abstract theorists, such as Parsons, Habermas, Foucault and Giddens. However, he argued that general theories should be open to revision and reformulation in the light of the results of empirical research. This has certainly not been the case for the latter category of theories, perhaps because they tend to present ontologies of the social world rather then explanatory accounts. It is probably easier to modify explanations, such as Durkheim's (1951) theory of egoistic suicide, than it is to alter an elaborate ontological scheme.

Adaptive theory requires a very flexible approach to the research process both in terms of the order in which activities are carried out and also in their role in the process of theorizing. '[T]he notion of theorizing itself has to be understood as an integral part of the overall research process as well as organically connected to the wider literature and findings of previous research and scholarship' (Layder 1998: 49). While research conducted in this way has to be systematic and disciplined, it also has to use a wide range of resources and be tolerant of a diversity of standpoints.

Layder has set out some practical ideas on how to move from existing concepts and theory to data and how to analyse data with theory in mind. He sees adaptive theory as using both *general* and *substantive* theory as well as *existing* and *emergent* research data. We have already encountered *general* and *substantive* theory. *Existing* data include previous research findings as well as documents, both visual and linguistic. Literature from disciplinary and popular sources, films and theatre, photographs, advertisements and sporting events, all qualify. In short, 'any aspect of social life that is capable of representation in a form which allows it to be offered or referred to as evidence of social trends, customs, habits, types of work or recreation, and so forth' (Layder 1998: 165). *Emergent* research data refers to the immediate findings from a current research project. It can suggest new concepts and theoretical ideas. This is not to suggest that data are somehow pure sources. 'All data is already theoretically saturated either through "contamination" by prior theorizing or through the preconceptions and commonsense presuppositions imported by the researcher (or generations of researchers)' (Layder 1998: 166).

While this view of the constructed nature of data flies in the face of traditional approaches to social research, it is now recognized in more recent traditions. In defending this position, Layder also gets to the heart of his view of the connection between theory and research, which rejects traditional views that consider concepts and theoretical propositions as directly representing reality.

> Thus, to speak of the manner in which adaptive theory attempts to capture or fashion an 'organic' connection between theorizing and data collection and analysis is not to imply an essentialist link. Although adaptive theory allows for and indeed encourages a dialectical relation between the formulation of theoretical concepts, clusters and models and their reformulation or revisability in the light of emergent data collection and analysis, there is no implication that this presupposes some kind of pre-theoretical (or epistemologically neutral) basis which is reflected in the term 'organic'. In this sense 'organicism' simply refers to the uncovering of research data and the simultaneous unfolding of conceptualization and theoretical reflection. (Layder 1998: 166)

Reminiscent of Giddens (1976), Layder proposes a new set of rules of method. These include an elaboration of his ontological and epistemological assumptions.

In summary, then,

> adaptive theory focuses on the construction of novel theory in the context of ongoing research by utilizing elements of prior theory (both general and substantive) in conjunction with theory that emerges from data collection and analysis. . . . The adaptive theory that results from such an interchange and dialogue always represents an attempt to depict the linkages between lifeworld and system elements of society. . . . Adaptive theory is accretive, it is an organic entity that constantly reformulates itself both in relation to the dictates of theoretical reasoning and the 'factual' character of the empirical world. Prior theoretical concepts and models suggest patterns and 'order' in emerging data while being continuously responsive to the 'order' suggested or unearthed by the data themselves. (Layder 1998: 27)

The Role of Hypotheses

It should be clear by now that hypotheses play a specific but limited role in social research. They are only relevant when 'why' questions are being investigated, and, then, mainly when the Deductive research strategy is being used to answer them. Hypotheses are not appropriate in the Inductive strategy and have a very particular role in the Abductive strategy. In the Retroductive strategy, it is models of structures and/or mechanisms that are hypothesized rather than statements of relationships between concepts. If quantitative methods are being used, a hypothesis will be tested by operationalizing the concepts in the hypothesis, collecting the appropriate data, and then exploring the nature of the relationship between the measures of the concept by some form of statistical analysis, such as correlation or regression.

