bolt met Air Turbine's quality requirements as well as those of other major defense customers. Earlier, Bolt had won various quality awards, such as a Subcontractor of the Year Award (even as the company was converting to cellular manufacturing) and the U.S. Small Business Administration's Administrator's Award for Excellence. However, the company never had undergone standards certification. The plan identified quality certification as a major goal and the lack of Boeing D1-9000 certification as an obstacle to customer diversification. Bolt's quality manager led the quality team in assessing manuals, training, and conducting audits and worked with the manufacturing assistance center's quality specialists to achieve Boeing D1-9000 certification.

Pursuing Boeing D1-9000 certification and making facilities investment decisions based on customer needs demonstrate the alignment between the production system and Bolt's strategic plan. Although the cellular manufacturing implementation had solved Bolt's production capacity concerns, manufacturing capabilities matched company strategy and market demands only after Bolt completed its certification.

Investing in human resources.

In the human resources area, the strategic plan addressed hiring options. Despite the human resource changes associated with Bolt's cellular manufacturing initiative, the planning process revealed that the company's investment emphasis on machinery and equipment over human resources hindered the accomplishment of the strategic goals. Bolt's managers decided to allocate resources based on the skills needed to attract specific new business. For example, Bolt wanted to deliver penetrant inspection services, but it lacked in-house expertise. Therefore, Bolt hired a specialist to help design a penetrant inspection cell for the shop floor and provide training.

In addition, Bolt hired a general manager to deal with the day-to-day responsibilities of the manufacturing operation. Although this addition conflicted with Wilson's desire for a flat organization, the management team reached consensus in the planning process that the shop floor needed a general manager. The new general manager quickly relieved Wilson of his ongoing shop-floor management responsibilities.

Information systems: Improving customer service.

In the information systems area, the strategic planning process revealed problems with Bolt's old manufacturing resource planning (MRP) system. This system was not integrated with other systems and was not used regularly. Consequently, the purchasing department made errors in ordering materials. For example, sometimes orders were not placed until after the final delivery date, and at other times the purchasing department ordered materials already in stock. The strategic plan called for an integrated information system.

As a result, Bolt purchased a new MRP system that combined manufacturing and accounting systems. The new system significantly improved the purchasing function. The purchasing manager now orders and receives materials on time or ahead of schedule, which has improved the on-time delivery of parts and components to customers. These improvements have enhanced Bolt's ability to be a quick turnaround shop and to meet its customer satisfaction goal of 100% on-time delivery. Wilson also uses the system to assess the company's financial situation weekly, rather than waiting until the end of the month.

Enhancing community involvement.

One of the strategic plan's major goals was for Bolt to "be actively involved in our community." Community involvement, according to the management team, included environmental, health, and safety compliance, as well as participation in community programs. Following this path, Bolt participated in the Safety and Health Achievement Recognition Program and received a Certificate of Recognition award from the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA), exempting the company from programmed OSHA inspections—a first for Bolt. Wilson joined with 15 other small manufacturers in sponsoring an apprenticeship program in the local school district, and Bolt hired three graduates from the first two graduating classes.

Results: Sales and wages increase, along with supplier consolidation, in a tight labor market.

Total sales increased 56%, from $3.5 million to $5.4 million, over the 6-year period spanning the changes resulting from both the cellular manufacturing and the strategic plan. Sales per employee improved by 90% over the same period (see Exhibit App. 9.1).

The sales increase arguably may have resulted from changes made by Air Turbine, whose supply chain consolidation provided opportunities to Bolt and other preferred suppliers, including higher value-added components and subassemblies business. Nevertheless, Air Turbine's supplier management practices cannot fully explain Bolt's sales increases. Without its extensive changes, Bolt could have been eliminated as a supplier in later rounds of consolidation. Air Turbine's additional specialized needs might have been missed without Bolt's strategic goals in the account management area. Overall, Bolt's new customer orientation in marketing and other areas resulted in substantial sales increases.

Bolt's persistent sales increases have allowed it to recruit additional employees. The number of employees has risen from a low of 67 to 85—and is starting to approach the pre-layoff level of 94 employees. Nevertheless, payroll expenses as a share of sales revenue have dropped from 58% to less than 40%, reflecting Bolt's increased productivity.

Conclusion: Strategic planning leads to multiple changes, making Bolt a transformed firm.

Bolt transformed itself because it made multiple changes, covering all major company systems. The firm had been operating soundly prior to these changes and had survived Air Turbine's massive supplier consolidation. Bolt also had won quality awards prior to or simultaneously with converting to cellular manufacturing—and well before it initiated strategic planning.

Nevertheless, despite these accomplishments, Bolt had been experiencing fundamental problems that threatened its customer relationships and that left its future direction uncertain. Cellular manufacturing initially addressed the production problems. Ultimately, however, it was the strategic planning process that led to multiple and interrelated changes—for example, improving the alignment in the company's systems in support of market needs and business strategies.

The totality of the transformation produced Bolt's improved financial performance. Although Air Turbine's supplier consolidation opened the opportunity for Bolt, it could not have exploited this opportunity, much less profitably expanded, without the changes related to the strategic plan. By aligning the company's systems, Bolt moved from a capacity-driven job shop to a customer-driven, high-precision supplier.

FOR CLASS DISCUSSION OR WRITTEN ASSIGNMENT

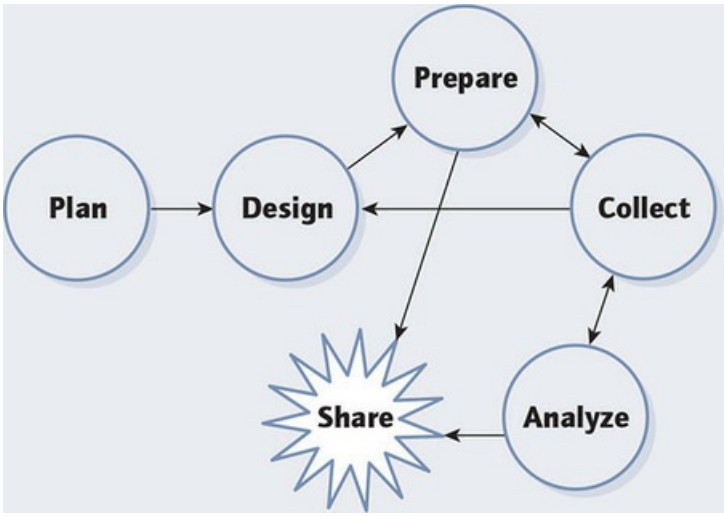
Constructing Case Study Explanations

Application 9 shows how case study explanations commonly assume the form of narrative arguments and claims. However, such qualitative explanations may not differ from what otherwise might appear to be more precise quantitative procedures when using other methods. They often offer strong correlational connections, even when using multivariate models. However, to go beyond a correlation and arrive at an actual explanation, the correlation also may have to be interpreted in an argumentative form. Thus, regardless of the method used, concluding your study by offering to *explain* how a real-world process has worked is a challenging task.

Discuss the ways in which you can create strong if not compelling explanations, especially pointing to how **Application 9** might have been strengthened. If you could augment **Application 9** with additional evidence, would any such evidence have helped? [Clue: What about providing more data about rival explanations—in particular the role of Air Turbine—in greater detail?]

Exhibit App. 9.1 Bolt's Sales and Wages per Employee

Year	Sales/Employee	Average Wage
Year That Strategic Plan Started	$38,568	$22,251
First Year After Strategic Plan	$52,841	$23,670
Second Year	$53,022	$25,601
Third Year	$66,357	$26,540
Fourth Year	$66,396	$27,379
Fifth Year	$73,277	$28,347


Prepare
Plan
Design
Collect
Share
Analyze

Chapter 6: Share

- Define audience, whether for written or oral compositions
- Starting early, compose textual and visual materials
- Display enough evidence for reader to reach own conclusions
- Review and recompose until done well

Abstract

Sharing the conclusions from a case study, whether in writing or orally, means bringing its results and findings to closure. Steps that underlie the sharing process include identifying your audience, defining your case study's format, and having drafts reviewed by others. This chapter focuses on the specific choices pertinent to case studies, while also complementing other texts that cover the general processes for completing research reports.

Specific to case studies, you might consider six alternative compositional structures: linear-analytic, comparative, chronological, theory-building, "suspense," and unsequenced structures. Each structure can shape your entire substantive composition. Apart from any of the six structures, you will need to describe your case study methodology. Your description may have to deal with a circumstance common to many case studies—the need to communicate with audiences who may be unfamiliar not only with your case study but also with case studies as a research method. The final steps in doing your case study include how and when to start composing, choices regarding the disclosure or anonymity of the case identities in your case study, and reviews of your draft case study as a validating procedure.

Composing a case study is one of the most rewarding aspects of case study research. The best general advice is to set your sights high by aiming for an exemplary case study—one that is "significant" and "complete," as well as one that considers alternative perspectives (including rival explanations), displays sufficient evidence, and is composed in an engaging manner. Your goal is to seduce the reader's eye, so that it will move with increasing speed from sentence to sentence, paragraph to paragraph, and page to page in your case study.

Having a Flair

The reporting phase makes great demands on a case study researcher, compared with other social science methods. Because a case study does not follow any stereotypic form, researchers who do not like to compose might want to question their interest in doing case study research in the first place. Most of the notable case study research scholars have been ones who liked to compose and who had a flair for presenting results, in writing or orally. Do you?

Of course, most researchers can eventually learn to compose easily and well, and inexperience in composing should not be a deterrent to doing case study research. However, much practice will be needed. Furthermore, to do good case study research, you should want to become good at composing—and not merely to 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 could be to compose a case study. Another indicator is whether composing is viewed as an opportunity or as a burden. The successful researcher usually perceives the compositional phase as an opportunity—to make a significant contribution to knowledge or practice and to share this contribution with others.

What "Composing" Covers

This chapter is about "composing," not just writing, as a case study can include textual, nontextual, and oral presentations. The most obvious nontextual forms would be tables, figures, charts, drawings, and other graphics. Other case study presentations might have an audiovisual component—although you will be taking a great risk if you try to report your first case study on the same occasion as your first audiovisual product.

Preceding the compositional activity is a cognitive one: *thinking*. Without some specific ideas in your head, you will have difficulty composing. Such a mundane observation nevertheless comes with a useful insight: When you know you have nothing much going on cognitively, if you try at that moment to start composing (e.g., to meet some external deadline), you may experience great frustration. In actuality, you need to get your mind going first. One way is to read a key research study directly related to your case study. Another is to review your notes. A third is to talk with a colleague about your study. Hopefully, as a practiced scholar, you probably know other ways that will best get the ideas in your mind flowing before you can expect to do any composing.

Tip: What's the best way of getting my case study finished, with the least trouble and time?

Every researcher differs, so you have to develop your own style and preferences. Improvement occurs with each case study you produce. Thus, don't be surprised if your first one is more difficult. One possible strategy is to think about composing "inside-out" and "backward." *Inside-out:* Start creating your final product (written or oral) with a table, exhibit, vignette, or quotation to be cited in the text of your case study (but don't try to write the accompanying text yet). In the same manner, now amass all of the tables, exhibits, vignettes, or quotations for your entire case study. Try arraying them in alternative sequences that might appear in the final text. *Backward:* Start by composing the narrative for the final portion of the case study before the rest, then compose the analytic narrative that led to the final portion, and so on.

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

A further comment about doing case study research: Although this chapter will encourage you to compose creatively and with some flair, you should not think or talk about composing a research case study as if you were writing a novel. Any reference to "storytelling," "dramatizing," or other features of good fiction—however couched—may lead readers to question the soundness if not the validity of your research.

Remember that other kinds of case studies frequently appear outside of the research world. Even if their stories are compelling, those case studies do not necessarily try to follow research methods. You do not want to reinforce the connection between your case study and *non*research case studies. If you need to lean on a compositional literature, think about *nonfiction* writing as the relevant counterpart craft. There are many works on creative and effective nonfiction writing (e.g., Caulley, 2008; Naumes & Naumes, 2011). You can check them for additional guidance in composing your case study.

Similarly, feel comfortable consulting other textbooks that cover the composing of research reports in the social sciences more generally (e.g., Barzun & Graff, 2003; Becker, 2007; Wolcott, 2009). Those texts offer invaluable reminders about taking notes, making outlines, using plain words, writing clear sentences, establishing a schedule for composing, and combating the common urge to procrastinate. Hopefully, these other texts will help you to improve your composing and to avoid writer's cramps. Note that those texts do not tend to refer to a research report as a story, and neither should you.

As a final comment, the purpose of this chapter is not to repeat the general lessons in these other texts. They are applicable to all forms of research compositions, including case study research. However, the general works all tend to emphasize "when" and "where" to compose most comfortably. The works tend not to provide concrete ideas about "what" you might consider composing, as well as other issues that might arise when specifically producing a case study. To fill this void, the present chapter consists of the following sections:

- Audiences for case study research;
- Varieties of case study research compositions;
- Procedures for composing case studies; and, in conclusion,

- Speculations on the characteristics of an exemplary case study.

One reminder from Chapter 4 is that your final case study should not be the main way of recording or storing the evidentiary base of your 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, not documentation, objectives.

Exercise 6.1 Reducing the Barriers to Composition

Everyone has difficulties in composing reports, whether case studies or not. To succeed at composing, researchers 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 followed any of these five steps in the past?

Audiences For Case Study Research

Potential Audiences

Giving some initial thought to your likely or preferred audience(s) serves as a good starting point for composing your case study. The concreteness of this step, as well as your likely knowledge of the audience(s), will help you to overcome or even ignore the difficulties of trying to start by ruminating about the concepts in your case study—where you may be stalled.

At the same time, the task may be more challenging than you think, because case study research can involve a more diverse set of potential audiences than most other types of research. The potential audiences include (1) academic colleagues; (2) policy makers, practitioners, community leaders, and other professionals who may not specialize in case study or other social science research; (3) special groups such as a dissertation or thesis committee; and (4) funders or sponsors of research, varying from academic colleagues organized into peer review committees to the executives of private or nonprofit firms who dominate the boards of private foundations.[1]

In sharing the results of research based on other methods, such as experiments, the second audience is not typically relevant, as few would expect the findings from a laboratory experiment to be directed at nonspecialists. In contrast, for case study research and its potentially practical implications, this second audience may be a frequent target for case study research. Similarly, the fourth audience also is a frequent consumer of the case study research because of the diversity of funding for case study research, which goes beyond available federal sources.

Because case study research may have more potential audiences than other types of research, one of your tasks in designing your case study is to identify its audience(s). Each audience has different needs, and no single composition may 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 39). For *nonspecialists,* the descriptive elements in portraying some real-world 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, are important. Finally, for *research funders,* the significance of the case study findings, whether cast in academic or practical terms, is probably more important than how you describe your research methods. Successful communication with more than one audience may mean the need for more than one version of a case study report. Researchers have and can consider catering to such a need (see BOX 40).

Box 39 a Famous Case Study Reprinted

For many years, Philip Selznick's (1949/1980) *TVA and the Grass Roots* has stood as a classic about public organizations. The case study has been cited in many subsequent studies of federal agencies, political behavior, and organizational decentralization.

Fully 30 years after its original publication, this case study was reprinted in 1980 as part of the Library Reprint Series by the

University of California Press, the original publisher. This type of reissuance allowed numerous other researchers to have access to this famous case study and reflected its substantial contribution to the field.

Box 40 Two Versions of the Same Case Study

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.

Exercise 6.2 Defining the Audience

Name the alternative audiences for a case study you might compose. For each audience, indicate the features of the case study that you should highlight or de-emphasize. Would the same version serve all the audiences, and why?

Orienting Case Study Research to an Audience's Needs

Overall, the preferences of the potential audience(s) should dictate the form of your case study. Although the research procedures and methodology should have followed other guidelines, suggested in Chapters 1 through 5, your final composition should reflect the emphases, details, compositional forms, and even a length suitable to the needs of the potential audience(s).

The importance of the audience(s) suggests that you might want to collect information about what the audiences need and their preferred styles of information sharing (Morris, Fitz-Gibbon, & Freeman, 1987, p. 13). Along these lines, this author has frequently called the attention of thesis or dissertation candidates to the fact that the thesis or dissertation committee may be their *only* audience. The ultimate case study, under these conditions, should attempt to communicate directly with this committee. A recommended tactic is to integrate the committee members' own previous research into the thesis or dissertation, creating greater conceptual (and methodological) overlap and thereby increasing the thesis or dissertation's potential communicability with that particular audience.

Whatever the audience, the greatest error you can make is to compose a case study from an egocentric perspective. This error will occur if you complete your case study 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 other case studies that have successfully shared their findings with the same audience. These other case studies may offer helpful clues for composing your case study. For instance, consider again the thesis or dissertation candidate. The candidate 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 insights regarding the departmental norms (and reviewers' likely preferences) for designing a new thesis or dissertation.

Communicating With Case Studies

One additional difference between case studies and other types of research is that your case study can itself be a significant communication device. For many nonspecialists, exposure to a cogent and compelling single-case study can raise awareness, provide insight, or even suggest solutions to a given situation. Such a case study may be enhanced by simple but appealing nontextual materials, such as vignettes, pictures, and graphics. All this information can help others to understand a phenomenon when a dense or abstract array of statistics—no matter how compelling to a research audience—cannot do the trick.

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 in front of such a committee, its members may assume that they have acquired initial insights into 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 stimulus that drew attention to the health care issue in the first place.

In these and other ways, your case study can communicate research-based information to a variety of nonspecialists. The usefulness of a case study therefore can go far beyond the role of the typical research report, which is generally addressed to research colleagues rather than nonspecialists. Descriptive as well as explanatory case studies both can be important in this role. You should not overlook the potential descriptive impact of a well-presented case study (see BOX 41).

Box 41 Using a Metaphor to Organize Both Theory and Presentation in Another Field

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 44B, later in this chapter).

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.

Varieties Of Case Study Compositions

Case studies can assume many compositional forms. Some of these forms may resemble those used in reports based on other research methods. However, when you are composing a case study, you will encounter a useful array of choices specifically related to case studies, falling under the categories covered in the remainder of this section: (1) reporting formats, (2) illustrative overall structures for case study compositions, (3) the methods and research literature portions of a case study, and (4) case studies as part of larger, mixed-methods studies.

Compositional Formats

Case study formats fall into four categories.

1.Single-case study.

The first is the classic single-case study. A single text is used to showcase and analyze the case. You may augment the text with tables as well as with charts, graphics, pictures, and maps. Depending upon the depth of the case study, these classic single-case studies may expand to the length of a book, making your publishing options more challenging. At the same time, many academic journals, including the best discipline-based ones, do now publish articles of sufficient length to accommodate well-conceived case studies. You should check the journals in your field before assuming that your case study can be published only in book form.

Recall, too, that a single-case study could have followed an embedded design (see Chapter 2, Figure 2.4). Following this design, you may have collected data about an embedded unit of analysis by using other methods (e.g., surveys or quantitative analyses of archival data such as health status indicators). In this situation, your completed case study would incorporate the reporting of the data from these other methods (e.g., see Chapter 4, BOX 19).

2. Multiple-case study.

A second format is the multiple-case study version of the classic single-case study. Your full multiple-case study will consist of the single-case studies, usually presented as separate chapters or sections. In addition to these individual case studies, your full multiple-case composition will contain an additional chapter or section covering the cross-case analysis and results. As another common variant, the cross-case material can form the bulk of the main text (especially suitable for a journal-length article), with the individual case studies presented as a set of appendices (or made separately available by you, especially if the multiple-case study formed the bulk of a journal-length article). In a more expansive format, a multiple-case study may call for several cross-case chapters or sections, creating a sufficiently large cross-case portion to justify an entire volume, separate from a second volume that then has the individual case studies (see BOX 42).

Box 42 A Three-Volume Multiple-Case Study

Multiple-case studies often contain both the individual case studies and one or more cross-case chapters. The composing 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 all 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.

3. Option for either a single- or multiple-case study.

A third format covers either a single- or multiple-case study but does not use the conventional narrative. Instead, the composition for each case study follows a series of questions and answers, based on the questions and answers in your case study database. For reporting purposes, you would shorten the content of the original database and now edit it for readability, with the final product still assuming the format, analogously, of a comprehensive examination. (In contrast, the conventional case study narrative may be considered similar to the format of a term paper.) The question-and-answer format may not reflect your full creative talent, but the format helps to reduce the problems of writer's cramps. This is because you can proceed immediately to address 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 intriguing: Your reader(s) need only examine the answers to the same question or questions within each single-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 interest of each reader (see BOX 43).

Box 43 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 space—for example, three or four paragraphs each. Each answer can contain all the relevant evidence and can 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 study, so that the interested reader could do her or his own cross-case analysis by following the same question across all the case studies. The format allowed hurried readers to find exactly the relevant portions of each case study. For people offended by the absence of the traditional narrative, each case study also called for a summary, unconstrained in its form (but not longer than several pages), allowing the author to exercise her or his more compositional talents. (**Application 6** at the end of Chapter 4 contains a complete example of one of these case studies.)

4. Option for multiple-case study only.

The fourth and last format applies to multiple-case studies only. In this situation, there may be *no* separate chapters or sections devoted to the individual case studies. Rather, your entire composition may consist of the cross-case analysis, whether purely descriptive or also covering explanatory topics. In such a composition, each chapter or section would be devoted to a separate cross-case issue, and the information from the individual case studies would be dispersed throughout each chapter or section. With this format, summary information about the individual case studies, if not ignored altogether (see BOX 44 as well as Chapter 1, BOX 3B), might be presented in abbreviated vignettes. Especially for oral versions of your multiple-case study, such vignettes, embedded in the main presentation covering the cross-case issues, work well. For an example of a multiple-case study without presenting the single-case studies independently, see **Application 7** at the end of Chapter 5.

Box 44 Composing a Multiple-Case Study

In a multiple-case study, the individual case studies need not always be presented in the final manuscript. The individual case studies, in a sense, serve only as the evidentiary base for the final composition and may be cited sporadically in the cross-case analysis.

44A. An Example in Which No Single-Case Studies 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 their day-to-day routines. 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 make decisions, 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.

44B. Another Example (From Another Field) in Which No Single-Case Studies 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 41, earlier in this chapter). The book is an analysis and theory of revolutionary periods, with pertinent examples drawn from each of the four cases; however, as in Kaufman's book, there is no attempt to present the single revolutions as individual case studies.

As a final note, the specific type of case study format, involving a choice among at least these four preceding 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 format may become more relevant than the one originally selected. However, early selection will facilitate the conduct of your case study. Such an initial selection should be part of the case study protocol, alerting you to the likely nature of the final format and its requirements.

