

INTRODUCTION TO

# SOCIAL RESEARCH

QUANTITATIVE & QUALITATIVE APPROACHES

## KEITH F PUNCH



Los Angeles | London | New Delhi  
Singapore | Washington DC

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# THEORY AND METHOD IN SOCIAL SCIENCE RESEARCH

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## Learning Objectives

After studying this chapter you should be able to:

- Describe what is meant by methodological theory and by substantive theory
- Define paradigms, and describe the difference between paradigm-driven research and pragmatic research
- Understand the difference between description and explanation
- Describe the difference between theory verification and theory generation research
- Explain the logical priority of research questions over research methods
- Describe the essential differences between prespecified and unfolding research

The term ‘theory’ is used in many different ways in the literature, which can create difficulties. In this chapter, I focus on two main uses of theory – methodological theory and substantive theory. Both are important. Methodological theory concerns the theory or philosophy behind research methods, and is discussed in Section 2.1. It leads on to the topic of question–method connections (Section 2.5). Substantive theory concerns the content area of research, and is discussed in Section 2.2. It leads on to the topics of description and explanation (Section 2.3), and to theory verification and theory generation (Section 2.4). The final section of the chapter deals with the issue of structure in planning a piece of research.

## Methodological theory

**2.1** Methodological theory, as used here, means theory about method. Whereas substantive theory is about substance or content, methodological theory is about method – about what lies behind the approaches and methods of inquiry used in a piece of research.

Methods of inquiry are based on assumptions – assumptions about the nature of the reality being studied, assumptions about what constitutes knowledge of this reality, and assumptions about what therefore are appropriate methods of building knowledge of this reality. Very often these assumptions are implicit. A point of contention in research methods training has often been whether or not it should be required that such assumptions are made explicit in a piece of postgraduate research.

These assumptions constitute the essential idea of what is meant by the term ‘paradigm’ in the research methodology and philosophy of science literature. Paradigm issues are necessarily philosophical in nature. In general, paradigm means a set of assumptions about the world, and about what constitute proper topics and techniques for inquiring into that world. Put simply, it is a way of looking at the world. It means a view of how inquiry should be done (hence the term ‘inquiry paradigm’ which is sometimes used), and is a broad term encompassing elements of epistemology, theory and philosophy, along with methods.

Denzin and Lincoln (1994: 107–9) describe a paradigm as:

a set of basic beliefs (or metaphysics) that deals with ultimates or first principles. It represents a worldview that defines, for its holder, the nature of ‘the world,’ the individual’s place in it, and the range of possible relationships to that world and its parts.

They point out that inquiry paradigms define what they are concerned with, and what falls within and outside the limits of legitimate inquiry, and that inquiry paradigms address three fundamental questions, which reflect the assumptions noted above:

1. The ontological question: What is the form and nature of reality and, therefore, what is there that can be known about it?
2. The epistemological question: What is the relationship between the knower and what can be known?
3. The methodological question: How can the inquirer go about finding out what can be known?

In simpler language, paradigms tell us:

- what the reality is like (ontology);
- what the relationship is between the researcher and that reality (epistemology); and
- what methods can be used for studying the reality (methodology).

These three interrelated questions illustrate the connections between methods and the deeper underlying philosophical issues. Methods are ultimately based on, and derive from, paradigms. Conversely, paradigms have implications for methods. This point became clear during methodological developments of the past 40–50 years. At this point, therefore, a brief sketch of some historical background on methods and paradigms in social science research is appropriate.

Beginning in the 1960s, the traditional dominance of quantitative methods, as the way of doing empirical social science research, was challenged. This challenge accompanied a major growth of interest in using qualitative methods, and this in turn produced a split in the field, between quantitative and qualitative researchers. A prolonged quantitative–qualitative debate ensued, sometimes described as the ‘paradigm wars’.<sup>1</sup>

Much of that debate was characterised by either/or thinking. Some thought that only quantitative approaches should be used in research. Others were just as emphatic that only qualitative approaches are appropriate. More recently, however, there have been moves towards a detente, and an increased interest in the combination of the two approaches (Bryman, 1988, 1992; Hammersley, 1992; Tashakkori and Teddlie, 2003a). This has led to mixed methods, the topic of Chapter 14, and a major growth area in the recent research methodology literature. These methodological changes have occurred across most areas of empirical social science research, though in some areas the changes have been more pronounced than in others.

The full story of these developments and debates is more complex than this. I have focused only on one main dimension of it, the quantitative–qualitative distinction, because these remain two of the central methodological approaches in social science research today, and because this distinction is a central organising principle for this book. A major consequence of these developments is that qualitative research methods have moved much more into the mainstream of social science research, compared with their marginalised position of 40 or so years ago. As noted, a further development has been the combination of the two approaches in what is now called ‘mixed methods research’ (see Chapter 14). As a result, the field of research methodology in social science is now bigger and more complex than it used to be.

Because of the connections between methods and paradigms, the history briefly outlined above also has a deeper level, a level that is not just about the quantitative–qualitative debate, or about research methods, but about paradigms themselves. On this deeper level, a major rethinking began some time ago, and is ongoing. It has brought a questioning of all aspects of research (its purposes, its place and role, its context and conceptualisations of research itself) as well as the methods it uses. It has also brought the development of new perspectives, and of new approaches to data and to the analysis of data, within qualitative research especially. Prominent features of this rethinking are the detailed critique of positivism, and the emergence and articulation of several different paradigms, as alternatives to positivism. As a result, paradigm issues are in a state of change and development, and many matters are still contested.

