

Case Study Research: design and methods.

Gegevens

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Een zeer uitgebreide samenvatting van Robert K. Yin's boek "Research: design and methods." 4-th edition, 2009.

A very extensive summary of Robert K. Yin's famous book "Case Study Research: design and methods." 4-th edition, 2009. Advise: Read the book first before this summary.

Yin distinguishes the following activities when doing a case study research:

1. Plan
2. Design
3. Prepare (and share your preparation)
4. Collect (sometimes going back to Design when collecting data)
5. Analyse
6. Share

Chapter 1: How to Know Whether and When to Use Case Studies as a Research Method

Your goal is to design good case studies and to collect, present and analyse data fairly. A further goal is to bring the case study to closure by writing a compelling report or book. Important is to follow a rigorous methodological path. Equally important is a dedication to formal and explicit procedures when doing your research. Also be aware of the fact that different social science research methods fill different needs and situations for investigating social topics.

A case study is relevant the more your research questions seek to explain some present circumstances: how and why some social phenomenon works or if your research questions require an "in-depth" description of some social phenomenon. The focus is on understanding these social phenomena.

A common misinterpretation is that the various research methods should be arrayed hierarchically. Many social scientists still believe that case studies are only appropriate for the descriptive phase, that surveys and histories are appropriate for the descriptive phase, and that experiments are the only way for doing explanatory or causal inquiries. So case studies are only a preliminary research method and can not be used to describe or test propositions.

This hierarchical view, however, may be questioned. Some of the best and most famous case studies have been explanatory case studies (f.i. Street Corner Society by William F. Whyte).
When to use each method?

Method	Form of Research Question	Requires Control of Behaviour Events?	Focusses 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

If research focusses on what questions, either of two positions arises.

- Explanatory for example what can be learned from a study from a start of startup business?

- What as a form of 'how many?'. What have been the way's.....

Who and where (or how much or how many) questions are more likely to favor survey methods or the analysis of archival data, as in economic studies. They are advantageous when the research goal is to describe the prevalence of a certain phenomenon or to be predictive of a certain outcome.

In contrast 'how' and 'why' questions are more explanatory and likely to lead us to the use of case studies, histories and experiments as the preferred research methods.

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, why or how question.

Assuming that the 'how' and 'why' questions are to be the focus of the study, a further distinction among history, case study and experiment is the extent of the investigator's control over and access to actual behavioral events.

Histories are preferred when there is virtually no access or control, and can of course be done about contemporary events: in this situation the method begins to overlap with that of the case study.

Experiments are done when an investigator can manipulate behavior directly, precisely and systematically.

The case study is preferred in examining contemporary events, but when the relevant behaviors can not be manipulated.

So in general the case study has a general advantage when a 'how' or 'why' question is being asked about a contemporary set of events over which the investigator has little or no control.

Perhaps the greatest concern has been the lack of rigor of case study research. To many times, the case study researcher has been sloppy, has not followed systematically procedures, or has allowed equivocal evidence or biased views to influence the directions of the findings of the conclusions.

A second concern is that they provide little basis for scientific generalization. The short answer is that case studies, like experiments, are generalizable to theoretical propositions and not to populations or universes.

A third concern is that case studies take too long. This incorrectly confuses the case study method with a specific method of data collection, such as ethnography or participant observation.

Case studies are a form of inquiry that does not depend solely on ethnographic or participant observer data. You could even do a high level case study without leaving the telephone or the internet.

A fourth possible objection to case studies has seemingly emerged with the renewed emphasis on randomized field trials or 'true experiments', to establish causal relations. Overlooked has been the possibility that case studies can offer important evidence to complement experiments.

Different kind of case studies but a common definition

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 include “individuals,” “organisations,” “processes,” “programs,” “neighborhoods,” “institutions,” and even “events.”

A case study is an empirical inquiry that:

- Investigates a contemporary phenomenon in depth and within its real-life context, especially when
- The boundaries between phenomenon and context are not clearly evident.

In other words you use the case study method because you want to understand a real-life phenomenon in depth, but such understanding encompasses important contextual conditions – because they were highly pertinent to your phenomenon of study (e.g. Yin & Davis, 2007)

However a definition of case studies as a research method is necessary.

Because phenomenon and context are not always distinguishable in real life situations, other technical characteristics, including data collection and data analysis strategies, become the second part of our technical definition of case studies:

The case study inquiry:

- copes with the technical distinctive situation in which there will be many more variables of interest than data points (f.i. compared with experiments), and as one result
- Relies on multiple sources of evidence, with data needing to converge in a triangular fashion, and as another result
- Benefits from the prior development of theoretical propositions to guide data collection and data analysis.

Case studies include both single and multiple-case studies.

Some case study research goes beyond being a type of qualitative research, by using a mix of quantitative and qualitative evidence.