Illustrative Structures for the Substance of Your Case Study

Beyond the four formats, you still need to organize the chapters, sections, subtopics, and other components in some way. This constitutes your case study's substantive structure. Attending to such structure has been a topic of attention with other methodologies. For instance, Kidder and Judd (1986, pp. 430–431) write of the "hourglass" shape of a report for quantitative studies: starting broadly, focusing intently (and narrowly) on the evidence and analysis, and then concluding broadly. In ethnography, John Van Maanen (2011) has identified a variety of ways of reporting fieldwork results, which he defines as covering realist, confessional, impressionist, critical, formal, literary, and jointly told perspectives. These different types may be used in different combinations in the same report.

Alternatives also exist for structuring case studies, illustrated by six optional structures (see Figure 6.1). The illustrations are described mainly in relation to the composition of a single-case study, although the principles may be readily adapted to suit multiple-case studies. 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 case studies, and the sixth to descriptive case studies.

Figure 6.1 Six Structures and Their Application to Different Purposes of Case Studies

Type of Compositional Structure	Purpose of Case Study		
	Explanatory	Descriptive	Exploratory
1. LINEAR-ANALYTIC	x	x	x
2. COMPARATIVE	x	x	x
3. CHRONOLOGICAL	x	x	x
4. THEORY BUILDING	x		x
5. "SUSPENSE"	x		
6. UNSEQUENCED		x	

Linear-analytic structures.

This is a standard approach for composing research reports. The sequence of subtopics starts with the issue or problem being studied and a review of the relevant prior literature. The subtopics then proceed to cover the methods used, the data collected, and the data analysis and findings, ending with the conclusions and their implications for the original issue or problem that had been studied.

Most journal articles in experimental science reflect this type of structure, as do many case studies. The structure is comfortable to most researchers and probably is the most advantageous when research colleagues or a thesis or dissertation committee comprise the main audience for a case study. Note that the structure is applicable to explanatory, descriptive, or exploratory case studies. For example, an exploratory case study may cover the issue or problem being explored, the methods of exploration, the findings from the exploration, and the conclusions (for further research).

Comparative structures.

A comparative structure repeats the same case study material two or more times, comparing alternative descriptions or explanations of the same case. As a distinctive advantage, this structure can apply equally well to case studies based on either realist or relativist inquiries.

Graham Allison's (1971) famous case study on the Cuban missile crisis (see Chapter 1, BOX 1) illustrates a realist application. In this book, the author repeats the single set of "facts" of the crisis three times. However, each repetition takes place in relation to a different conceptual model. The purpose of each repetition is to show the degree to which the same facts fit each model. The repetitions and their interpretations, appearing in three separate chapters of the book, actually illustrate a pattern-matching technique at work.

A relativist application arises when a case study repeats a similar set of episodes, but from the perspective of different participants, accommodating relativist or constructivist approaches and the presentation of multiple realities. A book by Frederick Wertz and his coauthors (Wertz et al., 2011) illustrates an analogous situation, whereby separate chapters are used to present five different qualitative interpretations of a single intensive interview. In the interview, a young woman describes an extremely unfortunate illness and how she survived it. Each interpretation subsequently and purposely follows a preselected variant of qualitative research, thereby illustrating a different way of analyzing the same interview data.

Note that both the realist and relativist orientations can be used whether a case study is serving a descriptive or explanatory purpose. For instance, the same case can be described repeatedly, from different points of view or with different models, to understand how the same case might be categorized in multiple ways—whether the aim is to converge on a single interpretation or not. The main feature is that the same case (or its interpretation) is repeated two or more times, in an explicitly comparative mode.

Chronological structures.

Because case studies generally cover events over time, a third 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. 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 surprisingly occurs after the event has occurred, you would have reason to question the initial causal proposition.

Whether used for explanatory, descriptive, or exploratory case studies, 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, a researcher 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 study 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 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 main 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—is then devoted to the development of an explanation of the 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). Basically, one could change the order of that case study's six chapters, as listed earlier in this book (see Chapter 5, "Developing a case description"), 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 are presented is not critical and may therefore be regarded as an unsequenced approach (see BOX 45 for another example).

Box 45 Unsequenced Chapters, but in a Best-Selling Book

A best-selling book, appealing to both popular and academic audiences, was Peters and Waterman's (2004) *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 had been in some other sequence.

If an unsequenced structure is used, the researcher does need to attend to one other problem: a test of

completeness. Thus, even though the sequence of the chapters or sections may not matter, their overall collection does. If certain key topics are left uncovered, the description may be regarded as incomplete. A researcher must know a topic well enough—or have related models of prior studies to reference—to avoid such a shortcoming. If a case study fails to present a complete description, the researcher can be accused of having assembled a skewed version of the case—even though the case study was only descriptive.

Methods and Research Literature Portions of a Case Study

Apart from the compositional structures just described, every case study will cover at least two other topics, whether in a comprehensive or an informal manner: the methods used and the related research literature. You can consult other general works for relevant guidelines for covering these two topics, because case studies do not usually demand any nonconventional styles or forms. However, case studies can raise a few additional issues, discussed next.[2]

Description of methods.

Most outside readers will not start by having detailed knowledge of the methods used in any *specific* research study. However, and not uncommon in case study research, some readers also may not be familiar with case study methods *in general*. For this latter reason, the description of your methods may assume a more than routine function in convincing a reader about the quality and thoroughness of your methods. You therefore should make sure to use a thoughtful, balanced, and transparent tone: You would like readers to know what you did and that you conducted your case study with great care and methodological awareness, while minimizing pitfalls and aiming for high-quality results.

Your description can be long or short, depending upon your audience's likely preferences. For instance, as discussed earlier, some audiences may be more interested in your findings and not very interested in your methods. If so, you should still consider composing a more thorough methods section that can be offered as a side document. If well executed, the side document even can lead to an additional publication. For an example of how such a publication was developed in one case, see Tutorial 6.1 on the companion website at study.sagepub.com/yin6e.

Regardless of the length, the composition should cover several subtopics (see Figure 6.2). In them, you should make sure that key case study issues stand out, such as

1. A careful wording of your research questions, showing how they led logically to the need for conducting a case study rather than using some other method (see Item 2, Figure 6.2);
2. The definition and selection of your cases (see Item 3);
3. A data collection profile convincingly portraying the data as yielding up-close and in-depth information about the case (Item 5); and
4. An explicit and clear analytic strategy (Item 6).

You should set high standards in describing your methods, as if you were describing the most important part of your report rather than a routine and necessarily dull one. Readability, credibility, and concern with confirmability all matter. Strive to customize your description with exceptional features.

For instance, if your case study report contains vignettes and anecdotes, most methods sections do not identify or describe the larger pool from which these were chosen (e.g., Bachor, 2002). You also can try to characterize your case study's attention to plausible rival explanations by offering a summary scale, such as 0 = *no mention*

of even the notion of rivals; 1 = mention of *rival logic*, but no actual rival presented; 2 = presentation of a *less potent rival* (e.g., speculation that some data collection option, such as interviewing different participants, might have affected a case study finding); and 3 = presentation of a *more potent rival* (e.g., analysis and interpretation of evidence in support of a contrary finding that conflicts with the main finding).

Readers will especially appreciate your efforts to make their work easier, such as an overview allowing readers to skip many details if desired (see Item 4, Figure 6.2). Compiling a glossary of the acronyms, abbreviations, and any specialized terms (i.e., "jargon") appearing in your case study wouldn't hurt, either.

Figure 6.2 Outline for a Methodology Section in a Case Study Report

Methodological Topic	Illustrative Content
1. OVERALL TONE	• A thoughtful, balanced, and transparent tone; methodic but also attractively written
2. RESEARCH QUESTIONS	• Should suit case study research: e.g., dominated by "how" and "why" questions
3. DESIGN	• Definition of the case(s) and how selected • The (logical) connection between the research question(s) and the data to be collected • Rivals that were considered
4. OVERVIEW OF REST OF METHODOLOGY SECTION	• A brief summary of the data collection and analysis methods (enables reader to avoid reading the rest of methodology section, if the reader so desires)
5. DATA COLLECTED	• Emphasis on how the data provided an "up-close" and "in-depth" coverage of the case(s) • Presentation of the case study protocol and how it was used • List of sources in order of importance; further detail about specific items within each source (e.g., numeric profile of interviewees in tabular form or an appended list of documents reviewed) • How the data were verified (e.g., triangulation methods) • Unexpected difficulties that were encountered and how they might have affected the data collection
6. ANALYSIS METHODS	• Description of the analytic approach (e.g., pattern matching, explanation building) • Identification of any CAQDAS software and how used
7. CAVEATS ABOUT STUDY	• Inherent shortcomings in the design and analysis and how the shortcomings might have influenced the findings

Coverage of research literature.

Describing the relevant research literature has two purposes—to show your mastery over the topic of study and to use the literature to support the importance of your research questions and case study. Again, the length of your description will vary and may not attain the formal status of a literature review, depending upon your audience's circumstances.

Two suggestions should complement the guidance you might obtain if you check other sources about how to describe relevant research literatures. First, demonstrating your mastery over the literature does not equate

with a lengthy literature review that wanders all over the place or that has a huge number of citations. Rather, do your best to identify the key citations and to treat them fairly. Second, in using the literature to support your case study work, do not hesitate to discuss previous research that might have used alternative methods. Show an appreciation for the other methods but also indicate how their findings might have left a void that only a good case study was likely to fill.

Case Studies as Part of Larger, Mixed-Methods Studies

A totally new situation arises when your case study has been deliberately designed to be part of a larger, mixed-methods study (see "mixed-methods designs," in Chapter 2 of this book and also 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 any differently than if it had been a "stand-alone" case study. 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 when 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 have surfaced *after* the survey or archival data had been analyzed, and the selection of cases might have 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 conclusions should merge findings from all the different methods). BOX 46 contains two examples of larger studies done under this third scenario.

Box 46 Integrating Case Study and Survey Evidence: Complementarity of Findings

Multimethod studies can pose complementary questions that are to be addressed by different methods. Most commonly, case studies are used to gain insight into explanatory processes, whereas surveys provide an indication of the prevalence of a phenomenon. Two studies illustrate this combination.

The first was a study of educational projects funded by the U.S. Department of Education (Berman & McLaughlin, 1974–1978).

The study combined case studies of 29 projects with a survey of 293 projects, revealing invaluable information on the implementation process and its outcomes. The second study (Yin, 1981c) combined case studies of 19 sites with a survey of 90 other sites. The findings contributed to understanding the life cycle of technological innovations in local public services.

These three different situations show how your case study and its reporting may have to be coordinated within some broader project. 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 research team before making any commitments.

Procedures In Composing A Case Study

Every researcher should have a well-developed set of procedures for composing an empirical report. Numerous texts, cited throughout this chapter, offer good advice on how you can develop your own customized procedures. 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, 2007). The more rewriting, especially in response to others' comments, the better a report is likely to be. In this respect, the case study 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 the specific tactics 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 during the early stages of your case study. Developing such a practice will help you to compose any social science report but especially a case study. Because case study compositions do not follow any preset patterns, your freedom in customizing your composition—as in adopting any of the six structures discussed in the preceding section—correspondingly comes with a high risk of encountering writer's block. The general reminder that "you cannot begin writing too early" (Wolcott, 2009, p. 20) therefore has extra meaning when you are doing a case study.

Following such advice, your goal is to begin drafting certain portions of your case study even before you have completed data collection, much less analysis. Although you may have to leave the portions incomplete until a later time, the drafting itself will serve as an important accomplishment, because you will have started to compose.

Let's take some examples of where and when you might start. For instance, your initial research activities will include reviewing the literature and designing your case study. After these activities, you already can start defining several portions of the case study report: the bibliography, methods, discussion of previous research, and initial case descriptions.

Your initial *bibliography* can be augmented later, with new references if necessary, but by and large the main set of references will have been covered in relation to your having reviewed the relevant research literature. 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, you can track them down while the rest of the case study proceeds. Such multitasking will avoid the usual practice among researchers who only attend to their bibliographies at the end of doing their case study and who therefore spend much clerical time at that final stage rather than doing the more important (and pleasurable!) tasks of writing, rewriting, and editing the substance of their reports.

Similarly, you can start describing your *methods* at this early stage because the anticipated procedures for data collection and possibly even analysis should have been part of your case study design. You won't be able to complete the description until after you have neared the end of your analysis, but by starting the draft, you will remember some of the design and data collection procedures with greater precision. One possibility, depending upon your experience with review and approval by your institutional review board (IRB—see Chapter 3), would be to start drafting the methods portion just after having received IRB approval. You will be surprised how well you will remember some of the methodological details, at least as you intend to implement them, at this juncture!

A third early portion would discuss the *research literature* and how it led to or complemented your research questions and the propositions being studied. Because your case study design will have settled on these questions and propositions in order to proceed with protocol development and data collection, you will have given serious thought to your case study's connectivity to the literature. Although you may again need to

revisit this earlier version after completing your data collection and analysis, having a preliminary draft never hurts.

You can start yet a fourth portion after data collection but before analysis begins, covering the *descriptive data about the case(s)* you have selected. Whereas the methods should have covered the procedures regarding the selection of the case(s), the descriptive data should now cover each case's substantive profile. You still may not have finalized your ideas about the type of case study format you will use or the type of composition structure you will follow. However, the substantive profiles are likely to be useful regardless of the format or structure. Furthermore, drafting the initial case profiles, even in preliminary form, may stimulate your thinking about the overall format and structure.

If you can draft these four portions before analysis has been completed, you will have made a major advance. These portions also may call for substantial documentation (e.g., copies of your final case study protocol as part of your methodology), and therefore an opportune time to put such documentation into presentable form (i.e., making them "camera ready") occurs at this stage of the research. You also will be at an advantage if, during data collection, you have accurately recorded all details—citations, references, organizational titles, and spellings of people's names and titles—related to your study (Wolcott, 2009, pp. 52–53).

At this same stage—that is, before analysis has been completed—you can add more information to your earlier draft methods section. You will know more details about the data collection procedures as they actually occurred, and you may know more about your planned analysis strategies. This information will readily enhance the initial methodology that you drafted.

If you start the drafting process early and continue to add to your drafts as your case study progresses, you may find that you can focus your thoughts more clearly on the analysis itself, as well as on the tentative findings and conclusions. In other words, having an ongoing picture of where you've been might help you to see more clearly where you are going. To begin composing early also serves another important psychological function: You may get accustomed to the composing 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 portions to be drafted at these early stages, you should draft them as well.

Case Identities: Real or Anonymous?

Nearly every case study presents a researcher with a choice regarding the anonymity of the case: Should the case study accurately identify its informants, 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 for you 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 who were studied. This rationale was used in Whyte's (1943/1993) original case study, *Street Corner Society,* which was about an anonymous neighborhood, "Cornerville" (although the neighborhood's true identity was divulged years later). As a third illustrative situation, the purpose of the case study may be to portray an "ideal type," and there may be no reason for disclosing the true identities. 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 (although again divulged years later).

On those 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 as part of a longer list of all your sources, but to avoid attributing any particular point of view or comment to any single individual. However, the lack of attribution may not always be completely protective—you also may have to disguise the comments so that no case participant (or other reader) 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 survey 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. It not only eliminates some

important background information about the case but 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 will boost 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 informants and participants in the case. When comments are exceptionally helpful, researchers even have included them as part of the entire case study (see BOX 47).

Box 47 Reviewing Case Studies—and Printing the Comments

A major way of improving the quality of case studies and ensuring their construct validity is to have the draft case studies reviewed by those who have been the subjects of study. This procedure was followed to an exemplary degree in a set of five case studies by Alkin, Daillak, and White (1979).

Each case study was about a school district and the way that the district used evaluative information about its students' performance. As part of the analytic and reporting procedure, the draft for each case study was reviewed by the informants from the relevant district. The comments were obtained in part as a result of an open-ended questionnaire devised by the investigators for just this purpose. In some instances, the responses were so insightful and helpful that the investigators modified their original material and also printed the responses as part of their book.

With such presentation of supplementary evidence and comments, any reader can reach her or his own conclusions about the adequacy of the case studies—an opportunity that has occurred, unfortunately, all too seldom in traditional case study research.

Such review is more than a matter of professional courtesy. The procedure has been correctly identified as a way of corroborating the essential findings and evidence presented in reports of field studies (Schatzman & Strauss, 1973, p. 134). The informants and participants may cling to their own perspectives and disagree with your conclusions and interpretations, but these readers should have the opportunity to challenge a study's key findings. If disagreement emerges during the formal review process, you may have to regard the case study as being unfinished until the disagreement has been settled through a search for further evidence. Often, the opportunity to review the draft itself 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. Some earlier but still recognizable version of the draft must be shared with the case study informants or participants. After they have reviewed this earlier draft, and after any differences in facts have been settled, you can disguise the identities so that only the informants or participants will know the true identities. When Whyte (1943/1993) 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 or

of misrepresenting a relativist perspective should be reduced. In addition, when differences persist, 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 a case study. 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 48).

Box 48 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 studies are likely to be improved by having some review by informants—that is, those persons who were the most involved participants in the case 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?

What makes an exemplary case study?

In doing case study research, one of the most challenging tasks is to define an exemplary case study. Although no direct evidence is available, some speculations seem an appropriate way of concluding this book.[3]

The exemplary case study goes beyond the methodological procedures already highlighted throughout the book. Even if you, as a case study researcher, have followed most of the basic procedures—using a case study protocol, maintaining a chain of evidence, establishing a case study database, and so on—you still may not have produced an *exemplary* case study. The mastering of these procedures makes you a good technician but not necessarily an esteemed social scientist. To take but one analogy, consider the difference between a chronicler and a historian: The former is technically correct but does not produce the insights into human or social processes provided by the latter.

Five general characteristics of an exemplary case study are described below. They are intended to help your case study to be a lasting research contribution.

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 researchers. If a researcher 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 (see BOX 49), or
- Your case study meets both of the preceding conditions.

Box 49 Examining Significant World Events

The Eastern European revolutions of 1989, ending with the demise of the Soviet Union, became significant world events, especially altering the relationships among the major powers. Why the Soviet Union did not intervene militarily in the 1989 revolutions remains a pressing question in search of explanation. Andrew Bennett (2010) summarizes and considers the most prominent explanations, including the Soviet Union's then-recent military losses in Afghanistan, a decline in the Soviet Union's economic growth rates, and the domestic politics within the Soviet Union's ruling coalition. Bennett's report, while not composed as a formal case study, shows how case study methods can address these kinds of significant world events.

For instance, a single-case study may have been chosen because it was a revelatory case—that is, one reflecting some real-world situation that social scientists had not been able to study in the past. This revelatory case is in itself likely to be regarded as a discovery and to provide an opportunity for doing an exemplary case study. Alternatively, a critical case may have been chosen because of the desire to compare two rival propositions; if the propositions are at the core of a well-known debate in the literature—or reflect major differences in public beliefs—the case study is likely to be significant. Finally, imagine the situation in which both discovery and theory development are found within the same case study, as in a multiple-case study in which each individual case study reveals a discovery but in which the replication across case studies also adds up to a significant theoretical breakthrough. This situation would truly lend 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 defining 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 only a weak answer is forthcoming, you might want to plan an alternative case study.

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 musical composition or finishing a painting). All have the problem of defining the desired end points 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 a researcher gives clear attention to the boundaries of the case—that is, the distinction between the phenomenon being studied and its context.

Sample boundaries might include your designating time and geographic (or organizational) limits for the case, the activities to be included in the case, and explicit notations about the contextual conditions that lie outside of the case (Baxter & Jack, 2008). If you define the boundaries of your case only mechanically—for example, by limiting the scope of your case to a few field participants who happened to make themselves available to you even though other people should have been included as participants—a nonexemplary case study is likely to result. The best way to defend your designated boundaries is to show, through either logical argument or the presentation of evidence, that as an analytic periphery is reached, information is of decreasing relevance to the case. Such testing of the boundaries can occur throughout the analytic and reporting steps of doing case studies.

A second way involves the collection of evidence. The complete case study should convincingly demonstrate that the researcher made an exhaustive effort to collect all the relevant evidence. The documentation of such evidence need not be placed in the main text of the case study, thereby dulling its content. Footnotes, appendices, and the like will do. The overall goal, nevertheless, is to convince the reader that little relevant evidence remained untouched, given the boundaries of the case study. This does not mean that you should literally collect all available evidence—an impossible task—but that you have given complete attention to the critical pieces. Among such critical pieces, for instance, would be those representing rival propositions.

A third way concerns the absence of certain artifactual conditions. A case study is not likely to be complete if the study ended only because resources were exhausted, because you ran out of time (i.e., when the semester ended), or because you faced other, nonresearch constraints. When a time or resource constraint is known at the outset of a study, the responsible researcher should design a case study that can be comfortably completed within such constraints, rather than being artificially limited by them. This type of design requires much experience and some good fortune. Nevertheless, these are the conditions under which an exemplary case study is likely to be produced. Unfortunately, if in contrast a severe time or resource constraint suddenly emerges in the middle of a case study, it is unlikely that the case study will become exemplary.

The Case Study Must Consider Alternative Perspectives

For case studies, an invaluable 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). Whether doing an exploratory, descriptive, or explanatory 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 researcher 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, 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 or, as in a relativist mode, portray highly insightful perspectives. 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 six possible structures. Less prominent but still invaluable would be the presentation of alternative views as separate chapters or sections of the main case study (see BOX 50).

Box 50 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. The firm had successfully grown for 30 years, to become the number two computer maker in the United States, along with attaining its *Fortune 50* status.

The then-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 one of the key executives the opportunity to present his own alternative or rival explanation.

Think of the need to consider alternative perspectives in one more way: Many times, if a researcher describes a case study to a critical listener, the listener will immediately offer an alternative interpretation of the findings of the case. Under such circumstances, the researcher is likely to become defensive and to argue that the original interpretation was the only relevant or correct one. In contrast, the exemplary case study will have anticipated these "obvious" alternatives—and might even have advocated their positions as forcefully as

possible but then shown how such alternatives could be rejected.

The Case Study Must Display Sufficient Evidence

Although Chapter 4 strongly urged you to create a case study database, the critical pieces of evidence for a case study must still be contained within the final case study composition. The exemplary case study judiciously and effectively presents the most relevant evidence, including "how the investigation was conducted and how collected evidence was handled and interpreted" (Bachor, 2002, p. 21). In other words, the desired presentation should enable a reader of the case study (without referring to the database) to reach an independent judgment regarding the merits of the case study's findings.

