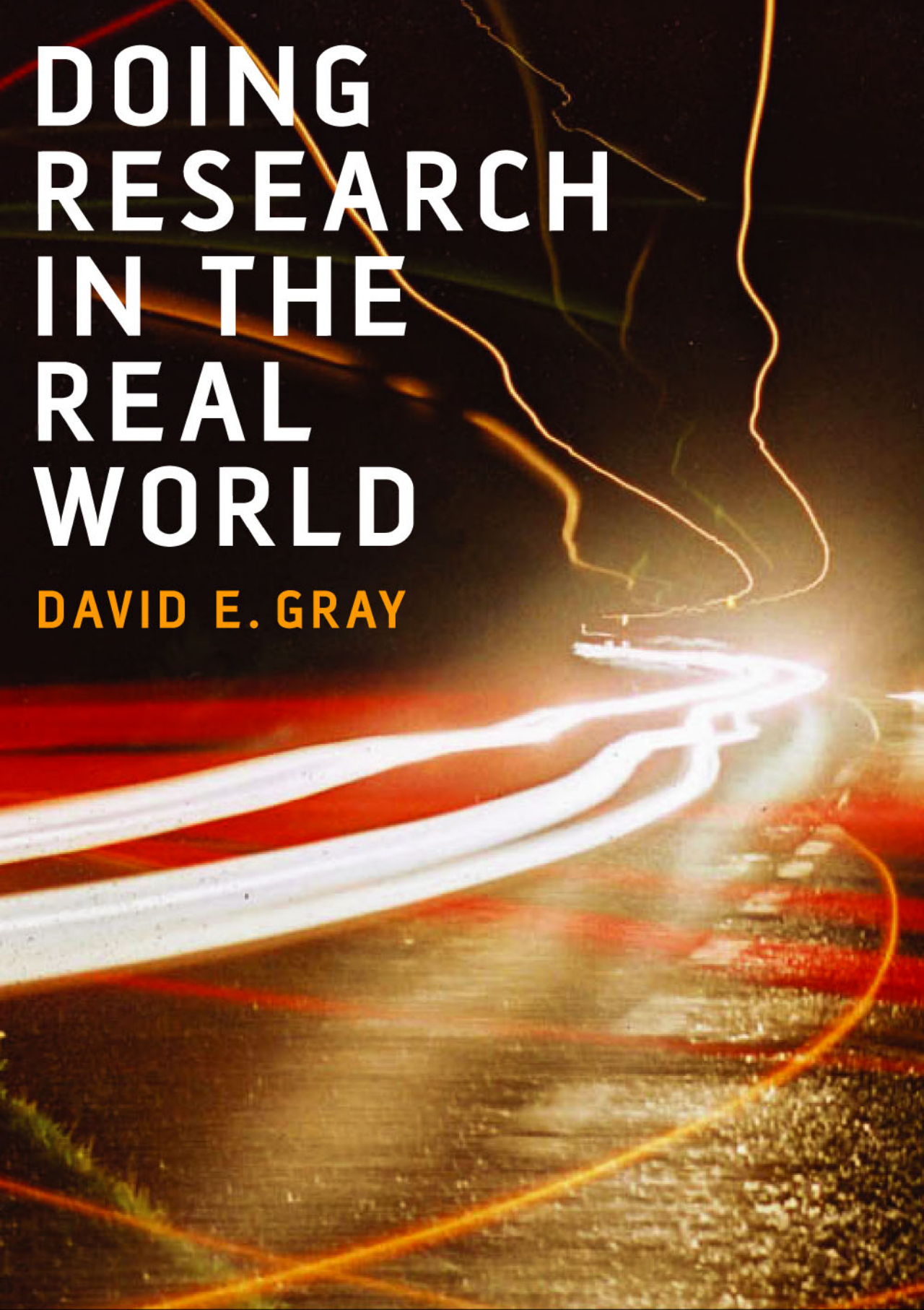
DOING RESEARCH IN THE REAL WORLD

DAVID E. GRAY



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6 Designing Case Studies

Chapter objectives

After reading this chapter you will be able to:

- **Describe the purpose of case studies.**
- **Plan a systematic approach to case study design.**
- **Recognize the strengths and limitations of case studies as a research method.**
- **Compose a case study report that is appropriately structured and presented.**

We saw in Chapter 5 that surveys are used where large amounts of data have to be collected, often from a large, diverse and widely distributed population. In contrast, case studies tend to be much more specific in focus. While surveys tend to collect data on a limited range of topics but from many people, case studies can explore many themes and subjects, but from a much more focused range of people, organizations or contexts. The case study method can be used for a wide variety of issues, including the evaluation of training programmes (a common subject), organizational performance, project design and implementation, policy analysis and relationships between different sectors of an organization or between organizations. According to Stake (2000), case studies can prove invaluable in adding to understanding, extending experience and increasing conviction about a subject. Yin (1993) is insistent that the case study approach can be used as both a qualitative *and* quantitative method. However, just a brief look at case studies shows why they are more often used qualitatively. Yin (1994) defines the case study as

> *… an empirical inquiry that*
>
> - *Investigates a contemporary phenomenon within its real-life context, especially when*
> - *The boundaries between phenomenon and context are not clearly evident.* (Yin, 1994: 13)

Case studies, then, explore subjects and issues where relationships may be ambiguous or uncertain. But, in contrast to methods such as descriptive surveys, case

studies are also trying to attribute *causal* relationships and are not just describing a situation. The approach is particularly useful when the researcher is trying to uncover a relationship between a phenomenon and the context in which it is occurring. For example, a business might want to evaluate the factors that have made a recent merger a success (to prepare the ground for future mergers). The problem here, as with all case studies, is that the contextual variables (timing, global economic circumstances, cultures of the merging organizations, etc.) are so numerous that a purely experimental approach revealing causal associations would simply be unfeasible.

The case study approach requires the collection of multiple sources of data but, if the researcher is not to be overwhelmed, these need to become focused in some way. Therefore case studies benefit from the prior development of a theoretical position to help direct the data collection and analysis process. Note, then, that the case study method tends to be deductive rather than inductive in character (although, as we shall see, this is not always the case). It is also, contrary to popular opinion, often a demanding and difficult approach, because there are no particular standardized techniques as one would find, say, with experimental design. Yin (1994), one of the authorities on case study research, who we will refer to extensively in this chapter, also stresses the wide range of skills and flexibility required by case study investigators.

WHEN SHOULD WE USE CASE STUDIES?

The case study method is ideal when a 'how' or 'why' question is being asked about a contemporary set of events over which the researcher has no control. As Table 6.1 shows, 'what', 'who' and 'where' questions are likely to favour a survey approach, or the use of archival records (unobtrusive measures – see Chapter 10), where it is important to show the incidence of a factor. So, a business that needs to identify how many of its workforce are aged 55 or more, will either turn to its human resource records or, if these are so fragmented as not to contain this kind of information, conduct a survey amongst its employees. This would reveal *who* and *where* these older workers were located. If, however, the organization wanted to know *how* an ageing workforce affected its business, a case study would be able to deal with this more explanatory issue and to illuminate key features.

Activity 6.1

Examine the following social policy problem and, using Table 6.1, suggest which research strategy or strategies could be used to address it:

Government statistics reveal a disturbing rise in inner-city drug addition and substance abuse over the past five years. Increased policing and greater legal penalties have had no effect. Drug rehabilitation experts have recommended the provision of 'safe housing' for persistent offenders where their drug intake can be monitored, regulated and reduced over time. Apart from the threat of political 'backlash', the government wants to understand more about the effectiveness of such a programme before deciding whether to support it.