Case studies have a distinctive place in evaluation research.

- The most important is to explain the presumed causal links in real-life events that are too complex for the survey or experimental strategies
- A second application is to describe an intervention and the real-life context in which it occurred.
- Third, case studies can illustrate certain topics within an evaluation, again in a descriptive mode
- Fourth, the case study strategy may be used to enlighten those situations in which the intervention being evaluated has no clear single set of outcomes.

Also case studies can be conducted and written with many different motives. These motives vary from the simple presentation of individual cases to desire to arrive at broad generalizations based on case study evidence but without presenting any of the case studies separately.

Chapter 2: Designing Case Studies

The next task is to design your case study. For this purpose you need a plan or research design.

The case study is a separate research method that has its own research design.

A research design is a logical plan for getting from here to there, where here may be defined as the initial set of questions to be answered and there is some set of conclusions (answers) about these questions.

Between “here” and “there” may be found a number of major steps, including the collection and analysis of relevant data.

A research plan guides the investigator in the process of collecting, analyzing and interpreting observations. It is a logical proof that allows the researcher to draw inferences concerning causal relations among the variables under investigation (Nachmias & Nachmias, 1992)

Another way of thinking about a research design is a “blueprint” for your research dealing with at least four problems:

- What questions to study
- What data are relevant
- What data to collect
- How to analyse the results

Components of research design

For case studies five components of a research design are especially important:

1. a study’s question.

2. its propositions, if any.

Only if you are forced to state some propositions will you move in the right direction. For instance, you might think that organisations collaborate because they derive mutual benefits. This proposition begins to tell you where to look for relevant evidence.

At the same time some studies have a legitimate reason for not having any propositions. This is the condition-which exists in experiments, surveys and the other research methods alike – which a topic is the subject of exploration.

3. Its unit(s) of analysis.

This is the defining of what the “case” is. Keep also in mind that each unit of analysis and its related questions and propositions would call for a slightly different research design and data collection strategy.

There is often also a need for spatial, temporal, and other concrete boundaries. The desired case should be a real life phenomenon, not an abstraction. If you want to compare your findings with previous research, the key definitions in your study should not be idiosyncratic.

4. The logic linking the data to the propositions.

How will you link the data to the propositions? Techniques are for instance pattern matching, explanation building, time-series analysis, logic models, and cross-case synthesis.

5. The criteria for interpreting the findings.

A major and important alternative strategy is to identify and address rival; explanations for your findings. If you only think of rival explanations after data collection has been completed, you will be starting 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.

The Role of Theory in Design Work

Covering these preceding five components of research design will effectively force you to begin constructive a preliminary theory related to your topic of study. *Be aware of the*

differences with methods such as ethnography and grounded theory. These related methods deliberately avoid specifying any theoretical propositions at the outset of an inquiry. As a result, students confusing these methods with case studies wrongly think that, by having selected the case study method, they can proceed quickly into the data collection phase of their work, and they may have been encouraged to make their “field contacts” as possible. No guidance could be more misleading. Among other considerations, the relevant field contacts depend upon an understanding – or theory – of what is being studied.

Theory development

Having a research question or questions theory development is an essential part of the design phase.

The simplest ingredient of a theory is a statement such as follows:

“The case study will show why implementation of Management Information System X only succeeds when the organization was able to re-structure itself, and not just overlay the new MIS on the old organization structure”.

An additional ingredient could be:

“The case study will also show why the simple replacement of key persons was not sufficient for successful implementation”

Keep in mind that this second statement presents the nutshell of a ‘rival theory’.

The stated ideas / ingredient will increasingly cover the questions, propositions, units of analysis, logic connecting data to propositions, and criteria for interpreting the findings. The simple goal is to have a sufficient blueprint for your study, and this requires theoretical propositions, usefully noted by Sutton and Staw (1995) as “a (hypothetical) story about why acts, events, structure and thoughts occur.”

Illustrative types of theories

These are:

- * implementation theories;
- * individual theories (individual development, cognitive behavior etc.);
- * group theories (family functioning, informal groups etc.)
- * organizational theories (theories of bureaucracies, organizational structure and functioning etc.);
- * societal theories (theories of urban development, cultural institutions etc.)

Other theories cut across these illustrative types. Decision-making theory for instance can involve individuals, organizations and social groups

Generalizing from case study to theory

Theory development does not only facilitate the collection phase of the ensuing case study.

The appropriate developed theory also is the level at which the generalization of the case study results will occur.

The role of theory has been characterized throughout this book as “analytical generalization” and has been contrasted with another way of generalizing results, known as “statistical generalization”.

In statistical generalization, an inference is made about a population (or universe) is made on the basis of empirical data collected about a sample from that universe.