This selectiveness does not mean that the evidence should be cited in a biased manner—for example, by including only the evidence that supports your conclusions. On the contrary, the evidence should be presented neutrally, with both supporting and challenging data. The reader should then be able to arrive at an independent conclusion about the strength of a particular interpretation. An acceptable selectiveness may limit a case study to the most salient evidence (including rivals) and not clutter the presentation with supportive but secondary information. Such selectiveness takes a lot of discipline among novices, 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 researcher "knows" her or his subject. In doing a field study, for instance, the evidence presented should convince the reader that the researcher has indeed spent quality time in the field, made penetrating inquiries while there, and become steeped in the issues about the case. A parallel goal exists in multiple-case studies: The report should show the reader that all of the single-case studies 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 case studies.

Finally, the display of adequate evidence should be accompanied by some indication that the researcher 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 a 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. Regardless of the medium used (a written report, an oral presentation, or some other form), the case study 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, as might be applied to nonfiction, should be the goal in composing any case study.

The production of such seductive writing calls for talent and experience. Challenge yourself to "open with text that is vivid and vital" (Caulley, 2008, p. 424)—and even to make the text "action-packed." Clarity also increases with rewriting, which is highly recommended.

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

Notes to Chapter 6

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

2. Much of the information comes from my experience in reviewing numerous case study manuscripts over the years, as well as providing written comments to dozens of doctoral students since 2010, each of whom had to compose a dissertation prospectus that included methodology and literature review sections.

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; Yin et al., 1985). Some of these qualities are reflected in this discussion of exemplary case studies.

APPLICATION #10: A Multiple-Case Study Integrating Qualitative and Quantitative Data: *Proposal Processing at 17 Universities*

A multiple-case study can present the data about the individual cases without necessarily presenting any of the cases as part of its own case study. ***Application 10*** *examines the proposal development process at 17 public and private universities. Although each of the universities was not presented as a separate case study, the evidence focuses first on how the proposal process worked within each university. Only after these within-case findings are discussed does the application then deal with the aggregate pattern across the cases.*

For most of us who do "sponsored" research, writing proposals will be a lifelong activity. Nearly every research project will have started with a successfully funded proposal to some government, foundation, or corporate sponsor. For any given university or research organization, the high volume of such proposals means that the activity needs to be efficiently organized. For instance, no university or research investigator wants to suffer through a missed proposal deadline.

Over the years, the proposal submission process has transitioned from a paper to an electronic submission process. Prior to the final transition, major funding agencies like the National Science Foundation (NSF) or National Institutes of Health (NIH) took care to understand how proposals were developed at different universities, to ensure the relevance and friendliness of the ultimate electronic system. **Application 10** is a multiple-case study based on data from 17 universities, covering their research proposal processes.[1] The case study was supported by NSF, which was developing *FastLane,* a then-new electronic system for research investigators to submit their research proposals, proposal reviews, and grant reports.

1. This application, with minor edits, originally appeared as part of Chapter 11 in Yin (2012a), Applications of Case Study Research. Because of its length, the application has no materials about the individual cases; however, the study's longer (but unpublished) report contained numerous vignettes that covered many of the individual cases.

Universities and four organizational levels.

Each university was treated as a separate case, with the study team doing fieldwork at 7 of the 17 universities. During the fieldwork, the team interviewed a variety of university staff, university officials, and faculty, as well as reviewing relevant documents and archival records. For the remaining 10 universities, data were collected through open-ended telephone interviews with the same variety of persons as had been contacted during the fieldwork at the other universities. The 10 universities also submitted pertinent documents and records to the case study team.

Within each university, the interview and archival data covered four organizational levels: the sponsored research office (SRO), a college (school), at least two academic departments, and several principal investigators (PIs). Upon completing the data collection, the case study team compiled individual databases for each university. Each database contained quantitative and qualitative information on five topics. However, the following text is limited to two of these topics: (a) the time needed to process a proposal and (b) the costs involved in that processing.

The data collection focused on each university's routine proposal processes. All proposals were intended to represent traditional principal investigator initiatives, not large institutional competitions. To preserve the anonymity of the universities and ensure their confidentiality, dual coding schemes[2] were used in the data tables and flowcharts that appear in the remainder of this application.

2. Such a scheme means that a university designated as University A in one table or figure is not necessarily the same university as that designated University A in another table or figure.

Proposal processing at the universities.

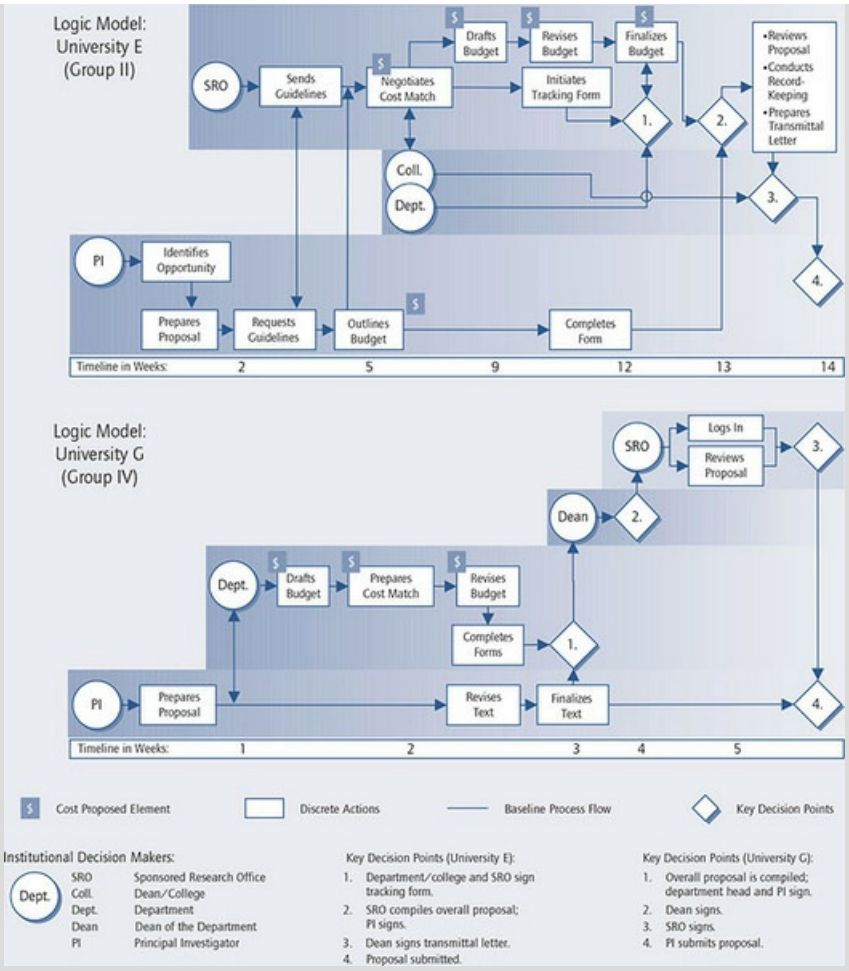
From these data, the team developed a flow diagram to trace the process at each university. The flow diagrams for the 17 universities appeared to fall into four different groups:

> *Group I:* The SRO is actively involved early in the proposal preparation process (not just alerting investigators about the opportunity to submit proposals), engages throughout the process, and submits the proposal.
> *Group II:* The SRO is actively involved early, but the PI submits the final proposal.
> *Group III:* All levels (SRO through PI) are involved early, and the PI submits the proposal.
> *Group IV:* The departments (but not the SRO) are involved early, and the PI submits the prposal.

Of the four groups, Groups I and II appeared to have the greater SRO involvement (and were therefore more centralized), and Groups III and IV had more departmental involvement (and therefore were more decentralized).

Exhibit App. 10.1 contains the flow diagrams for two contrasting university patterns—one from Group II (University E) and the other from Group IV (University G). In these diagrams, the horizontal axis represents the calendar time taken for the processing (note that the scales for the two universities differ), and the vertical axis represents the four organizational levels (from PI to SRO) doing the processing. The University E process is more complex than the University G process because of the increased interactions among the four levels. University E's process also consumes more calendar time.

Exhibit App. 10.1 Proposal Processing at Two Illustrative Universities



Source: COSMOS Corporation (1996).

Time needed to process proposals.

The assessment of the time needed to process a proposal did not try to account for the time invested by principal investigators to develop their initial drafts (e.g., in Exhibit App. 10.1, the step represented by the "Prepares Proposal" box in the lower left corner of both illustrations consumed a highly variable length of time). Rather, the data mainly tracked the time required by the organizational processes—for instance, reviews, editing, revisions, budget preparation, and sign-offs—once a completed draft proposal existed. Furthermore, each case study tried to establish the time needed for the average proposal at the university. Exhibit App. 10.2 contains the results when the universities were grouped according to the four groups defined previously, with the following pattern: *Shorter times were associated with universities in the more decentralized groups.*

Costs of proposal processing.

At each university, additional information had been aggregated about the proposal preparation process as it actually had been experienced during the preceding academic year, covering the following categories:

1. Number of proposals submitted
2. Dollar volume of proposals
3. Total university administrative costs, broken into two components (SRO and department—the latter including schools, colleges, and any other component beneath the SRO),[3] and the proportion of these costs estimated[4] for proposal development
4. SRO staff effort
5. Staff time spent on the proposal process

3. Because not all universities were able to provide reliable budget information across all their organizational levels, the data used in the subsequent cost analyses were extracted from a federal data set of university administrative costs compiled annually based on university submissions. This data set gives each university's total administrative costs—with breakdowns including the distinction between SRO and departmental costs—to support its indirect rate agreement with the federal government.

4. Whereas the total university costs had been submitted by the universities to support their indirect rate agreements, the estimates of the proportion devoted to proposal development were made by the senior SRO official at each university during the case study interviews.

Exhibit App. 10.2 Proposal Processing Time for Four Groups of Universities

Group Number and Characterization	University Code	Processing Time (Weeks)
Group I: *SRO involved early and SRO submits proposals*	D	17
Average time for Group I		17
Group II: *SRO involved early and PIs submit proposals*	K	14
	E	14
	H	11
	F	10
	N	11
Average time for Group II		12
Group III: *All levels involved early and PIs submit proposals*	B	11
	I	10
	O	7
	Q	9
	J	6
Average time for Group III		9
Group IV: *Department involved early and PIs submit proposals*	M	5
	P	13
	C	7
	A	5
	G	5
	L	5
Average time for Group IV		7

Source: COSMOS Corporation (1996).

For each university, the case study team estimated two cost indicators: the dollar cost per number of proposals submitted and the dollar cost per dollar value of proposals submitted. To estimate these indicators, the team used two variables as numerators—the total number of proposals and the total dollar volume of proposals submitted. For both indicators, the same denominator was used, derived from the administrative costs associated with the proposal process. Exhibit App. 10.3 shows the results for each indicator and for each university (only 15 universities had sufficient data to calculate the indicators).

Exhibit App. 10.3 Annual Unit Costs of Proposals, by Number and Dollar Value of Proposals Submitted

University Code	Proposal Costs	Proposal Volume		Unit Cost	
	Total (SRO and Department)	Number Submitted	$ Volume	Per No. of Proposals	Per $ Million Proposed
A	20,574,176	3,131	1,105,367,674	6,571	18,613
Q	12,870,000	4,250	582,146,000	3,028	22,108
M	5,945,500	3,054	983,874,839	1,947	6,043
N	4,576,300	2,566	105,570,071	1,783	43,348
H	3,957,500	2,028	297,191,823	1,951	13,316
G	3,148,060	1,184	400,071,787	2,659	7,869
F	2,312,900	2,101	402,900,000	1,101	5,741
O	1,933,350	2,224	1,224,004,668	869	1,580
D	1,640,000	3,235	732,636,790	507	2,238
K	947,550	1,277	112,408,806	742	7,741
B	608,476	436	81,341,805	1,396	7,480
J	489,000	1,339	134,176,180	365	3,644
I	200,000	318	44,983,744	629	4,446
C	135,000	635	137,698,881	213	980
P	30,580	96	13,579,628	319	2,252
E	–	2,850	461,639,989	–	–
L	–	2,097	270,107,629	–	–

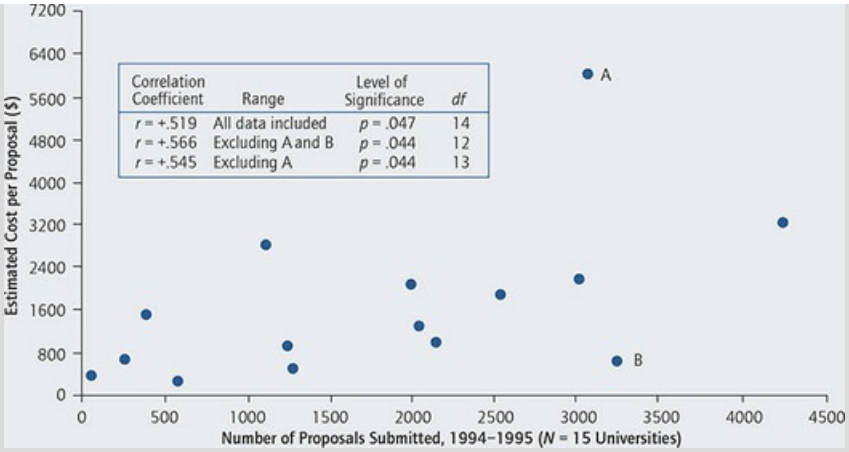
Source: COSMOS Corporation (1996).

Proposal volume and proposal costs: A surprise relationship.

A natural assumption, based on a presumed economy-of-scale logic, was that the *per-proposal* costs would decline as the number of proposals submitted increased. Exhibit App. 10.4 tests this assumption by arraying the two variables in a scattergram. However, the scattergram showed just the reverse relationship: Universities with higher volumes of proposals also had *higher* unit costs (dollars *per proposal*). The relationship was statistically significant, even given the small number of universities (data points) in the estimate. (To ensure that the extreme outlying data points did not account for this relationship, the figure also shows the correlations when Points A and B were excluded from the analysis.)

Examination of these results on proposal costs—along with the earlier results regarding proposal time and the four groups of universities categorized by their centralized-decentralized hierarchy—showed that *the most decentralized arrangements were associated with the higher per-proposal costs and the shorter processing times, but also the higher proposal volumes.*

Exhibit App. 10.4 Estimated Cost per Proposal, by Number of Proposals Submitted



Source: COSMOS Corporation (1996).

Based on the fieldwork within each university and the qualitative data reflected in the flow diagrams, the case study team was able to offer a tentative explanation for the totality of these relationships: The higher unit costs (in the decentralized arrangements) appeared to result when a given university had numerous departments and their staffs available to participate in the proposal process. The availability then meant shorter processing times and higher proposal volume across the entire university.

Under such circumstances, the decentralized arrangement also mitigated the risks of overly burdening an SRO in high-volume situations: At high volumes, the SRO may become a bottleneck and also may not have the specialized staff skills to handle the increased diversity of proposal agencies and topics likely to accompany the high volume. Thus, over a period of time, if a small university at first wants to encourage proposal submissions, a strong and centralized SRO-based procedure may be desirable; however, the academic departments rather than a central SRO are likely to play a more critical role as the university increases its proposal volume and diversity. Whether this scenario is correct, or whether mechanical artifacts in the data account for the results, needs to be the subject of future inquiries.

FOR CLASS DISCUSSION OR WRITTEN ASSIGNMENT (1)

Posing Questions for Further Research

One criticism of the case study in **Application 10** calls attention to the fact that the universities' desired outcome is not necessarily a high volume of proposals but a high volume of dollars awarded.

The possibility exists that the high-proposal-volume universities have better "win" rates than the low-proposal-volume universities. If so, the unit costs per *award dollar* might very well be lower at the high-proposal-volume universities. Such a finding would modify the present interpretation in **Application 10,** which is based solely on unit costs per *proposal*. To explore such a possibility therefore becomes a question for some later study. Any such extension would represent a common sequence in research, whereby the best research questions to be addressed in new studies often follow from the findings of earlier studies.

Discuss a study (not necessarily a case study) that you might have completed, and speculate on the new research questions emanating from the findings. Distinguish new questions that are methodological (e.g., the need to confirm the findings by refining some part of the research procedure) from those that address the substance of the research. Was one type more prevalent than the other in your speculation?

FOR CLASS DISCUSSION OR WRITTEN ASSIGNMENT (2)

Integrating Quantitative and Qualitative Data

Note that the final interpretation of the findings depended on both the quantitative data (the relationships among processing time, proposal costs, and number of proposals) and the qualitative data (the flowcharts showing how proposals were processed within a university): Whereas the quantitative data demonstrated specific relationships, the qualitative data were needed to offer an explanation for those relationships.

Speculate about the nature of the learnings had the case study only collected either the quantitative or qualitative data alone, but not both. Would one type of data and its findings have been more valuable than the other?

Appendix A A Note on the Uses of Case Study Research in Psychology

In psychology as in other fields, all case study research starts from the same compelling feature: the desire to derive a(n) (up)close or otherwise in-depth understanding of a single or small number of cases (Bromley, 1986, p. 1). In addition to assuming such a proximal perspective, case study research focuses on the wholeness or integrity of a case, also setting it within its real-world context. Because the contextual conditions may interact in subtle ways with the case, a good case study should therefore lead to an insightful understanding of a case and its internal as well as external complexity.

Clarifying the Niche for Case Study Research: Three Comparisons

1. Research case studies compared with nonresearch case studies.

Research case studies differ from the use of case studies as teaching and practice tools ("teaching-practice" case studies—see Chapter 1, "Confusion with nonresearch case studies") and from "popular" case studies. For example, the teaching-practice case studies are invaluable but can be manipulated for pedagogical or training purposes, and, although there are exceptions, the case studies are not usually part of the research literature.[1] In contrast, research case studies must adhere to formal methodological procedures, linking all findings to explicit evidence, as well as offering (research-based) findings and conclusions—topics not always found in the nonresearch case studies.

The case study as a research method also differs from case records—sometimes used or referred to as "case studies"—that are maintained by service agencies. Bromley (1986) noted that such records, although otherwise appearing to be case studies, could be influenced by service providers' "expectations regarding accountability rather than factual data" (p. 69) and are therefore "liable to a variety of accidental or deliberate omissions and distortions" from a research perspective (p. 90).

2. Case study research compared with other social science methods.

Chapter 1 of this book has identified case study research as one of a variety of social science methods that include experiments, quasi-experiments (also known as "observational studies"—see Rosenbaum, 2002), surveys, archival analyses, and histories. All the methods can overlap with each other to a certain extent. Chapter 1 claims that case study research, like the others, is a separate method with its own design, data collection, and analysis techniques. For example, and as discussed in Chapter 2, case studies should not be considered a strand of some other research method, such as quasi-experiments (see Chapter 2).

In psychology, case study research also may be considered apart from qualitative research—evidenced by the fact that psychology textbooks on qualitative research have generally ignored case study research. Two of them both devote the bulk of their texts to a variety of "qualitative research methods" in psychology, such as discourse analysis, grounded theory, phenomenological analysis, and narrative research (see Forrester, 2010; Wertz et al., 2011). Despite this broad coverage, one book's array of contemporary methods ignores case study research, even though the book recognizes the prominence of case studies in its lengthy history of psychological methods; the other book refers fleetingly to single cases but not to case study research at all.

Another two textbooks each consist of an edited collection of articles on doing qualitative research in psychology (Camic, Rhodes, & Yardley, 2003; Smith, 2015). In the first textbook, one of the articles refers to psychoanalytic therapy as a case study, but none of the articles discuss case study research. In the second textbook, each article covers a different strand of qualitative research (e.g., phenomenology, grounded theory, narrative psychology, conversation analysis, discourse analysis, focus groups, and action research). Case study research is not mentioned anywhere and does not appear in the textbook's index, much less having a chapter of its own.

Consistent with the preceding four textbooks, Bromley's (1986) landmark work on case study research, cited several times in this appendix, conversely offers little discussion of qualitative research. Overall, the absence of any attempt to integrate qualitative research and case study research in psychology appears to attest further to the separateness of case study research from the other social science methods.

3. Case study research compared with three other research methods in psychology.

Especially pertinent to psychology is the contrast between case study research and three other research methods, the first two of which have like-sounding names:

1. *Single-subject research,* found in neuropsychology and in behavioral research more generally (e.g., see Barlow & Nock, 2009; Kazdin, 2003, 2010; Kratochwill, 1978; Morgan & Morgan, 2009), as well as in special education (e.g., Tawney & Gast, 1984);
2. *Case control studies,* frequently used in epidemiological research (e.g., see Schlesselman, 1982); and
3. *Experiments,* whose group designs are the basis for the most frequently used method in psychological research (e.g., see Murray, 1998).

Figure A.1 depicts the relationships among all four methods, although—as with all research methods—the four choices also can overlap with each other, so that the depiction in Figure A.1 represents an ideal classification. The relationships are shown by attending to two dimensions: (1) whether a study is based on data from a group of subjects or from an individual subject and (2) whether a study involves an intervention—that is, a behavioral manipulation.

Figure A.1 Case Study Research Compared With Three Other Kinds of Behavioral Research

	Intervention(s) Manipulated by a Researcher	
	YES	NO
GROUPED DATA	Conventional Experimental Designs	Case-Control Studies
INDIVIDUAL DATA	Single-Subject Research	Case Study (single or multiple)

Examining Figure A.1 horizontally, and between the two types of methods emphasizing individually discrete data (row 2), *single-subject research* differs from case study research by employing formal interventions, such as a repeated-trial type of pattern using different combinations of stimuli (including the omission of any stimuli). The researcher can deliberately design such a pattern to develop a strong basis for inferring causal relationships, and case study research does not have such a capability. At the same time, single-subject research bears some resemblance to case study research by involving single or multiple cases—that is, a single-subject research study also can include multiple single subjects (e.g., Chassan, 1960).

Examining Figure A.1 vertically, and between the two types of methods each having the ability to create an intervention (column 1), *conventional experimental designs* may provide a firmer evidentiary base than *single-subject research*—as long as there are a sufficient number of subjects to form a group of the needed size (Robertson, Knight, Rafal, & Shimamura, 1993). Unfortunately for researchers, some important psychological

phenomena are too rare to support a sufficiently sized group.

More relevant to case study research is the comparison between the two types of methods that do not have the ability to intervene (column 2). *Case-control studies* differ from case study research by covering aggregated data, usually from a group of individuals who already have exhibited a behavioral condition of interest (e.g., tobacco users). The studies then proceed to estimate the statistical differences between the group's mean and the mean of a retrospectively selected "control" group (e.g., nontobacco users). In principle, case study research also could make such a comparison—that is, if a single-case study contained two sufficiently large groups of multiple cases. However, and except in unusual situations—either where a case study has sacrificed much of the "in-depth" inquiry of each single case or where a case study involves an extensive amount of resources and time—the number of cases is not likely to be large enough to support any statistical comparison between the two groups.