TABLE 6.1 SELECTION CRITERIA FOR DIFFERENT RESEARCH STRATEGIES

Strategy	Form of research question	Requires control over behavioural events?	Focuses on contemporary events?
Experiment	How, why	Yes	Yes
Survey	Who, what, where, how many, how much	No	Yes
Unobtrusive measures	Who, what, where, how many, how much	No	Yes/No
Case study	How, why	No	Yes

Source: Adapted from COSMOS Corporation, in Yin, 1994

You probably decided that the safe houses approach could be used as a case study to explore *how* the drug intake methods affected addiction. The case study approach is not dissimilar to the use of unobtrusive measures such as documents, archives and the use of historical evidence – in each case no attempt is made to manipulate behaviours. But while unobtrusive measures can only rely on the use of existing documentation (historical or contemporary), case studies tend to focus on collecting up-to-date information. For this reason, data collection may involve the use of not only contemporary documentation, but also direct observation and systematic interviewing.

Nevertheless, as Yin (1994) makes clear, the case study approach has not been universally accepted by researchers as reliable, objective and legitimate. One problem is that it is often difficult (indeed, dangerous) to generalize from a specific case. But, in defence of case studies, Yin points out that most scientific inquiries have to be replicated by multiple examples of the experiment, and case studies too can be based upon multiple cases of the same issue or phenomenon. Gummesson (2000) supports this view, asserting that, even in medicine, doctors' skills are often built up from a knowledge of many individual cases.

Another criticism of case studies is the amount of time they take and the volume of documentation they generate. But Yin argues that this is to confuse case studies with one particular type, the use of ethnographic or participant-observation studies where the amount of data collected can be vast. The one argument that Yin (1994) does concede is that conducting case studies successfully is an uncommon skill.

THE CASE STUDY DESIGN PROCESS

Before embarking on the design process itself, Yin (1994) recommends that the investigator is thoroughly prepared for the case study process. This includes being able to formulate and ask good research questions and to interpret the answers. This means 'switching off' his or her own interpretative 'filters' and actually noting what is being said, or done (recall the discussion of phenomenology in Chapter 1). The investigator must be able to respond quickly to the flow of answers and to pose new questions or issues. Having a firm grasp of the theoretical principles involved will obviously help because issues will be thrown into

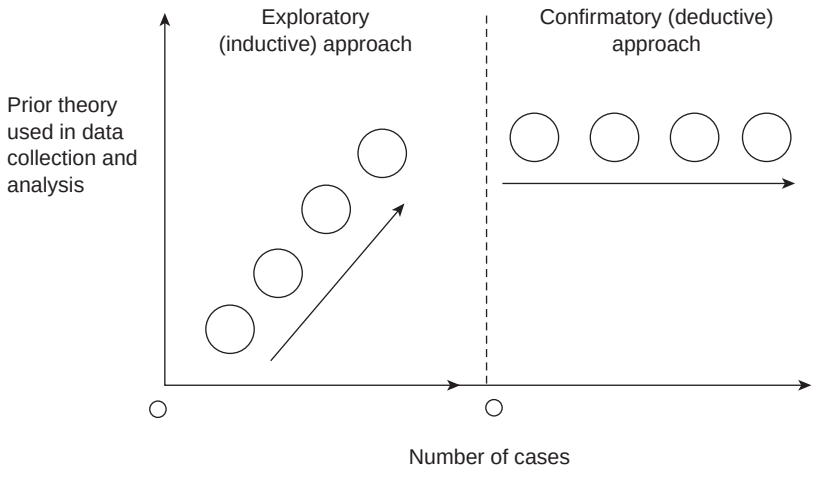

FIGURE 6.1 A COMPARISON OF TWO CASE STUDY POSITIONS: INDUCTIVE AND DEDUCTIVE (ADAPTED FROM PERRY, 1998)

sharp relief if the data contradict what was expected. This, again, reinforces the importance of the deductive approach. But the case study approach can also generate data that help towards the development of theory – and is, hence, inductive. So which is most important?

Inductive or deductive?

A possible relationship between induction and deduction in case study research is illustrated by Perry (1998). In the left side of Figure 6.1, the first (extreme left hand) case study is purely inductive or exploratory, starting from no theoretical position (pure grounded theory – see Chapter 10). Data collection and analysis in the next case study are informed by some of the concepts found in the first study. But it is difficult to draw inferences through this approach because, as new findings are generated with each study, the focus of subsequent studies (and the kinds of questions that are asked) begins to shift. Hence, data from each study cannot be compared, because we would not be comparing like with like.

This problem is overcome by the more deductive, or at least confirmatory, approach on the right side of Figure 6.1. Here, the first case study could constitute a pilot case, which establishes the theoretical boundaries and then the data gathering protocol and tools for all the remaining studies. The initial theory is then confirmed or rejected by cross-case data analysis across all the main case studies.

This approach is confirmed by Yin (1994), who also argues that, after adopting a particularly theoretical position, the research proceeds through a series of

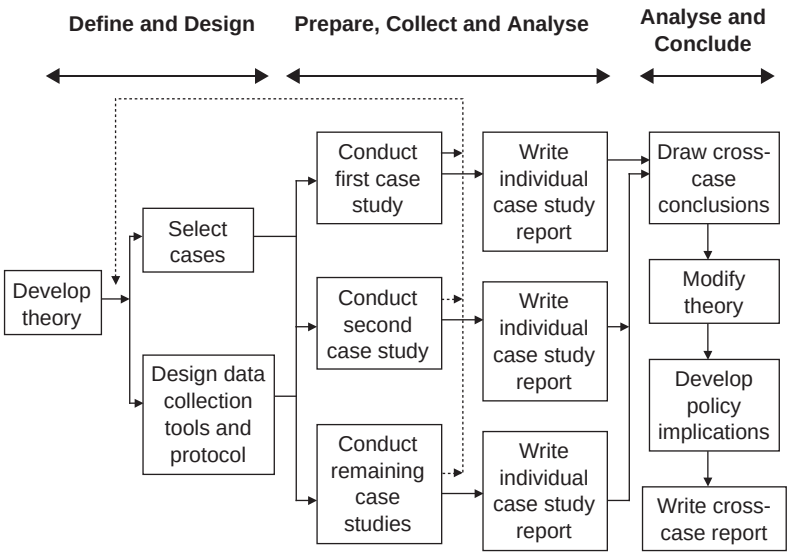

FIGURE 6.2 MULTIPLE CASE STUDY METHOD (ADAPTED FROM YIN, 1994)

case studies, allowing for cross-case comparisons to be taken. In essence, Yin suggests that the research should progress through a series of stages (see Figure 6.2), each of which is described in more detail in the next section.

A case study process

Develop a theoretical stance

A provisional hypothesis or set of questions is developed – provisional in the sense that they are open to further improvement or modification during the process of the study. Hypotheses or questions should be linked, where possible, with previous research. This is also an opportunity to identify rival hypotheses and theories, both of which will help in the analysis of the results.

Let us take the example of a case study that seeks to evaluate the software development process for the building of an organization's intranet Web portal. The hypothesis is that: for Web portal design, the traditional principles of the software development 'life cycle' are inappropriate. Then, using what Yin (1993) calls *analytical generalization*, we are able to compare and contrast the results of the case study with an accepted set of principles or theory. If two or more cases are shown to support the theory, then it becomes possible to make a claim that the theory has been replicated. Yin warns, however, that while analytical generalization is appropriate, statistical generalization is certainly not. It should not be assumed, for

example, that the results of a case study can be generalized to a larger population as one would do in an experimental or quasi-experimental design.