A fatal flaw in doing case studies is to conceive of statistical generalization as the method of generalizing the results of your case study. This is because your cases are not “sampling units” and should not be chosen for this reason.

Analytical generalization can be used whether your case study involves one or several cases, which shall be later referenced as single or multiple case studies. You should try to aim towards analytical generalization 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 – case study were like a single respondent in a survey or a single subject in an experiment. The replication logic, whether applied to experiments or to case studies, must also be distinguished from the sampling logic commonly used in surveys.

The reasons are:

1. Case studies are not the best method for assessing the prevalence of phenomena
2. A case study would have to cover both the phenomenon of interest and its context, yielding a large number of potentially relevant variables. This would require an impossible large number of cases – too large to allow any statistical consideration of the relevant variables.
3. If a sampling logic had to be applied to all types of research, many important problems could not be empirically investigated.

The methodological differences between these two views are revealed by the different rationales underlying the replication as opposed to sampling design

Replication logic not sampling logic

Multiple cases resemble multiple experiments. So you need replication logic, not sampling logic, for multiple-case studies. That means that each case must be carefully selected so that it (a) predict similar (a literal replication) or (b) predicts contrasting results but for anticipatable reasons (a theoretical replication). The ability to conduct 6 or 10 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 cases (2 or 3) would be literal replications, whereas a few other cases (4 to 6) might be design to pursue two different patterns of theoretical replications.

An important step in all of these replication procedures is the development of a rich, theoretical framework. The framework needs to state the conditions under which a particular phenomenon is likely to be found (a literal replication) as well as the conditions when it is not likely to be found (a theoretical replication).

The theoretical framework later becomes the vehicle for generalizing to new cases, again similar to the role played in cross-experiment designs. So if some of the empirical cases do not work as predicted, modifications must be made to the theory.

Remember, too, that theories can be practical and not just academic.

The initial step in the replication approach to multiple case studies consist of theory development, and then shows that the case selection and the definition of specific measures are important steps in the design and data collection process.

Each individual case study consist of a “whole” study, in which convergent evidence is sought regarding the facts and conclusions for the case.

Both the individual cases and the multiple-case results can and should be the focus of a summary report. For each individual case, the report should indicate how and why a particular

proposition was demonstrated or not demonstrated. Across cases, the report should indicate the extent of the replication logic and why certain cases were predicted to have certain results, whereas other cases, if any, were predicted to have contrasting results.

Also, when during the conduct of one of the individual case studies important discovery occurs, this even may require you to consider one or more of the 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 changing the case study. So you should not think that a case study's design cannot be modified by new information during data collection.

The caution is to understand precisely the nature of the alteration. Are you merely selecting different cases, or are you changing your original theoretical concerns and objectives. The point is that the needed flexibility should not lessen the rigor with which case study procedures are followed.

The number of theoretical replications is related to your consideration to your sense of the importance of rival explanations.

Criteria for judging the quality of research designs

Four tests have been commonly used to establish the quality of any empirical social research:

1. **Construct validity**: identifying correct operational measures for the concepts being studied.

Tactics:

- * use multiple sources of evidence;
- * establish chain of evidence;
- * have key informants review draft case study report.

2. **Interval validity** (for explanatory or causal studies only, not for descriptive or exploratory studies): seeking to establish a causal relation (how and why event X leads to event Y), whereby certain conditions are believed to lead to other conditions, as distinguished from spurious relationships.

Tactics:

- * do pattern matching;
- * do explanation building;
- * address rival explanations;
- * use logic models.

3. **External validity**: defining the domain to which a study's findings can be generalized.

Tactics:

- * use theory in single-case studies;
- * use replication logic in multiple-case studies.

4. **Reliability**: demonstrating that the operations of a study – such as data collection procedures – can be repeated with the same results.

Chapter 3: Preparing to collect case study evidence.

Good preparation begins with the desired skills on the part of the case study investigator. Four additional topics should be a formal part of any case study preparation: training for a

specific case study, developing a protocol for the investigation, screening candidate cases, and conducting a pilot case study.

A good case study investigator should be able to ask good questions – and interpret the answers, should be a good listener, should be adaptive and flexible, should have a firm grasp of the issues being studied, and should be unbiased by preconceived notions.

Few case studies will end up exactly as planned. Case study data collection does not follow a formal protocol, but the specific information that may become relevant to a case study is not readily predictable. The skilled investigator must remember the original purpose of the investigation but then must be willing to adapt the procedures or plans if unanticipated events occur.

An important point is also that case study research is not merely a matter of recording data in a mechanical fashion, as it is in other types of research. You must be able to interpret the information as it is being collected and to know immediately, for instance, if several sources of information contradict one another and lead to the need of additional evidence – much like a good detective.

For avoiding bias, one test is the degree to which you are open to contrary findings.