It is extremely important to distinguish between the theoretical and statistical uses of hypotheses. Theoretical hypotheses are tentative answers to 'why' research questions, regardless of where they come from. Statistical hypotheses are used to establish whether a relationship between two variables that have been measured in a probability sample could be expected to exist in the population from which the sample was drawn. This latter use is narrowly technical and is irrelevant when non-probability samples or populations are used. Decisions about whether data confirm or refute a theoretical hypothesis cannot be settled by the use of tests of statistical significance. Hence, consideration of null and alternative hypotheses is only relevant to statistical hypotheses, not theoretical hypotheses (see Blaikie 2003 for a more comprehensive discussion of these issues).[6]

If qualitative methods are being used in the Deductive research strategy – and there is no reason why they should not be – the testing process will be less formal and is likely to rely more on arguments from evidence and the manipulation of concepts and categories in textual data.

Hypotheses also have a role in the Abductive research strategy, and in grounded theory. However, their use here is less formal and is an integral part of the process of generating theory from data. Questions will arise from the analysis of some of the data, and hypotheses may be used to explore these questions, within the same

body of data, or to stimulate further data collection. This will not involve either the measurement of concepts or the statistical testing of relationships.

To reiterate a point made in chapter 3, 'what' questions do not require hypotheses to guide the data collection, and they may also be unnecessary for 'how' questions. 'What' questions need concepts, and descriptions can be produced using these concepts, with either quantitative or qualitative data, without the need to guess at what the outcome might be. Such guessing of answers to 'what' questions adds nothing to the quality or sophistication of the research.

The Role of Models

Like *theory*, the concept of *model* has a variety of meanings and uses in the context of creating new knowledge and understanding social life. Calling something a model seems to be regarded as adding sophistication or legitimacy to one's research. A discussion of the role of *models* and *theory* in research is complicated by the fact that the concepts are sometimes used interchangeably. Some writers even combine them to produce 'theoretical models'.

In this section of the chapter, I will review the major types of models used in the social sciences. However, before doing this, it is necessary to set aside two everyday uses of *model* that are not relevant to our discussion: three-dimensional representations of objects, and ideals of some kind. Examples of representations include model aeroplanes, or an architect's model of a proposed building. The first is a model *of* an actual aeroplane, while the second is a model *for* a new building. Such models are not relevant to social research.

The other everyday use of model, again not relevant to research, is in the normative or ideal sense, for example, a model parent or a model organization. These models may never exist in reality but are presented as ideals for which to strive. However, they could be studied as a research topic.

Types of Models

Models are used in social research in a variety of ways. They provide a conceptual or theoretical framework, they can represent a hypothetical explanatory structure or mechanism, perhaps derived by the use of analogies, or they can be a method of organizing and communicating research results

Types of Models

Abstract descriptions
Synonym for theory
Conceptual models
Theoretical models
Analogues of mechanisms
Diagrammatic representations
Mathematical representations

Abstract descriptions

The most elementary but not trivial use of models in social research is as abstract descriptions. While not usually thought of as models, abstract descriptions can be regarded as models *of* some aspects of social reality. Casual or systematic observation and data may inform them.

Two examples of models as abstract descriptions can be found in the work of Schütz and Harré. Schütz elaborated the way models are used in the Abductive research strategy and Harré on how they are used in the *constructionist* version of the Retroductive strategy. Schütz's project (1963a, 1963b), like that of Weber and Dilthey before him, was to find a way 'to form objective concepts and objectively verifiable theory of subjective meaning structures' (Schütz 1963a: 246). He attempted to do this by establishing a bridge between the meanings social actors use in everyday activities and the meaning the social scientist must attribute to these activities in order to produce an adequate theory. He argued that social life is possible to the extent that social actors use typifications. Typifications are everyday categorizations of typical persons, social actions and social situations. They are socially constructed and transmitted, and they are refined and changed by processes of trial and error in everyday activities. Typifications that social actors use are related to their biographically and situationally determined system of interests and circumstances (Schütz 1963a: 243). According to Schütz, the intersubjective meanings that social actors use – motives, goals, choices and plans – can only be experienced in their typicality (1963a: 244). It is these typical meanings that the social scientist must discover, describe and use as ingredients in sociological ideal types.