It is the development of qualitative methods which has exposed the many different paradigm possibilities, and the situation has now become very complicated. Thus Denzin and Lincoln (1994: 109) identify four main alternative inquiry paradigms underlying qualitative research (positivism, post-positivism, critical theory, constructivism), but more detailed examples and classifications of paradigms are given by Guba and Lincoln (1994). Morse (1994: 224–5) has this classification of paradigms with associated qualitative research strategies: philosophy–phenomenology; anthropology–ethnography; sociology–symbolic interactionism–grounded theory; semiotics–ethnomethodology and discourse analysis. Janesick (1994: 212) has a more detailed list of paradigm-related qualitative research strategies, noting that it is not meant to include all possibilities: ethnography, life history, oral history, ethnomethodology, case study, participant observation, field research or field study, naturalistic study, phenomenological study, ecological descriptive study, descriptive study, symbolic interactionist study, microethnography, interpretive research, action research, narrative research, historiography and literary criticism. And examples of paradigms considered by writers in the philosophy of education are logical empiricism and post-empiricism, critical rationalism, critical theory, phenomenology, hermeneutics and systems theory.

This can be confusing and daunting territory for the beginning researcher, partly because of philosophy and partly because of terminology. Fortunately, in the light of these complications, some of the literature now seems to be converging and simplifying. In one version of this convergence, the main paradigm positions are

positivism and interpretivism; in another they are positivism and constructivism. Thus we have:

- positivism (associated mostly with quantitative methods), and
- either interpretivism or constructivism (associated with qualitative methods).

These associations – positivism with quantitative methods and interpretivism–constructivism with qualitative methods – are generally true, but they are not necessary associations. It is more accurate to say that positivism is likely to be associated with quantitative methods, and interpretivism and constructivism are likely to be associated with qualitative methods.

These terms are defined slightly differently by different writers, but their main nature-of-reality ideas are as follows:

- Positivism – the belief that objective accounts of the world can be given, and that the function of science is to develop descriptions and explanations in the form of universal laws – that is, to develop nomothetic knowledge.
- Interpretivism – concentrates on the meanings people bring to situations and behaviour, and which they use to make sense of their world (O'Donoghue, 2007: 16–17); these meanings are essential to understanding behaviour.
- Constructivism – realities are local, specific and constructed; they are socially and experientially based, and depend on the individuals or groups holding them (Guba and Lincoln, 1994: 109–11).

In Section 2.5, question–method connections are discussed, and I stress that there needs to be compatibility and integrity in the way the research questions and research methods fit together in a study. This is shown in the top line in the diagram below. Paradigms expand that, because paradigms have implications both for the sorts of research questions asked and the methods used to answer them. This is shown in the bottom line in the diagram.



What does all this methodological theory mean for planning and executing a piece of research? Broadly, there are two main ways in which planning a research project can proceed:

1. Paradigm-driven approach – one way is to begin with a paradigm, articulate it and develop research questions and methods from it;
2. Pragmatic approach – the other way is to begin with research questions that need answers and then choose methods for answering them.

In the pragmatic approach, the questions may come from any source – the literature, existing substantive theory, the media, personal experience, and so on. But very often, especially in professional fields such as education, management or nursing, they will come from practical and professional issues and problems associated with

the workplace. The starting point here is not a paradigm. Instead, the starting point is a problem that needs a solution or a question that needs answers. This is a pragmatic approach.

This has sometimes been a contentious issue in higher-degree research programmes. Some university departments have taken the view that paradigm issues are paramount, and insist that research should not be allowed to proceed until it has articulated its paradigm position. I believe this insistence is not well placed, because paradigm-driven research is not the only way to proceed, and because I see a big role for a more pragmatic, applied and professional approach to social science research. I have no objection to paradigm-driven research. My objection is only to the view that all research must be paradigm-driven. I take a similar view with respect to the philosophical issues involved in paradigm debates. I think we should be aware of the issues involved, and of the areas of debate. These are indicated in several places throughout the book. But we can proceed to do research, and to train researchers, mindful of those debates yet not engulfed by them, and without necessarily yet being able to see their resolution. In other words, we can acknowledge the connections of methods to these deeper issues, and discuss them from time to time as they arise, without making them the major focus of our research. This is to take the pragmatic approach noted, consistent with the view that not all questions for social research are driven by paradigm considerations, and that different sorts of questions require different methods for answering them. Both of these points are elaborated upon in later chapters.

To choose the pragmatic approach is to start by focusing on what we are trying to find out in research, and then to fit methods in with this. The important topic of question–method connections is discussed in Section 2.5.

## Substantive theory

**2.2** By substantive theory I mean theory about a substantive issue or phenomenon, some examples of which are shown below. Substantive theory is content-based theory, and is not concerned with methods. Its purpose is to explain some phenomenon or issue of interest – it is explanatory theory. But because explanation requires description (see Section 2.3), substantive theory both describes and explains. An explanatory theory both describes and explains the phenomenon of substantive interest. Theory, in this sense, is a set of propositions that together describe and explain the phenomenon being studied. These propositions are at a higher level of abstraction than the specific facts and empirical generalisations (the data) about the phenomenon. They explain the data by deduction, in the if–then sense. This is the model of scientific knowledge shown in Figure 2.1.