The case study protocol

A case study protocol should have the following sections:

- an overview of the case study project (project objectives and auspices, case study issues, and relevant readings about the topic being investigated);
- field study procedures;
- case study questions;
- guide for the case study report.

The field procedures of the protocol need to emphasize the major task in collecting data, including:

- gaining access to key organizations or interviews;
- having sufficient resources while in the field – including a personal computer, writing instruments, paper, paper clips, and a preestablished, quiet place to write notes privately;
- develop a procedure for calling for assistance and guidance, if needed, from other case study investigators or colleagues;
- making a clear schedule of the data collection activities that are expected to be completed within specific periods of time;
- providing for unanticipated events, including changes in the availability of interviewees as well as changes in the mood and motivation of the case study investigator.

Case study questions

Each question should be accompanied by a list of likely sources of evidence. Such sources may include the names of individual interviewees, documents, or observations.

Second the questions in the case study protocol should distinguish clearly among different types or levels of questions. The potentially relevant questions can, remarkably, occur at any of five levels:

Level 1: questions asked for specific interviewees.

Level 2: questions asked of the individual case (these are the questions in the case study protocol to be answered by the investigator during a single case, even when the single case is part of a larger, multiple-case study);

Level 3: questions asked of the patterns of finding across multiple cases.

Level 4: questions asked of an entire study – for example, calling on information beyond the case study evidence and including other literature or published data that may have been reviewed.

Level 5: normative questions about policy recommendations and conclusions, going beyond the narrow scope of the study.

Of these levels you should concentrate heavily on level 2 for the case study protocol. Keep in mind that the verbal line of inquiry is different from the mental line of inquiry, and this is the difference between level 1 and level 2 questions.

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.

Common confusion begins often because the data collection may be individual people, whereas the unit of analysis of your case study may be a collective (e.g. an organization to which the individual belongs). Even though your data collection may have to rely heavily on information from individual interviewees, your conclusion cannot be based entirely on interviews as a source of information. Then the protocol questions need to be about the organization, not the individual.

The protocol also can include empty “table shells” (see for more details Miles & Huberman, 1994). These are the outline of a table, defining precisely the “rows” and “columns” of a data array – but in the absence of having the actual data. Your job is to collect the data called forth by the table.

The basic outline of a case study report should be part of the protocol. This will facilitate the collection of relevant data, in the appropriate format, and will reduce the possibility that a return visit to the case study site will be necessary. At the same time, the existence of such an outline should not imply rigid adherence to a predesigned protocol.

Screening the candidate “cases” for your case study

The goal of the screening procedure is to be sure that you identify the final cases properly prior to formal data collection. Select cases that best fit your (literal or theoretical) replication design.

When the eligible number of candidates is larger, a two stage screening procedure is warranted. The first stage should consist of collecting relevant quantitative data of the entire pool. 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 20 or 30 and then to conduct the second screening stage, which consists of carrying out the research procedures.

A pilot case study will help you to redefine your data collection plans with respect to both the content of the data and the procedures to be followed. The scope of the inquiry of the pilot case can cover both substantive and methodological issues. 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 is used as the final plan as faithfully as possible.

Chapter 4: Collecting Case study Evidence

Case study evidence can come from many sources, Six are: documentation, archival records, interviews, direct observation, participant-observation, and physical artifacts. Each source is associated with an array of data or evidence.

In addition you need to be familiar with the data collection procedures using the six different sources of evidence.

You also need to continue addressing the earlier mentioned design challenges: construct validity, internal validity, external validity, and reliability.

Here are three general principles that have been neglected in the past:

- using multiple, not just single source of evidence;
- creating a case study data base;
- maintaining a chain of evidence.

Interviews

When using interviews there are at least three types:

- In - depth interview. This interview may take place over an extended period of time, not just a single sitting. You can ask the interviewee about the facts of a matter as well as their opinions about events. In some situations, you may even ask the interviewee to propose his or her own insights into certain occurrences. And may use such propositions as the basis for further inquiry. The interviewee can also suggest other persons for you to interview as well as other sources of evidence (the interviewee is than more “informant” in stead of respondent).
- Focused interview. Although the interview may still remain open-ended and assume a conversational manner, you are more likely to follow a certain set of questions derived from a case study protocol.
- Formal survey interview. This entails more structured questions, along the line of a formal survey. This type of interview would follow both the sampling procedures and the instruments used in regular surveys, and it would subsequently be analyzed in a similar way. The difference would be the surveys role in relation to other sources of evidence (see in-depth interview). Then the formal survey would only be a part of the total interview/overall assessment.