In summary, given the two dimensions in Figure A.1, case study research occupies the distinctive cell whereby a study focuses on individually discrete (not grouped) data and is limited by the inability to manipulate any intervention.

Case Study Research: Conditions That Lead to Having More Variables Than Data Points

Assuming that each case is a single data point, Chapter 1 of this book has earlier offered one part of the definition of case study research as involving inquiries where the number of variables of interest will far outstrip the number of available data points (see Chapter 1, "A twofold definition of case study as a research method"). Three conditions lead to the large number of variables in any given case study: the depth of its inquiry, its coverage of conditions over time, and its inclusion of contextual conditions. Research case studies in psychology aptly illustrate all three conditions.

In-depth inquiry.

First, a research case study involves in-depth inquiry into the case. The multiple features translate into a large number of variables.

In psychology, the case is likely to focus on some individual's behavior. In an earlier era in psychological research, such an individual might have served as both the investigator and the subject of study, producing the famous studies on memory, perception, and learning by Ebbinghaus, Stratton, and Galton (see Garmezy, 1982) as well as the legacy created by the classic Phase I safety trials in medicine, during which medical scientists' first commitment was to test newly created medical remedies on their own bodies. These kinds of studies, in which the individuals were either the researchers or their medical research colleagues (Jadad & Enkin, 2007), also appear to have been an integral part of the tradition in doing case study research in psycholinguistics (Duff, 2008, p. 37).

In contemporary settings, the individuals of interest can come from a wide range of situations, including clinical cases, studies of individual development or learning as in a Piagetian study of cognitive development, and single-animal preparations in comparative psychology.[2] One of the most notable case studies in neurology, referenced by one analyst as the most famous neurological case in the world (Rolls, 2015), involved the case of "H.M.," about whom more than 30 articles had been published between 1957 and 1968 alone (Sidman, Soddard, & Mohr, 1968)—also see BOX A.1. An outstanding book also was published by the person with the most prolonged research experience in studying H.M. (Corkin, 2013).

Box A.1: Classic Case Studies in Psychology

Over the years, psychologists have studied many unusual individuals. Some have behaved distinctively as a result of unique brain injuries (e.g., the cases of H.M. and of Phineas Gage). Other people have suffered from psychiatric disorders, such as the multiple personality disorder represented by the three faces of Eve. Yet other people had the misfortune of encountering strange environmental or social conditions, such as the case of Kitty Genovese in Queens, New York, or of the so-called wild boy of Aveyron, France. All of these cases have been the subject of formal psychological study, and some have drawn attention from the mass media and therefore have become well known outside of psychology.

In a compact book entitled *Classic Case Studies in Psychology,* Geoff Rolls (2015) has compiled 16 of these cases into a series of individual case studies. Each case study has a minimum of technical jargon but is accompanied by key references to related research.

Should a reader want to learn more about a case, the references help to uncover the research literature.

Alternatively, rather than focusing on individuals, other subfields in psychology (e.g., social, educational, management, occupational, environmental, and community psychology), as well as related fields outside of psychology, may focus on organizations or other entities (see BOX A.2). The in-depth study of such entities also entails a large number of variables.

Box A.2: Case Studies of Organizational Entities in Psychology

Case studies within and outside of psychology can focus on organizations, events such as decisions, and other entities—not just individual people. A clinical setting such as a hospital, clinic, or psychologist's office might serve as the case in a case study.

As an example, one type of collaborative care clinic deals with the challenge of integrating mental health and primary care services. Such clinics were therefore the subject of a collection of more than 30 research articles contributing to the redesign of health care, attempting to create "more effective, efficient, patient-involved, and cost-sensitive health care" (Kessler & Stafford, 2008, p. 4). Several of the articles present case studies of specific clinics. One of these describes a long-standing program first started in 1994. The case study uses qualitative and quantitative data—the latter represented by patient functioning measures as well as the responses to a patient satisfaction survey (Kates, 2008).

Conditions over time.

A second common condition comes from the fact that interest in a case usually covers multiple conditions extending over time. Analyzing the temporal pattern can be the explicit subject of a research case study, as in the unfolding of key events that might explain some culminating event—or as in a development case study that traces human or animal behavior over a specified period of time (e.g., Denenberg, 1982).

Even if a temporal pattern is not a direct topic of inquiry or is fairly short (e.g., Bromley, 1986, p. 5), the pattern can create a continuous flow of variables that may be relevant and that cannot be ignored. In this sense, and regardless of the brevity of the time period, research case studies rarely serve as literal snapshots—as if everything occurred at the same exact moment. Important events, including the repetition of seemingly like (but not precisely alike) behavior, occur at different points in time. These events produce another large group of variables that can be an essential part of understanding a case.

Contextual conditions.

A third set of conditions comes from outside the case. Thus, in addition to investigating a case in depth and over time, a case study will include data about the contextual conditions surrounding the case. Indeed, one of the strengths of case study research is its ability to examine contextual conditions to the fullest relevant extent. For instance, if the case is an individual, data about the individual's family, work, and peer environments could be likely parts of a full case study. If the case is a small group or an organization, data about cultural, economic, social, and political conditions would be counterpart components.

Moreover, the boundary between a case and its context may not be sharp because real-world affairs do not readily fall into clear-cut categories. The ability to appreciate any such blurring as part of a case study is considered a strength of case study research. The contextual conditions even can lead to an entirely new

understanding of a case—an understanding that was not necessarily appreciated at the outset of the case study.

By comparison, other methods will likely treat any blurring between the focus of study and its context as, at best, an annoyance. In fact, other methods do not address contextual conditions with any great ease. For instance, other than a small number of covariates, experiments try to minimize the role of contextual conditions by controlling them out. Similarly, surveys cannot include too many questions about the context because of a similar limitation on the degrees of freedom. With these methods, adequate degrees of freedom are essential for carrying out statistical analyses—that is, having multiple data points for any given variable.

Summary of three conditions.

In sum, three conditions help to explain why the number of variables of interest in a research case study is likely to be enormous. In contrast, the number of data points, as represented by the individual cases, is likely to be small. As a practical matter, no single-case study, even if consisting of multiple cases, will be able to have the number of cases that would match, much less exceed in any realistic multiple, the number of variables.

This situation has far-reaching implications for case study design and analysis. The designs belong to a family of their own and should not be considered part of some other family of designs, such as quasi-experimental or qualitative research designs. Likewise, the analytic methods cannot employ most of the statistical methods conventionally used with other types of methods, because the case study's data points will have little or no variance.

Motives for Using Case Study Research in Psychology

Given the preceding constraints, case study research might at first appear to have limited value in psychology. In fact, however, case studies have been a common part of research in psychology and related fields for a long time. Why is this?

Exploration.

A quick but overly narrow response considers case study research as serving only an *exploratory* purpose—for example, to collect some data to determine whether a topic is worthy of further investigation and, if so, the research questions or the data collection procedures that might be most relevant in the subsequent research. In this exploratory mode, the only role for case study research is to serve as a prelude to a subsequent study, which may use a different method, such as a survey or an experiment.

Such an outdated hierarchy of research methods is surely incorrect (e.g., Bromley, 1986, p. 15). Among other problems with the hierarchical view is the fact that surveys and experiments also have exploratory modes. Conversely, case study research can be used in *descriptive, explanatory,* and *evaluative* modes, in addition to its use in an exploratory mode. Case study research can therefore produce its own findings and conclusions, without appealing to or engaging any other methods.

Description and explanation.

Descriptive case studies can serve many purposes, such as presenting a rarely encountered situation or one not normally accessible to researchers. For instance, referring again to clinical and neurological studies, a frequent type of descriptive case study that appears in the psychological literature will focus on a single individual who has exhibited some unusual syndrome or behavior worthy of note and continued investigation (see BOX A.3).

Box A.3: Descriptive Case Studies of People Who Are Unable to Recognize Human Faces

Especially valued in psychology are case studies of persons with unusual syndromes, such as *prosopagnosia*—a condition, usually induced by an unusual brain injury, whereby a person is unable to recognize or differentiate among the faces of other people. Not many more than 20 persons with prosopagnosia have been the subjects of separately published case studies over the past several decades (Busigny, Graf, Mayer, & Rossion, 2010).

One challenge of the case studies has been to show whether prosopagnosia is a specific disability or whether it is simply part of a more general inability to perform visual recognition tasks. The most common finding of the case studies, while still being descriptive, has been to demonstrate that patients with prosopagnosia can nevertheless carry out other recognition tasks (e.g., Busigny & Rossion, 2011). These case studies, along with research using the experimental method with normal adults and patients with penetrating brain injuries (Yin, 1978), in contemporary brain-imaging studies (McKone, Kanwisher, & Duchaine, 2007), and with nonhuman subjects such as monkeys (Leopold, Bondar, & Giese, 2006), have begun to support the possibility of a neurologically based capability that is face specific and not part of a broader syndrome. At the same time, researchers have not yet addressed how face recognition works and why such a special capability might exist.

As for the explanatory mode of case studies, a common example comes from the field of educational psychology. The example also points to the complementary relationships among different research methods

(see BOX A.4).

Box A.4: Using Case Studies in an Explanatory Mode

In K–12 education, the effectiveness of a curriculum can be studied by using an experimental (or quasi-experimental) design that compares two groups of students, under treatment and control conditions. The successful completion of such a study would address the statistical significance of the differences in outcomes between the two groups. However, the data are not likely to explain how and why the treatment actually produced the observed results. To seek such an explanation would require doing case study research (National Research Council, 2004, pp. 167–168).

The desired case study would carefully examine how the treatment had worked in actual classroom settings. The study would cover the implementation of the treatment and how it appeared to have altered classroom teaching and learning processes. Covering such a breadth of topics would likely require a variety of field-based evidence, such as classroom observations, teacher interviews about their instructional strategies, student interviews about their learning strategies, and data about potentially relevant school and community conditions. The needed explanation would be especially invaluable for later replicating the original experimental study or for disseminating the curriculum practice to other schools.

Many other examples of descriptive and explanatory case studies can be cited, whether the subjects of study are individuals, small groups, organizations, or more abstract entities such as "decisions."

Evaluation.

Evaluation may be considered a fourth motive for doing case study research in psychology (also see Appendix B of this book). One case study evaluated different teaching strategies in working with students with a special type of disability. The case study consisted of multiple cases and therefore was a multiple-case study (see BOX A.5).

Box A.5: An Evaluative Case Study Based on a Multiple-Case Study

One multiple-case study in psychology evaluated the effectiveness of teaching strategies by studying seven pairs of teachers and students (Miyahara & Wafer, 2004). The teaching strategies were intended to deal with a behavioral condition among the students, *developmental coordination disorder,* and each teacher-student pair was defined as a separate case. Following a within-case examination, the case study then used a between-pair replication logic to determine the relationship between the systematically alternating teaching strategies and a student's performance in each pair. The students' performance was assessed quantitatively—with a variety of psychometric measures over time.

On another evaluation topic, case study methods are frequently emulated in assessing academic environments, although the efforts are not formally organized or labeled as case study research (e.g., Wilson, 1982). These assessments take the form of the inquiries conducted by visiting committees, such as accreditation teams and state coordinating boards, who periodically review individual academic departments. The visiting committee focuses on the well-being and progress being made by a department and collects a variety of evidence (observations, interviews, and reviews of pertinent documents such as the department's publications) to arrive at both formative and summative judgments.

The preceding illustrations show how using case study research in these exploratory, descriptive, explanatory,

or evaluative modes highlights its potential value as an important part of a researcher's full methodological repertoire.

Caveats and Concerns in Doing Case Study Research

Despite its apparent applicability for studying many relevant real-world situations and addressing important research questions, case study research nevertheless has not achieved widespread recognition as a method of choice in psychology. Some people actually think of it as a method of last resort. Why is this?

Part of the notoriety comes from a lack of trust in the credibility of a case study researcher's procedures, which do not seem to protect sufficiently against such biases as a researcher seeming to find what she or he had set out to find. For instance, a researcher might have started a case study on the basis of a certain design, only to find it either unworkable or less promising than originally thought, following some initial data collection. In laboratory experiments, the remedy would be to cease collecting data under the original design, to revise it, and then to restart data collection afresh. The common criticism of case studies, unfortunately, is that the original data might not have been discarded but might have been reused, thereby creating an unwanted bias and flaw.

Another reason for the low regard for case study research may come from the use of qualitative data, which are presumed to be based on less robust measures than those used in collecting quantitative data. Qualitative data usually consist of narrative, not numeric, information, and many people may feel uncomfortable with such data because they lack an understanding of the procedures for collecting and assessing narrative data, such as discussed in Chapter 5 of the main text of this book.

Yet another discomfort with case study research comes from the perceived inability to generalize the findings from a case study to any broader level. The challenge of generalizing from case studies also has been discussed throughout the main text of this book, with the critical insight being the need to distinguish *analytic generalization* from *statistical generalization* (see Chapter 2 of this book).

When case studies are done poorly, all of the preceding caveats can come together in a negative way, potentially re-creating the prejudices against case study research. In contrast, more systematic and careful use of case study research can begin to overcome, if not dissipate, the concerns. For instance, and as has been suggested in Chapter 4 of this book, case studies should rely on multiple sources of evidence in a triangulating fashion that attempts to overcome the deficiencies and measures associated with any given source (see Chapter 4, "Triangulation: Rationale for using multiple sources of evidence"). Chapter 4 also discusses other techniques—such as creating a case study database and establishing a chain of evidence—that will help to increase the reliability of such data.

The preceding suggestions are just a few of the ways in which case study research practices can address the general concerns with the method. The fuller set of procedures covered by the six chapters of this book, covering research design, data collection, data analysis, and the role of theory in conducting case studies, all have been intended to buttress the use of case studies and to minimize the threats posed by the caveats.

Notes to Appendix A

1. For examples of teaching cases in psychology, see Golden (2004) and Dunbar (2005). For a broad discussion of teaching cases in business, law, and medical practices, see Garvin (2003). As a concrete example in psychology, the case studies appearing in the journal *Clinical Case Studies* fall into a "gray" area. The journal specifies a 12-point outline for all of its case studies. The 12 points range from the theoretical basis for treatment to the recommendations for clinicians and students, largely dealing with the clinical process (e.g., assessment, course of treatment, and access and barriers to care). In this sense, the case studies are mainly intended to support clinical practice. At the same time, a few or some of the case studies may cover topics of broader research interest, but none of the 12 points deals with the relevant methodological procedures—for example, the care in collecting data or the testing of rival explanations, much less efforts to generalize from the case study—that you might expect to be found in a research case study.

2. In comparative psychology, the large number of variables also can characterize single-subject research studies. For instance, independent variables may be deliberately manipulated at different ages of an animal's life cycle (Denenberg, 1982). The significant findings then often lie with the *interaction*s among the independent variables, producing yet more variables, challenging the independence of the variables, and therefore also requiring "a more complicated model than causality as a framework for interpreting [the] findings" (Denenberg, 1982, p. 22).

Appendix B

A Note on the Uses of Case Study Research in Evaluations

Evaluation textbooks have given case study evaluations mixed attention. One longstanding and major textbook has, over the course of seven editions, consistently ignored the topic entirely (Rossi, Lipsey, & Freeman, 2004). The textbook makes no mention of case study evaluations or of case study research, and *case study* does not appear in its glossary or index. A second well-received textbook (Mertens, 2015) omits case study evaluations from its initial review of a large number of evaluation models and processes. The textbook does recognize the case study but relegates it to a minor status—serving as but one of seven types under the qualitative research model and one of six types of data collection methods.

In contrast to the preceding two treatments, a third textbook, whose first author has been a leading evaluation scholar, gives considerable attention to the role of case study evaluations (Stufflebeam & Shinkfield, 2007). First, the textbook recognizes case study evaluations among 26 choices of evaluation methods (pp. 181–184). Then, after formally rating all the methods according to the standards of the American Evaluation Association, the textbook ranks case study evaluations as the fifth among the eight best approaches for designing and conducting evaluations (pp. 242–243).

Despite its spotty recognition by existing evaluation textbooks, case study research has a functional and legitimate role in doing evaluations. Two broad types of applications have frequently appeared in published evaluations. First, one or more case studies may serve as part of a larger evaluation (e.g., Cronbach & Associates, 1980, pp. 222–223; Datta, 1997, pp. 348–351). Second, case study research may serve as the primary method in an evaluation (e.g., Yin, 1994a, 1994b, 2000a). The first application has been the most common and has been used for a long time, but the second has been the more challenging and possibly more rewarding.

The purpose of the following note is to restate briefly the rationale for using case studies as an evaluation method and then to describe the two types of applications in greater detail.

Rationale for Using Case Studiesas an Evaluation Method

The use of case studies in doing evaluations emanates from the defining feature of case study research highlighted in Chapter 1 of this book: to gain an in-depth (and up-close) examination of a "case" within its real-world context. Compared with other evaluation methods such as surveys, experiments, and quasi-experiments, case study evaluations can (1) capture the complexity of a case, including relevant changes over time, and (2) attend fully to contextual conditions, including those that potentially interact with the case. However, within the evaluation field, case study research can perform an especially valuable additional function: (3) to *explain* how the "case," usually a planned intervention or an ongoing initiative, works.

Although other methods may assess the *outcomes* of an intervention or initiative, case study research has a strong advantage in examining the relevant *processes.* Despite these advantages, earlier references to case studies as an evaluation method received highly misleading recognition, including an initial confusion with the "posttest-only" design in quasi-experiments—an inappropriate connection to case study research that was later retracted by the original author (see Chapter 2, pp. 25–26 of this book).

Three procedures will help to make the best use of case study research as an evaluation tool. These procedures have been covered in detail in the main body of this book and are summarized briefly as follows.

First, to cover the complexity of a case and its context, a case study evaluation should rely on multiple sources of evidence, which may include interviews, documents, field observations, archival records, physical artifacts, and participant-observation. A case study evaluation should deliberately triangulate the evidence from these multiple sources, to confirm and corroborate the findings.

Second, the variety of evidence can include quantitative or qualitative data (or both) and can reflect *realist* or *relativist* (or *interpretivist* or *constructivist*) perspectives. These perspectives might even coexist in the same evaluation. For example, the quantitative part of a case study evaluation might assume a *realist* orientation (e.g., presenting the researcher's questions and interpretations about the case being studied), whereas the qualitative part might assume a contrasting, *relativist* (or *interpretivist*) orientation (e.g., presenting the case from participants' multiple perspectives and meanings—including the possibility of challenging the researcher's original assumptions).

Third, a case study evaluation also can benefit by having an initial though tentative theory about the case—for example, about how an initiative might work. The initial theory may be descriptive (e.g., hypothesizing about the expected characteristics of an initiative) or explanatory (e.g., conjecturing about the "how's" and "why's" of an initiative). When explanatory, a case study evaluation should explicitly entertain rival explanations as an integral part of its design and data collection procedures (see Donald Campbell's foreword to this book and Chapter 5, pp. 172–174 of this book).

All these features of case study research will be relevant in doing case study evaluations, represented by the two applications discussed next.

Case Studies as Part of a Larger Evaluation

In the first application, one or more case studies will be part of a larger evaluation. The larger evaluation will focus on an initiative—either a planned intervention or an ongoing operation—possibly assessing the effectiveness of the initiative by using an experimental or quasi-experimental design. As part of the design, some evaluations even may randomly assign entities to *treatment* and *control* conditions.

As part of the larger evaluation, the case studies will examine more closely one or more of the entities within these treatment and control conditions. The case studies will complement the larger evaluation method in the following way: Whereas the experimental or quasi-experimental portion will assess effectiveness by determining the *strength* of a relationship between an initiative and its outcomes, the case study portion will offer an *explanation* of the relationship, indicating how the initiative actually worked (or not) to produce the relevant outcomes. As noted in one authoritative review of numerous evaluations of K–12 mathematics curricula and their student achievement outcomes,

> Case studies provide insight into mechanisms at play that are hidden from a comparison of [outcomes, such as] student achievement, . . . as the actual treatment in a large-scale [experimental] study is often ill-defined. (National Research Council, 2004, p. 167)

For example, the larger evaluation might cover an innovative curriculum involving many classrooms. The experimental design for the larger evaluation might assign groups of classrooms to different treatment and control conditions, and the analysis would compare the outcomes of these conditions on some common measure—such as student achievement scores. A series of case studies might then deliberately focus on a few of the classrooms, selected from each of the experimental conditions, to examine the specific teaching and learning processes in this smaller number of classrooms. In this manner, the case studies could shed important light on how and why the innovative curriculum had worked (or not)—including the opportunity to understand any relevant contextual conditions that the larger evaluation might not have been able to cover.

The findings from the case study portion of a larger evaluation may be presented for each case separately or consolidated into a cross-case synthesis. However, the reporting of the case study results will likely be subordinate to the reporting of the findings from the larger evaluation—in the preceding example, the analysis of the student achievement scores across the different groups of classrooms.

You can imagine many other examples like the preceding one. In public health, the evaluation of a new health program might present clinical outcome data about the treatment results at many clinics and then use case study research to capture the experiences at a few individual clinics. In community development, the evaluation of a housing program might involve an economic study examining the relationship between a new initiative and the prices of the housing units, with the case study research covering a small group of households living in these units. In business research, an evaluation might be about an executive management program aimed at developing rising leaders: The larger evaluation might compare groups of participants and

nonparticipants through a survey, with the case study research focusing more intensely on a select and small number of people in both groups.

The diversity of the examples readily illustrates why this first application of case study research has been so common to evaluations and is likely to remain so. The combination of the larger evaluation design and the component case study or case studies also may be considered an example of a mixed-method study (Datta, 1997; Yin, 2006b).

At the same time, this application also comes with some caveats. One early caveat expressed about case study evaluations was that the case studies were likely to incur a high cost because of their labor intensiveness and lengthy time doing fieldwork (e.g., U.S. Government Accountability Office, 1990, p. 10). However, the amount of effort devoted to a case study need not be exorbitant. Furthermore, contemporary evaluations using strong experimental designs have by now shown that their costs can readily exceed those of doing any case studies.

Another caveat arises out of the nature of the evaluation team and teamwork. Because the case study research is a subsidiary and not the main part of an evaluation, the case study component may receive inadequate attention with regard to its design and conduct. The person(s) doing the case studies also may be inexperienced in case study research, producing rather mundane case studies with few insights. Conversely, the person(s) may be too experienced, producing case studies that may assume a unique character that does not suit the larger evaluation. In yet other situations, the person(s) doing the case studies may not communicate closely enough with those doing the larger evaluation, and the case studies may be (undesirably) treated as if part of a separate evaluation.