Select cases

Cases are selected and the main and subordinate units of analysis provisionally defined. For example, the organization itself might be the main unit of analysis, with departments or geographically dispersed sites the subordinate units. Note that the main and subordinate units of analysis may require different research tools.

Design and pilot research tools, protocols and field procedures

In the design process, care should be taken to ensure that all tools match the original hypothesis and research objectives. Protocols involve the design of a structured set of processes or procedures, often linked to how the research tool is to be administered. For example, a protocol might be used to specify to an interviewer exactly how the interview is to be conducted, and how the interview schedule is to be used.

One of the key design issues in the case study method is the definition of the *unit of analysis,* and then ensuring that this unit of analysis fits with the research objectives of the study. Taking our Web portal development example, it is this *process* that is the unit of analysis and not the look or functionality of the portal itself (although this could be the subject of a different case study). The conceptual framework here is the software development process, including design, prototyping, development, testing and implementation. The study could also explore the group dynamics (another process) between the Web development team involved in building the portal, to understand how their efforts can be improved in future Web projects.

Conduct case study (or studies)

The data are collected, analysed and synthesized into individual case study reports. This is unlikely to occur in a sequential process. So there may be circumstances when analysis raises new questions for which new units of analysis may have to be formulated and additional data collected. Each of the case studies is regarded as a study in its own right, and the findings of each needs to produce *converging evidence*, so that the data from one case replicate the data from another. Think in terms of the police detective at the scene of a crime looking for multiple pieces of evidence that, together, add up to a clear 'picture' or solution.

However, while much of the data may serve to 'prove' or illustrate an issue or phenomenon, negative instances may also make a vital contribution to the analysis. Kidder (1981), for example, shows how an initial hypothesis can be continually revised (on the basis of negative or contradictory data) until it can be validated by the data. Case studies can also sometimes be illuminated by key events. The routine of office or factory life, for example, may serve to obscure phenomena

or trends whereas a key event such as a staff 'away day' or a new computer system going 'live' may throw up revealing tensions and social dynamics.

In terms of data collection, the case study method requires the use of *multiple sources of evidence*. This might include the use of structured, semi-structured or open interviews, field observations or document analysis. As we saw in Chapter 3, multiple sources of data also help address the issue of construct validity because the multiple sources of evidence should provide multiple measures of the same construct. The next Case Study provides an example of how rich data can be collected from multiple sources in order to develop a case study.

Case Study 6.1 The taxi-dance hall

In 1932, a group of researchers from Chicago carried out an ethnographic study of an institution called the taxi-dance hall. These halls had developed in the nineteenth century during a period of mass immigration to the USA and were clubs where men could pay for dances with young women. The city social services department were concerned that these dance halls were dens of vice and prostitution.

Four research assistants were employed to collect data by attending dances as participant observers and later to interview taxi-dancers, their clients and the businessmen who ran the halls. The study is vague on precise methodological details, such as the length of the project or ethical or practical issues. But the study is rich in description, as the following passage shows:

> *Before long the patrons and taxi-dancers began to arrive. Some patrons come in automobiles, though many more alight from street cars. Still others seem to come from the immediate neighbourhood. For the most part they are alone, though occasionally groups of two or three appear. The patrons are a motley crowd. Some are uncouth, noisy youths, busied chiefly with their cigarettes. Others are sleekly groomed and suave young men, who come alone and remain aloof. Others are middle-aged men whose stooped shoulders and shambling gait speak eloquently of a life of manual toil. Sometimes they speak English fluently. More often their broken English reveals them as European immigrants, on the way towards being Americanized. Still others are dapperly little Filipinos who come together, sometimes even in squads of six or eight, and slip quietly into the entrance. Altogether the patrons make up a polyglot aggregation from many corners of the world.* (Cressey, 1932: 4–5)

Analysis of the data reveals that many of the girls see dancing as a glamorous and well-paid alternative to an early marriage, or to factory or office work. The backgrounds and motivation of the clients are revealed, and show them as isolated and lonely people. There is discussion of the language used by the dancers and their descriptions of clients as 'suckers', 'fruit' and 'fish'. As Travers points out, the result of the study is 'a revealing and intimate portrait of this social world, built up through a careful study of different group and individual perspectives' (2001: 28).

Source: Cressey, 1932, in Travers, 2001

Activity 6.2

Look back at Case Study 6.1.

1 Identify the implicit working hypothesis of the study.
2 What are the multiple sources of evidence?
3 On the basis of the evidence presented in the study, should the original hypothesis be accepted or rejected?

Suggested answers are provided at the end of the chapter.

Create a case study database (optional)

This process is to ensure that information is collected systematically and that it is logically ordered in the database as well as being easily accessible. One factor that distinguishes the case study approach from other research methods is that the case study data and the case study report are often one and the same. But all case studies should contain a presentable database so that other researchers and interested parties can review the data as well as final written reports. Allowing other researchers to evaluate the data or to replicate it increases the *reliability* of the case study. Case study databases can take a variety of formats, including the use of:

- *Case study notes* resulting from observations, interviews or document analysis, and may take the form of computer files (word processed or an actual database), diary entries or index cards. Whatever form they take, it is essential that they are put into categories and that these can be accessed quickly and easily. Obviously, computer-based files are more efficient in terms of both storage space and search facilities.
- *Case study documents*, which need to be carefully stored and an annotated bibliography produced for ease of later analysis and retrieval.
- *Tabular materials* of quantitative data.

Draw cross-case conclusions

This can include a broad range of analytical techniques involving both quantitative and qualitative approaches. A result of data analysis may also require that further data need to be collected. If the results are unexpected (in the light of current theory) the researcher may have to return to the theory and suggest modifications. The analysis may also have implications for policy making and organizational practice.

Write the case study report

One of the problems with case studies is that they tend to produce large volumes of data, held in a case study database. The report writing stage, then, can sometimes

TABLE 6.2 THE PROCESS OF CASE STUDY CONSTRUCTION

Stage	Process	
Step 1	*Assemble raw case data.* Consists of all the information collected about an organization, person(s) or event	Chain of evidence ↓
Step 2 (optional)	*Construct case record.* Organize, classify and edit raw data to condense it	
Step 3	*Write case study narrative.*	

Source: Adapted from Patton, 1990

appear quite daunting. Patton (1990) suggests that a useful intermediary step between this database and the writing of the case study report (which he terms a narrative) is the construction of a case record (see Table 6.2). Each record contains an edited and more condensed version of each case.

The case study report is conceptually linked back to the case study records and raw case data through a 'chain of evidence', including tables, reproduced documents, vignettes etc. These allow the reader (such as another researcher, or the case study's sponsor) to question and even re-interpret the data if necessary. The evidence in the database should also be consistent with the questions and procedures cited in the case study protocol. Allowing a researcher to successfully check the chain of evidence increases the *reliability* of the case study if more than one researcher uses the data to come to similar conclusions (inter-judge reliability).

The task of report writing is much easier, and the results are likely to be more coherent, if the previous stages have been observed carefully. For example, if a case study protocol has been drawn up and implemented, and if individual case study reports have been written up and conclusions drawn (See Composing case study reports, p. 143, for details of report types and structures.)