Schütz distinguished between everyday typifications and sociological typifications, or ideal types. The critical difference between them is that they are constructed with different purposes in mind. Everyday typifications are part of the social stock of knowledge which, while often taken for granted, makes social life possible. Sociological typifications are constructed by social scientists to supersede everyday typifications and to understand some aspects of social life (Schütz 1963a: 246).

Schütz argued that all knowledge of the social world is indirect; people cannot be understood theoretically in their uniqueness but only as impersonal ideal types existing in impersonal and anonymous time. He regarded sociological typifications as *models* of typical social actors, typical social actions and typical social situations, not as descriptions of actual human beings, actions and situations. The elements of Schütz's models of the social world can be manipulated and the logical outcomes compared. They are the building blocks of theory and the source of testable hypotheses.

In their version of social psychology, Harré and Secord (1972) focused on 'episodes' involving one or more people. Episodes involve a beginning and an end as well as some internal structure or unity. 'Everything of interest that occurs in human life happens in the course of, or as the culmination of, or as the initiation of an episode' (Harré and Secord 1972: 153). In order to grasp such an episode it is necessary to construct a *model* of it, a critical or abstract description of its structure and its principle of unity, of the pattern of relationships and social processes. This type of model has been referred to as a *homeomorph* (Harré and Secord 1972; Harré 1977). However, the explanation of the episode requires the use of a different kind of model, a *paramorph*, which identifies the mechanism(s) that produced it. This second kind of model is based on the use of analogies and will be discussed shortly.

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Abstract descriptions

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Synonym for theory

The concept of *model* has been used by some writers as a synonym for 'theory', or, more particularly, for a particular view of theory. For example, Lave and March (1975) regarded *model* as being not only interchangeable with 'theory' but also 'paradigm', 'hypothesis' and even 'ideas'. Another example can be found in Inkeles's (1964) discussion of evolutionary, structural-functional and conflict theories as models of society. The sociologist 'carries in his [*sic*] head [models that] greatly influence what he looks for, what he sees, and what he does with his observations by way of fitting them, along with other facts, into a larger scheme of explanation' (Inkeles 1964: 28).

We should note, however, that Inkeles went on to suggest that a *model* is a general theory with a strong ontological component, while a 'theory' is an answer to a specific research question.

> It is not always possible to distinguish precisely between a scientific model and a scientific theory, and the terms are sometimes used interchangeably. A model may generate a host of theories but one theory may be so powerful as to become, in effect, a general model. . . . [W]e use model to refer to a rather general image of the main outline of some major phenomenon, including certain leading ideas about the nature of the units involved and the pattern of their relations. A theory we take to be a heuristic device for organising what we know, or think we know, at a particular time about some more or less explicitly posed question or issue. A theory would, therefore, be more limited and precise than a model. A theory can ordinarily be proved wrong. In the case of a model, it can usually only be judged incomplete, misleading, or unproductive. (Inkeles 1964: 28)

I suggest that to use *model* and 'theory' synonymously is to add confusion to concepts that already have a variety of other uses. This practice is to be avoided.

Conceptual models

Model is also associated with the idea of a conceptual scheme. This usage is closely related to both 'theoretical perspectives' and the *ontological* conceptual tradition discussed earlier in this chapter. A *conceptual model* attempts to represent the social world in terms of an array of related concepts, or a conceptual scheme (see e.g. Krausz and Miller 1974: 5). Further examples of conceptual schemes will be discussed in the section 'Diagrammatic representations' later in this chapter.