A common question about doing interviews is whether to record them. Using recording devices is a matter of personal preference. Audiotapes certainly produce a more accurate rendition of any interview than any other method. However, a recording device should not be used when (a) an interviewee refuses permission or appears uncomfortable in its presence, (b) there is no plan for transcribing or systematically listening to the contents of the electronic records – a process that takes enormous time and energy, (c) the investigator is clumsy enough with mechanical devices that the recording creates distractions during the interview itself, or (d) the investigator thinks that the record device is a substitute for “listening” closely throughout the course of an interview.

Direct observation

Because a case study should take place in the natural setting of the “case,” you are creating the opportunity for direct observations. Assuming that the phenomena of interest have not been purely historical, some relevant behaviors or environmental conditions will be available for observation. Such observations serve as yet another source of evidence in a case study. Formally observational instruments can be developed as part of the case study protocol. Less formally, direct observations can be made throughout a field visit, including those occasions during which other evidence, such as interviews, is being collected.

Participant-Observation

Participant-Observation is a special mode of observation in which you are not merely a passive observer. Instead you may assume a variety of roles within a case study situation and may actually participate in the events being studied. Examples:

being a resident in a neighborhood;

Taking some other functional role in a neighborhood;

serving as a staff member in an organizational setting;

being a key decision maker in an organizational setting.

Physical Artifacts

A final source of evidence is a physical or cultural artifact – a technological device, a tool or instrument, a work of art, or some other physical evidence. Such artifacts may be collected, or observed, as part of any case study and have been used extensively in anthropological research.

Three principles of data collection

The benefit from the mentioned six sources of evidence can be maximized if you follow three principles:

Principle 1: Use Multiple Sources of Evidence

Triangulation is the rationale for using multiple sources of evidence. Furthermore, the need to use multiple sources of evidence far exceeds that in other research methods, such as experiments, surveys, or histories.

The use of multiple sources of evidence allows an investigator to address a broader range of historical and behavioral issues. However, the most important advantage presented by using multiple sources is the development of converging lines of inquiry, a process of triangulation and corroboration that is repeatedly emphasized.

Four types of triangulation:

- Of data sources (data triangulation);
- among different evaluators (investigator triangulation);
- of perspectives to the same data (theory triangulation);
- of methods (methodological triangulation)

With data triangulation, the potential problems of construct validity also can be addressed because the multiple sources of evidence essentially provide multiple measures of the same phenomenon. Not surprisingly, one analysis of case study methods found that those case studies using multiple sources of evidence were rated more highly, in terms of their overall quality, than those that relied on only single sources of information. Also each investigator needs to know how to carry out the full variety of data collection techniques.

Principle 2: Create a Case Study Database

There are two separate collections:

- the data or evidentiary base
- the report of the investigator, whether in article, report or book form.

A case study data base markedly increases the reliability of the entire case study.

Case study notes

For case studies, your own notes are likely to be the most common component of a database. Regardless of their form, the notes must be stored.

Case study documents

The disposition of these documents should be covered in the case study protocol and suggested that one helpful way is to have an annotated bibliography of these documents. Such annotations would again facilitate storage and retrieval, so that later investigators can inspect or share the database.

Tabular material

Such material also need to be organized and stored to allow for later retrieval.

Narratives

Certain type of narratives, produces by a case study investigator upon completion of all data collection, also may be considered a formal part of the database and not part of the final case study report.

Principle 3: Maintain a chain of evidence

The external observer should be able to trace back the steps in either direction (from conclusions back to initial questions or from questions to conclusions). More specifically between case study report, case study database, citations to specific evidentiary sources in the case study database, case study protocol (linking questions to protocol topics), and case study questions.

Chapter 5: Analyzing Case Study Evidence

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

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

However, all empirical research studies, including case studies have a “story” to tell. The story differs from a fictional account because it embraces your data, but it remains a story because it must have a beginning, a middle and an end. The needed analytical strategy is your guide to crafting this story, and only rarely will your data do the crafting for you. Once you have a strategy, the tools may turn out to be extremely useful (or irrelevant). Four such strategies are described below.

Four General Strategies

1. Relying on theoretical propositions

The first and most preferred strategy is to follow the theoretical propositions that led to your case study. The original objectives and design of the case study presumably were based on

such propositions, which in turn reflected a set of research questions, reviews of the literature, and new hypothesis or propositions. (for an example, see Yin, 2009, p. 130)

2. Develop a case description

This strategy is less preferable than relying on theoretical propositions but serves as an alternative when you are having difficulty making the first strategy (theoretical propositions) work. For instance you actually (but undesirably) may have collected a lot of data without having settled on an initial set of research questions or propositions. Then you organize these data in a descriptive framework. Such was the case of the famous sociological case study 'Middletown. Its compositional structure was reflected by its chapters:

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

In other situations a descriptive approach was used to identify (a) an embedded unit of analysis and (b) an overall pattern of complexity that ultimately was used in a casual sense to "explain" why implementation had failed.