TYPES OF CASE STUDY DESIGN

Whatever the precise case study design chosen, it is essential that the case study takes the reader into the case situation. This means that descriptions should be holistic and comprehensive and should include 'myriad dimensions, factors, variables, and categories woven together into an idiographic framework' (Patton, 1990: 387). The design process for case studies involves deciding whether the unit of analysis for the study will be an individual case (for example, a person or organization) or multiple cases. Yin (1994) proposes four main types of case study design, as represented in Figure 6.3, each of which need to be selected on the basis of particular sets of conditions. This shows that case studies can be based upon single or multiple case designs and on single or multiple units of analysis.

Type 1: single case study, holistic

In this type of study, only a single case is examined, and at a holistic level, for example, an entire programme, not individual elements within it. The single case

	Single case designs	Multiple case designs
Holistic (single unit of analysis)	**Type 1** Single/holistic	**Type 3** Multiple/holistic
Embedded (multiple units of analysis)	**Type 2** Single/embedded	**Type 4** Multiple/embedded

FIGURE 6.3 MAIN TYPES OF CASE STUDY DESIGN

study should be chosen when it can play a significant role in testing a hypothesis or theory. Another reason is when the case study represents a unique or extreme case, or a revelatory case, where, for example, a researcher is allowed into a previously sensitive or secretive organization to carry out research. There may be other times when a single case study is merely the precursor to further studies and may perhaps be a pilot for a later multiple study.

Type 2: Single case, embedded

Within a single case study, there may be a number of different units of analysis. For example, let us take a case study looking at the implementation of a mentoring system. This is a single case (the mentoring system) but the multiple units of analysis here might comprise:

- The official mentoring processes as laid down by the company's mentoring handbook.
- The perspectives of mentors.
- The perspectives of mentees.
- Tangible evidence that the mentoring system improves company collaboration, networking and morale.

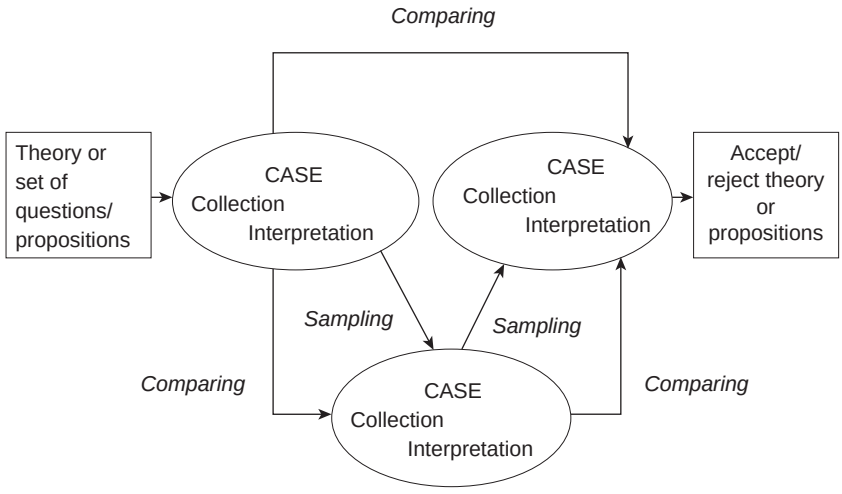

FIGURE 6.4 REPLICATION THROUGH USE OF MULTIPLE CASES (ADAPTED FROM FLICK, 1998)

Type 3: Multiple case, holistic

Where the multiple case study approach is needed (say, to improve the reliability or generalizability of the study) but it is not possible to identify multiple units of analysis, then a more holistic approach can be taken. Let us use the example of a region comprising several hospitals that is attempting to improve its communication processes through the implementation of a specially designed training programme. A researcher might use this communications training programme as a single, holistic unit of analysis, but look at the operation of the programme in all of the hospitals (multiple cases) and over a number of months. The aim here is not to increase the size of the hospital 'sample', but to *replicate* the findings of one case across a number of cases. In this sense, the approach is not very dissimilar to that of experimentation, where an attempt is made to replicate the findings of one experiment over a number of instances, to lend compelling support for an initial set of propositions. Figure 6.4 illustrates this.

Yin (1994), however, warns that a very serious danger of holistic designs is that the nature of the study may begin to shift under the very nose of the researcher. Hence, the researcher may have begun the investigation on the basis of one set of questions, but the evidence from the case study may begin to address a very different set of questions (recall the left-hand side of Figure 6.1). This is such a threat to the validity of the study that Yin (1994) argues that the only recourse is to begin the study again with a new research design.

Type 4: Multiple case, embedded

The problems faced by holistic case studies can be reduced if multiple units of analysis are used which allow for more sensitivity and for any slippage between

research questions and the direction of the study to be identified at a much earlier stage. But one of the dangers of embedded designs is that the sub-units of analysis may become the focus of the study itself, diverting attention away from the larger elements of analysis. For example, with our communications case study, the researcher may examine how the training programme has improved communications between certain groups of nurses and doctors. But if the study remains at this level, it may fail to use this data to explore the wider issue of organizational communication (say, the role of senior management directives) where more significant problems may lurk.

Nevertheless, one of the advantages of multiple case studies is replication (see Figure 6.4, above). But how many case studies is sufficient for multiple case design? The answer, as you would probably expect, is not simple. If external validity (the generalizability of the results – see Chapter 3) is important, or if it is feared that each study may produce quite divergent results, then it is safest to maximize the number of studies. The key here will not to be to aim for measures of statistical significance but for at least some semblance of reliability and credibility.

DATA COLLECTION SOURCES

Yin (1994) suggests that there are broadly six main sources of case study data, each of which have their own strengths and weaknesses, which are summarized in Table 6.3. It should be noted that these sources are not mutually exclusive, with a good case study tending to use multiple sources of evidence. Note that each of these data collection sources is discussed in detail in later chapters.

Activity 6.3

A new Managing Director takes over at Zenco, a manufacturer of engine parts for the automobile industry. His first decision, in a major cost-cutting exercise, is to scrap the headquarters' Reception desk and make the staff who work in it redundant. In its place, visitors have to complete their own security passes and use the internal company telephone directory to inform their client that they have arrived. After six months, you are asked by the MD to carry out a small case study on how the new system is working.

1 What kind of research questions would you seek to address?
2 Which of the following data gathering methods would you use: survey, observation, interview, archival records? Would you favour just one of these methods or use a combination?

Suggested answers are provided at the end of the chapter.

TABLE 6.3 SIX SOURCES OF EVIDENCE AND THEIR STRENGTHS AND WEAKNESSES

Source of evidence	Strengths	Weaknesses
Documentation (see Chapter 10)	Stable – can be reviewed repeatedly Unobtrusive – not created as a result of the case study Exact – contains precise details of names, positions, events Broad coverage – long span of time, events and settings	Access – problems of confidentiality in many organizations Reporting bias – reflects (unknown) bias of document author
Archival records (see Chapter 10)	(Same as above for documentation) Precise and quantitative	(Same as above for documentation)
Interviews (see Chapter 8)	Targeted – focus directly on case study topic Insightful – provide original and illuminating data	Danger of bias due to poorly constructed questions Response bias Inaccuracies due to poor recall Reflexivity – interviewee gives what interviewer wants to hear
Direct observation (see Chapter 9)	Reality – covers events in real time Contextual – covers context of events	Time-consuming and costly Narrow focus – unless broad coverage Reflexivity – event may proceed differently because it is being observed
Participant observation (see Chapter 9)	(Same as for direct observation) Insightful into interpersonal behaviour and motives	(Same as for direct observation) Bias because investigator unwittingly manipulates events
Physical artefacts (see Chapter 10)	Insightful into cultural features Insightful into technical operations	Selectivity – may be based upon idiosyncratic choices Availability

Source: Adapted from Yin, 1994

QUALITY IN CASE STUDIES: VALIDITY AND RELIABILITY

As we have seen in other research methods, and already in this chapter, the issues of validity and reliability are never far from the surface. They are probably of particular importance for the case study method because of the reliance on data that is generated from either limited or particular samples or situations.