A *conceptual model* may be an important component of a theoretical perspective. However, theoretical perspectives tend to use different sets of concepts. If the same concepts *are* used, they will usually be given different meanings. For example, structural-functionalism uses concepts such as norms, values, roles, socialization, social control, equilibrium, adaptation and system, while the conflict perspective uses concepts such as economic base, superstructure, alienation, contradiction, interests, class, power and structure. These two theoretical perspectives share some concepts, such as institution, and may use them in a similar way, but, overall, the concepts in each perspective entail very different

assumptions about and ways of viewing the social world. The former is based on the idea that consensus on norms and values is the basis of social order, and the latter that conflict and power are characteristic of all social relationships, including those between social classes. 'Role' is a good example of a concept that is used very differently in two perspectives such as structural-functionalism and symbolic interactionism. In the former, roles are occupied by social actors whose behaviour is determined by the associated norms. In the latter, roles are negotiated and renegotiated as social interaction proceeds; they are not predetermined.

Theoretical models

Another common use of *model* is to combine the word with 'theory' to form 'theoretical model'. This is frequently done in a very imprecise manner. However, Willer (1967) has attempted to use the combined concept precisely in an elaboration of the relationship between theory and research. He saw this relationship as a hierarchy of levels with 'general model' at the top. My concept of Research Paradigm comes close to what he had in mind, a source of broad theoretical ideas and assumptions. The second level down consists of a 'theoretical model', which contains concepts and explanatory ideas related to a particular phenomenon. It is the source of specific hypotheses that can be tested in the course of research. 'General models' may be a source of 'theoretical models', but not the only one. They provide 'theoretical models' with the background that is essential in theory construction and testing. Below this is a 'formal system', which consists of set of statements that represent the key relationships within a phenomenon; it is a compact, systematized and internally consistent set of statements of relationships that identify the core ingredients of a 'theoretical model'. The logic of moving from 'general model' to 'theoretical model' to 'formal system' is deductive. Then, when the nominally defined concepts and the statements of the relationships of the 'formal system' are translated into measurable relationships between concepts it becomes the 'operational system'. (See the earlier discussion on the *operationalizing* tradition.) If the 'operational system' survives the testing, the 'formal system' can be called a 'theory'.[7]

Analogues of mechanisms

In both the natural and social sciences, many theories have been developed by drawing on ideas from another field of science. An example from the natural sciences occurred when physicists tried to understand the structure of the atom. They developed the idea of electrons and neutrons by drawing from astronomy the idea of the orbits of the planets around the sun. In sociology, Spencer's (1891) evolutionary theory of social change viewed society as being like an evolving organism. He argued that evolutionary growth is accompanied by changes in society's structure and functions, that an increase in size produces an increase in differentiation and structural complexity. His theory has employed what is commonly called the 'organismic analogy'; an idea that can be traced back to ancient and medieval writings. Hence, as the discipline of sociology developed to provide a 'scientific' understanding of human societies, it drew on familiar and

well established ideas from the discipline of biology. A theory in biology was used as a model for a theory of society.

Many other examples can be found of the use of a theory from a better-developed field as a model for a theory in a field where knowledge is still limited. The process is one of taking the concepts, and the established relationships between them, from the better-developed field and translating them into concepts and statements of relationships in the new field. For the model to be most useful, a one-to-one correspondence has to be established between the concepts and statements of relationship in both fields. If this is achieved, then hypotheses can be developed and tested in the new field. For example, in order to understand how rumours spread, it is possible to use as a model a theory about the spread of diseases. If the resulting hypotheses are corroborated, theories in the two fields will have the same form.

Some writers (e.g. Black 1962; Brodbeck 1968) have argued that analogies are the only genuine kinds of models in science. They considered all other uses of 'model' are unnecessary because there are perfectly good alternative concepts available; other uses simply create ambiguity and confusion.