3. Using both qualitative and quantitative data

The quantitative data may have been relevant for at least two reasons:

- * the data may cover the behavior or events that your case study is trying to explain – typically the "outcomes" in an evaluation study;
- * The data may be related to an embedded unit of analysis within your broader case study.

If you attempt this third strategy, be prepared for the skills you will need. Beyond knowing how to do the cases study well, you may have to master certain statistical techniques.

4. Examining rival explanations

Initial theoretical propositions (the first strategy above) might have included rival hypothesis. For instance, the typical hypothesis in an evaluation is that the observed outcomes were the result of an intervention supported by public or foundation funds. The direct rival explanation would be that the observed outcomes were in fact the result of some other influence beside the intervention and that the investment of funds may not actually have been needed.

There are several types of rival explanations. Crafts rivals that underlie all of our social science research, and 'Real Life' rivals .

Crafts rivals:

- * The Null Hypothesis: the observation is the result of change circumstances only.
- * Threats to validity: e.g., history, maturation, instability, testing, instrumentation, regression, selection, experimental mortality, and selection-maturation interaction.
- * Investigator Bias: e.g., "experimenter effect", reactivity in field research.

Real-Life Rivals

- * Direct Rival (practice or policy): an intervention ("suspect 2") other than the target intervention ("suspect 1") accounts for the result ("the butler did it").
- * Commingled Rival (practice or policy): other interventions and the target intervention both contributed to the results ("it wasn't only me")

- * Implementation Rival: the implementation process, not the substantive intervention, accounts for the results (“did we do it right?”).
- * Rival Theory: a theory different from the original theory explains the results better (“it’s elementary, my dear Watson”).
- * Super Rival: a force larger than but including the intervention accounts for the result (“it’s bigger than both of us”)
- * Societal Rival: social trends, not any particular force or intervention, accounts for the results (“the times, they are a-changin”)

Five analytical techniques

The techniques are especially intended to deal with the previous noted problems of developing internal and external validity.

1. Pattern matching (to strengthen internal validity)

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

- nonequivalent dependent variables as a pattern.

The dependent-variables pattern may be derived from one or more potent quasi-experimental research designs, labeled a “nonequivalent, dependent variables design”. For these studies, as well as a case study, the pattern matching occurs in the following manner: If for each outcome, the initially predicted values have been found, and at the same time alternative “patterns” of predicted values (including those deriving from methodological artifacts, or “threats” to validity) have not been found, strong causal inferences can be made. For instance, imagine that your belief is that when a military base closes, the community where it is located suffers economically (houses, employment, other markets). To test this you can identify a series of sector and then collect data about each sector before and after a base closure. A pattern matching procedure, examining the pre-post patterns of outcomes in every sector and also in comparison to other communities and statewide trends, can show that the outcomes are much less severe than anticipated. That some sectors do not even show any decline.

- Rival explanations as patterns

The use of rival explanations, besides being a good general analytic strategy, also provides a good example of pattern matching for Independent variables. For instance in a multiple-case study you can compare/”pattern-match” different theories where each theory predicts a different path of rival events, that should precede the pre-established outcome. With a single case, the successful matching of the pattern to one of the rival explanations would be evidence to conclude that this pattern was the correct one.

- Simpler patterns

The fewer the variables, of course, the more dramatic the different patterns will have to be, to allow any comparison of their differences. Nevertheless, there are some situations in which the simpler patterns are both relevant and compelling.

- Precision of pattern matching

Whether one is predicting a pattern of nonequivalent dependent variables, a pattern based on rival explanations, or a simple pattern, the fundamental comparison between the predicted and the actual pattern may involve no quantitative or statistical data.

Low levels of precision can allow for some interpretive discretion on the part of the

investigator, who may be overly restrictive in claiming a pattern to have been violated or overly lenient in deciding that a pattern has been matched. You can make your case stronger by developing more precise measures.

2. Explanation building

This is a special type of pattern matching, but the procedure is more difficult. The procedure is mainly relevant to explanatory case studies. A parallel procedure, for exploring 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 explanation

To explain a phenomenon is to stipulate a presumed set of causal links about it, or “how” or “why” something happened.

- Iterative nature of explanation building

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

- * making an initial theoretical statement or an initial proposition about policy or social behavior;
- * comparing the findings of ‘an initial case’ against such a statement or proposition;
- * revising the statement or proposition;
- * comparing other details of the case against revision;
- * comparing the revision to the facts of a second, third or more cases;
- * repeating this process as many times as needed.

In this sense, the final explanation may not have been fully stipulated at the beginning of a study and therefore differs from the pattern-matching approaches previously described. The gradual building of an explanation is similar to the process of refining a set of ideas., in which an important aspect is again to entertain other plausible or rival explanations.