Case Studies as the Primary Evaluation Method

In the second application, the initiative being evaluated becomes the main case in a case study evaluation (e.g., Yin, 2013). The research on the main case may be supplemented with data from subordinate case studies of some lesser units of analyses (e.g., individual persons or groups), or with the use of other methods, quantitative or qualitative. This second application can pertain to at least four different situations—focusing on (1) the initiative being evaluated, (2) the outcomes of the initiative, (3) both an initiative and its outcomes, or (4) pursuing any of the three preceding variants but under more complex evaluation arrangements.

1.Focus on the initiative.

Many evaluations only aim to assess how (and whether) an initiative has been implemented. In this situation, case study research can serve as the primary evaluation method. Typically, this type of evaluation would be considered a *process evaluation*.

The case study would follow the implementation events, whether the case involved putting a newly planned initiative into place or analyzing an ongoing operation. The method would be especially appropriate if the case had complex coordinating or organizational features. In contrast, initiatives such as the testing of a new drug may only involve the one-time administration of a drug to a patient; in such situations, implementation would be considered rather straightforward, and a case study of the process would not be informative.

A case study evaluation can track the implementation process with fieldwork conducted throughout the implementation period. Alternatively, the evaluation data can come from open-ended queries of interviewees and the retrieval of documents that retrospectively cover earlier time periods, so that the case study can cover a calendar period that exceeds the elapsed time devoted to any fieldwork.

The case study evaluation would start by capturing the complexity of the initiative, noting the main and any subordinate units of analysis as well as the individuals, groups, or organizations carrying out the initiative. The case study would then proceed to examine and explain the "how" and "why" of the implementation process—tracking the actions that occurred over time as well as providing insights into the likely strength, timing, and fidelity of the initiative. Especially informative would be instances when implementation might have gone awry or taken some unexpected direction.

Process evaluations are typically valued when the tracking of outcomes is premature. In such a circumstance, the case study evaluation can play a *formative* role, with the findings from the evaluation helping to refine or redirect the initiative. For example, a major initiative might take one or more years to implement. A case study evaluation that is completed during the first year could provide useful formative feedback. The modified initiative could then be the subject of a subsequent process and outcome evaluation that might use another method in addition to the case study.

Alternatively, a case study evaluation may be the entirety of an evaluation when its main purpose is to clarify whether several like-named initiatives are in fact examples of the same intervention or are merely related types

(see BOX B.1). Such an evaluation could lay the foundation for subsequent evaluations by pressing them to clarify explicitly the type of initiative being evaluated.

Box B.1: Using a Case Study Evaluation as a Prelude to Subsequent Evaluations

A common evaluation problem arises when interventions having similar labels or closely resembling each other in fact differ and should not be unknowingly confused in the same evaluation. For instance, residents in many communities have organized themselves to operate formal citizen patrols, aimed at preventing crime. Understanding how such volunteer patrols work and whether they might create their own problems, such as becoming "vigilante groups," was the topic of an evaluation covering many such patrols in a variety of community settings (also see BOX 27, Chapter 5).

Case studies of 32 of these patrols revealed that, although they were like-named, there were actually three distinguishable types of patrols: patrols limited to buildings or residential compounds (*building patrols*), patrols of neighborhood streets more generally (*neighborhood patrols*), and patrols offering escort, delivery, or other community services (*service patrols*). Of the three, the neighborhood patrols were the most prone to accusations of vigilantism because patrol members cannot readily distinguish the residents who live in the neighborhood from those who do not (see Yin, 2012a, pp. 59–66). The findings laid important groundwork for later patrols' evaluations, forewarning evaluators of the need to clarify the type of patrol when selecting those to be evaluated.

2. Focus on outcomes.

In a second situation, a case study evaluation can focus entirely on an initiative's presumed outcomes (but without trying to link these outcomes to any specific initiative—a situation covered under Item 3 next).

First, the case study evaluation may be tasked with uncovering the full panoply of outcomes. For some initiatives, a breadth of outcomes may likely be relevant but not immediately evident. The case study could try to identify all the outcomes and also define the relevant performance measures and indicators for each outcome (Wholey, 1979, pp. 131–132).

Second, case study evaluations also can be useful when the outcomes of interest already have been identified. Now, the more challenging task would be to collect the outcome data and to draw conclusions about the direction or magnitude of the outcome trends (e.g., Schwandt, 2015b). For instance, an evaluation of *public school choice*—an initiative that permits students to choose their own schools rather than being assigned to them—assessed a choice initiative in a single school district by referencing two sets of outcomes: student achievement trends and whether the initiative had indeed expanded the range of educational opportunities for all parents and students, not just a select group of them (Teske, Schneider, Roch, & Marschall, 2000)[1]—see BOX B.2.

Box B.2: Conducting a Trend Analysis as Part of a Case Study Evaluation

An evaluation of a public school choice initiative relied heavily on a statistical analysis that examined annual 10th-grade student achievement scores in a single school district over a 22-year period (Teske et al., 2000). The analysis compared the district's scores with those from the city's other 32 districts, finding that the district's scores rose significantly, compared with the citywide averages, in both mathematics and reading.

None of the other districts had implemented a choice initiative. The full evaluation also went beyond the analysis of the student

achievement data, with important data coming from interviews of the district's officials and the retrieval of documentary evidence. These data supported a detailed description of the timing of the initiative and its full implementation, to define the subset of years within the 22-year period when the 10th-grade scores should have and did show the most improvement.

3. Focus on initiative and outcomes.

In a third situation, case study evaluations can attempt to explain the links between an initiative and its outcomes (Mark, 2008, p. 125; Shavelson & Towne, 2002, pp. 99–110).

In this respect, the role of a case study contrasts with that of evaluations using experimental designs—including those with randomized controlled trials (RCTs). The main strength of an RCT is to make a causal inference about the effectiveness of an initiative (e.g., Bickman & Rog, 2009). However, the RCT still remains a "black box" evaluation (Labin, 2008, p. 101) because it does not uncover the processes or mechanisms whereby an initiative might have produced its outcomes (e.g., Julnes & Rog, 2015). A case study evaluation would address this void.

In such a situation, the use of logic models (see Chapter 5, pp. 186–194 of this book) can assume a key role in designing the needed case study evaluation. At the outset of the evaluation, a logic model can be specified in hypothetical terms—that is, by defining the conceptually linked relationships whereby some initiative (*input*) is assumed to precede an immediate outcome of interest (*output*) that in turn is assumed to precede a desired later outcome (*impact*). Although logic models have largely been portrayed in a linear fashion, the reality of the relevant inputs, outputs, and impacts is that they can involve more complex and interactive relationships over time. Thus, a recursive and more dynamic rather than linear model may need to be rendered and become the subject of data collection and data analysis (e.g., see Dyehouse, Bennett, Harbor, Childress, & Dark, 2009). (Also see Tutorial 5.2 on the companion website at study.sagepub.com/yin6e for a graphic example of a more dynamic logic model.)

The relevant logic models should operationalize the links—that is, specify "how" the actions might produce the immediate outcome of interest, and so on, not just name them as correlates.[2] Even stronger logic models would contain rival explanations to compete with the initially hypothesized links. Such rivals can be especially critical because "the greater the latency between the onset of an intervention and changes in measured outcomes, the more difficult it is to rule out alternative causal explanations" (Julnes & Rog, 2015).

Although case study evaluations trying to explain how initiatives produce their outcomes are difficult to conduct, good examples of such evaluations can be cited, including these:

- The impact created by the closing of a military base in a small community (Bradshaw, 1999; also summarized in **Application 7** at the end of Chapter 5 of this book),
- The outcomes from a single revitalization initiative in a neighborhood (Galster et al., 2006),
- The outcomes from implementing a comprehensive mental health system for children (Bickman & Mulvaney, 2005),[3] and
- Student achievement trends associated with an education reform initiative in a large urban school district (Supovitz & Taylor, 2005).

As a final example, in another education evaluation, an important outcome finding was that parents did not sufficiently collaborate with their children on school assignments designed to take place in the home (Yin, 2016, pp. 197–198, 202–203). An initial explanation for this outcome was that the parents were too preoccupied or distracted, whether because they were working parents, had to attend to other siblings, or were overly burdened with housework. However, intensive analysis of field-based case study data suggested an alternative explanation. It derived from an appreciation of the fuller context surrounding the families—which happened to be a rural setting, with a decades-long declining economy, population, and employment opportunities: The parents feared that if their children excelled in school, the children would be more likely to gain the social mobility to leave the community after completing their schooling. The parents therefore did not want to help their children with their school assignments.

Application 11 at the end of this chapter contains a complete example of a case study evaluation, in this case about the implementation and effects of a campaign undertaken by a community coalition.

4. More complex evaluation arrangements.

Any of the preceding three variants can appear in more complex evaluation arrangements—those in which a single evaluation consists of one or more subevaluations. Most commonly, a broad but single programmatic initiative (in some policy or practice area such as health promotion, education, mental health services, neighborhood revitalization, or coordinated social services) may consist of a group of separately funded projects, each operating in a different locale. Moreover, each project even may be conducted by two or more collaborating organizations, working as a partnership that operates several of its own initiatives, thereby creating a multifaceted initiative.

The broad programmatic initiative could call for a single *program evaluation,* whereas the narrower but related projects could call for multiple *project evaluations.* The combined program and project evaluations typically represent a dual-level or multitiered arrangement (e.g., Allen & Black, 2006; Chaskin, 2003). In this arrangement, the single program evaluation is likely to be a case study. In one form, it might review and synthesize the work of the multiple project evaluations. In other forms, the case study evaluation might draw conclusions about the program as a whole by aggregating and analyzing a sample of the data from the project evaluations, with each project evaluation still attending to and analyzing its own full set of data by following its own method of choice—case studies or otherwise. Alternatively, the program evaluation could collaborate with the project evaluations, together defining the data collection and instruments to be used by the project evaluations.

An even more complicated version of the dual-level or multitiered arrangement can follow a phased approach, with the first phase consisting of a group of project evaluations assessing the implementation processes and a second phase consisting of an outcome-oriented program evaluation (e.g., Rog & Randolph, 2002). In this arrangement, only the program evaluation would collect outcome data, and only about those projects that had satisfactorily implemented their initiatives. The single program evaluation would therefore bear the brunt of assessing the effectiveness and long-term impact of the entire program. Examples of this last arrangement especially appeared under the auspices of the Substance Abuse and Mental Health Services Administration in

the U.S. Department of Health and Human Services in the 1980s and 1990s.

Summary

The preceding applications show how case study evaluations can apply to a variety of situations. In fact, the diversity of situations means that judgments about the usefulness, relevance, and quality of case study evaluations need to distinguish carefully among the situations. For instance, case study evaluations may be underappreciated when the only application is in serving as a minor part of a larger evaluation. In contrast, when a case study represents the primary evaluation method, it is likely to provide useful and usable information. Thus, despite the uneven recognition given to case study evaluations by various evaluation textbooks, case study research remains an integral part of the broader portfolio of evaluation methods.

Notes to Appendix B

1. A lengthy excerpt of the original article appears in an anthology of case studies in education (Yin, 2005, pp. 177–204).

2. Logic models are usually presented graphically as a series of boxes, with arrows connecting the boxes. Although evaluators typically define the contents of the boxes (usually a set of variables), they rarely operationalize the arrows—which are the explanatory links (see Yin, 2000a). Thus, the arrows represent the *mechanisms* or *processes* whereby different inputs produce the outputs, the outputs produce the outcomes, and so on. The challenge to case study evaluations is therefore to define these mechanisms and processes (also see Chapter 5, Figure 5.5, in the main text of the present book).

3. The authors of neither the neighborhood revitalization nor children's mental health evaluations (the second and third bulleted items in the list) identified their studies as case study evaluations. However, in both studies, as well as with the two other bulleted items, the evaluations collected field data about the main initiative (essentially treating it as the main "case" of interest), and all four of the studies drew their main conclusions at that level. Because all four studies engaged in extensive quantitative analyses at a lower, subunit level (economic indicators in the military base study, housing parcels in the neighborhood revitalization study, client behavior in the mental health services study, and student achievement in the education reform study), the methods used at these lesser levels consumed the bulk of the authors' reports.

Application #11: An Evaluation Case Study: *Evaluation of a Community Coalition's Campaign*

Case studies can be used to do evaluations. Typically, the case consists of the initiative (e.g., program, project, or innovation) that is the main subject of the evaluation. ***Application 11*** *contains a complete example of an evaluation, in this case about the implementation and effects of a campaign undertaken by a community coalition.*

I. A Community Coalition and Its Community

At the time of the evaluation, the community coalition was serving an extremely large urban area in Southern California. The area contained about 850,000 persons and had about 60 geographically identifiable neighborhoods. The coalition was an "umbrella organization," with a membership that largely consisted of other community organizations (e.g., houses of worship, service centers, tenant groups, parents associations) but that also had individual persons as members. **Application 11** summarizes the original case study.[1]

1. This application originally appeared, with minor edits, as Chapter 13 in Yin (2012a), Applications of Case Study Research. To conserve space, the original citations to source materials and interviews have been omitted throughout the text.

The coalition was one of 24 local organizations across the country whose drug abuse prevention activities had been the subject of separate evaluation case studies. The coalition served a predominantly African American community, with a 20% to 50% Hispanic population. Compared with the rest of the city and its surrounding county, the community suffered from the highest number of drug-related and juvenile drug-related arrests, as well as the highest rates of cocaine and heroin use, juveniles living in poverty, and housing vacancies.

Portions of the community had become a dumping ground for medical waste, and auto paint shops in alleys, recycling centers in the neighborhood, and blighted housing all had become breeding grounds for illicit behavior such as drug trafficking and prostitution. At one time, the local unemployment level was estimated at 47%. The area also was home to a large concentration of liquor stores, with 728 liquor licenses within a 40-square-mile area—a rate more than 10 times that of the rest of the county. Finally, a period of civil unrest had resulted in the destruction of housing and other property in the area, including more than 200 of the liquor stores.

II. Developing the Framework for Evaluating the Campaign

The community coalition took all these conditions as an opportunity to launch a formal campaign, known as its Rebuild Campaign. The goal was to rebuild the region but without the same concentration of liquor stores.

Although the coalition had existed for some time, the campaign served as the "case" in the case study evaluation, focusing on the 3-year period involving the campaign's activities. Thus, the purpose of the case study was to assess the campaign's efforts to reduce illicit and unruly behavior in the constituent neighborhoods.

Evaluation theorizing about a case: Activities and their outcomes.

The evaluation design called for explicit theorizing about the relationship between the processes and outcomes within the case as well as the role of contextual conditions. Such theorizing took the form of a logic model, which hypothesizes the potential causal links whereby an activity is claimed to produce (or not) the desired outcomes (e.g., Kellogg Foundation, 2006; Wholey, 1979; and see Chapter 5 in this book).

The typical logic model follows a sequence of

- *Inputs* (i.e., the monetary, staff, and other resources used to conduct activities),
- *Activities* (i.e., the implemented actions believed to produce the outcomes of interest),
- *Outputs* (i.e., the immediate results of the actions), and
- *Outcomes* (i.e., the desired substantive benefits emanating from the outputs and that ultimately justify the activities).

More complex cases will involve a multiply sequenced logic model—a repeated chain whereby one set of activities is said to lead to an early set of outputs and outcomes that become the stimuli for a later set of outcomes, and so on.

Theorizing about the campaign.

The assessment of the Rebuild Campaign involved a straightforward logic model. Resources (inputs) made available to the coalition enabled it to define the campaign and to implement a series of campaign actions (activities) to reduce unlawful and unruly public behavior (outputs), such as drug trafficking and other criminal activities. An actual reduction in illicit drug use—alcohol use by underaged persons as well as illicit drug use by persons of any age—was then the longer-term benefit being sought (outcome). How the coalition undertook its drug prevention actions, and the outputs and outcomes that followed, became the subject of the case study.

III. How the Campaign Was Carried Out

The data to be collected tried to track the campaign and its objectives by following the *input–activity–output–outcome* chain in the hypothesized logic model. Pilot testing and other preliminary probes helped to ensure that the data collection was well targeted and workable.

The campaign: A community organizing strategy.

The main data came from fieldwork that included intensive interviews of the coalition's staff, careful review of the campaign's key documents and records, and observations at campaign-sponsored events.

The data revealed a distinctive set of *inputs* and *activities* that involved the community coalition's resources and strategies. Unlike many other community organizations that provide an array of needed community services (e.g., afterschool activities at Boys & Girls Clubs and other community centers, or local health clinics to reach underserved residents), the campaign followed a *community organizing* model. According to this model, the goal is to mobilize residents so they can pressure known decision points in both political and policy arenas—for example, to voice support for (or opposition to)

- A political candidate,
- A legislative bill or proposal,
- A judicial case or ruling, or
- An intended regulation or initiative being adopted by the executive branch.

At the local level, the relevant venues for the community actions include a city council (or local legislative body), a state or local court, the mayor's or city manager's office, and local agencies. This manner of resident mobilization had been tested and documented many years earlier (e.g., Alinsky, 1946, 1971) and had been especially successful in supporting changes in the neighborhood politics in Chicago.

Using this strategy, an organization's objective is not to provide an array of services but to design and conduct "issues campaigns." An issue campaign may cover a series of events. Each event is intended to call attention to the issue as well as to strengthen the sponsoring organization—in this case the community coalition—through the recruitment of additional human and financial resources. The organization also may seek media coverage for each event as well as for the issue campaign as a whole. Each event represents an opportunity for a positive result or "win," and the campaign's goal is to cumulate "wins." Each "win" should further add to the reputation and strength of the sponsoring organization. Over time, the organization can gain power in a number of arenas: political and legislative matters, consumer affairs, and legal and regulatory rulings (including court rulings). The organization can even learn how to influence the timing and content of media coverage.

Contextually, the coalition took advantage of the period of social unrest during which housing and other property had been destroyed, including the closure of about 200 of the large number of liquor stores that had populated the community. The campaign was aimed at restoring and rebuilding the community, but without the same concentration of liquor stores.

Such liquor stores had contributed to community disorganization and disorder in at least two ways. First, the sale of beer, wine, and liquor had been accompanied by nuisance, disorderly, and other improper behavior in the area immediately surrounding the liquor stores. Second, some of the liquor store sites also had become unwanted hangouts, fostering criminal activity by attracting drug dealers and hosting drug transactions.

The coalition's actions.

The evaluation data showed how, a year following the social unrest, the coalition had launched its Rebuild Campaign with a series of community meetings, including a large conference addressing the problem of crack cocaine in the African American community. The conference drew more than 250 attendees, many of whom represented other organizations and not just themselves as individuals.

As an integral part of the coalition's strategy of community organizing, the coalition then embarked on a series of events, extending over a period of time. The actions included specific efforts at rallying residents, by conducting door-to-door surveys and encouraging residents to attend public meetings related to the rebuilding of the community and the restoring of the liquor stores. For instance,

the majority of the liquor stores had to have two or more hearings before they could have their licenses renewed and receive an approval to rebuild.

The coalition's leaders met with members of the mayor's office, the city planning commission, and the Alcohol Beverage Control (ABC) Board, discussing the conditions for reissuing the liquor licenses. At the initial meetings, the coalition presented a petition with 25,000 signatures, calling for a moratorium on the issuance of new licenses and rebuilding of any liquor stores until new regulations could be put into place.

Some of the desired regulations—such as tightening the penalties (i.e., length of suspension of a license) if a store had been found to have sold its products to minors—required new local legislation. New legislation also was needed to require that the rebuilt stores improve their operations by having security guards, better lighting, and better control over nuisance and criminal activity. In addition, the legislation would authorize the ABC Board to monitor these conditions and impose sanctions. Over the ensuing year, the coalition, therefore, trained residents to collect evidence, prepare briefings, and give public testimony in judicial and legislative hearings on these and related matters. Eventually, the city council passed the needed legislation.

Judicial involvement arose because the liquor store merchants questioned the city council's right to proceed on these matters, appealing to the local court to issue an injunction. The court denied the injunction. Later, the state appellate court had to deny a subsequent appeal to overturn the local court's ruling. In so doing, the appellate court added a strong statement in support of local government's right to deal with criminal nuisance problems. Other cities around the state subsequently used the local court's ruling to impose stricter conditions on the liquor stores in their own neighborhoods.

Throughout these events, the coalition urged residents to participate in all the associated hearings as well as to voice their support for the new regulations that would ensue. By now, the coalition had developed a strong relationship with the local media and with network and public television news reporters, leading to even broader public attention over the Rebuild Campaign.

As a separate but related activity, the coalition received a contract from the state department of health to support a related community action: identifying liquor stores that displayed posters and banners advertising the sale of tobacco products, potentially leading to the sale of such products to minors. The coalition organized meetings with the owners of such stores, calling attention to the owners' responsibilities and asking them to remove the materials from their storefronts and windows—especially those stores located near public schools or on students' routes walking to and from school.

IV. Results From the Campaign

Campaign outputs.

The immediate result (output) of the coalition's actions was to strengthen the ability of the ABC Board to impose new requirements when reissuing liquor store licenses. These conditions covered the tightened penalties and additional requirements discussed previously. The requirements included the need for the rebuilt liquor stores to have security guards (to reduce the undesirable behavior and potential criminal activities), improved lighting, and better control over their immediate premises. The ABC Board also now had strengthened powers to enforce the various requirements.

A subsequent but still early result (*output*) was the relicensing of a much smaller number of liquor stores. Because of the stringent requirements, only 56 of the originally closed 200 stores were granted new licenses. Thus, the stores not only were presumed to be safer and less troublesome but also were fewer in number.

The analysis of the flow of events, from the initiation of the Rebuild Campaign to the turnouts at hearings and the heightened media attention, all supported the conclusion that the coalition had been among the primary actors—if not *the* primary actor—in reducing the number of liquor stores and improving their quality. Rival claims—that events outside of the Rebuild Campaign were more instrumental in producing the observed results—did not exist. The centrality of the campaign was further recognized by requests for the coalition's guidance and assistance, coming from other communities, to pursue similar actions.

Longer-term outcomes.

Finally, the evaluation checked a longer-term result (*outcome*) by surveying 8th- and 10th-grade students at nearby schools about the students' use of alcohol and other illicit drugs, before and after a 2-year period. Similar data were collected from comparable students in a comparison community. The comparison was located in a geographically proximal area with similar economic and demographic characteristics, but not any kind of campaign similar to the one being evaluated.