Diagrammatic representations

Models of this type are designed to indicate patterns of relations, time sequences, or causal connections between aspects of social life. Concepts are arranged in a visual space to reflect their ordering in the social world, and symbols, such as lines and arrows, are used to represent the form and direction of the relationships. These models include arrangements of abstract concepts about generic aspects of the social world, and more specific summaries of relations among a number of variables. The former have been described as *abstract-analytical* models and the latter as *empirical-causal* models (Turner 1987: 164–5; 1991: 17).

Mathematical representations

While this is not the place for a detailed discussion of the role of mathematics in the social sciences, a few comments are in order. The use of mathematics is essential in physics, and to a certain extent in biology, but social scientists are very divided about the extent and manner in which it should be used in the social sciences. Of course, the application of mathematics to the social sciences is not completely new: economics is very dependent on the use of mathematical modelling, and psychologists have applied mathematics to certain aspects of their work, particularly in psychometrics. It is in the areas of social psychology, sociology and political science that the use of mathematics is a more recent and controversial development.

At a very basic level, however, whenever we count some aspect of the social world, and then apply some form of statistical analysis to the data, we are assuming that regularities in the social world conform to the rules of arithmetic. However, this kind of mathematical modelling is largely taken for granted.

It is other activities to which the label of *mathematical modelling* is usually applied, such as:

- formalizing theories by providing a language that clarifies assumptions and consequences embedded in the use of ordinary language;
- organizing, sifting through and finding systematic patterns in data;
- providing substitutes for theories from which consequences can be drawn and tested; and
- playing 'what if' games with sociological ideas (Lazarsfeld and Henry 1966; Leik and Meeker 1975).

The first of these activities is concerned with developing a precise language for social theory. However, this has not been the major use of mathematics in sociology (Sorensen 1978). The second use is the more common. It includes descriptive, correlational and inferential statistics at one extreme, and, at the other extreme, attempts to achieve causal explanations. The latter includes the use of regression and other forms of structural equation modelling (e.g. path analysis). In this activity, the aim is either to find a line or curve that represents a relationship in data, or to establish the extent to which a network of relationships conforms to a perfect model of them. The third and fourth uses involve constructing a theory in the form of a set of mathematical (algebraic) equations, exploring its implications by substituting parameters (possible values for the variables), and seeing what the model would predict. (See Coser 1975 for a critique of mathematical sociology, and Featherman 1976 and Treiman 1976 for defences.)

It is hard to find an article in any issue of *The American Sociological Review* over recent years that does not use some form of structural equation modelling, particularly regression. Generally, the aim is to find a set of independent variables that can best predict variations in a dependent variable. In regression analysis, independent variables are progressively added or manipulated in various combinations, each combination being described as a model. The other dominant form of modelling involves the use of mathematical equations of various kinds, including log linear and logit variations, to express a complex theoretical statement (such as that involved in rational choice theory) or the relations among dependent and independent variables.

Whether or not consideration needs to be given to mathematical modelling in a research design will depend on a number of other choices. These choices are likely to be influenced by the various audiences that a researcher needs or wishes to take into account as well as the paradigms that are regarded as being appropriate in one's discipline or research community. In some kinds of research, the development of a mathematical model may only be relevant after the data have been collected. In other kinds of research, such as most qualitative studies, mathematical models will be completely irrelevant.

Theories, Models and Research Strategies

To summarize the discussion in this chapter, I shall review the role of theory and models in each of the research strategies. Two issues will be discussed. The first is the contrast between theory development and theory testing; whether research sets out with a well-developed theory or whether theory is the end product of

Table 5.1   Research strategies, theory and models

Research strategy		Nature of theory	Use of models
Inductive	Form:	Generalizations Networks of propositions	Abstract descriptions Mathematical representations
	Process:	Generated by induction from data	Conceptual frameworks
Deductive	Form:	Deductive argument produces hypotheses	Theoretical models
	Process:	Hypotheses tested by matching against data	Diagrammatic representation Mathematical representation
Retroductive	Form:	Generative structures and/or mechanisms	Abstract descriptions
	Process:	Modelling of hypothetical mechanisms	May involve use of analogies
Abductive	Form:	Social scientific accounts	Abstract descriptions
	Process:	Generated from everyday accounts	(ideal types)

research. The second is concerned with the way explanation or understanding is achieved. The four research strategies present us with contrasting positions on these issues (see table 5.1).

