CASE STUDIES - THE YIN APPROACH

**by Simon Moss**

# Introduction

Qualitative researchers have developed a variety of methodologies—constellations of methods and techniques—to collect and to analyse data. Examples include grounded theory, ethnography, narrative enquiry, and case studies. Yet, until recent decades, case studies did not receive the same respect as other methodologies. Arguably, the reason that case studies were not esteem is that

* some researchers perceived case studies as merely a subdivision of ethnography
* researchers had not agreed on a set of protocols or procedures to conduct these case studies
* hence, many researchers perceived case studies as merely an attempt to examine cases—such as interesting people, projects, teams, organizations, or communities—rather than as a specific methodology.

To resolve this concern, several researchers, such as Robert Yin and Robert Stake, formulated precise sets of principles to guide case studies. Yet, these principles diverge considerably from one another. This document outlines the approach that Robert Yin advocated—but also compares this approach with alternatives.

# Decide on whether to conduct a case study

**Formulate a research question**

According to Yin, to conduct a case study, you first contemplate the topic you feel inspired to study—such as an intriguing disorder, initiative, community, or event—and then consider the questions you want to answer. Yin distinguishes several kinds of questions, as delineated in the following table.

|  |  |
| --- | --- |
| Kind of question | Example |
| **What questions**: Questions that begin with the word “What” tend to explore the defining features or consequences of some phenomenon. | * What are the benefits and drawbacks of some initiative—such as an initiative in which research supervisors learn about humility? * What are the strategies that people use to solve a problem—such as conflicts with supervisors |
| **Who and where questions**. Questions that begin with the words “Who” or “Where” tend to explore the circumstances in which some ideas, behaviour, phenomenon, or event is most prevalent | * Who is likely to vote for progressive parties? * Where do research candidates prefer to work? * Who are the people that tend to visit psychologists? |
| **Extent questions**. Questions that begin with phrases like “How many”, “How often”, “To what extent do”, and so forth assess the intensity, duration, or frequency of various ideas, behaviours, phenomena, or events | * How often do research candidates change their topic midway? * To what extent will some intervention, such as a psychological therapy, help clients? |
| **Why questions**. Questions that begin with the word “Why” are designed to explain some phenomenon | * Why is some initiative or intervention helpful? * Why do research candidates change their topic midway? |
| **Process questions**. Some questions—questions that often begin with the word “how” but do not explore intensity, duration, or frequency—examine how individuals or groups achieved some goal | * How do research candidates manage conflicts with supervisors? * How do parents help their children during times of distress or trauma? |

To formulate these research questions

* read, or at least skim, many papers on topics or issues that intrigue you
* read your 3 to 6 of your favorite papers in detail
* integrate some of the key insights of these papers
* often, this procedure will generate a few questions you might want to explore

**Decide whether case studies could answer this research question**

As Yin implies, when several criteria are fulfilled, case studies are especially useful. Therefore, your task is to ascertain whether or not your research question fulfils these criteria. The following table outlines these criteria.

|  |  |
| --- | --- |
| Criterion | Clarification |
| The research question is a why or process question. | * Other methods, such as surveys, are more suited to what questions, who questions, where questions, and extent questions * Case studies sometimes include surveys but typically involve other methods as well, such as interviews and observations |
| The study will investigate a contemporary, rather than historical, phenomenon | * A phenomenon could be a specific problem, intervention, or event—such as a disease, treatment, or catastrophe * Unlike historical analyses, case studies do not explore phenomenon that have dissipated or vanished |
| The study will investigate the phenomenon in context—and will study this context in detail | * The context includes the setting, circumstances, and relationships * For example, to explore a young adult with Alzheimer’s Disease, the study would explore how the context—the family, work, finances, and other circumstances—affects the experiences of this person * Case studies can explore the context in more detail than surveys or other methods |
| The study will utilize and integrate multiple sources of evidence to characterize the phenomenon and context | * In contrast, some other methodologies, such as ethnography, are occasionally limited to one method—such as observation * Indeed, case studies integrate qualitative and quantitative information effectively. Case studies are one of the few approaches in which researchers can, in essence, translate some of their quantitative data—such as survey data—into qualitative narratives, as Creamer (2017) underscores |