Construct validity

Yin (1994) points out that construct validity is particularly problematic for case studies, because of the difficulty of defining the constructs being investigated. For

example, let us say that a researcher is asked to investigate the extent to which team work between different members of a project group has improved over a 12-month period. The problem here is how the concept of team work is defined, leaving the danger that the researcher will base this on his or her personal impressions. This can only be avoided if the researcher:

- Operationally defines the concept 'team work' at the outset.
- Selects appropriate measurement instruments and/or data sources for the defined concept.
- Uses multiple sources of data in a way that encourages divergent lines of inquiry.
- Establishes of a chain of evidence during the data collection process.
- Evaluates the draft case study report through feedback from key informants.

Internal validity

This issue only arises with causal (as opposed to descriptive) case studies where the researcher is attempting to show whether event *x* led to outcome *y*. As we saw in Chapter 3, in research designs that attempt to demonstrate causality, the dangerous impact of extraneous variables always threatens. Taking our previous example of team work within the project group, we may be trying to 'prove' that improvements have occurred as a result of an intensive training programme in team building initiated by senior management. The challenge will be to find significant associations between the training programme and better team work and that the recent introduction of 'flat' management structures (in this case, an extraneous variable) was not the main source of improvement.

Another threat to internal validity comes from the problem of making inferences from the data, when it is simply not possible to actually observe the event. Hence, the researcher will 'infer' that something has occurred based upon case study interview data or documentary evidence. But is it logical and safe to make this inference? Yin (1994) suggests a number of ways of increasing the confidence of making the inference, namely: *pattern matching*, *explanation building* and *time-series analysis* (see pp. 139–42).

External validity

This addresses one of the most problematic issues faced by the case study approach – whether its findings can be generalized beyond the study itself. Of course, not all would agree that generalizability should be a goal of research. Lincoln and Guba (2000) assert that generalizations inevitably alter over time, so that they become of only historical interest. There are no absolutes and all 'truth' is relative. But Schofield (2000) argues that generalizing is also becoming important

in qualitative research. This is partly because the approach is becoming used in high profile studies often linked to evaluation. Funding agencies for large-scale projects also want to see that findings have a wider applicability than to just the project itself.

Taking our example of team work in the project group, to what extent are we able to say that if the training programme did, in fact, help towards better team work, the programme would have a similar impact in other project groups within the organization, or, indeed, in quite different organizations? Gomm et al. (2000) point out that a significant amount of case study research does, indeed, try to make claims for studies that go beyond the original case. They also claim that case study research should be directed towards drawing general conclusions. But how, in practice, should this be done?

The problem faced is that the data collected in the case study may not be representative of the population as a whole (or at least representative of those features that are the focus of the research). Nevertheless, Gomm et al. (2000) advise that researchers can improve the empirical generalizability of a case study by:

- Providing evidence about the 'fit' of key characteristics between the sample and the population; if information about the population is not available, a warning should be issued about the risks of generalizing from the particular case study.
- Using a systematic selection of cases for study, that is, making efforts to ensure, if possible, that cases are typical of the population. Too often cases are chosen on a convenience basis only.

Yin (1994) also defends case studies by pointing out that safer grounds for making generalizations can be established if a study is replicated three or four times in different circumstances.

Before accepting this, however, it is worth noting Lieberson's (2000) note of caution. Referring to what he calls 'small-*N*s' (a small number of cases), he warns that it is a bad basis from which to generalize. This is because causal propositions are either *deterministic* or *probabilistic*. In the case of determinism, it is argued that 'If x, then y', that is, the presence of a given factor will lead to a specified outcome. Probabilistic perspectives are more modest, claiming that 'the presence of x increases the likelihood of y occurring or its frequency'. The problem with small-*N* studies is that probabilistic measurement is ruled out because of the small size of the sample – which leaves us with deterministic measurement.

Lieberson uses the example of drink–driving and accidents. Cases can be shown where drunken drivers are involved in accidents, generating a deterministic relationship between the dependent variable (accidents) and the independent variable (alcohol consumption). But there are also cases where sober drivers have accidents and drunk drivers do not. Small-*N* studies cannot deal with interaction effects between variables (for example, the interaction between alcohol consumption and driving speed, or running through a red light), because they arbitrarily assume that such interactions do not operate. According to Lieberson, exceptionally rigorous

practices are required to avoid these methodological pitfalls. If a small number of cases is selected, then it makes a great deal of difference whether the outcomes are the same in each case, or not. A defensible solution for generalization occurs where:

- One variable is constant across all cases – so, the same independent variable, *x*, leads to the same dependent variable, *y,* over a range of cases.
- The dependent variable is different across the cases, and all but one independent variable is constant – so pointing to that independent variable as the cause of the changes.

Reliability

Conditions for reliability are met if the findings and conclusions of one researcher can be replicated by another researcher doing the same case study. Bryman (1988) supports this approach, arguing that case study generalization is made more feasible by team research where a group of researchers investigate a number of cases. As we have seen, this can only be achieved if researchers conscientiously document procedures through what Yin (1994) calls *case study protocols* and *case study databases*. As discussed earlier, a protocol is a plan of data collection instruments and also the procedures for using these instruments (which subsequent researchers can follow). The production of a protocol forces the investigator to think not only about how the final case study report might be completed, but also its intended audience. Yin (1994) recommends that a protocol should contain the following sections:

- An overview of the case study project, including objectives and theoretical issues.
- Field procedures, including access to the case study 'sites' and people; general sources of information; back up procedures including eliciting help, if needed, from colleagues; timescales; contingency plans – for example, if interviewees decide not to cooperate.
- Case study questions, table templates for collecting data and the potential sources of information for answering each question.
- A structure and guide to the final report.

ANALYSING THE EVIDENCE

The case study approach can be one of the most productive in terms of collecting data, but here the problems can often begin. In contrast to other methods, such as experimental design, there is less experience and fewer developed strategies for analysing case study data. Nevertheless, there are some general approaches that can be used with effect. We will look, first of all, at some general strategies, and then at some specific analytical methods.

General strategies

There are, essentially, two ways in which the case study evidence can by analysed. The first is to analyse the data on the basis of the original theoretical propositions and the research objectives that flowed from them. The other is to develop a descriptive framework once the case study has been completed. Yin (1994) recommends that the former is preferable.

Theoretical propositions

One of the purposes of theory is to assist the researcher in making choices between what is worth investigating and what should wisely be ignored. Hence, the objectives and questions of the study are very likely to have been guided by its theoretical underpinning. At the analysis stage itself, data can be compared and contrasted with what the theoretical models have predicted, and suppositions made about the extent to which the original propositions can be supported or rejected.

Descriptive framework

The approach, as its name implies, is more descriptive than analytical, and can be used when perhaps a case study is chosen for a subject or issue for which an underlying theoretical proposition is not obvious. The descriptive framework can operate perhaps to identify the types of cases for which further, more quantitative analysis, should be applied.

Analytical methods

Since one of the objectives of data analysis is to find relationships and contrasts between variables, some techniques are presented here that facilitate this process.