Some examples of substantive theories from different areas of social research are attribution theory, reinforcement theory, various learning theories and personal construct theory (from psychology); reference group theory and social stratification theory (from sociology); the theory of vocational personalities and career anchors (from occupational sociology); various leadership theories (from management and

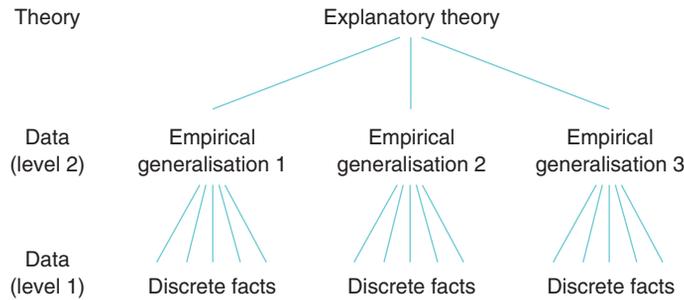


FIGURE 2.1 The structure of scientific knowledge (nomothetic view)

administration), and theories of children’s moral development and of teacher career cycles (from education).

Thus an important question in planning research is ‘What is the role of (substantive) theory in this study?’ This question is sometimes considered more appropriate for doctoral-level research than for masters-level research. This seems to be because a common criterion among universities for the award of the doctorate centres on the ‘substantial and original contribution to knowledge’ a study makes, and the ‘substantial’ part of that criterion is often interpreted in terms of its contribution to substantive theory.

## Description versus explanation

**2.3** In Chapter 1 a brief description of the scientific method was given, stressing that it has the two central parts of data and theory, and that the objective of scientific inquiry is to build explanatory theory about its data. In this view, the aim is to explain the data, not just to use the data for description. This distinction between description and explanation is particularly relevant to the purposes of a piece of research.

The description–explanation distinction is easy to understand on one level, and difficult to understand on another.<sup>2</sup> Fortunately, it is on the easier level where the practical value of the distinction lies. Description and explanation represent two different levels of understanding. To describe is to somehow draw a picture of what happened, or of how things are proceeding, or of what a situation or person or event is like. To explain, on the other hand, is to account for what happened, or for how things are proceeding, or for what something or someone is like. It involves finding the reasons for things (or events or situations), showing why and how they have come to be what they are. Description is a more restricted purpose than explanation. We can describe without explaining, but we cannot really explain without describing. Therefore explanation goes further than description. It is more than just description – it is description plus something else.

Description focuses on what is the case, whereas explanation focuses on why (and sometimes how) something is the case. Science as a method of building knowledge has, in general, pursued the objective of explanation, not just of description. There is a good reason for this. When we know why something happens, we know much more than just what happens. It puts us in a position to predict what will happen, and perhaps to be able to control what will happen.

Thus explanatory knowledge is more powerful than descriptive knowledge. But descriptive knowledge is still important, since explanation requires description. To put it around the other way, description is a first step towards explanation. If we want to know why something happens, it is important to have a good description of exactly what happens. There are often clues to explanation in a full description, and it is hard to explain something satisfactorily until you understand just what the something is (Miles, Huberman and Saldana, 2013).

This distinction comes up mainly when the purpose of a piece of research is being considered. Is the purpose to describe, to explain or both? Descriptive studies are sometimes given a lower status than studies that aim to explain. That is why we sometimes hear the expression ‘it is only a descriptive study’. But while this judgement may sometimes have merit, it has to be made carefully. There are situations where a thorough descriptive study will be very valuable. Two examples of such situations are:

- when a new area for research is being developed, and initial and exploratory studies are planned – it is very sensible then to focus on systematic description as the objective of the research;
- careful description of complex social processes can help us to understand what factors to concentrate on for later explanatory studies.

Whether description or explanation is the appropriate purpose for a piece of research depends on the particular situation. Here, as elsewhere, blanket rules are not appropriate. Rather, each research situation needs to be analysed and understood in its own context. It is useful to raise this question of whether the objective of a study is description and/or explanation, especially during the planning stages of research. A good way to do it is to ask ‘why’ about the things being studied, as well as ‘what’.

Thus explanation is the central focus of substantive theory. The essential idea is to explain what is being studied, with the explanation being couched in more abstract terms than the terms used to describe it.<sup>3</sup> We will return to this idea of theory in two places later in the book. The first is in Chapter 4 (Section 4.7), where we consider the role of hypotheses in relation to research questions. There we will see that theory stands behind the hypothesis, in an inductive–deductive relationship with it (Brodbeck, 1968; Nagel, 1979). Studies that use this approach are theory verification studies. The second is in Chapter 9, where we discuss grounded theory analysis in studies that aim to develop theory. These are theory generation studies.

## Theory verification–theory generation

**2.4** This distinction between theory verification and theory generation research is important. A project that has explanation as its objective can set out to test theory, or to build theory – to verify theory, or to generate it. For Wolcott (1992), this is the distinction between ‘theory first’ and ‘theory after’. In theory-first research, we start with a theory, deduce hypotheses from it and design a study to test these hypotheses. This is theory verification. In theory-after research, we do not start with a theory. Instead, the aim is to end up with a theory, developed systematically from the data we have collected. This is theory generation.