Inductive and Deductive Strategies

The relationship between theory and research is viewed differently in the Inductive and Deductive research strategies. Insofar as explanation is considered to be possible at all in the Inductive research strategy, theory consists of generalizations derived by induction from data. Hence, research starts with the collection of data, and, hopefully, ends up with abstract descriptions of patterns in the data. If strong support is achieved for a generalization from many studies, its status is enhanced. A specific instance of a particular phenomenon can be explained by regarding it as an instance of such a regularity, i.e. it is seen to fit the pattern. Hence the idea of *pattern* explanations. In short, research within the Inductive strategy involves collecting data by operationalizing concepts, and then searching for patterns in the data. Patterns become generalizations, and networks of generalizations is considered to be a theory. Theory development consists of accumulating generalizations and producing further support for them.

The use of models in the Inductive research strategy is confined to abstract descriptions and mathematical representations. The former consists of relatively low-level generalizations and possible networks of such generalizations, while the latter involves the mathematical modelling of data. This modelling can range from basic statistical summaries, such as measures of central tendency, dispersion and association, to more complex mathematical simplifications of patterns of relationships.

As we have seen, the logic of the Deductive research strategy is the reverse of the Inductive strategy. Rather than theory being the outcome of research, it has to be produced, borrowed or invented at the outset. Theory takes the form

of a deductive argument. Depending on the purpose at hand, the conclusion to the argument can be a hypothesis, a prediction, or the regularity that is to be explained. Hence, this strategy requires a great deal of theoretical work before data are collected.

A Deductive theory can come from many sources, or a combination of them. An existing *researchers'* theory could be used in its original or a modified from. Alternatively, theory might be constructed using elements from *theoreticians'* theory and/or the findings of previous research. The latter clearly requires a great deal of knowledge of the field, as well as creativity. However, according to Popper, it matters not from whence a theory comes; it is the logic of its construction and the rigour of its testing that are important.

The Deductive strategy lends itself to the use of various types of models. It is possible to regard a deductive argument as a 'theoretical model' and to set it in the context of a 'general model', a 'formal system' and an 'operational system' (Willer 1967). Alternatively, it is possible to represent the relationships between the concepts contained in the propositions of the argument in diagrammatic and/or mathematical forms. This is now common practice among quantitative researchers.

Retroductive and Abductive Strategies

The Retroductive and Abductive research strategies do not lend themselves to conceptual or logical ways of linking theory and research. In the Retroductive strategy, a theory or explanation is achieved by establishing the existence of the hypothesized structure or mechanism that is responsible for producing an observed regularity. Alternatively, and probably more commonly in the social sciences, the task is one of establishing which one of a number of possible known structures or mechanisms is responsible, and the conditions under which it operates. Whether it is a structure or a mechanism on which the researcher focuses will depend on whether the *structuralist* or the *constructionist* version is used. However, as we have seen, Pawson and Tilley (1997) and Layder (1998) have argued that it is possible, perhaps necessary, to incorporate both structures (context) and mechanisms in our explanations.

Models play a vital role in the Retroductive strategy. They are used to provide abstract descriptions of the regularities or episodes under consideration (*homeomorphs*), and they are then used to construct 'images' of mechanisms (*paramorphs*). It is in this latter use that analogies may be employed as a stimulus to the creative process involved in discovering unknown mechanisms. In the end, the connection between a hypothetical model, and the process of establishing its existence, is more a matter of arguing from evidence than of engaging in the statistical testing of hypotheses (as in the Deductive strategy).