Numerically, the comparison of reported drug use behavior, at both the 8th- and 10th-grade levels, showed no statistically significant changes in drug use between the youths in the coalition's community and the youths in the nearby community. Alcohol use had declined in the coalition's community, but the decline was not significantly different from that of the comparison community.

Conclusion.

At the completion of the data analysis, the case study's final conclusion was that the Rebuild Campaign had successfully led to important neighborhood changes in connection with drug-related behavior. However, at least during the period of the evaluation, these changes had not yet included changes in reported alcohol and other drug use by 8th- and 10th-grade students. The case study ended by noting that the final conclusion could, therefore, still be affected by further follow-up surveys of later 8th- and 10th-grade students, though such surveys were beyond the scope of the case study.

For Class Discussion or Written Assignment

Media Reports as Evidence

In some case studies, the "case"—as in the Rebuild Campaign in **Application 11**—may have involved a large amount of media coverage. Local as well as national television media then can become valuable sources of information in doing the case study. Thoroughly reviewing these sources can be of great use. For instance, at a minimum, they usually provide key background details about the relevant individuals and organizations. However, both media and journalistic accounts may have their own slant on events—such as what they choose to report and not report.

Many national and local media sources have increasingly depicted themselves as deliberately having partisan or other slants. For instance, these sources, along with their respective websites, are often known to have conservative or progressive leanings. You therefore need to be extremely wary of how the nature of the sources might influence the accuracy and trustworthiness of their information.

To get a firsthand experience with the potential variations among the sources, identify a highly public but controversial event that might have occurred recently in your community or university. Collect two or three renditions of this event from different news, Internet, or similar sources. Compare the renditions for possible differences in their coverage of the event, editorial slant and content, information presented about the event, or persons and other sources cited in the rendition. Draw a conclusion about whether and why the two or three renditions all need to be cited, to provide a fair account of the event, or whether the renditions are so similar that only one of them needs to be cited.

Brief Glossary of Terms Directly Related to Case Study Research

N.B.: An asterisk (*) after a glossary item denotes the availability of a slightly expanded discussion to be found in the collection of "Briefs" on the companion website at study.sagepub.com/yin6e. A double-asterisk (**) denotes the availability of two such "Briefs" in relation to the glossary item.

analytic generalization:*

The logic whereby case study findings can apply to situations beyond the original case study, based on the relevance of similar theoretical concepts or principles. Also see *external validity.* Contrast with *statistical generalization.*

case:*

Usually the main focus of inquiry in a case study—a concrete entity (e.g., a person or group, organization, community, program, process, policy, practice, or institution, or events such as decisions); totally abstract "cases" (e.g., arguments, claims, or propositions) can pertain to all social science methods and may be less distinctive as cases for case studies. Also see *embedded unit of analysis* and *unit of analysis*.

case boundaries:

The distinction between the conditions that fall within as opposed to outside of the case in a case study —such as the time period, social groups, organizations, geographic locations, or other relevant features —understanding that the boundaries can be fuzzy.

case record:

An administrative file, usually maintained in medicine, social work, law, and other practices but not in itself a research case study.

case study:

A social science research method, generally used to investigate a contemporary phenomenon in depth and in its real-world context.

case study database:

See *database.*

case study designs:

Four types of case studies, falling within a 2 × 2 typology (whether a case study is a single- or multiple-case study and whether it is holistic or consists of embedded units of analyses).

case study interview:

See *interview*.

case study protocol:

See *protocol.*

case study research:

A mode of social science inquiry using case studies as the primary research method; other common modes and their methods include survey research (surveys), experimental research (experiments), historical research (histories), and statistical research (statistical modeling).

chain of evidence:

The links showing how a case study's findings came from the collected data and in turn from the guidelines in the case study protocol and from the original research questions; the stronger the links, the greater the reliability of the findings. Also see *reliability*.

computer-assisted qualitative data analysis (CAQDAS) tools:

Computer software designed to support the coding and analysis of qualitative (e.g., narrative) data, including case study data.

construct validity:

The accuracy with which a case study's measures reflect the concepts being studied. Also see *triangulation*.

cross-case synthesis:*

Compiling data for a multiple-case study, by first examining the results for each individual case study and only then observing the pattern of results across the case studies; stronger syntheses would have sufficient data to entertain plausible rival cross-case patterns.

database:*

The systematic archive of all the data (field notes, documents, archival records, etc.) from a case study, assembled to enable the later retrieval of specific pieces of evidence, if needed, and sufficiently organized so that the entire archive can be reviewed by an outside reader, if desired. Also see *field notes.*

descriptive case study:*

A case study whose purpose is to describe a phenomenon (the "case") in its real-world context. Also see *explanatory case study* and *exploratory case study.*

embedded unit of analysis:

A unit lesser than and within the main case in a case study, from which data also are collected (e.g., household data within a neighborhood case study, individual employee data within an organization case study, or project data within a program case study). Also see *case* and *unit of analysis.*

explanation building:*

Analyzing case study data by using the data to develop an explanation about the occurrences in a case; stronger analyses would have sufficient data to entertain plausible rival explanations.

explanatory case study:

A case study whose purpose is to explain how or why some condition came to be (e.g., how or why some

sequence of events occurred or did not occur). Also see *descriptive case study* and *exploratory case study.*

exploratory case study:

A case study whose purpose is to identify the research questions or procedures to be used in a subsequent research study, which might or might not be a case study. Also see *descriptive case study* and *explanatory case study.*

external validity:

The extent to which the findings from a case study can be analytically generalized to other situations that were not part of the original study. Also see *analytic generalization.*

field notes:

The researcher's notes resulting from doing fieldwork; the notes may vary in formality from jottings to formal narratives and can include drawings and other nonverbal material produced by the researcher. Also see *database* and *fieldwork.*

fieldwork:*

A common way of collecting case study data, whereby interviews, documentary evidence, and direct observations all may be gathered in the real-world setting of the case being studied. Also see *field notes* and *participant-observation*.

informant:

A case study participant who is a subject of study but who also provides critical information or interpretations about the case and who may suggest other sources of evidence for the researcher to check. Also see *participant.*

internal validity:

The strength of the causal or other "how" and "why" inferences made in a case study, in part bolstered by showing the absence of spurious relationships and the rejection of rival hypotheses.

interview:*

Collecting responses (verbal and nonverbal) from a case study participant; case study interviews are usually conversational in nature and guided by the researcher's mental agenda, as the interview questions do not follow the exact same verbalization with every participant interviewed. Also known as "intensive interviews," "in-depth interviews," or "unstructured interviews."

literal replication:

Selecting two (or more) cases within a multiple-case study because the cases are predicted to produce similar findings. Also see *replication logic.* Contrast with *theoretical replication.*

logic model:*

A conceptual scheme specifying a sequence or set of events; analytically, the scheme specified prior to data collection can be compared with the post–data collection (i.e., empirically based) conceptual

scheme, and stronger analyses would have sufficient data to entertain plausible rival conceptual schemes.

mental line of inquiry:

The protocol questions and topics that drive a researcher's thinking (or "mental agenda") in collecting the data for a case study. For data collection involving interviews, contrast with *verbal line of inquiry*. Also see *protocol*.

mixed-methods study:*

A single study using both qualitative and quantitative methods, with a case study potentially being one of the methods.

multiple-case study:*

A case study organized around two or more case studies. Also see *single-case study*.

multiple sources of evidence:**

Data from different data collection sources (e.g., interviews, documents, direct observations, data archives, artifacts, and participant-observation), the aim being to strengthen findings through the convergence or triangulation of the data from two or more of these sources.

participant:

A person from whom case study data are collected, usually through interviews; one or more participants may later be asked to review the draft case study report. Also see *informant*.

participant-observation:

Case study data collection whereby a researcher observes but also becomes actively involved in the activities of the case being studied. Also see *fieldwork*.

pattern matching:

Analyzing case study data by comparing or matching the pattern based on the collected data with a pattern defined prior to data collection; stronger analyses would have sufficient data to entertain and test plausible rival matches.

pilot case study:

A preliminary case study aimed at developing, testing, or refining the planned research questions and procedures that will later be followed in the formal case study; the data from the pilot case study should not be reused in the formal case study.

protocol:*

The substantive guide for collecting the data for a case study, highlighted by a set of field questions to be addressed by the researcher and thereby representing the researcher's "mental agenda." Also see *mental line of inquiry*.

reliability:

The consistency and repeatability of producing a case study's findings. Also see *chain of evidence*.

replication logic:**

The logic for selecting the two or more cases in a multiple-case study. Also see *literal replication* and *theoretical replication.*

research design:

A plan that logically links the research questions with the evidence to be collected and then to be analyzed in a case study.

research question:

The driving force for most empirical studies; for case studies, the most appropriate research questions will likely start with a "how" or "why" query, as opposed to a "how many," "what," or "to what extent" query.

rival explanation:*

A plausible alternative—contrasting with a case study's originally stipulated propositions—for interpreting the data or findings in a case study (whether descriptive or explanatory).

single-case study:*

A case study organized around a single case; the case might have been chosen because it was a critical, common, unusual, revelatory, or longitudinal case. Also see *multiple-case study.*

statistical generalization:

The logic whereby the findings from a sample are claimed to apply to its universe, usually involving some statistical inference; not usually relevant for generalizing from case studies. Contrast with *analytic generalization.*

table shell:

The layout for a table, with the rows and columns defined but with (numeric or narrative) data not yet placed in the cells, hence still a "shell"; useful as a tool for identifying the data to be collected in a case study. See *word table*.

teaching-practice case study (or "teaching case"):

A case study used for pedagogical or professional training purposes, not to be confused with a case study conducted for research purposes.

theoretical replication:

Selecting two (or more) cases in a multiple-case study because the cases are predicted to have contrasting findings, but for anticipatable reasons. Also see *replication logic.* Contrast with *literal replication.*

time-series analysis:

Analyzing case study data by arraying the data according to time markers and comparing the trends against those originally stipulated prior to data collection; stronger analyses would have sufficient data to entertain and test plausible rival trends.

training (to do a case study):*

Preparation for understanding the key concepts and methodology for doing a planned case study; the training outcome should be a level of expertise sufficient to deal with the discretionary choices that may arise during data collection and other phases of the research.

triangulation:*

Determining the convergence of the data collected from different sources of evidence, to assess the strength of a case study finding and also to boost the *construct validity* of measures used in the case study.

unit of analysis:

The "case" in a case study. Also see *case* and *embedded unit of analysis*.

verbal line of inquiry:

The actual words used in querying a person during a case study interview. Contrast with *mental line of inquiry*.

word table:

A properly labeled data table that contains narrative text (words) rather than numerals inside the table's cells; the words represent a valuable form of case study data. See *table shell*.

References

Abercrombie, N., Hill, S., & Turner, B. S. (2006). The Penguin dictionary of sociology (5th ed.). London: Penguin.

Abma, T. A., & Stake, R. E. (2014). Science of the particular: An advocacy of naturalistic case study in health research. Qualitative Health Research, 24, 1150–1161.

Agranoff, R., & Radin, B. A. (1991). The comparative case study approach in public administration. Research in Public Administration, 1, 203–231.

Alinsky, S. D. (1946). Reveille for radicals. Chicago: University of Chicago Press.

Alinsky, S. D. (1971). Rules for radicals: A practical primer for realistic radicals. New York: Random House.

Alkin, M., Daillak, R., & White, P. (1979). Using evaluations: Does evaluation make a difference? Beverly Hills, CA: Sage.

Allen, M., & Black, M. (2006). Dual level evaluation and complex community initiatives: The local evaluation of Sure Start. Evaluation, 12, 237–249.

Allison, G. T. (1971). Essence of decision: Explaining the Cuban missile crisis. Boston: Little, Brown.

Allison, G. T., & Zelikow, P. (1999). Essence of decision: Explaining the Cuban missile crisis (2nd ed.). New York: Addison Wesley Longman.

American Anthropological Association. (2012). Statement on ethics: Principles of professional responsibilities. Arlington, VA: Author.

American Association of University Professors. (2013). Regulation of research on human subjects: Academic freedom and the institutional review board. Washington, DC: Author.

American Educational Research Association. (2011). Code of ethics. Washington, DC: Author.

American Evaluation Association. (2004). Guiding principles for evaluators. Washington, DC: Author.

American Political Science Association Committee on Professional Ethics, Rights, and Freedom. (2012). A guide to professional ethics in political science (2nd ed. rev.). Washington, DC: Author.

American Psychological Association. (2010). Ethical principles of psychologists and code of conduct. Washington, DC: Author.

American Sociological Association. (2008). Code of ethics and policies and procedures of the ASA committee on professional ethics. Washington, DC: Author.

Anaf, S., Drummon, C., & Sheppard, L. A. (2007). Combining case study research and systems theory as a heuristic model. Qualitative Health Research, 17, 1309–1315.

Anderson, R., Crabtree, B. F., Steele, D. J., & McDaniel, R. R., Jr.x (2005). Case study research: The view from complexity science. Qualitative Health Research, 15, 669–685.

Auerbach, C. F., & Silverstein, L. B. (2003). Qualitative data: An introduction to coding and analysis. New York: New York University Press.

Bachor, D. G. (2002). Increasing the believability of case study reports. The Alberta Journal of Educational Research, 48, 20–29.

Barlow, D. H., & Nock, M. (2009). Why can't we be more idiographic in our research? Perspectives on Psychological Science, 4, 19–21.

Barlow, D. H., Nock, M., & Hersen, M. (2008). Single-case experimental designs: Strategies for studying behavior (3rd ed.). New York: Pergamon.

Barzun, J., & Graff, H. (2003). The modern researcher (6th ed.). New York: Harcourt Brace Jovanovich.

Basu, O. N., Dirsmith, M. W., & Gupta, P. P. (1999). The coupling of the symbolic and the technical in an institutionalized context. American Sociological Review, 64, 506–526.

Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for

novice researchers. The Qualitative Report, 13, 544–559.

Beach, D., & Pedersen, R. B. (2013). Process-tracing methods: Foundations and guidelines. Ann Arbor: University of Michigan Press.

Becker, H. S. (1958). Problems of inference and proof in participant observation. American Sociological Review, 23, 652–660.

Becker, H. S. (1967). Whose side are we on? Social Problems, 14, 239–247.

Becker, H. S. (2007). Writing for social scientists: How to start and finish your thesis, book, or article (2nd ed.). Chicago: University of Chicago Press.

Becker, H. S. (1998). Tricks of the trade: How to think about your research while you're doing it. Chicago: University of Chicago Press.

Befani, B. (2013). Between complexity and generalization: Addressing evaluation challenges with QCA. Evaluation, 19, 269–283.

Bennett, A. (2010). Process tracing and causal inference. In H. Brady & D. Collier (Eds.), Rethinking social inquiry: Diverse tools, shared standards (2nd ed., pp. 207–219). Lanham, MD: Rowman & Littlefield.

Bennett, A., & Checkel, J. T. (Eds.). (2015). Process tracing: From metaphor to analytic tool. Cambridge, UK: Cambridge University Press.

Berends, M., & Garet, M. S. (2002). In (re) search of evidence-based school practices: Possibilities for integrating nationally representative surveys and randomized field trials to inform educational policy. Peabody Journal of Education, 77(4), 28–58.

Berman, P., & McLaughlin, M. (1974–1978). Federal programs supporting educational change (8 vols.). Santa Monica, CA: RAND.

Beverland, M., & Lindgreen, A. (2010). What makes a good case study? A positivist review of qualitative case research published in Industrial Marketing Management, 1971–2006. Industrial Marketing Management, 39(1), 59–63.

Bickman, L. (1987). The functions of program theory. In L. Bickman (Ed.), Using program theory in evaluation (pp. 5–18). San Francisco: Jossey-Bass.

Bickman, L., & Mulvaney, S. (2005). Large scale evaluation of children's mental health services: The Ft. Bragg and Stark County studies. In R. Steele & M. Roberts (Eds.), Handbook of mental health services for children, adolescents, and families (pp. 371–386). New York: Kluwer Academic/Plenum.

Bickman, L., & Rog, D. J. (Eds.). (2009). The Sage handbook of applied research methods (2nd ed.). Thousand Oaks, CA: Sage.

Blau, P. M. (1955). The dynamics of bureaucracy. Chicago: University of Chicago Press.

Boblin, S. L., Ireland, S., Kirkpatrick, H., & Robertson, K. (2013). Using Stake's qualitative case study approach to explore implementation of evidence-based practice. Qualitative Health Research, 23, 1267–1275.

Boruch, R. (2007, October 12). The flight of error: Scientific questions, evidential answers, and STEM education research. Paper presented at the workshop on STEM Education Research Designs: Conceptual and Practical Considerations for Planning Experimental Studies, Arlington, VA, sponsored by the University of California, Irvine.

Boruch, R., & Foley, E. (2000). The honestly experimental society. In L. Bickman (Ed.), Validity & social experimentation: Donald Campbell's legacy (pp. 193–238). Thousand Oaks, CA: Sage.

Bourgois, P. (2003). In search of respect: Selling crack in El Barrio (2nd ed.). Cambridge, England: Cambridge University Press.

Bradshaw, T. K. (1999). Communities not fazed: Why military base closures may not be catastrophic. Journal of the American Planning Association, 65, 193–206.

Brice, A. E., Wallace, S. E., & Brice, R. G. (2014). Alzheimer's dementia from a bilingual/bicultural perspective: A case study. Communication Disorders Quarterly, 36, 55–64.

Brinton, C. (1938). The anatomy of a revolution. Englewood Cliffs, NJ: Prentice Hall.

Bromley, D. B. (1986). The case-study method in psychology and related disciplines. Chichester, England:

Wiley.

Bruns, W. J., Jr. (1989). A review of Robert K. Yin's "Case study research: Design and methods." Journal of Management Accounting Research, 1, 157–163.

Bryk, A. S., Bebring, P. B., Kerbow, D., Rollow, S., & Easton, J. Q. (1998). Charting Chicago school reform: Democratic localism as a lever for change. Boulder, CO: Westview.

Bryman, A. (2012). Social research methods (4th ed.). Oxford, UK: Oxford University Press.

Burawoy, M. (1991). The extended case method. In M. Burawoy, A. Burton, A. A. Ferguson, K. J. Fox, J. Gamson, N. Gartrell, et al. (Eds.), Ethnography unbound: Power and resistance in the modern metropolis (pp. 271–287). Berkeley: University of California Press.

Burawoy, M. (2009). The extended case method: Four countries, four decades, four great transformations, and one theoretical tradition. Berkeley: University of California Press.

Burke, W. W. (2014). Organizational change: Theory and practice (4th ed.). Thousand Oaks, CA: Sage.

Busigny, T., Graf, M., Mayer, E., & Rossion, B. (2010). Acquired prosopagnosia as a face-specific disorder: Ruling out the general visual similarity account. Neuropsychologia, 48, 2051–2067.

Busigny, T., & Rossion, B. (2011). Holistic processing impairment can be restricted to faces in acquired prosopagnosia: Evidence from the global/local Navon effect. Journal of Neuropsychology, 5, 1–14.

Byrne, D. (2009). Case-based methods: Why we need them; what they are; how to do them. In D. Byrne & C. C. Ragin (Eds.), The Sage handbook of case-based methods (pp. 1–10). London: Sage.

Camic, P., Rhodes, J. E., & Yardley, L. (Eds.). (2003). Qualitative research in psychology: Expanding perspectives in methodology and design. Washington, DC: American Psychological Association.

Campbell, D. T. (1969). Reforms as experiments. American Psychologist, 24, 409–429.

Campbell, D. T. (1975). Degrees of freedom and the case study. Comparative Political Studies, 8, 178–193.

Campbell, D. T., & Stanley, J. (1966). Experimental and quasi-experimental designs for research. Chicago: Rand McNally.

Campbell, J. P., Daft, R. L., & Hulin, C. L. (1982). What to study: Generating and developing research questions. Beverly Hills, CA: Sage.

Carolan, C. M., Forbat, L., & Smith, A. (2015). Developing the DESCARTE model: The design of case study research in health care. Qualitative Health Research, 25, 1–14.

Carroll, J., & Johnson, E. (1992). Decision research: A field guide. Journal of the Operational Research Society, 43, 71–72.

Caulley, D. N. (2008). Making qualitative research reports less boring: The techniques of writing creative nonfiction. Qualitative Inquiry, 14, 424–449.

Caulley, D. N., & Dowdy, I. (1987). Evaluation case histories as a parallel to legal case histories. Evaluation and Program Planning, 10, 359–372.

Charmaz, K. (2015). Teaching theory construction with initial grounded theory tools: A reflection on lessons and learning. Qualitative Health Research, 25, 1610–1622.

Chaskin, R. J. (2001). Building community capacity: A definitional framework and case studies from a comprehensive community initiative. Urban Affairs Review, 36, 291–323.

Chaskin, R. J. (2003). The challenge of two-tiered evaluation in community initiatives. Journal of Community Practices, 11, 61–83.

Chassan, J. B. (1960). Statistical inference and the single case in clinical design. Psychiatry, 23, 173–184.

Chung, E. Y. (2017). The outcomes and impact of a post-earthquake rehabilitation program in China: A qualitative study. Qualitative Health Research, 27, 170–181.

Cochran, W. G., & Cox, G. M. (1992). Experimental designs (2nd ed.). New York: Wiley Classic Library Edition.

Cook, T. D., & Campbell, D. T. (1979). Quasi-experimentation: Design and analysis issues for field settings. Chicago: Rand McNally.

Cook, T. D., & Foray, D. (2007). Building the capacity to experiment in schools: A case study of the Institute of Educational Sciences in the US Department of Education. Economics of Innovation and New Technology, 16(5), 385–402.

Cook, T. D., & Payne, M. R. (2002). Objecting to the objections to using random assignment in educational research. In F. Mosteller & R. Boruch (Eds.), Evidence matters: Randomized trials in education research (pp. 150–178). Washington, DC: Brookings Institution Press.

Cooper, C. A., McCord, D. M., & Socha, A. (2011). Evaluating the college sophomore problem: The case of personality and politics. Journal of Psychology, 145, 23–37.

Cooper, H. M. (1984). The integrative research review. Beverly Hills, CA: Sage.

Cooper, H. M., Hedges, L. V., & Valentine, J. C. (Eds.). (2009). The handbook of research synthesis and meta-analysis (2nd ed.). New York: Russell Sage Foundation.

Corbin, J., & Strauss, A. (2015). Basics of qualitative research: Techniques and procedures for developing grounded theory (4th ed.). Thousand Oaks, CA: Sage.

Corkin, S. (2013). Permanent present tense: The unforgettable life of the amnesic patient, H.M. New York: Basic Books.

COSMOS Corporation. (1983). Case studies and organizational innovation: Strengthening the connection. Bethesda, MD: Author.