Pattern matching

The logic behind pattern matching is that the patterns to emerge from the data, match (or perhaps fail to match) those that were expected. Figure 6.5 illustrates two possible scenarios. With *non-equivalent dependent variables as a pattern*, a research study may have a number of dependent variables or outcomes that emerge from it. If, before the research is carried out, a number of predictions about the expected dependent variables are made, and are subsequently found, then this supports the internal validity of the study. Hence, in Figure 6.5 dependent variables A, B and C are predicted, resulting from changes in one or more independent variable.

Another type of pattern matching approach is the use of *rival explanations as patterns*. Here, several cases may be known to have a certain outcome, but there may be uncertainty as to the cause, that is, which independent variable is the determining one. Each of the different theoretical positions must be mutually

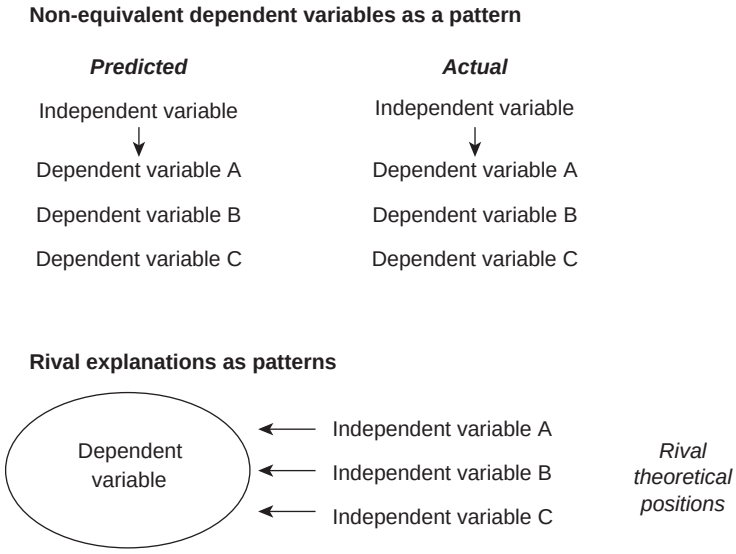

FIGURE 6.5 PATTERN MATCHING OF CASE STUDY DATA

exclusive, so finding the presence of one position excludes the presence of any other.

Take the example of a charitable organization that wants to understand the factors that increase its donation receipts (dependent variable). Case study research is initiated that explores several cases of positive fluctuations in its income stream. It finds two cases when extensive media coverage of a national overseas disaster leads to a 40 per cent short-term rise in donations. A rival theoretical position, that media advertising produces a higher income stream, is found to be inconclusive – on some occasions income rises modestly, on other occasions hardly at all. Hence, the theoretical position, that donations are a product of media coverage of disasters, is accepted. Case Study 6.2 provides an illustration of how pattern matching can be used.

Case Study 6.2 A case study of team working

A year ago, the CopyMatch printing company faced mounting financial losses and decided that it needed to restructure its organization. Its sales representatives earned most of their income through incentive bonuses and, therefore, tried to maximize both their number of clients and sales per client. But often this meant that they took very specialist and small-scale orders that were time consuming to set up, and therefore unproductive and costly to execute. This, of course, was of little concern to the sales 'reps' since they were maximizing their own income.

(Continued)

As part of the restructuring, the workforce was divided into five teams, each of which contained different combinations of sales representatives, production managers, production supervisors and print workers. Through these cooperative teams it was intended that sales representatives would be influenced and informed by those more knowledgeable of the production cycle. The company wanted to monitor the impact of the reorganization and set up a research project, based upon this single case study. The dependent variables (outcomes) of the reorganization were predicted as:

- More orders will be fulfilled to specified times.
- Estimates of customer satisfaction will rise and there will be fewer customer complaints.
- Larger-scale print runs will be undertaken.
- Levels of employee satisfaction will rise.

The research study measured the impact of each type of team (non-equivalent independent variables) to find whether the new structure was more effective than the old one, and which combination of workers had the greatest effect on outcomes.

Activity 6.4

For Case Study 6.2:

1 Suggest an appropriate case study design. For example, what would you choose as the source of measurement?
2 What are the independent variables? Would you treat the project as one case, or each of the teams as sub-cases?

Suggested answers are provided at the end of the chapter.

We saw in Case Study 6.2 that all the predicted independent variables were present, lending considerable weight to the validity of the assertion that the use of production teams increases efficiency, productivity and customer and employee satisfaction. If, however, even just one of these outcomes was not found, the initial proposition could not be supported. Conversely, if another company also used this type of team organization and came up with equivalent results, then this replication of the findings would lend further weight to the proposition.

Explanation building

This strategy is a special kind of pattern matching, but is less structured. Let us say that we want to find an explanation for a problem – to reveal its underlying causes. If these are not to be either subjective or anecdotal, it helps if these causes

are located within some sort of theoretical proposition. We would first of all make an initial statement or proposition based upon this theoretical position. Next, we would compare the findings of an initial case study against this proposition, and amend the proposition if necessary. Another case study is taken and the proposition amended, etc. The process is repeated as many times as is considered necessary. At all times it is essential that rival explanations are also considered and solid grounds sought for accepting or rejecting them.

Time-series analysis

In time-series analysis, data on dependent or independent variables are traced over time so that predicted patterns can be compared with the actual patterns that emerge and inferences drawn. What is important here, is that valid indicators are selected that match the objectives of the study. Case Study 6.3 provides an illustration.

Case Study 6.3 Time-series analysis

A large-scale retail park is built on a green-field site on the periphery of a medium-size city. The impact of such a development is measured over time, so a time-series analysis is appropriate here. As usual, we start with a theoretical position or proposition, in this case, that the retail park will impact on the nearby town and locality in a number of ways. First, it will increase the pace of mid-town urban degeneration, in the first place by the closure of various shops and stores, followed, in time, by changing patterns of urban residence – higher income families moving out towards the suburbs. Secondly, increased urban degeneration will increase crime patterns in this locality. Thirdly, traffic flows will change with new congestion 'blackspots' emerging in feeder roads to the retail park. Data are collected on an annual basis over five years through observation, local government records and crime statistics.

Activity 6.5

In Case Study 6.3 identify the independent and dependent variables. To what extent can you be sure that changes in the dependent variable result from the impact of the independent variable and not from other factors?

Suggested answers are provided at the end of the chapter.

Case Study 6.3 is an example of an *interrupted time-series* because the data on, say, patterns of retail spending in the inner city are known before the retail park is built and can be compared with those after its completion. Using a *complex time-series*, we could postulate that a negative trend in a set of data points will

be followed by a rise. Using our retail example, we could predict that after a period of several years, the cheap rents and land prices in the inner city (plus state grants and programmes) will attract new entrepreneurs, small businesses and service industries, resulting in urban regeneration.

Another form of time-series analysis is the use of *chronologies*, tracing events over time. The aim here is to compare the chronology of predicted events with what actually occurs. A theoretical proposition may predict that one set of events should be followed by another and that the reverse sequence is impossible; similarly, it may predict that one event should be followed by another after a prescribed period of time. Thus, chronologies not only allow for a description of events, but also for the analysis of causes.

Programme logic models

This combines both pattern matching and time-series approaches. Here, it is postulated that an initial event (independent variable) will produce an intermediate result which, in turn, will produce a final outcome (dependent variable). So, for example, improvements in health and safety procedures in a factory might, indeed, produce better safety standards and lower accident rates. The final result of this might be less disruption to production (through sickness and absence) and higher levels of worker satisfaction, both leading to higher productivity levels. Pattern matching would predict a number of dependent variables (worker satisfaction and higher productivity) as outcomes whilst the time-series approach would measure these outputs over time.