- Potential problems in explanation building

- * An investigator may slowly begin to drift away from the original topic of interest.

3. Time-series Analysis

A third analytical technique is to conduct a time-series analysis, directly analogous to the time-series analysis conducted in experiments and quasi experiments. The essential logic underlying a time-series design is the match between the observed (empirical) trend and either of the following: (a) a theoretically significant trend specified before the onset of the investigation or (b) some rival trend, also specified earlier.

- Simple time series.

In time series there may only be a single dependant or independent variable.

- Complex time series

The time-series designs can be more complex when the trend within a given case are postulated to be more complex. One can postulate, for instance, not merely rising or declining (or flat) trends, but some rise followed by some decline within the same case (call for stipulating statistical non linear models).

Greater complexity also arises when a multiple set of variables – not just a single one – are relevant to a case study and when each variable may be predicted to have a different pattern over time.

- *Chronologies.*

The compiling of chronological events is a frequent technique in case studies and may be considered a special form of time-series analysis.

The analytical 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 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.

- *Summary conditions for time-series analysis*

An essential feature is to identify the specific indicator(s) to be traced over time as well as the specific time intervals to be covered and the presumed temporal relationships among events, prior to collecting the actual data.

4. Logic Models

The logic model deliberately stipulates a complex chain of events over an extended period of time. The events are staged in repeated cause-effect-cause-effect patterns, whereby a dependent variable (event) at an earlier stage becomes the independent variable (causal event) for the next stage (Peterson & Bckman, 1992; Rog & Huebner, 1992).

As an analytical technique, the use of logical models consists of matching empirically observed events to theoretically predicted events. Conceptually you therefore may consider the logic model technique to be another form of pattern matching.

Joseph Wholey (1979) 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 produces 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.

- Four types of models

- * Individual-level logic model: your case study is about an individual person.
- * Organisational level logic model.
- * An alternative configuration for an organizational-level logic model.

Graphically, nearly all logic models follow a linear sequence. In real life, however, events can be more dynamic, not necessary progressing linearly.

- * Program-level logic model: a model that depicts the rationale underlying f.i. of a federal program. In the case if a HIV/AIDS program, a model was created/used to organize and analyze data from eight case studies, including the data of rival explanations, whose potential role also is shown in the model (see p. 157 for an example).

5. Cross-Case Synthesis

This technique applies specifically to the analysis of multiple cases. Cross-case synthesis can be performed whether the individual case studies have previously been conducted as

independent research studies (authored by different persons). One possibility starts with the creation of word tables that display the data from the individual cases according to some uniform framework. Complementary word tables can go beyond the single features of a case and array a whole set of features on a case-by-case basis. Now, the analysis can start to probe whether the different groups of cases appear to share some similarity and deserve to be considered instances of the same “type” of general case.

An important caveat in conducting this kind of cross-case synthesis is that the examination of word tables for cross-case patterns will rely strongly on argumentative interpretation, not numeric tallies.

Pressing for a high-quality analysis

At least four principles underlie all good social science research:

1. Your analysis should show that you attended to all the evidence. Your analytical strategies, including the development of rival hypothesis, must exhaustively cover your key research questions. Show how you sought to use as much evidence as was available.
2. Your analysis should address, if possible, all major rival explanations
3. Your analysis should address the most significant aspect of your case study.
4. You should use your own prior expert knowledge in your case.

The strong preference here is for you to demonstrate awareness of current thinking and discourse about the case study topic.

Again, one recommendation is to begin with a simple and straightforward case study (or more preferable, a “two-case” design), even if the research questions are not sophisticated or innovative as might be desired. Experience in gaining in completing such straightforward case studies will lead you to the ability to tackle more difficult topics in subsequent case studies.

Chapter 6. Reporting Case Studies: how and what to compose?

As a general rule, the compositional phase puts the greatest demands on a case study investigator. Most of the notable case study scholars have been ones who liked to compose and also actually had a flair for writing.

Typically, most investigators ignore the compositional phase until the very end of their cases studies. In general, the composition phase is so important that you should give it explicit attention throughout the earlier phases of your case study.

Your case study report can have more audiences: academic colleagues, non specialists, thesis committee and research funders. Whatever the audience, the greatest error you can make is to compose a report from an egocentric perspective. This error will occur if you complete your report without identifying a specific audience or without understanding the specific needs of such an audience.

Formats for Written Case Study Reports

There are at least four important varieties:

1. The classic single-case study: a single narrative is used to describe and analyze the case
2. The multiple-case version of the classic single case. This type of multiple-case report will contain multiple narratives, covering each of the cases singly, usually presented as separate chapters or sections. In addition to these individual case narratives, your report also will

contain a chapter or section covering the cross-case analysis and results.