The distinction between case studies and ethnography can be subtle. Indeed, this distinction depends on which kind of case study or ethnography you want to compare. But, roughly,

* case studies tend to explore a few key cases—such as a few intriguing people, programs, events, or groups—within a broader context
* ethnography tends to explore the entire context or community

# Clarify the propositions or possibilities you want to explore

Once you have formulated a research question and decided to conduct a case study, you could then read the literature in more depth as well as clarify the propositions you would like to assess. Propositions are not as precise as hypotheses, but potential answers to the questions you want to explore. The following table presents some examples

|  |  |
| --- | --- |
| Research question | Corresponding propositions |
| Why do research candidates change their topic midway? | * They may become unmotivated because of limited progress—but then ascribe this limited progress to the topic rather than other impediments |
| How does a staff survey improve engagement at work? | * Staff might feel they can express themselves—diminishing a sense of burden * Or staff might hope this survey implies that change is imminent |
| How do parents help their children during times of distress or trauma? | * Parents might initially act positively but then feel exhausted and attempt to trivialize the emotions of their children |

These propositions or arguments then shape the design of this research. In particular, these propositions affect which people to interview, which questions to ask, which behaviours to observe, which data to prioritize during analysis, and so forth.

**Case studies versus other approaches**

Two features of this approach diverge from many other qualitative methodologies, such as grounded theory. To illustrate

* proponents of grounded theory tend to refrain from a comprehensive literature review until after they have collected—and usually analyzed and interpreted—the data as well
* proponents of grounded theory do not articulate the propositions they want to explore before they begin to collect data. Admittedly, several other approaches to case studies do not involve delineating these propositions before collecting data.

# Delineate the cases you want to explore and analyse

Once you have clarified the research questions and propositions you want to explore, you need to define your case or cases. Roughly, you need to decide which people, programs, families, groups, organizations, or events you want to investigate. As the following table shows, to a considerable extent, the research questions and propositions guide this choice. The first column presents some research questions. The second column specifies the cases the researcher might want to explore.

|  |  |
| --- | --- |
| Research question | Possible cases to explore |
| Why do research candidates change their topic midway? | * 4 to 8 research candidates who changed their topic midway |
| How does a staff survey improve engagement at work? | * A staff survey at one, or perhaps a few, organizations |
| How do parents help their children during times of distress or trauma? | * 4 to 8 distressed children together with their parents |

You might assume that you can readily define or delineate these cases. This goal, however, is deceptively challenging. To illustrate

* if your case is defined as a community, does this case include people visitors as well?
* if your case is a project, does this case include the events that preceded and inspired this project
* If your case is an interesting person, does this case include the entire life of this person—a life that would be hard to reduce to one study or report

To resolve these challenges, you should apply several principles. First, the cases should be tangible—such as a person, team, intervention, or event—rather than intangible—such as a neighbourhood, community, or project. Cases that are not tangible cannot be as readily distinguished from their context. Consequently, you will not be as certain about which questions and issues to prioritize. Second, you need to delineate the boundaries of this case. The following table illustrates some of these boundaries.

|  |  |
| --- | --- |
| Boundary | Example |
| The interval you want to explore | * A research candidate who shifted topics after the confirmation of candidature * The month after a staff survey * A distressed child during the first year at school |
| Which facets of people or actions you want to explore | * The emotions and motivation of a research candidate * The interactions between parents and a distressed child |
| Which people in a broader group do you want to explore | * The experience of only full-time, rather than part-time or temporary, employees after a staff survey |

Many sources of information may shape these decisions, such as

* your research questions or propositions
* past literature—partly because you might to mirror previous studies so you compare your results with previous findings
* your data, findings, and interpretations; that is, as you collect, analyze, and interpret your data, you might feel the need to update the definition of your case.