Crabtree, B. F., & Miller, W. L. (Eds.). (1999). Doing qualitative research (2nd ed.). Thousand Oaks, CA: Sage.

Crane, J. (Ed.). (1998). Social programs that work. New York: Russell Sage Foundation.

Creswell, J. W. (2014). Research design: Quantitative, qualitative, and mixed methods approaches (4th ed.). Thousand Oaks, CA: Sage.

Creswell, J. W., & Poth, C.N. (2017). Qualitative inquiry & research design: Choosing among five approaches (4th ed.). Thousand Oaks, CA: Sage.

Crewe, K. (2001). The quality of participatory design: The effects of citizen input on the design of the Boston Southwest Corridor. APA Journal, 67, 437–455.

Cronbach, L. J. (1975). Beyond the two disciplines of scientific psychology. American Psychologist, 30, 116–127.

Cronbach, L. J., & Associates. (1980). Toward reform of program evaluation: Aims, methods, and institutional arrangements. San Francisco: Jossey-Bass.

Dabbs, J. M., Jr. (1982). Making things visible. In J. Van Maanen, J. M. Dabbs Jr., & R. R. Faulkner (Eds.), Varieties of qualitative research (pp. 31–63). Beverly Hills, CA: Sage.

Dasgupta, M. (2015). Exploring the relevance of case study research. Vision, 19, 147–160.

Datta, L. (1997). Multimethod evaluations. In E. Chelimsky & W. R. Shadish (Eds.), Evaluation for the 21st century (pp. 344–359). Thousand Oaks, CA: Sage.

David, M. (Ed.). (2006a). Case study research (4 vols.). London: Sage.

David, M. (2006b). Editor's introduction. In M. David (Ed.), Case study research (pp. xxiii–xlii). London: Sage.

De Chesnay, M. (2017). Nursing research using case studies: Qualitative methods and designs in nursing. New York: Springer.

Denenberg, V. H. (1982). Comparative psychology and single-subject research. In A. E. Kazdin & A. H. Tuma (Eds.), Single-case research designs (No. 13, pp. 19–31). San Francisco: Jossey-Bass.

Denzin, N. K. (1978). The logic of naturalistic inquiry. In N. K. Denzin (Ed.), Sociological methods: A sourcebook. New York: McGraw-Hill.

Denzin, N. K., & Lincoln, Y. (1994). Handbook of qualitative research. Thousand Oaks, CA: Sage.

Derthick, M. (1972). New towns in-town: Why a federal program failed. Washington, DC: The Urban Institute.

DeWalt, K. M., & DeWalt, B. (2011). Participant observation: A guide for fieldworkers (2nd ed.). Lanham, MD: Altamira Press.

Dimartino, C., & Jessen, S. B. (2016). School brand management: The policies, practices, and perceptions of branding and marketing in New York City's public high schools. Urban Education, 51, 447–475.

Dion, D. (1998). Evidence and inference in the comparative case study. Comparative Politics, 30, 127–145.

Donmoyer, R. (1990). Generalizability and the single-case study. In E. W. Eisner & A. Peshkin (Eds.), Qualitative inquiry in education: The continuing debate (pp. 175–200). New York: Teachers College Press.

Dopson, S., Ferlie, E., Fitzgerald, L., & Locock, L. (2009). Team-based aggregation of qualitative case study data in health care contexts: Challenges and learning. In D. Byrne & C. C. Ragin (Eds.), The Sage handbook of case-based methods (pp. 454–466). London: Sage.

Downey, D. C. (2016). Disaster recovery in black and white: A comparison of New Orleans and Gulfport. American Review of Public Administration, 46, 51–74.

Drucker, P. F. (1986). The changed world economy. In P. F. Drucker (Ed.), The frontiers of management (pp. 21–49). New York: Dutton.

Dubois, A., & Gadde, L.-E. (2002). Systematic combining: An abductive approach to case research. Journal of Business Research, 55, 553–560.

Duff, P. A. (2008). Case study research in applied linguistics. New York: Routledge.

Dul, J., & Hak, T. (2008). Case study methodology in business research. Oxford, England: Butterworth-Heinemann.

Dunbar, G. (2005). Evaluating research methods in psychology: A case study approach. Malden, MA: Blackwell.

Duneier, M. (1999). Sidewalk. New York: Farrar, Straus, & Giroux.

Dyehouse, M., Bennett, D., Harbor, J., Childress, A., & Dark, M. (2009). A comparison of linear and systems thinking approaches for program evaluation illustrated using the Indiana Interdisciplinary GK-12. Evaluation and Program Planning, 32, 187–196.

Eckstein, H. (1975). Case study and theory in political science. In F. I. Greenstein & N. W. Polsby (Eds.), Strategies of inquiry (pp. 79–137). Reading, MA: Addison-Wesley.

Eilbert, K. W., & Lafronza, V. (2005). Working together for community health: A model and case studies. Evaluation and Program Planning, 28, 185–199.

Eisenhardt, K. M. (1989). Building theories from case study research. Academy of Management Review, 14, 532–550.

Ellet, W. (2007). The case study handbook: How to read, discuss, and write persuasively about cases. Boston: Harvard Business School Press.

Elman, C., Gerring, J., & Mahoney, J. (2016). Case study research: Putting the quant into the qual. Sociological Methods & Research, 45, 375–391.

Elmore, R. F., Abelmann, C. H., & Fuhrman, S. H. (1997). The new accountability in state education reform: From process to performance. In H. F. Ladd (Ed.), Holding schools accountable (pp. 65–98). Washington, DC: Brookings Institution.

Ericksen, J., & Dyer, L. (2004). Right from the start: Exploring the effects of early team events on subsequent project team development and performance. Administrative Science Quarterly, 49, 438–471.

Eriksson, P., & Kovalainen, A. (2008). Qualitative methods in business research. London: Sage.

Farquhar, J. D. (2012). Case study research for business. London: Sage.

Feagin, J. R., Orum, A. M., & Sjoberg, G. (Eds.). (1991). A case for the case study. Chapel Hill: University of North Carolina Press.

Fielding, N., & Warnes, R. (2009). Computer-based qualitative methods in case study research. In D. Byrne & C. C. Ragin (Eds.), The Sage handbook of case-based methods (pp. 270–288). London: Sage.

Fielding, N. G., & Lee, R. M. (1998). Computer analysis and qualitative research. Thousand Oaks, CA: Sage.

Fisher, R. A. (1990). Statistical methods, experimental design, and scientific inference. New York: Oxford University Press.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. Qualitative Inquiry, 12, 219–245.

Forrester, M. (2010). Introduction. In M. Forrester (Ed.), Doing qualitative research in psychology: A practical guide (pp. 1–12). London: Sage.

Fowler, F. J., Jr. (2014). Survey research methods (5th ed.). Newbury Park, CA: Sage.

Frieling, M. A., Lindenberg, S. M., & Stokman, F. N. (2014). Collaborative communities through coproduction: Two case studies. American Review of Public Administration, 44, 35–58.

Friese, S. (2012). Qualitative data analysis with ATLAS.ti. London: Sage.

Funnell, S. C., & Rogers, P. J. (2011). Purposeful program theory: Effective use of theories of change and logic models. San Francisco: Jossey-Bass.

Galster, G., Tatian, P., & Accordino, J. (2006). Targeting investments for neighborhood revitalization. Journal of the American Planning Association, 72, 457–474.

Gans, H. J. (1962). The urban villagers: Group and class in the life of Italian-Americans. New York: Free Press.

Garmezy, N. (1982). The case for the single case in research. In A. E. Kazdin & A. H. Tuma (Eds.), Single-case research designs (No. 13, pp. 5–17). San Francisco: Jossey-Bass.

Garson, G. D. (2016). Case study analysis and QCA. Kindle Book: Statistical Associates “Blue Book” Series Book 1.

Garvin, D. A. (2003, September–October). Making the case: Professional education for the world of practice. Harvard Magazine, 106(1), 56–107.

Gavaravarapu, S. M., & Pavarala, V. (2014). Communicating nutrition in community settings: Case studies in critical examination of institutional approaches in India. Journal of Creative Communications, 9, 23–48.

Geertz, C. (1973). The interpretation of cultures. New York: Basic Books.

George, A. L., & Bennett, A. (2005). Case studies and theory development in the social sciences. Cambridge: MIT Press.

Gerring, J. (2004). What is a case study and what is it good for? American Political Science Review, 98, 341–354.

Gibbert, M., Ruigrok, W., & Wicki, B. (2008). What passes as a rigorous case study? Strategic Management Journal, 29, 1465–1474.

Gilgun, J. F. (1994). A case for case studies in social work research. Social Work, 39, 371–380.

Glaser, B., & Strauss, A. (1967). The discovery of grounded theory: Strategies for qualitative research. Chicago: Aldine.

Glavey, S., & Haas, O. (2015). How to scale up rural sanitation service delivery in Indonesia. Washington, DC: The World Bank Group.

Golden, L. B. (2004). Case studies in marriage and family therapy (2nd ed.). Upper Saddle River, NJ: Pearson.

Gomm, R., Hammersley, M., & Foster, P. (2000). Case study and generalization. In R. Gomm, M. Hammersley, & P. Foster (Eds.), Case study method (pp. 98–115). London: Sage.

Gordon, M. E., Slade, L. A., & Schmitt, N. (1986). The "science of the sophomore" revisited: From conjecture to empiricism. Academy of Management Review, 11, 191–207.

Gottschalk, L. (1968). Understanding history: A primer of historical method. New York: Knopf.

Green, E. (2016). What are the most-cited publications in the social sciences (according to Google Scholar)? London School of Economics. Retrieved from http://blogs.lse.ac.uk/impactofsocialsciences/2016/05/12/what-are-the-most-cited-publications-in-the-socialsciences-according-to-google-scholar/

Grinnell, R. M., & Unrau, Y. A. (Eds.). (2008). Social work research and evaluation: Foundations of evidence-based practice. New York: Oxford University Press.

Gross, N., Bernstein, M., & Giacquinta, J. B. (1971). Implementing organizational innovations: A sociological analysis of planned educational change. New York: Basic Books.

Hahn, C. (2008). Doing qualitative research using your computer: A practical guide. Thousand Oaks, CA: Sage.

Hamel, J. (Ed.). (1992). The case study method in sociology [Whole issue]. Current Sociology, 40.

Hamilton, L., & Corbett-Whittier, C. (2013). Using case study in education research. Thousand Oaks, CA: Sage.

Hammond, P. E. (1968). Sociologists at work: Essays on the craft of social research. Garden City, NY: Doubleday.

Hanna, K. S. (2000). The paradox of participation and the hidden role of information. Journal of the American Planning Association, 66, 398–410.

Hanna, K. S. (2005). Planning for sustainability. Journal of the American Planning Association, 71, 27–40.

Hedrick, T., Bickman, L., & Rog, D. J. (1993). Applied research design. Newbury Park, CA: Sage.

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? Behavioral and Brain Sciences, 33, 61–83.

Herriott, R. E., & Firestone, W. A. (1983). Multisite qualitative policy research: Optimizing description and generalizability. Educational Researcher, 12, 14–19.

Hesse-Biber, S. N., & Johnson, R. B. (Eds.). (2015). The Oxford handbook of multimethod and mixed methods research inquiry. New York: Oxford University Press.

Hipp, J. R. (2007). Block, tract, and levels of aggregation: Neighborhood structure and crime and disorder as a case in point. American Sociological Review, 72, 659–680.

Hoaglin, D. C., Light, R. J., McPeek, B., Mosteller, F., & Stoto, M. A. (1982). Data for decisions: Information strategies for policymakers. Cambridge, MA: Abt Books.

Hooks, G. (1990). The rise of the Pentagon and U.S. state building: The defense program as industrial policy. American Journal of Sociology, 96, 358–404.

Jacobs, J. (1961). The death and life of great American cities. New York: Random House.

Jacobs, R. N. (1996). Civil society and crisis: Culture, discourse, and the Rodney King beating. American Journal of Sociology, 101, 1238–1272.

Jadad, A., & Enkin, M. W. (2007). Randomised controlled trials: Questions, answers, and musings (2nd ed.). London: BMJ Books.

Janesick, V. J. (2010). Oral history for the qualitative researcher: Choreographing the story. New York: Guilford.

Jett, C. C., Curry, K. M., & Vernon-Jackson, S. (2016). Let our students be our guides: McNair scholars "guide" three urban teacher educators on meeting the needs of culturally diverse learners. Urban Education, 51, 514–533.

Johansen, A. B., Tavakoli, S., Bjelland, I., & Lumley, M. (2017). Constructivist simultaneous treatment of borderline personality disorder, trauma, and addition comorbidity: A qualitative case study. Qualitative Health Research, 27, 236–248.

Johnson, R. B., & Onwuegbuzie, A. J. (2004). Mixed methods research: A research paradigm whose time has come. Educational Researcher, 33, 14–26.

Johnston, W. J., Leach, M. P., & Liu, A. H. (2000). Using case studies for theory testing in business-to-business research: The development of a more rigorous case study methodology. Advances in Business

Marketing and Purchasing, 9, 215–241.

Jorgensen, D. (1989). Participant observation: A methodology for human studies. Newbury Park, CA: Sage.

Julnes, G., & Rog, D. (2015). Actionable evidence in context: Contextual influences on adequacy and appropriateness of method choice in evaluation. In S. I. Donaldson, C. A. Christie, & M. M. Mark (Eds.), Credible evidence and actionable evidence: The foundation for rigorous and influential evaluations (pp. 221–258). Thousand Oaks, CA: Sage.

Kates, N. (2008). Integrating mental health services into primary care: The Hamilton FHT mental health program. In R. Kessler & D. Stafford (Eds.), Collaborative medicine case studies: Evidence in practice (pp. 71–82). New York: Springer.

Kaufman, H. (1981). The administrative behavior of federal bureau chiefs. Washington, DC: Brookings Institution.

Kazdin, A. E. (2003). Drawing valid inferences from case studies. In A. E. Kazdin (Ed.), Methodological issues and strategies in clinical research (3rd ed., pp. 655–669). Washington, DC: American Psychological Association.

Kazdin, A. E. (2010). Single-case research designs: Methods for clinical and applied settings (2nd ed.). New York: Oxford University Press.

Keating, W. D., & Krumholz, N. (Eds.). (1999). Rebuilding urban neighborhoods: Achievements, opportunities, and limits. Thousand Oaks, CA: Sage.

Kelling, G. L., & Coles, C. M. (1997). Fixing broken windows: Restoring order and reducing crime in our communities. New York: Simon & Schuster.

Kellogg Foundation. (2006). W. K. Kellogg Foundation logic model development guide. Battle Creek, MI: Author.

Kelly, A. E., & Yin, R. K. (2007). Strengthening structured abstracts for education research: The need for claim-based structured abstracts. Educational Researcher, 36, 133–138.

Kennedy, M. M. (1979). Generalizing from single case studies. Evaluation Quarterly, 3, 661–678.

Kessler, R., & Stafford, D. (Eds.). (2008). Collaborative medicine case studies: Evidence in practice. New York: Springer.

Kidder, L., & Judd, C. M. (1986). Research methods in social relations (5th ed.). New York: Holt, Rinehart & Winston.

Kindell, J., Sage, K., Wilkinson, R., & Keady, J. (2014). Living with semantic dementia: A case study of one family's experience. Qualitative Health Research, 24, 401–411.

Knowlton, L. W., & Phillips, C. C. (2013). The logic model guidebook: Better strategies for great results (2nd ed.). Thousand Oaks, CA: Sage.

Kohl-Arenas, E. (2016). The self-help myth: How philanthropy fails to alleviate poverty. Berkeley: University of California Press.

Kratochwill, T. R. (Ed.). (1978). Single subject research: Strategies for evaluating change. New York: Academic Press.

Krueger, R. A., & Casey, M. A. (2015). Focus groups: A practical guide for applied research (5th ed.). Thousand Oaks, CA: Sage.

Labin, S. N. (2008). Research syntheses: Toward broad-based evidence. In N. L. Smith & P. R. Brandon (Eds.), Fundamental issues in evaluation (pp. 89–110). New York: Guilford.

Lavrakas, P. J. (1993). Telephone survey methods (2nd ed.). Newbury Park, CA: Sage.

Lawrence-Lightfoot, S., & Davis, J. H. (1997). The art and science of portraiture. San Francisco: Jossey-Bass.

Lee, E., Mishna, F., & Brennenstuhl, S. (2010). How to critically evaluate case studies in social work. Research on Social Work Practice, 20, 682–689.

Lempert, L. B. (2011). Asking questions of the data: Memo writing in the grounded theory tradition. In A. Bryant & K. Charmaz (Eds.), The Sage handbook of grounded theory (pp. 245–264). Thousand Oaks, CA: Sage.

Leopold, D. A., Bondar, I. V., & Giese, M. A. (2006). Norm-based face encoding by single neurons in the monkey inferotemporal cortex. Nature, 442, 572–575.

Leppäaho, T., Plakoyiannaki, E., & Dimitratos, P. (2015). The case study in family business: An analysis of current research practices and recommendations. Family Business Review, 29(2), 1–15.

Liebow, E. (1967). Tally's corner. Boston: Little, Brown.

Lijphart, A. (1975). The comparable-cases strategy in comparative research. Comparative Political Studies, 8, 158–177.

Lincoln, Y. S., & Guba, E. G. (1985). But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. In D. D. Williams (Ed.), Naturalistic evaluation (pp. 73–84). San Francisco: Jossey-Bass.

Lipset, S. M., Trow, M., & Coleman, J. (1956). Union democracy: The inside politics of the International Typographical Union. New York: Free Press.

Lipsey, M. W. (1990). Design sensitivity: Statistical power for experimental research. Thousand Oaks, CA: Sage.

Lipsey, M. W. (1992). Meta-analysis in evaluation research: Moving from description to explanation. In H. T. Chen & P. Rossi (Eds.), Using theory to improve program and policy evaluations (pp. 229–241). New York: Greenwood.

Llewellyn, K. N. (1948). Case method. In E. Seligman & A. Johnson (Eds.), Encyclopedia of the social sciences. New York: Macmillan.

Lynd, R. S., & Lynd, H. M. (1929). Middletown: A study in modern American culture. New York: Harcourt Brace Jovanovich.

Lynd, R. S., & Lynd, H. M. (1937). Middletown in transition: A study in cultural conflicts. New York: Harcourt Brace Jovanovich.

Magaziner, I. C., & Patinkin, M. (1989). The silent war: Inside the global business battles shaping America's future. New York: Random House.

Mark, M. M. (2008). Building a better evidence base for evaluation theory. In N. L. Smith & P. R. Brandon (Eds.), Fundamental issues in evaluation (pp. 111–134). New York: Guilford.

Markus, M. L. (1983). Power, politics, and MIS implementation. Communications of the ACM, 26, 430–444.

Marshall, C., & Rossman, G. B. (2016). Designing qualitative research (6th ed.). Thousand Oaks, CA: Sage.

Marwell, N. P. (2007). Bargaining for Brooklyn: Community organizations in the entrepreneurial city. Chicago: University of Chicago Press.

McAdams, D. R. (2000). Fighting to save our urban schools . . . and winning! Lessons from Houston. New York: Teachers College Press.

McClintock, C. (1985). Process sampling: A method for case study research on administrative behavior. Educational Administration Quarterly, 21, 205–222.

McKone, E., Kanwisher, N., & Duchaine, B. C. (2007). Can generic expertise explain special processing for faces? Trends in Cognitive Science, 11, 8–15.

McLeod, J. (2010). Case study research in counselling and psychotherapy. London: Sage.

McNemar, Q. (1946). Opinion-attitude methodology. Psychological Bulletin, 43, 289–374.

Mertens, D. (2015). Research and evaluation in education and psychology (4th ed.). Thousand Oaks, CA: Sage.

Merton, R. K., Fiske, M., & Kendall, P. L. (1990). The focused interview: A manual of problems and procedures (2nd ed.). New York: Free Press.

Meyer, C. B. (2001). A case in case study methodology. Field Methods, 13, 329–352.

Michel, J.-B., Shen, Y. K., Aiden, A. P., Veres, A., Gray, M. K., The Google Books Team, et al. (2010). Quantitative analysis of culture using millions of digitized books. Science, 331, 176–182.

Miles, M. B., & Huberman, A. M. (1994). Qualitative data analysis: An expanded sourcebook. Thousand Oaks, CA: Sage.

Mills, A. J., Durepos, G., & Wiebe, E. (Eds.). (2010a). Encyclopedia of case study research (2 vols.). Los Angeles: Sage.

Mills, A. J., Durepos, G., & Wiebe, E. (2010b). Introduction. In A. J. Mills, G. Durepos, & E. Wiebe (Eds.), Encyclopedia of case study research (pp. xxxi–xxxvi). Thousand Oaks, CA: Sage.

Mitchell, J. C. (1983). Case and situation analysis. Sociological Review, 31, 187–211.

Miyahara, M., & Wafer, A. (2004). Clinical intervention for children with developmental coordination disorder: A multiple case study. Adapted Physical Activity Quarterly, 21, 281–300.

Mookherji, S., & LaFond, A. (2013). Strategies to maximize generalization from multiple case studies: Lessons from the Africa Routine Immunization System Essentials (ARISE) project. Evaluation, 19, 284–303.

Morgan, D. L., & Morgan, R. K. (2009). Single-case research methods for the behavioral and health sciences. Thousand Oaks, CA: Sage.

Morgan, S. J., Pullon, S. R. H., MacDonald, L. M., McKinlay, E. M., & Gray, B. V. (2016). Case study observational research: A framework for conducting case study research where observation data are the focus. Qualitative Health Research, 26, 1–9.

Morris, L. L., Fitz-Gibbon, C. T., & Freeman, M. E. (1987). How to communicate evaluation findings (2nd ed.). Beverly Hills, CA: Sage.

Mosteller, F., & Wallace, D. L. (1984). Applied Bayesian and classical inference: The case of "The Federalist" papers (2nd ed.). New York: Springer Verlag.

Mulroy, E. A., & Lauber, H. (2004). A user-friendly approach to program evaluation and effective community interventions for families at risk of homelessness. Social Work, 49, 573–586.

Murray, D. M. (1998). Design and analysis of group-randomized trials. New York: Oxford University Press.

Nachmias, C., & Nachmias, D. (2014). Research methods in the social sciences (8th ed.). New York: St. Martin's.

Nathan, I., Lund, J. F., Gausset, Q., & Andersen, S. K. (2007). On the promise of devolution: Overcoming the constraints of natural resource management in a village in Tanzania. Journal of Transdisciplinary Environmental Studies, 6, 1–20.