To demonstrate the existence of a particular structure may involve documenting many possible consequences of its existence, and then arguing for the plausibility of the connection between the evidence and the theory. For example, to establish the existence of a particular type of class structure as an explanation for patterns of alienated behaviour at work will require an argument of the kind that

connects evidence other than the work behaviour in question to both that behaviour and a possible class structure. Such arguments will obviously be a matter of persuasion based on evidence.

The relationship between theory and research in the Abductive research strategy is very different from that in the other three strategies. In this case, the two are intimately intertwined; data and theoretical ideas are played off against one another in a developmental and creative process. Regularities that are discovered at the beginning or in the course of the research will stimulate the researcher to ask questions and look for answers. The data will then be reinterpreted in the light of emerging theoretical ideas, and this may lead to further questioning, the entertainment of tentative hypotheses, and a search for answers. *Research becomes a dialogue between data and theory mediated by the researcher*. Data are interpreted and reinterpreted in the light of an emerging theory, and, as a result, change in the process. The emerging theory is tested and refined as the research proceeds. While this dialogue could continue forever, a satisfactory explanation will have been produced when theoretical saturation is achieved and satisfying answers to the research questions have been arrived at.

The process used to generate theory in the Abductive research strategy is sometimes described as inductive. However, this is misleading for a number of reasons. Abduction is a process by means of which the researcher assembles lay accounts of the phenomenon in question, with all their gaps and deficiencies, and, in an iterative manner, begins to construct her or his own account. The central characteristic of this process is that it is iterative; it involves the researcher in alternating periods of immersion in the relevant social world, and periods of withdrawal for reflection and analysis. This alternating process means that theory is generated as an intimate part of the research process; it is not invented at the beginning nor is it just produced at the end. The form of this theory can vary, depending on the particular branch of Interpretivism within which the researcher is working. Following Weber, Schütz and Becker, my preference is for the construction of ideal types as the abstract second-order descriptions, i.e. models. The rich detail in ideal types can then be used to produce theoretical propositions, which, in turn, may be tested by the further use of the Abductive strategy, or, possibly, within the Deductive strategy. The latter case does not necessarily entail the use of quantitative methods; it is possible to test deductively derived hypotheses using any type of data.

Ideal types as models can look very much like the models of mechanisms developed in the *constructionist* version of the Retroductive research strategy. I have argued (Blaikie 1994) that Weber's ideal type of the Protestant work ethic, particularly the typical meaning given to work by the early Calvinists, is equivalent to a model of a mechanism. In this case, the mechanism explains the relationship between religion and occupation that Weber claimed existed in Germany over a hundred years ago. However, it is not clear whether Weber arrived at this ideal type cum model by abduction or retroduction. Given the historical nature of his study, his ability to use the logic of abduction, as used in the Abductive research strategy, was rather restricted. Perhaps he used a combination of both, thus reinforcing the idea of the possible close association between these two research strategies.

Further Reading

Blaikie, N. 2007. *Approaches to Social Enquiry.*
Layder, D. 1998. *Sociological Practice: Linking Theory and Social Research*
    Discusses the issues related to the relationship between theory and research and offers some practical procedures for achieving this.
Turner, J. H. 1991. *The Structure of Sociological Theory.*
    Presents formal views of the relationship between theory and research.

The following references, written between 1959 and 1972, deal with some classical issues and present various points of view.
Blumer, H. 1969. *Symbolic Interactionism.*
Glaser, B. G. and A. L. Strauss 1967. *The Discovery of Grounded Theory.*
Harré, R. and P. F. Secord 1972. *The Explanation of Social Behaviour.*
Merton, R. K. 1967. *On Theoretical Sociology.*
Mills, C. W. 1959. *The Sociological Imagination.*
Wallace, W. L. 1971. *The Logic of Science in Sociology.*
Willer, D. 1967. *Scientific Method: Theory and Method.*