**Single cases versus multiple cases**

You need to decide whether to conduct a single-case design—in which you explore one case—or a multiple-case design—in which you explore multiple cases, often between 3 and 6. Most researchers prefer multiple case designs. Nevertheless, the following table outlines some of the benefits of single case designs and multiple case designs.

|  |  |
| --- | --- |
| Benefits of single-case designs | Benefits of multiple-case designs |
| **Efficiency**. One case might be sufficient to assess a proposition or theory. Certainly one case is often sufficient to challenge a theory. For example, if researchers assume that we can only remember 7 numbers at a time, a person who can remember hundreds of numbers challenges this proposition | **Robustness:** You can be more certain the insights you derived cannot be ascribed to unique peculiarities of one case; the insights are thus more robust and trustworthy |
| **Extreme or unique circumstances.** If you want to characterize a distinct or novel person, event, or circumstance—such as a patient with an extraordinary disorder—one case might be sufficient. Indeed, you might not be able to uncover more than one case | **Comparisons**. Discrepancies between the cases can uncover vital insights—such as how one difference between two people could affect future outcomes |
| **Limited accessibility**. You might have been granted access to a person, event, or circumstance that has, until now, been inaccessible before. |  |
| **Longitudinal analyses**. If you want to explore a case over an extensive duration, you might want to examine one case only. That is, you might not be able to explore multiple cases in enough depth to characterize changes over time in sufficient detail. |  |

**How to choose multiple cases**

If you do choose a multiple-case design, you need to decide which cases to select. Should you choose two similar people, organizations, or events? Or should you choose people, organizations, or events that differ on some important characteristic? How many cases should you choose? As Yin implies, you should apply two principles to decide which cases to select. The following table outlines and illustrates these two principles.

|  |  |
| --- | --- |
| Principles to guide choices  over which cases to select | Illustration |
| Choose two cases that are very different but, according to the theory or propositions you want to explore, should generate comparable results | For example, suppose you want to explore the possibility that a decline in motivation, regardless of the course, prompts candidates to change their topic. Thus   * a candidate might experience depression, become unmotivated to study, and then change topics * another candidate might win a lottery, feel that study is unnecessary, become unmotivated, and thus change topics * Thus, both depression and triumph could generate an overlapping sequence of consequences   To assess the theory, the researcher would thus seek a candidate who had been depressed and a candidate who had experienced a windfall. |
| Choose two similar cases but, according to the theory or propositions you want to explore, could generate diverging results | For example, if candidates complete a PhD only to earn money, a windfall should diminish motivation and thus should prompt candidates to change their topic. But, if candidates complete a PhD to solve an issue in society, a windfall should not diminish motivation and thus should not prompts a change their topic. Therefore, the researcher would thus seek a candidate who was motivated to earn money and a candidate who was motivated to solve an issue in society. |

**How many cases should you choose?**

Most researchers explore three to six cases. But, if you want to assess many alternative explanations or accounts, you might need to consider more cases. To illustrate

* According to Creswell (2002), researchers should generally report three to five cases.
* But, if you want to develop theory, Eisenhardt (1989) recommends four to ten cases

**Embedded cases**

Sometimes, you might want to examine several cases that are embedded in a broader case. For example

* you might want to explore the experiences of three work teams—the specific cases—that had completed some intervention—the broader case
* a design in which you explore several cases that are embedded in one broader case is called a single embedded case study, as the following figure shows
* a design in which you explore several cases embedded in one of several broader cases is called a multiple embedded case study
* in contrast, the traditional design in which you the cases are not embedded in a broader case is called a holistic case study



The embedded case design offers several advantages. Specifically, this design

* enables researchers to explore specific subunits, such as particular teams or individuals, in greater detail
* is not as sensitive to changes in circumstances; for example, if one team dismantles, researchers can then focus their report on another team within the broader case

Yet, researchers who utilize embedded case designs may experience some challenges as well. For example

* they need to analyze, interpret, and discuss cases at both levels—such as both the team and overall intervention. Many researchers will inadvertently discuss the lower level only, and hence the design is, in essence, equivalent to a multiple holistic case study instead of a single embedded case study

**Flexibility**

Researchers can also be flexible. For example

* they might begin with a single case study and then decide they want to explore other comparable cases
* they might begin with another methodology—such as a quantitative survey—and then proceed to a case study
* they could apply grounded theory to a case, combining the principles of grounded theory and single case designs

# Decide how you will collect data

After you have chosen the cases you want to study, you then need to clarify the methods you will use to collect data and the protocols you will follow. You could, for example, scrutinize documents and archives, conduct interviews or focus groups, observe participants, and examine physical artefacts. In general, researchers tend to apply two or more of these methods. The following table outlines some of the key features, benefits, and drawbacks of each method