National Research Council. (2003). Protecting participants and facilitating social and behavioral sciences research. Washington, DC: National Academies Press.

National Research Council. (2004). On evaluating curricular effectiveness: Judging the quality of K–12 mathematics evaluations. Washington, DC: National Academies Press.

Naumes, W., & Naumes, M. J. (2011). The art & craft of case writing (3rd ed.). Thousand Oaks, CA: Sage.

Nesman, T. M., Batsche, C., & Hernandez, M. (2007). Theory-based evaluation of a comprehensive Latino education initiative: An interactive evaluation approach. Evaluation and Program Planning, 30, 267–281.

Neuman, S. B., & Celano, D. (2001). Access to print in low-income and middle-income communities: An ecological study of four neighborhoods. Reading Research Quarterly, 36, 8–26.

Neustadt, R. E., & Fineberg, H. (1983). The epidemic that never was: Policy-making and the swine flu affair. New York: Vintage.

Office for Human Research Protections, U.S. Department of Health & Human Services (2015, September 8). Notice of proposed rulemaking. Rockville, MD: Author.

Ohemeng, F. L. K., & Owusu, F. Y. (2015). Implementing a revenue authority model of tax administration in Ghana: An organizational learning perspective. American Review of Public Administration, 45, 343–364.

O'Reilly, K. (2012). Ethnographic methods (2nd ed.). Abingdon, UK: Routledge.

Parsons, S. A. (2012). Adaptive teaching in literacy instruction: Case studies of two teachers. Journal of Literacy Research, 44, 149–170.

Patton, M. Q. (2015). Qualitative research and evaluation methods (4th ed.). Thousand Oaks, CA: Sage.

Peters, T. J., & Waterman, R. H., Jr. (2004). In search of excellence. New York: Harper & Row. (Original work published 1982)

Peterson, K. A., & Bickman, L. (1992). Using program theory in quality assessments of children's mental health services. In H. T. Chen & P. Rossi (Eds.), Using theory to improve program and policy evaluations (pp. 165–176). New York: Greenwood.

Peterson, R. K. (2001). On the use of college students in social science research: Insights from a second-order meta-analysis. Journal of Consumer Research, 28, 450–461.

Philliber, S. G., Schwab, M. R., & Samsloss, G. (1980). Social research: Guides to a decision-making process. Itasca, IL: Peacock.

Phillips, R., & Pittman, R. H. (2009). A framework for community and economic development. In R. Phillips & R. H. Pittman (Eds.), An introduction to community development (pp. 3–19). Abingdon, England: Routledge.

Piekkari, R., Welch, C., & Paavilainen, E. (2009). The case study as disciplinary convention: Evidence from international business journals. Organizational Research Methods, 12, 567–589.

Platt, J. (1992). "Case study" in American methodological thought. Current Sociology, 40, 17–48.

Pole, C., & Hillyard, S. (2016). Doing fieldwork. London: Sage.

Prescott, H. M. (2002). Using the student body: College and university students as research subjects in the United States during the twentieth century. Journal of the History of Medicine, 57, 3–38.

Pressman, J. L., & Wildavsky, A. (1973). Implementation: How great expectations in Washington are dashed in Oakland. Berkeley: University of California Press.

Ragin, C. C. (1992). Introduction: Cases of "What is a case?" In C. C. Ragin & H. S. Becker (Eds.), What is a case? Exploring the foundations of social inquiry (pp. 1–17). New York: Cambridge University Press.

Ragin, C. C. (2014). The comparative method: Moving beyond qualitative and quantitative strategies. Berkeley: University of California Press. (Original work published 1987)

Ragin, C. C., & Becker, H. S. (Eds.). (1992). What is a case? Exploring the foundations of social inquiry. New York: Cambridge University Press.

Raizen, S. A., & Britton, E. D. (Eds.). (1997). Bold ventures (3 vols.). Dordrecht, The Netherlands: Kluwer Academic.

Randolph, J. J., & Eronen, P. J. (2007). Developing the Learner Door: A case study in youth participatory program planning. Evaluation and Program Planning, 30, 55–65.

Redman, E. (2001). The dance of legislation. Seattle: University of Washington Press. (Original work published 1973)

Rihoux, B., & Lobe, B. (2009). The case for qualitative comparative analysis (QCA): Adding leverage for thick cross-case comparison. In D. Byrne & C. C. Ragin (Eds.), The Sage handbook of case-based methods (pp. 222–242). London: Sage.

Rihoux, B., & Ragin, C. C. (2009). Configurational comparative methods: Qualitative comparative analysis and related techniques. Thousand Oaks, CA: Sage.

Rivera, L. A. (2008). Managing "spoiled" national identity: War, tourism, and memory in Croatia. American Sociological Review, 73, 613–634.

Robben, A. C. G. M., & Sluka, J. A. (Eds.). (2012). Ethnographic fieldwork: An anthropological reader (2nd ed.). Malden, MA: Blackwell.

Robertson, L. C., Knight, R. T., Rafal, R., & Shimamura, A. P. (1993). Cognitive psychology is more than single-case studies. Journal of Experimental Psychology, 19, 710–717.

Rog, D. J., & Huebner, R. B. (1992). Using research and theory in developing innovative programs for homeless individuals. In H. T. Chen & P. Rossi (Eds.), Using theory to improve program and policy evaluations (pp. 129–144). New York: Greenwood.

Rog, D. J., & Randolph, F. I. (2002). A multisite evaluation of supported housing: Lessons from cross-site

collaboration. New Directions for Evaluation, 94, 61–72.

Rogers, E. M., & Larsen, J. K. (1986). Silicon Valley fever: Growth of high-technology culture. New York: Basic Books.

Rogers, P. J. (2000). Program theory: Not whether programs work but how they work. In D. L. Stufflebeam, G. F. Madaus, & T. Kelleghan (Eds.), Evaluation models: Viewpoints on educational and human services evaluation (2nd ed., pp. 209–232). Boston: Kluwer.

Rogowski, R. (2010). How inference in the social (but not the physical) sciences neglects theoretical anomaly. In H. Brady & D. Collier (Eds.), Rethinking social inquiry: Diverse tools, shared standards (2nd ed., pp. 89–97). Lanham, MD: Rowman & Littlefield.

Rolls, G. (2015). Classic case studies in psychology (3rd ed.). London: Hodder Education.

Rosenbaum, D. P. (Ed.). (1986). Community crime prevention: Does it work? Thousand Oaks, CA: Sage.

Rosenbaum, P. R. (2002). Observational studies (2nd ed.). New York: Springer.

Rosenbaum, P. R. (2009). Design of observational studies. New York: Springer.

Rosenthal, R. (1966). Experimenter effects in behavioral research. New York: Appleton-Century-Crofts.

Rossi, P., Lipsey, M. W., & Freeman, H. E. (2004). Evaluation: A systematic approach (7th ed.). Thousand Oaks, CA: Sage.

Rubin, A., & Babbie, E. (2014). Research methods for social work (8th ed.). Belmont, CA: Brooks/Cole.

Rubin, H. J., & Rubin, I. S. (2011). Qualitative interviewing: The art of hearing data (3rd ed.). Thousand Oaks, CA: Sage.

Ruddin, L. P. (2006). You can generalize stupid! Social scientists, Bent Flyvbjerg, and case study methodology. Qualitative Inquiry, 12, 797–812.

Rule, P., & John, V. M. (2015). A necessary dialogue: Theory in case study research. International Journal of

Qualitative Methods, 14, 1–11.

Runeson, P., Höst, M., Rainer, A., & Regnell, B. (2012). Case study research in software engineering: Guidelines and examples. Hoboken, NJ: Wiley.

Ryan, K. E., Gandha, T., Culbertson, M., & Carlson, C. (2014). Focus group evidence: Implications for design and analysis. American Journal of Evaluation, 35, 328–345.

Saldaña, J. (2016). The coding manual for qualitative researchers (3rd ed.). London: Sage.

Schatzman, L., & Strauss, A. (1973). Field research. Englewood Cliffs, NJ: Prentice Hall.

Schein, E. (2003). DEC is dead, long live DEC: Lessons on innovation, technology, and the business gene. San Francisco: Berrett-Koehler.

Schlesselman, J. J. (1982). Case-control studies: Design, conduct, analysis. New York: Oxford University Press.

Schmitt, C., & Goebel, V. (2015). Experiences of high-ability high school students: A case study. Journal of the Education of the Gifted, 38, 428–446.

Schorr, L. B. (1997). Common purpose: Strengthening families and neighborhoods to rebuild America. New York: Anchor.

Schramm, W. (1971, December). Notes on case studies of instructional media projects. Working paper for the Academy for Educational Development, Washington, DC.

Schwandt, T. A. (2015a). The Sage dictionary of qualitative inquiry (4th ed.). Los Angeles: Sage.

Schwandt, T. A. (2015b). Credible evidence of effectiveness necessary but not sufficient for evaluation. In S. I. Donaldson, C. A. Christie, & M. M. Mark (Eds.), Credible and actionable evidence: The foundation for rigorous and influential evaluations (pp. 259–274). Thousand Oaks, CA: Sage.

Scriven, M. (2015). Demythologizing causation and evidence. In S. I. Donaldson, C. A. Christie, & M. M. Mark (Eds.), Credible and actionable evidence: The foundation for rigorous and influential evaluations (pp.

113–132). Thousand Oaks, CA: Sage.

Sears, D. O. (1986). College sophomores in the laboratory: Influences of a narrow database on social psychology's view of human nature. Journal of Personality and Social Psychology, 51, 515–530.

Selznick, P. (1980). TVA and the grass roots: A study of politics and organization. Berkeley: University of California Press. (Original work published 1949)

Shavelson, R., & Towne, L. (Eds.). (2002). Scientific research in education. Washington, DC: National Academies Press.

Sidman, M., Soddard, L. T., & Mohr, J. P. (1968). Some additional quantitative observations of immediate memory in a patient with bilateral hippocampal lesions. Neuropsychologia, 6, 245–254.

Sidowski, J. B. (Ed.). (1966). Experimental methods and instrumentation in psychology. New York: Holt, Rinehart & Winston.

Silver, C., & Lewins, A. (2014). Using software in qualitative research: A step-by-step guide (2nd ed.). London: Sage.

Silverman, D. (2010). Doing qualitative research: A practical handbook (3rd ed.). Thousand Oaks, CA: Sage.

Small, M. L. (2004). Villa Victoria: The transformation of social capital in a Boston barrio. Chicago: University of Chicago Press.

Small, M. L. (2009). "How many cases do I need?" On science and the logic of case selection in field-based research. Ethnography, 10, 5–38.

Smith, J. (Ed.). (2015). Qualitative psychology: A practical guide to research methods (3rd ed.). London: Sage.

Speiglman, R., & Spear, P. (2009). The role of institutional review boards: Ethics: Now you see them, now you don't. In D. M. Mertens & P. E. Ginsberg (Eds.), The handbook of social research ethics (pp. 121–134). Thousand Oaks, CA: Sage.

Stake, R. E. (2005). Qualitative case studies. In N. K. Denzin & Y. S. Lincoln (Eds.), The Sage handbook of qualitative research (3rd ed., pp. 443–466). Thousand Oaks, CA: Sage.

Stake, R. E. (2006). Multiple case study analysis. New York: Guilford.

Standerfer, N. R., & Rider, J. (1983). The politics of automating a planning office. Planning, 49, 18–21.

Stein, H. (1952). Case method and the analysis of public administration. In H. Stein (Ed.), Public administration and policy development (pp. xx–xxx). New York: Harcourt Brace Jovanovich.

Stoecker, R. (1991). Evaluating and rethinking the case study. The Sociological Review, 39, 88–112.

Stufflebeam, D. L., & Shinkfield, A. J. (2007). Evaluation: Theory, models, and applications. San Francisco: Jossey-Bass.

Sudman, S., & Bradburn, N. M. (1982). Asking questions: A practical guide to questionnaire design. San Francisco: Jossey-Bass.

Supovitz, J. A., & Taylor, B. S. (2005). Systemic education evaluation: Evaluating the impact of systemwide reform in education. American Journal of Evaluation, 26, 204–230.

Sutton, R. I., & Staw, B. M. (1995). What theory is not. Administrative Science Quarterly, 40, 371–384.

Szanton, P. (1981). Not well advised. New York: Russell Sage Foundation and The Ford Foundation.

Tawney, J. W., & Gast, D. L. (1984). Single subject research in special education. Columbus, OH: Merrill.

Teske, P., Schneider, M., Roch, C., & Marschall, M. (2000). Public school choice: A status report. In D. Ravitch & J. P. Viteritti (Eds.), Lessons from New York City schools (pp. 313–338). Baltimore: Johns Hopkins University Press.

Thacher, D. (2006). The normative case study. American Journal of Sociology, 111, 1631–1676.

Towl, A. R. (1969). To study administrations by cases. Boston: Harvard University Business School.

Trochim, W. (1989). Outcome pattern matching and program theory. Evaluation and Program Planning, 12, 355–366.

U.S. Government Accountability Office, Program Evaluation and Methodology Division. (1990). Case study evaluations. Washington, DC: Government Printing Office.

U.S. National Commission on Neighborhoods. (1979). People, building neighborhoods. Washington, DC: Government Printing Office.

U.S. Office of Technology Assessment. (1980–1981). The implications of cost-effectiveness analysis of medical technology: Case studies of medical technologies. Washington, DC: Government Printing Office.

Van Maanen, J. (2011). Tales of the field: On writing ethnography (2nd ed.). Chicago: University of Chicago Press.

Vaughan, D. (1992). Theory elaboration: The heuristics of case analysis. In C. C. Ragin & H. D. Becker (Eds.), What is a case? Exploring the foundations of social inquiry (pp. 173–202). Cambridge, England: Cambridge University Press.

Vaughan, D. (2016). The Challenger launch decision: Risky technology, culture, and deviance at NASA (Enlarged ed.). Chicago: University of Chicago Press.

Veerman, J. W., & van Yperen, T. A. (2007). Degrees of freedom and degrees of certainty: A developmental model for the establishment of evidence-based youth care. Evaluation and Program Planning, 30, 212–221.

Vertue, F. M. (2011). Applying case study methodology to child custody evaluations. Family Court Review, 49, 336–347.

Vissak, T. (2010). Recommendations for using the case study method in international business research. The Qualitative Report, 15, 370–388.

Vos, J., & Wagenaar, H. (2014). The Münchhausen movement: Improving the coordination of social services through the creation of a social movement. American Review of Public Administration, 44, 409–439.

Walshe, C. (2011). The evaluation of complex interventions in palliative care: An exploration of the potential of case study research strategies. Palliative Medicine, 25, 774–781.

Wang, X. H., & Bryer, T. A. (2012). Assessing the costs of public participation: A case study of two online participation mechanisms. American Review of Public Administration, 43, 179–199.

Warner, W. L., & Lunt, P. S. (1941). The social life of a modern community. New Haven, CT: Yale University Press.

Weiss, R. S. (1994). Learning from strangers: The art and method of qualitative interview studies. New York: The Free Press.

Wertz, F. J., Charmaz, K., McMullen, L. M., Josselson, R., Anderson, R., & McSpadden, E. (2011). Five ways of doing qualitative analysis: Phenomenological psychology, grounded theory, discourse analysis, narrative research, and intuitive inquiry. New York: Guilford.

Wholey, J. (1979). Evaluation: Performance and promise. Washington, DC: The Urban Institute.

Whyte, W. F. (1993). Street corner society: The social structure of an Italian slum (4th ed.). Chicago: University of Chicago Press. (Original work published 1943)

Wilford, J. N. (1992). The mysterious history of Columbus. New York: Vintage.

Wilson, R. F. (Ed.). (1982). Designing academic program reviews (New Directions for Higher Education, No. 37). San Francisco: Jossey-Bass.

Windsor, D., & Greanias, G. (1983). The public policy and management program for case/course development. Public Administration Review, 26, 370–378.

Wolcott, H. F. (2005). The art of fieldwork (2nd ed.). Walnut Creek, CA: Altamira Press.

Wolcott, H. F. (2009). Writing up qualitative research (3rd ed.). Thousand Oaks, CA: Sage.

Wolf, P. (1997). Why must we reinvent the federal government? Putting historical developmental claims to the test. Journal of Public Administration Research and Theory, 3, 358–388.

Yarbrough, D. B., Shulha, L. M., Hopson, R. K., & Caruthers, F. A. (2011). The program evaluation

standards: A guide for evaluators and evaluation users (3rd ed.). Thousand Oaks, CA: Sage.

Yardley, L. (2009). Demonstrating validity in qualitative psychology. In J. A. Smith (Ed.), Qualitative psychology: A practical guide to research method (pp. 235–251). Los Angeles: Sage.

Yin, R. K. (1978). Face perception: A review of experiments with infants, normal adults, and brain-injured persons. In R. Held, H. Liebowitz, & H.-L. Teuber (Eds.), Handbook of sensory physiology: Vol. 8. Perception (pp. 593–608). New York: Springer-Verlag.

Yin, R. K. (1980). Creeping federalism: The federal impact on the structure and function of local government. In N. J. Glickman (Ed.), The urban impacts of federal policies (pp. 595–618). Baltimore: Johns Hopkins University Press.

Yin, R. K. (1981a). The case study as a serious research strategy. Knowledge: Creation, Diffusion, Utilization, 3, 97–114.

Yin, R. K. (1981b). The case study crisis: Some answers. Administrative Science Quarterly, 26, 58–65.

Yin, R. K. (1981c). Life histories of innovations: How new practices become routinized. Public Administration Review, 41, 21–28.

Yin, R. K. (1982a). Conserving America's neighborhoods. New York: Plenum.

Yin, R. K. (1982b). Studying the implementation of public programs. In W. Williams, R. F. Elmore, J. S. Hall, R. Jung, M. Kirst, S. A. MacManus, et al. (Eds.), Studying implementation: Methodological and administrative issues (pp. 36–72). Chatham, NJ: Chatham House.

Yin, R. K. (1986). Community crime prevention: A synthesis of eleven evaluations. In D. P. Rosenbaum (Ed.), Community crime prevention: Does it work? (pp. 294–308). Thousand Oaks, CA: Sage.

Yin, R. K. (1994a). Discovering the future of the case study method in evaluation research. Evaluation Practice, 15, 283–290.

Yin, R. K. (1994b). Evaluation: A singular craft. In C. Reichardt & S. Rallis (Eds.), New directions in program evaluation (pp. 71–84). San Francisco: Jossey-Bass.

Yin, R. K. (1997). Case study evaluations: A decade of progress? New Directions for Evaluation, 76, 69–78.

Yin, R. K. (1999). Enhancing the quality of case studies in health services research. Health Services Research, 34, 1209–1224.

Yin, R. K. (2000a). Case study evaluations: A decade of progress? In D. L. Stufflebeam, G. F. Madaus, & T. Kelleghan (Eds.), Evaluation models: Viewpoints on educational and human services evaluation (2nd ed., pp. 185–193). Boston: Kluwer.

Yin, R. K. (2000b). Rival explanations as an alternative to "reforms as experiments." In L. Bickman (Ed.), Validity & social experimentation: Donald Campbell's legacy (pp. 239–266). Thousand Oaks, CA: Sage.

Yin, R. K. (Ed.). (2004). The case study anthology. Thousand Oaks, CA: Sage.

Yin, R. K. (Ed.). (2005). Introducing the world of education: A case study reader. Thousand Oaks, CA: Sage.

Yin, R. K. (2006a). Case study methods. In J. Green, G. Camilli, & P. Elmore (Eds.), Handbook of complementary methods in education research (3rd ed., pp. 111–122). Washington, DC: American Educational Research Association.

Yin, R. K. (2006b). Mixed methods research: Are the methods genuinely integrated or merely parallel? Research in the Schools, 13, 41–47.

Yin, R. K. (2012a). Applications of case study research (3rd ed.). Thousand Oaks, CA: Sage.

Yin, R. K. (2012b). Case study methods. In H. Cooper (Ed.), APA handbook of research methods in psychology (2nd ed., Vol. 2). Washington, DC: American Psychological Association.

Yin, R. K. (2013). Validity and generalization in future case study evaluations. Evaluation, 19, 321–332.

Yin, R. K. (2015a). Case study research: Practicing at a high level. In J. D. Wright (Editor in Chief), International encyclopedia of the social and behavioral sciences (2nd ed., Vol. 3, pp. 194–201). New York: Oxford University Press.

Yin, R. K. (2015b). Causality, generalizability, and the future of mixed methods research. In S. N. Hesse-

Biber & R. B. Johnson (Eds.), The Oxford handbook of multimethod and mixed methods research inquiry (pp. 654–664). New York: Oxford University Press.

Yin, R. K. (2016). Qualitative research from start to finish (2nd ed.). New York: Guilford.

Yin, R. K., Bateman, P. G., & Moore, G. B. (1985). Case studies and organizational innovation: Strengthening the connection. Knowledge, Creation, Diffusion, Utilization, 6, 249–260.

Yin, R. K., Bingham, E., & Heald, K. (1976). The difference that quality makes. Sociological Methods and Research, 5, 139–156.

Yin, R. K., & Davis, D. (2006). State-level education reform: Putting all the pieces together. In K. Wong & S. Rutledge (Eds.), Systemwide efforts to improve student achievement (pp. 1–33). Greenwich, CT: Information Age Publishing.

Yin, R. K., & Davis, D. (2007). Adding new dimensions to case study evaluations: The case of evaluating comprehensive reforms. In G. Julnes & D. J. Rog (Eds.), Informing federal policies for evaluation methodology (New Directions in Program Evaluation, No. 113, pp. 75–93). San Francisco: Jossey-Bass.

Yin, R. K., & Heald, K. (1975). Using the case survey method to analyze policy studies. Administrative Science Quarterly, 20, 371–381.

Yin, R. K., & Oldsman, E. (1995). Logic model for evaluating changes in manufacturing firms. Unpublished paper prepared for the National Institute of Standards and Technology, U.S. Department of Commerce, Gaithersburg, MD.

Yin, R. K., Schmidt, R. J., & Besag, F. (2006). Aggregating student achievement trends across states with different tests: Using standardized slopes as effect sizes. Peabody Journal of Education, 81(2), 47–61.

Yin, R. K., & Yates, D. T. (1975). Street-level governments: Assessing decentralization and urban services. Lexington, MA: Lexington Books.

Zigler, E., & Muenchow, S. (1992). Head Start: The inside story of America's most successful educational experiment. New York: Basic Books.

Author Index

C

D

E

F

L

R

S

Subject Index

Note: In page references, b indicates boxes, e indicates exercises and f indicates figures.

N