Quantitative research has typically been more directed at theory verification, while qualitative research has typically been more concerned with theory generation. While this correlation is historically valid, there is no necessary connection between purpose and approach. That is, quantitative research can be used for theory generation (as well as for verification) and qualitative research can be used for theory verification (as well as for generation), as pointed out by various writers (for example, Hammersley, 1992; Brewer and Hunter, 2005). However, while the connection is not necessary, it is nonetheless likely that theory generation research will more often be qualitative. Research directed at theory generation is more likely when a new area is being studied, and exploration of this new area is more likely to use the less structured fieldwork techniques of qualitative research.

Is theory verification research better than theory generation research? This book does not favour one research purpose over the other, since both are needed and both have their place. Either purpose can be appropriate in a research project, and sometimes both will be appropriate. It depends on the topic, the context and practical circumstances of the research, and especially on how much prior theorising and knowledge exists in the area. As with other aspects of a project, the researcher needs to consider the alternatives, select among them according to consistent and logical criteria, and then articulate that position.

Theory generation research was given new legitimacy in social science by the development of grounded theory. As is described in Chapter 7, grounded theory is an explicit theory generation research strategy, developed in reaction against the overemphasis on theory verification research in the American sociology of the 1940s and 1950s. Glaser and Strauss stated this clearly in their original grounded theory publication:

Verification is the keynote of current sociology. Some three decades ago, it was felt that we had plenty of theories but few confirmations of them – a position made very feasible by the greatly increased sophistication of quantitative methods. As this shift in emphasis took hold, the discovery of new theories became slighted and, at some universities, virtually neglected. (Glaser and Strauss, 1967: 10)

Glaser and Strauss argued that the emphasis on verification of existing theories kept researchers from investigating new problem areas, prevented them from

acknowledging the necessarily exploratory nature of much of their work, encouraged instead the inappropriate use of verification logic and rhetoric, and discouraged the development and use of systematic empirical procedures for generating as well as testing theories (Brewer and Hunter, 2005).

This gives us a useful general guideline for when each purpose might be appropriate. When an area has lots of unverified theories, an emphasis on theory verification research seems a good thing. On the other hand, when an area is lacking in appropriate theories, it is time for the emphasis to shift to theory generation. Also, when research is directed mostly at the verification of existing theories, looking at new problem areas is discouraged, and the logic and techniques (usually quantitative) of verification research are seen as more important. When it is important to look at new areas in research, theory generation appeals as the appropriate purpose. This aspect of grounded theory research is taken up again in Chapter 7 (Section 7.5).

The description–explanation distinction fits in with the structure of scientific knowledge shown in Figure 2.1. In line with the conception of science given in Chapter 1, we can distinguish three levels of knowledge. At the lowest level, there are discrete facts. At the next level are empirical generalisations which group those facts together. At the highest level are theories, whose function is to explain the generalisations. This structure is summarised in the diagram shown. The first two levels (facts and empirical generalisations) focus on description, while the third level focuses on explanation.

This model of the structure of scientific knowledge comes primarily from a positivistic perspective, and stresses a nomothetic view of knowledge. It can be contrasted with an ideographic view of knowledge, a more appropriate aspiration for research in the eyes of many qualitative researchers.<sup>4</sup> But while acknowledging its nomothetic bias, this model is very useful as a starting point in learning about social science research. Much research is based on this model, and it can often help in organising an individual project. It is clear and easy to understand, so the researcher who wishes to diverge from this model can see where and why the divergence occurs. In other words, when researchers argue about how research should proceed and contribute to knowledge, this model helps to see what the argument is about.

There is another reason for stressing this model here. It shows the hierarchical structure of knowledge, with higher levels of abstraction and generality at the top and lower levels at the bottom. This is similar to the hierarchical structure that links data indicators to variables and concepts, and which is central both to the concept–indicator model behind grounded theory coding in qualitative research, and to latent trait measurement theory in quantitative research. These topics are described in Chapters 9 and 11 respectively. This hierarchical structure of increasing levels of abstraction and generality, shown here with respect to scientific knowledge in general, and shown in later chapters with respect to concept–data links in both quantitative and qualitative research, is thus fundamental to much empirical research. An illustration of it is given in Example 2.1.

## EXAMPLE 2.1

### The Hierarchical Structure of Knowledge

A classic example of this way of structuring knowledge is Durkheim's work on the social aetiology of suicide, described in Durkheim (1951) and summarised in Greenwood (1968). Durkheim theorises 'upwards' from a series of empirical generalisations to a law of suicide.<sup>5</sup>

## Question–method connections

**2.5** The principle here is that the matching or fit between the research questions and research methods should be as close as possible. A very good way to do that is for methods to follow from questions.

Different questions require different methods to answer them. The way a question is asked has implications for what needs to be done, in research, in order to answer it. Quantitative questions require quantitative methods to answer them, and qualitative questions require qualitative methods to answer them. In today's research environment, with quantitative and qualitative methods often used alongside each other, the matching of questions and methods is even more important. Since this book deals directly with both approaches, it is inevitable that this issue should be a recurrent concern.