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Features | Benefits | Drawbacks |
| Documents and archival records | * Documents may include emails, diaries, minutes, reports, studies, and media * Archival records may include HR records, previous surveys, and so forth * Derive documents form internet searches, libraries, and meetings with stakeholders * For each document, you should record the likelihood the information is accurate and the reasons the information might be biased. For example, documents written to motivate other people are often biased | * Unobtrusive * Contains precise details rather than biased memories * May encompass many time periods, events, and settings * Can verify other information, such as the spelling of names or the rationale for decisions | * Documents may reflect the unknown biases of authors; indeed, documents are often skewed to persuade an audience * Access may be withheld |
| Interviews or focus groups | * For case studies, you might conduct in-depth unstructured interviews in which you prompt the participants to explore a matter in depth and you seek their insights and perspectives—often over several sessions. These individuals are more informants than respondents * Or you might conduct more structured focused interviews, confining yourself to specific questions and issues | * Questions can be confined to the topic of interest * Clarifies the perspective of participants | * Susceptible to memory biases, social desirability acquiescence, and other biases |
| Observations | * You might observe meetings, work environments, classrooms, public events, and so forth—as an impartial researcher or as a participant * You might record data with descriptions, checklists, photos, videos, and other formats | * Encompasses insights that people cannot as readily articulate * Demonstrates the sequence of events more accurately * Reveals the context in which behaviors unfold | * Observations can affect behavior * Time consuming |
| Physical artefacts | * May include technologies, creative output, or other remnants | * Reveals subtle features * Unobtrusive | * Interpretations can be biased |

To help you decide which methods to use, and how to apply these methods, Yin introduces three principles. The first principle, called data triangulation, revolves around how to utilize and integrate multiple sources of evidence proficiently. In particular, according to Yin, researchers should

* utilize multiple sources of evidence, such as interviews and observations, to explore the same issues or propositions
* compare these multiple sources; consistent findings corroborate one another; inconsistent findings may culminate in more nuanced propositions and further exploration

**Create a case study database**

Over recent decades, researchers have become more inclined to manage and to share their data systematically. For example, they might construct a data management plan—a plan that indicates the format in which they will store data, who can access the data, who will destroy the data, and so forth. They might then share the data on public websites, enabling other researchers to utilize these data as well. Yin offers some insights into how researchers who conduct case studies should manage their data. The following table outlines the four kinds of materials that, according to Yin, researchers should retain

|  |  |
| --- | --- |
| Four kinds of materials to store | Clarifications or examples |
| Personal notes | * Organize and retain the notes you recorded during interviews, observations, and analyses of documents * Notes, even if provisional, must be stored methodically enough to enable other people to retrieve this information |
| Documents | * Includes both the documents you want to explore as well as correspondence, such as agreements with stakeholders * You might develop an annotated bibliography— a list of documents, often in a spreadsheet, with a brief summary of each document. |
| Tables | * You might develop tables of survey data, observational data, and so forth |
| Narratives | * Some researchers develop narratives—like a diary entry—in which they write personal accounts that are designed to summarize their procedures or thoughts about an issue. * These narratives are more reflective and comprehensive than notes |

**Chains of evidence**

Besides data triangulation and case study databases, Yin recommends that researchers also apply a principle called chain of evidence. In essence, researchers need to show how the evidence at one stage of data collection, analysis, interpretation, and reporting is associated with the evidence at other stages. The following table offers some advice on how to achieve this goal. The first column specifies two stages of research. The second column offers some insights on how to map the evidence at one stage onto the other stage.

|  |  |
| --- | --- |
| Pair of consecutive stages | Illustration on how to map the  evidence from one stage to another stage |
| Case study report—Case study database | * In the method or results section, the report should indicate whether the evidence was derived from field notes, documents, tables, or narratives   You might, for example, write   * “the field notes were utilized to expand these explanations…” * “to analyze the documents, we…” * “these categories were derived from tables that summarizes the interview data…” |
| Case study database—Specific evidentiary sources | * The case study database should be organized and labelled clearly enough to enable other researchers to access specific notes, documents, tables, and narratives—such as the data from one survey or focus group |
| Specific evidentiary sources—case study protocol | * Researchers should develop a plan or protocol that specifies how they will collect data   This protocol could clarify   * sites in which data will be collected—and the contact people at each site * the interview schedule—such as the questions that will be asked, the time, date, and location of interviews as well as public information about all participants, such as their roles or education * the events or circumstances that will be observed as well as the instruments to record these observations * the documents or archives that will be accessed and analyzed |
| Case study protocol—research questions | * The protocol should specify how the various sources of data are related to the various research questions |