COMPOSING CASE STUDY REPORTS

We will deal with the skills in writing business research reports in general in Chapter 13, but here we will focus on some of the skills and issues that are specific to the case study approach. Given that, as we have seen, the planning and execution of case studies is one of the least systemized of all the research approaches, this, in principle, leaves the case study report also less precisely structured. Nevertheless, following some of the ideas below will help.

Know your audience

Typical recipients of case study reports may be business managers, health professionals, government planners and policy makers, community leaders and special interest groups. As with any report, it is essential that you know whom you are writing for and what it is that they are interested in and what they want to know.

Sometimes case studies can be particularly effective when read by non-specialist or non-technical readers because their descriptive basis and findings can be both illuminating and memorable. For example, consider the relative impact of

two reports on the effect of government aid programmes to developing nations. One report is based on a thorough statistical analysis and plentiful quantitative data presented in tabular form. The other report is a case study of an African village showing both the dramatic fall in the mortality rate following the installation of clean water supply but also the continuing grinding levels of under-employment and poverty.

Activity 6.6

Which of the reports just described do you think will have the greatest impact on (a) public opinion; (b) government opinion?

Clearly, government opinion is more likely to be influenced by facts, statistics and rational analysis, while the public tend to favour more of the 'human element' that would emerge through the case study of the African village. Imagine the potential impact if the African village report was taken up and illustrated through a television programme.

One type of audience we have not mentioned so far are the readers and examiners of dissertations and theses. If you are conducting a case study as part of an academic programme then this type of audience will be interested, amongst other issues, with the theoretical propositions on which the study is based, and the extent to which your analysis supports claims that are consistent with the evidence.

Above all, you must ensure that you are actually writing for an audience and not for yourself. This is a particular danger if you are conducting a case study within your own particular work environment, or in a situation within which you have a strong emotional connection. Take, for example, a voluntary worker with an Aids charity conducting a case study into how a particular group of HIV-infected men and women support each other. The danger is that the final report deals with a catalogue of issues that have worried the voluntary worker for some time. But if the report is aimed at changing public perceptions and attitudes towards HIV-infected people, then it must objectively address these wider social values and interests if it is to have any chance of changing ideas.

Types of case study report

Case study reports are usually written, but, in principle, they can also be presented orally, or through photographs, film or video. If a case study is not subject to confidentiality, then it can also be placed on the Web for wider public dissemination. Indeed, if the intended audience is a public one, it would be difficult to find a better delivery medium than the Web. In general, whether presented as a traditional document, or via the Web, written communication is likely to be the most familiar medium to both writer and reader.

Type of case study	Report structure		
Single case study	Case study description and analysis		
Multiple case study	Cross-case analysis and results		Appendix: Narrative Case Study 1 Narrative Case Study *n*
Multiple case study: without narrative	Case study 1	Question 1 Question 2	Answer Answer
	Case study 2	Question 1 Question 2	Answer Answer
Multiple case study: integrated	Cross-case issue 1 – data and analysis from all cases Cross-case issue 2 – data and analysis from all cases		

FIGURE 6.6 FOUR WRITTEN FORMS OF CASE STUDY

Figure 6.6 gives examples of four structures that can be used for the generation of written reports, broadly following typical case study design formats. For the classic single case study, the report simply consists of the description and analysis of the data. In the multiple case study, the main body of the report could begin with narrative descriptions of each of the case studies, but these can be bulky and could be confined to the appendices. In this case, the main body of the report would consist of the analysis and supporting data of the cross-cases. A more focused approach would be to present the findings in the form of a question and answer format for each of the case studies. Here, the reader is then in a position to go to those questions of particular interest for each of the cases. This can be both efficient in terms of the reader's time and allow the reader to draw comparisons across each of the studies. The fourth example takes this a stage further using an integrated approach that takes issue by issue (using each case study to supply the underlying data and analysis).

Yin (1994) warns that the selection of one of these approaches for the final report needs to be made during the design of the case study and not as an afterthought, and should be contained in the case study protocol.

Written report structures

A number of alternative report structures are possible, depending on the audience and what the researcher is trying to achieve (see Figure 6.7). If, for example, the final case study report is being written for a largely academic audience, then the linear-analytic structure would probably be acceptable, since its format would be readily recognized by academics. These structures could be used with any of the single or multiple case studies just discussed.

The *comparative* structure takes the same case study and repeats it two or more times, comparing and contrasting the results. This could be done through

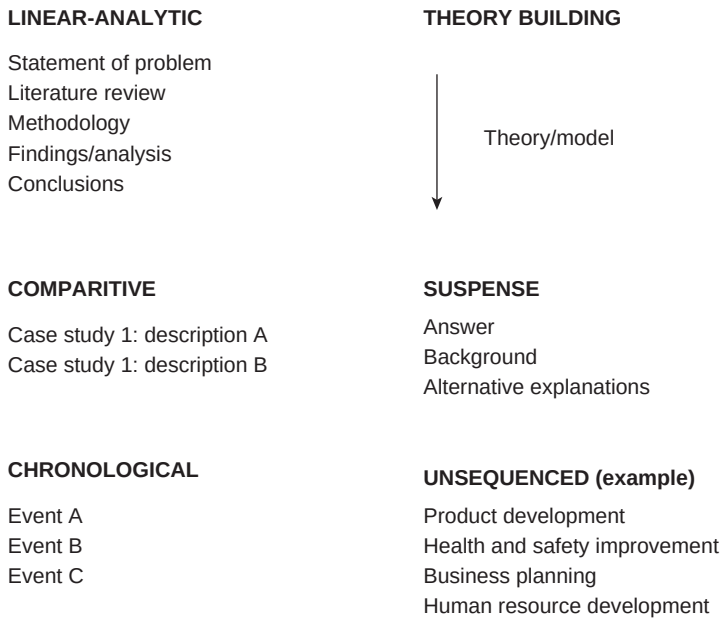

FIGURE 6.7 ALTERNATIVE WRITTEN REPORT STRUCTURES

beginning each time with different underpinning theoretical models, allowing the case to be viewed from an alternative perspective. These repetitions are typical of pattern matching approaches.

The *chronological* structure simply takes a series of events over time and sets them out in sequence. It should not be supposed, however, that this approach is purely descriptive – it can also be used both from explanatory and exploratory studies. For example, setting out a logical sequence of events may not only describe them, but provide insights into linkages and causes.

With the *theory building* structure the purpose is to build a series of chapters or sections that develop a theoretical perspective behind the case study. The theory may serve an explanatory purpose, seeking connections between cause and effect, or an exploratory one, suggesting new research questions and propositions.

The *suspense* structure is probably one of the most valuable in a business environment because it begins with the 'answer' or key findings of the case study. This is what managers, planners and the sponsors of research want to know. Subsequent chapters provide the background to the study and may even look at alternative perspectives on the findings.

Finally, in the *unsequenced* structure, the actual sequence of sections or chapters has no particular significance for the report. Findings can be presented in any order, provided that they are compatible. So, in Figure 6.7, the unsequenced example illustrates a case study of a company where each section can be presented independently in its own right, with no requirement for sequencing the sections in a particular order.

The final Case Study in this chapter brings together many of the principles of case study design that we have discussed. These include the role of theoretical propositions, the design of clear research methodologies and data gathering tools and the use of multiple sources of evidence.