The wording of questions is also important, since some wordings carry methodological implications. Thus research questions that include such terms as 'variables', 'factors that affect' and 'the determinants or correlates of', for example, imply a quantitative approach, while questions that include such terms as 'discover', 'seek to understand', 'explore a process' and 'describe the experiences' imply a qualitative approach. (Creswell, 2013 links these last four terms to grounded theory, ethnography, case study and phenomenology respectively).

An example of different research questions and their implications for methods is given by Shulman, in education research (1988: 6–9). He takes the study of reading, suggests four different types of questions, and shows the methods that would be required to answer each.

1. A first question might be: What makes some people successful readers and others unsuccessful? (Or, how can we predict what sorts of people will have difficulty learning to read?) Such questions would be answered using a quantitative correlational study that examined relationships between variables.
2. A second question might be: What are the best possible methods for teaching reading to youngsters, irrespective of their backgrounds or attitudes? This question would involve a quantitative experimental study comparing different teaching methods.
3. A third question might be: What is the general level of reading performance across different age, sex, social or ethnic groups in the population? This would require a quantitative survey of reading performance and reading practices.

4. A fourth set of questions might be quite different from the previous ones: How is reading instruction carried on? What are the experiences and perceptions of teachers and students as they engage in the teaching and learning of reading? How is this complex activity accomplished? Here, a qualitative case study involving observation and interview might be used, perhaps using the perspective of ethnomethodology.

Shulman goes on to suggest philosophical and historical questions as well. Other illustrations of question–method connections are given in Example 2.2.

### EXAMPLE 2.2

#### Question–Method Connections

- Shulman (1988: 6–9) shows connections between questions and methods with the topic of reading research in education; similar examples are noted by Seidman (2013).
- Marshall and Rossman (2010) show, in a table, the links between research purposes, research questions, research strategy and data collection techniques.
- Maxwell (2012) adapts a table from LeCompte and Preissle (1993) to show the links between ‘What do I need to know?’ and ‘What kind of data will answer the questions?’ and illustrates these links with actual research questions.
- Maxwell (2012) gives the example of a mismatch between questions and method, whereby, in a study of how historians work, the ‘right answer’ is found to be to the ‘wrong question’.

A good way to achieve a fit between questions and methods is to ensure that the methods we use follow from the questions we seek to answer. In other words, the content of the research (the research questions) has a logical priority over the method of the research. To say that content precedes method is simply to say that we first need to establish what we are trying to find out, and then consider how we are going to do it. On a practical level, this is often a good way to get a research project off the ground. Sometimes it is difficult to know where and how to start, in planning research. If so, asking ‘What are we trying to find out?’ usually gets our thinking going, and ensures that we start with the content, not with the method. Putting questions before methods is also a good defence against overload when developing a research proposal. To delay consideration of methods until it is clear what the questions are helps in managing the inevitable complications that accompany a full examination of the possibilities for research in any area. It helps in keeping the question development stage systematic, and under control. It also helps achieve good question–method fit, a central criterion in the validity of research.

I am stressing this point here to counter a previous unfortunate tendency in social science research. In Chapter 1, the term ‘methodolatry’ was used:

I use the term *methodolatry*, a combination of *method* and *idolatry*, to describe a pre-occupation with selecting and defending methods to the exclusion of the actual substance of the story being told. Methodolatry is the slavish attachment and devotion to method that so often overtakes the discourse in the education and human service fields. (Janesick, 1994: 215)

Methodolatry means putting method before content. It is first learning the research method, then finding research questions that can fit into the method. It is looking for research questions guided by methods.

This is a danger when we place too much stress on the teaching of research methods, for their own sake. Because of this danger, this book concentrates on the logic and rationale behind empirical research and its methods. Once this logic is mastered, we can focus on research questions, and then fit the techniques and methods to the questions. In my opinion, the best sequence of learning activities for research is to start by learning the logic of research, then to focus on identifying and developing the research questions, and then to fit methods and techniques to the questions.

I am using the concept of methodolatry to argue for minimising the direct influence of methods on research questions, which we can do by first getting the research questions clear, and then focusing on the methods required to answer them. But methods can also indirectly influence research questions, by constraining what can be studied. There are limits as to what can be designed in research, and to what data can be obtained and analysed. While taking this into account, the advice is nonetheless to focus on questions first, as much as possible. In the above example, after showing how different methodological approaches fit different questions, Shulman emphasises the same point: 'we are advised to focus first on our problem and its characteristics before we rush to select the appropriate method' (1988: 15). Thus, when misfit between the parts becomes apparent during the planning of the research, it is a matter of adapting the parts to each other.

Question–method fit is an aspect of conceptual clarity in a piece of research. Conceptual clarity involves the precise and consistent use of terms, internal consistency within an argument and logical links between concepts, especially across different levels of abstraction. The pre-empirical question development work described in Chapter 4 is directed at this conceptual clarity. Developing specific research questions is a good way of achieving clarity and matching questions and methods.

The different paradigms and strategies within qualitative research open up many new and different types of research questions. For example, ethnographic questions might focus on cultural and symbolic aspects of behaviour; grounded theory questions might focus on understanding social processes, and how people manage different types of situations; a conversation analysis study might focus on conversational structure and on the role of conversation in taken-for-granted everyday activities; discourse analysis questions might focus on the way an institution presents itself to the world, the symbols and language it uses, and the connection of those with its ideology, knowledge, power, and so on. Paradigms can thus be important in

generating research questions. Within qualitative research especially, the range of questions of interest is now very broad. But it remains important, even with this broader range of questions, that the methods we use should follow from and fit in with the questions we seek to answer.