# Collect the data

Yin recommends that researchers begin with a short pilot study—a pilot case—to refine the procedures and research skills. The key skills revolves around the capacity to ask suitable questions, listen attentively, adapt to opportunities, appreciate the context, and inhibit the effect of biases or preconceptions. The pilot case should be as convenient as possible. Once the pilot study is completed and the protocol is updated, you can then collect the data from the main case studies.

# Analyse the data

After you collect data, you need to decide how you will analyse these data. When you analyse data, your aim, according to Yin, is to

* iteratively assess and refine your theoretical propositions—the arguments and explanations you posited from the outset
* identify, assess, and integrate rival explanations—explanations that diverge from your theoretical propositions
* develop a compelling, detailed, and insightful description of the case—a description that may or may not integrate quantitative information as well

To identify rival explanations, Yin offers a taxonomy. To illustrate, researchers could argue that

* the effects of some intervention could be ascribed to merely the implementation or novelty of this intervention—instead of the details or substance of this intervention
* the effects of some intervention could be ascribed to the impact of assessments, observations, or other features of the data collection
* the effects of some intervention could be ascribed to time; that is, the people or circumstances would have changed anyway over time
* another theory could explain the findings more elegantly, and so forth

**Preliminary data analysis**

To start the analysis, you need to convert the data into forms that facilitate interpretation. The following table illustrates some of these practices.

|  |  |
| --- | --- |
| Practice to begin the analysis | Clarification or illustration |
| Code and categorize the data | * You could label segments of data—such as each sentence or answer—with a few words, called a code * You could then list all these codes and combine similar codes into broader categories * You could then arrange all the data into these categories * You might count the number of people who alluded to each category and so forth |
| Examine how these categories depend on other characteristics | * You might, for example, assess whether the number of times a category was mentioned varies between males and females |
| Arrange the data chronologically | * You might arrange each answer from the most recent events to the least recent events, for example |

**Analytical techniques**

After the preliminary data analysis, Yin recommends that researchers implement other tools to analyse the data in more detail—ultimately to assess, refine, and integrate theoretical propositions, to generate a compelling description of the case, or both. The following table outlines and illustrates these techniques.

|  |  |
| --- | --- |
| Analytical technique | Clarification or illustration |
| **Pattern matching**: compare some pattern in the data with a pattern that a theory would predict | * For example, you might predict that research candidates will change their topic after they experience personal challenges * You could thus identify all the personal challenges that participants mentioned and determine whether the change in topic tended to precede or follow these challenges * You should test both your original propositions as well as rival explanations |
| **Develop explanations iteratively**: Iteratively revise a proposition or argument with additional data | * You might begin with some proposition, explanation, insight, or argument * You would then explore whether particular details of a case is aligned to this proposition * If not, you might revise the proposition and examine whether other details of this case or another case align to his revised proposition * You would repeat this procedure until you have integrated all the data |
| **Time-series analyses**: Examine some trend or pattern over time | * You might develop a diagram or table to illustrate how some qualitative pattern or quantitative measure varies over time * For example, you might show how the strategies that research candidates use to shift their topics might differ across the candidature * Or you might realize that one kind of event, such as distress, tends to precede another kind of event, such as changes in goals * If the data are quantitative, you could also apply a range of other techniques, such as interrupted time series and ARIMA. |
| **Cross-case synthesis**: Integrate the insights you gain from multiple cases | * Apply techniques that are used to synthesize distinct studies—such as meta-ethnography for qualitative research or meta-analysis for quantitative research—to the results of these cases * You might, for example, first enumerate or list the key findings or insights of each case * You could then determine the key similarities and differences across the cases * You could finally derive conclusions that explain these similarities and differences |

# Other case study approaches

Thus far, this document has outlined one approach to case studies—an approach that Yin advocated. However, this approach diverges from the recommendations of some other authors. To illustrate, Robert Yin seems to adopt a positivist approach to research, striving to uncover objective, universal truths. In contrast, Robert Stake adopts a constructivist approach, recognizing that people construct their own perceptions of phenomena, and these constructions are valuable to study in their own right.