3. The composition follows a series of questions and answers, based on the questions and answers in the case study base. This question-and-answer format may not reflect your full creative talent, but the format helps you to avoid the problem of writer's cramps.

4. Multiple-case studies only: there may be no separate chapters or sections devoted to the individual cases. Rather your entire report may consist of the cross-case analysis, whether purely descriptive or also covering explanatory topics. Each chapter would be devoted to a separate cross-case issue, and the information from the individual cases would be dispersed throughout each chapter or section.

The case study composition should be identified during the design of the case study.

A total different situation occurs when your case study has been deliberately designed to be part of a larger, mixed methods study. In this situation, the larger encompasses the case study. These mixed methods deserves a bit more attention.

First the larger study may have called for mixed methods simply to determine whether converging evidence (triangulation) might be obtained even though different methods have been used (Datta, 1997). Then you have the same initial research questions.

Second the larger study may have been based on a survey or quantitative data. Then, the questions for the case study might only be surfaced after the survey or archival data had been analyzed.

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

Illustrative Structures for Case Study compositions

The chapters, sections, subtopics, and other components of a report must be organized in some way, and this constitutes your case study report's compositional structure.

John van Maanen (1988) has developed the concept of "tales" for reporting fieldwork studies: realist tales, confessional tales, impressionist tales, critical tales, formal tales, literary tales, and jointly told tales.

Alternatives also exist for structuring case study reports.

1. Linear –Analytical Structures

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 findings from data collected and analyzed, and the conclusions and implications from the findings.

2. Comparative Structures

A comparative structure repeats the same case study two or more times, comparing alternative descriptions or explanations of the same case study.

3. Chronological Structures

Here the sequence of chapters might follow the early, middle, and late phases of case history.

Whether for explanatory or descriptive purposes, a chronological approach has one pitfall to be avoided: giving disproportionate attention to the early events and insufficient attention to the later ones.

4. 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 arguments being made.

5. Suspense Structures

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

6. 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).

Procedures in doing a case study report

Three important procedures pertain specifically to case studies:

1. Start composing early in the analytical process

For instance, after the literature has been reviewed and the case study has been designed, two sections of a case study report can be drafted: the bibliography and the methodological sections. The bibliography can always be augmented later with new citations if necessary.

A third section is the preliminary literature review and how it led to or complemented your research questions and the propositions being studied.

After data collection, but before analysis begins, a fourth section that can be composed covers the descriptive data about the case being studied. Whereas the methodological section should have included the issues regarding the selection of the cases, the descriptive data should cover qualitative and quantitative information about the case(s).

2. Case Identities: Real or Anonymous.

Anonymity issues can be raised at two levels: that of an entire case (or cases) and that of an individual person. The most desirable option is to disclose the identities of both the case and the individuals. This makes the case easier to review. Nevertheless, anonymity is necessary on some occasions for instance when a case study has been on a controversial topic. On such occasions when anonymity may appear justifiable, however, other compromises should still be sought.

First, you should determine whether the anonymity of the individuals alone might be sufficient, thereby leaving the case itself to be identified accurately.

A second compromise would be to name the individuals but to avoid attributing any particular point of view or comment to a singular individual, again allowing the case itself to be identified accurately.

3. Reviewing the Draft Case Study: a validating procedure.

The procedure is to have the draft reviewed, not just by peers (as would be done for any research manuscript) but also by participants and informants in the case.

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.

What Makes An Exemplary Case Study?

Five characteristics:

1. The case study must be significant

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 in practice.

2. The case study must be “complete.”

A sense of completeness is as important in doing a case study as it is in defining a complete series of laboratory experiments. This can be characterized in three ways:

- * the boundaries, that is – the distinction between the phenomenon being studied and its context - are given explicit attention;
- * The collection of evidence. The complete case study should demonstrate convincingly that the investigator expended exhaustive effort in collecting the relevant evidence;
- * the absence of certain artificial conditions like time, resources exhausted, or other nonresearch constraints.

3. The case study must consider alternative perspectives.

To represent different perspectives adequately, an investigator must seek those alternatives that most seriously challenge the assumptions of the case study.

4. The case study must display sufficient evidence.

The exemplary case study is one that judiciously and effectively presents the most relevant evidence, so that the reader can reach an independent judgment regarding the merits of the analysis.

Another goal is to present enough evidence to gain the reader’s confidence the investigator “knows” his or her subject

Finally, the display of adequate evidence should be accompanied by some indication that the investigator attended to the validity of the evidence.

5. The case study must be composed in an engaging manner

For written reports, this means a clear writing style, but one that constantly entices the reader to continue reading. More in general one can say: engagement, enticement, and seduction.

Max Herold
Maart, 2011

For more information: [Yin, R.K \(2009\) Case Study Research: Design and Methods. London: Sage](#)