## Prespecified versus unfolding: structure in research questions, design and data

**2.6** How much should the research questions, design and data be preplanned in a piece of research, and how much should they emerge (or unfold) as the research develops?

There is a continuum we can set up for thinking about this question, with the dimension of interest being the amount of prespecified structure in the research strategy that is used. The central comparison is between research that is prespecified (or preplanned, or prefigured, or predetermined) on the one hand, and research that is unfolding (or emerging, or open-ended) on the other. Prespecified here refers to how much structure is introduced ahead of the empirical work, as opposed to during the empirical work. This continuum applies to three main areas – to research questions, to research design and to data.

Miles, Huberman and Saldana (2013) discuss this idea in the context of qualitative research under the heading of ‘tight versus loose’. Those terms are equivalent to the terms used here – tight means prespecified and loose means unfolding. The key questions are: To what extent are the research questions, the design and the data focused, specified and structured ahead of the actual empirical work? To what extent does the focus in the research questions, and the structure in the design and the data, unfold and emerge as the empirical work proceeds? The continuum of possibilities is shown in Figure 2.2. This diagram shows that quantitative research typically falls towards the left-hand end of the continuum, whereas qualitative research can occupy a much greater range along the continuum.

‘Structure’, as used here, means showing what the different parts of the research are, how they connect with each other, what will be done in the research, and in what sequence. It means knowing what we are looking for, and how we are going to

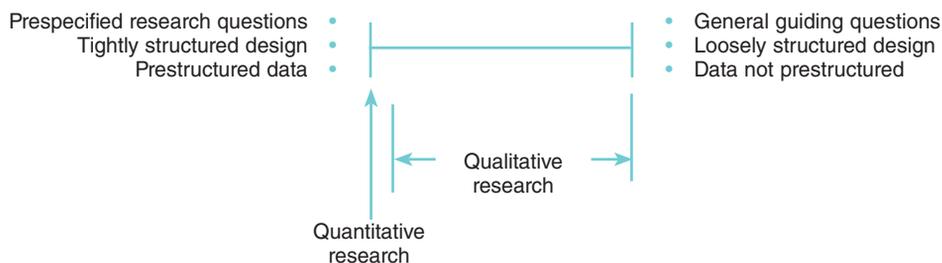


FIGURE 2.2 Prespecified versus unfolding: the timing of structure

get it – knowing what data we will want, and how they will be collected. It also means knowing what structure the data will have and how they will be analysed.

At the extreme left-hand end of the continuum, everything is prespecified – the research questions, the design and the data. It is all worked out in advance, a set of steps is laid down, and the researcher proceeds through those steps. At the other end, we can envisage a project where very little structure is determined in advance, with an open-ended and unstructured approach to the research questions, the design and the data. The strategy is that these will unfold as the study is carried out. Let us see what this contrast means for each of the three areas.

1. *Research questions*: at the left-hand end of the continuum, specific research questions are set up in advance to guide the study. It is quite clear, in advance, exactly what questions the study is trying to answer. At the right-hand end, only general questions are set up in advance. The argument there is that, until some empirical work is carried out, it is not possible (or, if possible, not sensible) to identify the specific research questions. They will only become clear as the research unfolds, and as a specific focus for the work is developed. Wolcott (1982) describes this contrast as ‘looking for answers’ versus ‘looking for questions’. As we will see in Chapter 5, there is often a close connection between the research questions and the conceptual framework in a study. The issue described here in terms of research questions applies to conceptual frameworks as well – they can be developed and specified in advance of the research, or they can emerge as the research proceeds. The more tightly developed and pre-specified the research questions are, the more likely it is that there will be a well-developed conceptual framework as well.
2. *Design*: at the left-hand end, the design is tightly structured. The clearest examples come from quantitative research – experimental studies and non-experimental quantitative studies with carefully developed conceptual frameworks. Research questions, design and conceptual framework come together here, since a tightly structured design requires that variables be identified, and that their conceptual status in the research be made clear. At the right-hand end, the design is indicated in general terms only (for example, as in an unfolding case study, or an ethnography). Like the research questions, it will take detailed shape as the research progresses, and as the specific focus for the study is developed.
3. *Data*: at the left-hand end, data are structured in advance. A very clear example is quantitative data, where measurement is used to give the data numerical structure. Using numbers is the most common way of structuring data in advance, but there are other ways as well. Whether it is numerical or other categories, the point is that those categories are pre-established, or set up *a priori*. At the right-hand end, the data are unstructured at the point of collection. No pre-established categories or codes are used. The structure of the data, the categories and codes, emerge from the data, during the analysis – they are developed *a posteriori*. Thus the comparison is between starting with categories for the data, versus getting to them during the analysis of the data – between pre-coding the data and post-coding the data. This point about data has implications for instrumentation in data collection, not only in quantitative research, but in qualitative research as well.

The continuum shown in Figure 2.2 can now be described more accurately. It is really about when in the research process the structure is introduced. The structure can be introduced in the planning or pre-empirical stage, when the research is being

set up, before data are collected; or, it can be introduced in the execution stage of the research, as the study is being carried out, as data are being collected. Either way, structure is needed. A research project will be difficult both to report and to understand, and will lack credibility as a piece of research, without structure in its research questions, its design, especially in its data, and also in its report. So this contrast is not about having structure or not having structure, but about when in the research process the structure occurs. In other words, this continuum is about the timing of structure in the research – whether that structure is introduced ahead of the empirical research, or is introduced during and as a result of the empirical research.