To appreciate some of these differences, the following table underscores the differences between three approaches to case studies—advocated by Robert Yin, Robert Stake, and Sharan Merriam respectively (for more information about this comparison, see Yazan, 2015)

|  |  |  |  |
| --- | --- | --- | --- |
| Issue | Yin | Stake | Merriam |
| Epistemology | Implies a positivist approach, designed to uncover objective, universal truths  Strives to maximize construct validity, internal validity, external validity, and reliability | Advocates constructivism—the researcher tries to understand the interpretation or perspective of the participants | Also advocates constructivism |
| Definitions of cases and case studies | Case studies explore a phenomenon in context | A case is an integrated bounded system designed to fulfil some goal or serve a purpose—like a person or program  The researcher attempts to adopt the perspective of participants | A case study is an intensive, holistic description and analysis of a bounded phenomenon or system—such as a program, organization, person, or process  This definition is broader than many other definitions of cases |
| Designing case studies | Assumes that researchers should   * read the literature to clarify the research questions * formulate propositions, similar to initial hypotheses * define the case study * connect the data to these propositions * interpret the findings   Furthermore, researchers should plan carefully before they collect data | Assumes the design will evolve as the researchers becomes more attuned to the complications and contradictions in the case. Distinguishes three main designs (Sage, 2003)   * intrinsic case studies: the researchers prioritize the case over the issues or questions they want to explore * instrumental case studies: the researchers prioritize the issues or questions over the case; the case is merely an instrument to resolve some question * collective case studies; similar to instrumental, except multiple cases are examined to explore some phenomenon. | Assumes researchers should   * derive a theoretical framework from the literature * distill a research problem to explore * convert this problem into a few sharp research questions * select the sample of individuals or cases who can most readily answer these questions, called purposive sampling * then collect and analyse data |
| Data collection and analysis | * Advocates a blend of qualitative and quantitative data if possible * Recommends that researchers begin with a convenient pilot case * Argues that researchers need to develop a chain of evidence to substantiate their conclusions | * Advocates only qualitative data * Recognizes that data collection, in some sense, starts as soon as the researcher engages with the project; initial impressions are also data | * Advocates only qualitative data |

# Benefits and drawbacks of case studies

Many scholars have discussed the drawbacks of case studies. Nevertheless, Flyvberg (2006) questioned these concerns. Specifically, as the following table outlines

* Flyvberg (2006) showed that most of the concerns that scholars have raised about case studies can be divided into five key criticisms
* Flyvberg then challenges each of these criticisms.

|  |  |
| --- | --- |
| Concern | Counterargument |
| * The knowledge or insights that case studies uncover are confined to a specific context or setting | * This characteristic of case studies, although perhaps accurate, is not a concern * Knowledge or insights that are confined to a specific context are often more valuable, scarce, accurate, and sophisticated than knowledge or insights that apply to all contexts |
| * The observations or findings of one case study cannot be applied outside this case study—and hence these results are futile. | * Some of the greatest insights of Galileo, Bohr, Darwin, Freud, and other scholars emanated from single examples or cases * Therefore, single examples or cases are often especially illuminating—and may challenge core beliefs * Conversely, when findings are generalized to other settings, the results or conclusions are often unfounded, even when the design is a randomized control trial |
| * Case studies can only generate, rather than test, hypotheses | * Case studies are especially suited to testing particular hypotheses, such as hypotheses about changes of behaviour or sequences of activities over time |
| * When researchers conduct a case study, their preconceptions will appreciably bias the findings, interpretations, and conclusions. | * The preconceptions of researchers can bias the conclusions, regardless of the design. These preconceptions shape the research question, choice of methods, and interpretations, for example * The features of case studies can diminish the effects of some biases; because data are often distilled from many sources, the effects of these biases often become more apparent to researchers |
| * Case studies do not generate a simple or definitive set of key theories or propositions | * Because reality is so complex, the aim of research should not be to generate a simple list of theories or propositions—because this list could not characterize the dynamic, multifaceted, and even contradictory nature of societies and peoples. |

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