Case Study 6.4 Japanese transplant companies in the UK

A major theoretical theme of management–worker relations in Japanese (transplant) firms based in the UK, is that of strong management control (hegemony) based upon sophisticated recruitment policies, surveillance and performance monitoring. This is facilitated by a compliant local environment with national and local state bureaucracies, development corporations and trades unions eager to offer cooperative working arrangements in exchange for inward foreign (Japanese) investment.

A case study was carried out (Elger and Smith, 1998) working on the hypotheses (based upon previous research) that:

- Despite the use of 'greenfield' sites and inexperienced labour, recruitment and retention of labour still poses problems for Japanese transplant companies.
- In response to these circumstances, management policies are not neatly predetermined but involve debate, conflict and often piecemeal innovation.
- Management policies among Japanese transplants are influenced not only by local and national environments, but by patterns of ownership and company traditions.
- These sources of differentiation help to explain the variations in the ways in which managers respond to common problems within a shared labour market.

A research methodology for the case study was established with the selection of four Japanese greenfield transplant companies, all based in Telford, a 'new town' in the West Midlands of the UK. Ten per cent of managers in these companies were interviewed, plus a number of other 'key informants' in the locality. Documentary evidence and observational data were gathered on both corporate policies and the local labour market. The impact of 'location' as an independent variable was controlled for by holding it constant – that is, by using a set of case study companies from the same location. So, by focusing on four companies operating in the same labour market, it became feasible to identify key features of this environment that impact on their labour relations. It also became possible to explore the impact of individual company policies and strategies on the management of labour relations.

Data on the production and personnel policies in each of the four case study workplaces were gathered using a template (see Table 6.4).

The authors acknowledge that the data need to be treated with some caution:

> *Of necessity, this table captures only a snapshot of what are evolving patterns of employment practices, and the uniform terminology glosses over important differences in the implementation and meaning of the various features in the different workplaces. (Elger and Smith, 1998: 193)*

(Continued)

TABLE 6.4 PERSONNEL AND PRODUCTION PRACTICES IN THE CASE STUDY PLANTS

	Company name			
Practice	**Copy Co.**	**PCB Co.**	**Assembly Co.**	**Car-part Co.**
Team briefing	+	+	P	+
Performance appraisal	+	P	X	+
Formal consultation	X	+	X	+
Use of temporary workers	+	+	X	+
Performance-related pay	+	+	X	+
Systematic hiring policy	X	X	X	P
Operator responsible for quality	+	+	+	+

Key: + = practice exists; P = partial application; X = practice does not exist.

But the evidence (from the table and from the interviews) shows that in all four transplant companies, managers are implementing procedures for quality management. But the form taken by quality and just-in-time measures varies significantly between the factories. Thus, the case study highlights the danger of treating specific transplant workplaces as merely exemplars of generalized Japanese ways of working. There seemed to be no uniform or systematic set of personnel policies designed to shape and induct new recruits. Rather, employee policies seemed to emerge in a much more ad hoc way, in response to emerging problems and pressures, often based around the problems of recruitment and retention of young labour. The case study data reveal that transplant operations are embedded within the influences of the local as well as the national economy and are influenced by the distinctive nature of local labour markets, patterns of trades unionism and employer organization and the politics of local state and development agencies.

Source: Adapted from Elger and Smith, 1998

The Case Study reveals a number of typical issues in case study design. The following Activity asks you to identify what they are.

Activity 6.7

In Case Study 6.4, identify the following:

1 The theoretical underpinning of the case study.
2 The number and type of data collection sources.
3 Protocols used for data collection.
4 The analytical method: pattern matching, explanation building or time-series.
5 The extent to which the original hypotheses are supported or refuted.

Suggested answers are provided at the end of the chapter.

SUMMARY

- Case studies are used for a variety of subjects, including organizational performance, evaluating relationships between individuals, teams or departments and project implementation.
- Case studies are often deductive in character, beginning from a theoretical premise or stance.
- They should be used when there is no opportunity to control or manipulate variables, but when there is an interest in explanations and analysis of situations or events.
- While procedures are not as well defined as those for experimental research, case study research should involve the development of an initial hypothesis or set of questions, and the design of research tools, protocols and field procedures.
- Case studies can involve single or multiple units of analysis (individuals, departments, objects, systems, etc.) in combination with single or multiple case designs.
- In case studies, researchers should aim to collect multiple sources of evidence that should evolve into a chain of evidence, linking research questions, data, analysis and case study reports.
- Data for case studies are typically collected from multiple sources including documentation, archives, interviews and direct or participant observation.
- Internal validity in case studies is strengthened by pattern matching, explanation building and time-series analysis. Reliability is strengthened by multiple replication of the same or similar cases.

Further reading

Yin, R.K. (1994) *Case Study Research: Design and Methods*, 2nd edn. Thousand Oaks, CA: Sage. Yin is widely recognized as one of the leading authorities on case study design. There is no better starting point.

Gomm, R., Hammersley, M. and Foster, P. (eds) (2000) *Case Study Method: Key Issues, Key Texts.* London: Sage. Not for the novice researcher, this book explores some of the complex issues associated with case study research, including external validity and the generation of theory.

Suggested answers for Activity 6.2

1 The implicit working hypothesis is that taxi-dance halls are dens of vice and corruption.

(Continued)

2 The multiple sources of evidence used include observation (of people arriving, their means of transport, the look and demenour of both clients and taxi-dancers, etc.), and interviews with clients, taxi-dancers and the owners of the halls.
3 This is a matter of interpretation! Clearly, however, the hypothesis that the halls are merely vice dens is too simplistic. Both the taxi-dance girls and their clients reveal a wide mixture of hopes, aspirations and incentives.

Suggested answers for Activity 6.3

1 Research questions might include: (a) What is the attitude of customers towards the new system? (b) What is the attitude of staff to the system? Does the system work – are customers able to understand and use it?
2 Data collection methods could include covert observation of the customers as they arrive to see how easily they manage to use the new system. Later, a selected sample of customers could be interviewed as they left the building to ascertain their views on the system. The views of staff could be tapped through a small-scale survey using a structured questionnaire (perhaps distributed in the next issue of the company newsletter).

Suggested answers for Activity 6.4

1 The source of measurement would include the number of orders filled to specific timescales, levels of customer satisfaction, the scale of print runs and the levels of employee satisfaction.
2. Independent variables include the new team structures, but you would need to look out for other extraneous variables that might confound the results (for example, do some teams contain more experienced workers?). Since the project is looking at the impact of different combinations of workers (compared to the old one) then sub-cases would be used, comprising each of the new team structures. One sub-group could comprise the old structure which could then act as a control to see if the more collaborative team approach was, indeed, more effective.

Suggested answers for Activity 6.5

The new retail park is acting as an independent variable on its environment, within which dependent variables include urban degeneration, traffic congestion and crime. One of the challenges here is to measure the impact of the retail park itself, since there are likely to be many other independent variables at work. Taking just traffic as an example, car ownership tends to rise over time, so will add to traffic congestion.

Suggested answers for Activity 6.7

1 The theoretical underpinning of the study revolves around the literature on management–worker relationships in Japanese transplant companies.
2 Data collection sources include secondary sources (previous studies), interviews with 10 per cent of company managers, some key informants in the locality, documentary evidence on company policies, plus observational data.
3 The protocols used for data collection are illustrated in the template at Table 6.4.
4 The analytical method comprises a form of explanation building.
5 The original hypothesis could be accepted on the basis of the results.