The possibilities along this continuum represent different possible research styles. As the diagram shows, there is a correlation between these styles, on the one hand, and the typical quantitative and qualitative research approaches on the other. The typical quantitative study is much more likely to have specific research questions, a clear conceptual framework and design for its variables, and to use measurement as its way of structuring the data. It is harder to talk about typical qualitative studies, and they may cover a wider range along the continuum. Many of them fall towards the right-hand end, with general rather than specific questions set up in advance, with only a general design and with data not coded at the point of collection. This is well captured by Miles and Huberman (1994: 17), in discussing field research as a central part of the qualitative approach:

The conventional image of field research is one that keeps prestructured designs to a minimum. Many social anthropologists and social phenomenologists consider social processes to be too complex, too relative, too elusive, or too exotic to be approached with explicit conceptual frames or standard instruments. They prefer a more loosely structured, emergent, inductively ‘grounded’ approach to gathering data: The conceptual framework should emerge from the field in the course of the study; the important research questions will become clear only gradually; meaningful settings and actors cannot be selected prior to fieldwork; instruments, if any, should be derived from the properties of the setting and its actors’ views of them.

This general correlation between style and approach also extends to theory verification versus theory generation research, the distinction discussed in Section 2.4. Theory verification research, by definition, is more likely to have clear-cut research questions leading to hypotheses, a tightly structured design and pre-established categories for data. Theory generation research, by contrast, will more likely use an approach where specific research questions unfold as the study develops, and where codes and categories for the data are empirically derived.

It is not a question of which strategy is best, since a large part of the answer to this question is ‘it depends’. The question interacts with the overall approach to the research. Is it a quantitative study, a qualitative study or one that combines the two approaches? If quantitative, it is more likely to be towards the left-hand end of the continuum in Figure 2.2. If qualitative, there is likely to be a greater range

of possibilities. Nor is it a dichotomous choice between two extreme positions – it is a continuum. For clarity, the description in this section has been given in terms of the ends of the continuum. In reality, there are many points along the continuum, and any study may combine elements of either strategy – the prespecified one or the unfolding one.

How much predetermined structure is desirable in a project is a matter for analysis in each particular research situation. Structure is necessary. But the timing of the structure – when is the appropriate point to introduce this structure – depends on such factors as the topics and goals of the research, the availability of relevant knowledge and theory about the topic, and the researcher’s familiarity with the situation being studied (Miles, Huberman and Saldana, 2013). Other factors to be considered are the preferred style of the research, the resources (including time) available to the researcher, and to what extent the researcher is interested in explanation versus interpretation. Depending on these factors, there can be merit in either approach. As Miles, Huberman and Saldana (2013) point out, what is required is a careful analysis of each situation where research is proposed. The research strategy should then be custom-built, as far as is possible, on the basis of this analysis.

The discussion in this section has treated research questions, design and data together. Subsequent chapters deal with questions, design and data separately, before bringing them back together in Chapters 14 and 15. Without wishing to advise against exploratory unfolding studies, it is worth noting some of the benefits in having at least a reasonable level of specificity in the research questions. For example, they give guidance during initial data collection, thereby saving time and resources and helping to avoid confusion and overload, an especially valuable benefit for the beginning researcher. In addition, research questions that are at least reasonably focused make it easier to communicate about the research, which can be important in the presentation (and approval) of a research proposal. Brewer and Hunter (2005) point out that, once a study is completed, it is irrelevant whether the research questions initiated the study or emerged from it – but it can matter at the proposal stage. Finally, it is very often the case that the researcher does have knowledge about the proposed research problems, even in a relatively unexplored area (‘experiential data’ and ‘experiential knowledge’ – see Strauss, 1987 and Maxwell, 2012). There is great benefit in getting that knowledge out onto the table, and working carefully to develop research questions in advance of the empirical work is a good way to do that.

Developing specific research questions to a point where they are stable, and connecting them to the design, data collection and data analysis parts of the research, requires careful work. The question being considered here is whether that work is done in advance of the research or during it. That brings us back to fitting the various parts of a project together, as discussed in Section 2.5. This fitting together can be done ahead of the research, or during the research, but either way it needs to be done. Just as Section 2.1 of this chapter stressed the pragmatic benefits of ‘questions first – methods later’ in maximising that fit, so this section stresses the

pragmatic benefits of beginning with research questions that are at least reasonably well developed.

To summarise: There is a continuum of possibilities, which is about prespecifying versus unfolding structure in the research. It applies to research questions, design and data. The issue is structure and its timing – when in the research is structure introduced? Prespecified research does it ahead of the empirical procedures. Unfolding research does it during them. As a general rule, at least a reasonable level of specificity in the initial research questions is desirable, though various factors need to be taken into account in particular situations. Chapter 4 will describe a model of research where considerable effort is invested in developing research questions ahead of the empirical work. But this is not the only model, and when research questions come later, they still require both the analytical development described in Chapters 4 and 5, and the matching with methods, design and data described in Section 2.5 of this chapter.

## Chapter summary

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- Methodological theory is theory about methods, and involves philosophy. This is because methods are based on paradigms. A paradigm is a set of assumptions about the world.
- The questioning of paradigms led to a prolonged quantitative–qualitative debate, characterised by either/or thinking. This was a very prominent feature of the paradigm wars among philosophers and methodologists, which took place in the 1960s, 70s and 80s.
- Paradigm issues have more recently converged into positivism (mainly associated with quantitative methods) on the one hand, and interpretivism or constructivism (mainly associated with qualitative methods) on the other.
- A research project can be paradigm-driven, where it begins with a paradigm, and develops research questions and methods from it, or pragmatic, where it begins with research questions which need answers, and chooses methods for answering them.
- The purpose of substantive theory is to explain some substantive phenomenon of interest.
- Description and explanation are two different levels of understanding of empirical data. Both are important, but the overall purpose of scientific research is explanation, not just description. This shows the importance of explanatory theory.
- Theory verification research begins with a theory, develops hypotheses from this theory, and then tests the hypotheses against empirical data. By contrast, theory generation research starts with research questions and data, and aims to end with a theory which explains the data.
- Good research has a close fit between the questions it asks and the methods it uses. A very good way to achieve this fit is for methods to follow from questions.
- In prespecified research, the research questions and methods are preplanned, and the empirical part of the research implements these methods. In unfolding research, the questions and the methods are, to some extent at least, developed as the research proceeds. The difference is in the timing of the structure of the research. Which approach is ‘better’ needs to be determined in each particular research situation.

## KEY TERMS

**Methodological theory:** theory about methods, and the philosophical assumptions which (necessarily) underlie any set of research methods

**Paradigm:** a set of assumptions about the world, and about what constitute proper topics and techniques for inquiring into that world. Paradigms have an ontological dimension (concerned with the nature of reality), an epistemological dimension (concerned with knowledge about that reality) and a methodological dimension (concerned with methods for building knowledge of the reality)

**Positivism:** the philosophical position that objective accounts of the world can be given, and that the function of science is to develop descriptions and explanations in the form of universal laws – that is, to develop nomothetic knowledge

**Interpretivism:** the philosophical position that people bring meanings to situations, and use these meanings to understand their world and influence their behaviour

**Constructivism:** the philosophical position that realities are local, specific and constructed, and are socially and experientially based, depending on the people holding them

**Paradigm-driven research:** research which begins with a paradigm, and develops research questions and methods from it

**Pragmatic research:** research which begins with research questions, and then chooses methods for answering them

**Substantive theory:** content-based theory, which aims to develop a set of internally consistent propositions to explain a substantive phenomenon of interest; substantive theory is explanatory

**Description:** using data to draw a picture of a situation, event, person (people) or something similar; focuses on what is the case

**Explanation:** accounting for a description, showing why and how events or situations have come to be what they are; focuses on why (or how) something is the case

**Theory verification research:** research which sets out to test a theory, by testing hypotheses derived from the theory; begins with theory

**Theory generation research:** research which starts with research questions and data, and aims to build a theory to explain the data; finishes with theory

**Question–method fit:** the need for internal consistency between the research questions asked, and the methods used for answering them; an important aspect of the validity of a piece of research

**Pre-specified research:** research which has a high degree of structure before the empirical work is done; research questions, methods and data are specified in advance

**Unfolding research:** research which does not have a high structure before empirical work begins; initial research questions may be loose and general, and more specific questions, methods and data are developed during empirical work

## Exercises and study questions

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1. What is a paradigm? What are the three main dimensions of paradigms?
2. What were the ‘paradigm wars’?
3. How are paradigms and methods connected?
4. What is a paradigm-driven approach to research? What is a pragmatic approach to research? How do they differ?
5. What would a *description* of the climate of (say) a London winter look like? What would an *explanation* of that climate look like? How are they different?
6. For what sorts of topics and research questions would prestructured research be appropriate?
7. For what sorts of topics and research questions would unfolding research be appropriate?

## Further reading

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## Notes

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1. The ‘paradigm wars’ were especially vigorous in the field of education research. A good record of those ‘wars’, including the moves towards reconciliation and detente, can be found in a series of articles in *The Educational Researcher*, beginning in the 1970s.
2. The ‘difficult’ level is about precise definitions of the two terms, and about philosophical investigations into the concept of explanation – see, for example, Little (1991) and Lewins (1992).
3. Explanation itself is a complex philosophical concept. Another form of it is the ‘missing links’ form. Here, an event, or empirical generalisation, is explained by showing the links

that bring it about. Thus the relationship between social class and scholastic achievement might be explained by using cultural capital (Bourdieu, 1973) as the link between them. Or the relationship between social class and self-esteem might be explained by using the parent-child relationship as the link between them (Rosenberg, 1968: 54–82).

4. A nomothetic view sees generalised knowledge, universal laws and deductive explanations, based mainly on probabilities derived from large samples, and standing outside the constraints of everyday life. An ideographic view sees nomothetic knowledge as insensitive to local, case-based meanings, and directs attention rather to the specifics of particular cases. It prefers to see knowledge as local and situated (Denzin and Lincoln, 2011). The ideographic view thus points towards understanding and interpretation as important goals of research, alongside description and explanation.
5. Note also Atkinson's (1978) critique of that work, focusing on how suicide rates are constructed and what they mean.