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Research Questions and Objectives

The purpose of research is to discover answers to questions through the application of systematic procedures. (Berg 1995)

Introduction

The use of research questions is a neglected aspect in the design and conduct of social research. This is surprising given that the fundamental purpose of social research is to provide new knowledge about the social world, to answer puzzles about what the social world is like and how it works, and to find ways to solve problems and bring about change. In my view, formulating research questions is the most critical and, perhaps, the most difficult part of any research design. It is only through the use of such questions that choices about the focus and direction of research can be made, that its boundaries can be clearly delimited, that manageability can be achieved and that a successful outcome can be anticipated. Establishing research questions also makes it possible to select research strategies and methods with confidence. In other words, *a research project is built on the foundation of its research questions.* However, getting these questions clear and precise requires considerable thought and sometimes some preliminary investigation.

This chapter discusses:

- three main types of research questions;
- the functions of research questions;
- how to develop and refine research questions;
- the relationship between research questions and hypotheses, and the functions of the latter;
- how research questions can provide a guide and framework for the review of the literature;
- the nature and range of research objectives that can be pursued; and
- the relationship between research objectives and research questions.

The aim of the chapter is not only to argue that research questions are necessary, but also that good research needs high-quality questions. A rare attempt to deal with the issue of the quality of research questions has been undertaken by Campbell et al. (1982). They reviewed articles in five journals in psychology, organizational behaviour and management, taking a two-year period for each journal. A list of the research questions was compiled and then they surveyed researchers in the fields covered to see what questions they thought should be asked. Their aim was to find gaps in research and to establish priorities for future research. The important thing about their work is that they focused on research questions.

Research Questions

Conventional wisdom suggests that research should be guided by one or more hypotheses. In order to get started on a research project, this view advocates that the researcher should, first, select a research problem, second, state one or more hypotheses to be tested, and, third, measure and correlate the variables related to the concepts in the hypotheses. However, this procedure is only relevant to quantitative research conducted within the *deductive* research strategy. While there is a role for hypotheses in particular kinds of research, they neither provide the foundation for a research design nor are they very useful for defining the focus and direction of a research project. In fact, the ritual of formulating and testing hypotheses can lead to unnecessary and unhelpful rigidities in the way in which research is conducted. In some kinds of research, it is impossible or unnecessary to set out with hypotheses. A much more useful procedure is to establish one or more research questions.

Few textbooks on research methods give much attention to the formulation of research questions, and some ignore this vital part of the research process entirely. Exceptions can be found in some recent texts on research methods, for example Yin (1993), Hedrick et al. (1993), Miles and Huberman (1994), Creswell (1994, 1998), Marshall and Rossman (1995), Blaxter et al. (1996), Mason (1996), Neuman (1997) and Flick (1998). It is interesting to note that these books are concerned with qualitative research methods or include a significant discussion of them.

Neuman, for example, has regarded research questions as the bridge between the research topic and hypotheses; he has also discussed techniques for narrowing a topic into a research question. Yin has linked research questions to types of research designs (or what he has called strategies): experiment, survey, archival analysis, history and case study. Flick has argued for the importance of research questions in qualitative research.

A central step, and one which essentially determines success in qualitative research, but tends to be ignored in most presentations of methods, is how to formulate the research question(s). The researcher is confronted with this problem not only at the beginning, when the study or the project is conceptualized, but in several phases of the process: in conceptualizing the research design, in entering the field, in selecting the cases and in collecting data. (Flick 1998: 47)

Creswell has offered advice on how to formulate research questions in quantitative and qualitative research (1994) and in five traditions of qualitative research (1998).

Mason set her discussion of research questions in the context of intellectual puzzles that seek some kind of explanation. These puzzles take a variety of forms, depending on the ontological and epistemological positions adopted by the theoretical and intellectual traditions from within which they emerge.

> Intellectual puzzles, then, will contain different sets of ontological and epistemological assumptions and prescriptions, and will suggest distinctive types of social explanation. In formulating your own intellectual puzzle, you must ensure that you have thought through what these are, and be confident that they are consistent – that is, that your puzzle is ontologically meaningful, and epistemologically explainable or workable. (Mason 1996: 15)

Intellectual puzzles then lead to research questions that she also regarded as forming the backbone of a research design and as having much greater significance than hypotheses or propositions, particularly in qualitative research. For her, research questions

> should be clearly formulated (whether or not you intend to modify them or add to them later), intellectually worthwhile, and researchable (both in terms of your epistemological position, and in practical terms), because it is through them that you will be connecting what it is that you wish to research with how you are going to go about researching it. They are the vehicles which you will rely upon to move you from your broad research interest to your specific research focus and project, and therefore their importance cannot be overstated.
> Research questions, then, are those questions to which you as researcher really want to know the answers, and in that sense they are the formal expression of your intellectual puzzle. (Mason 1996: 15–16)

I hope these examples are sufficient to reinforce my argument about the pivotal role played by research questions in social research.

Types of Research Questions

Research questions can be grouped into three main types, 'what' questions, 'why' questions and 'how' questions. I have restricted the research questions to 'what', 'why' and 'how' to maintain simplicity and to achieve a correspondence with the three main categories of objective: description, explanation/understanding and change (see figure 3.1).

What questions require a descriptive answer; they are directed towards discovering and describing the characteristics of and patterns in some social phenomenon, for example categories of individuals, social groups of all sizes, and social processes. They include the following types of questions.

- What types of people are involved?
- What characteristic knowledge, beliefs, values and attitudes do they hold?
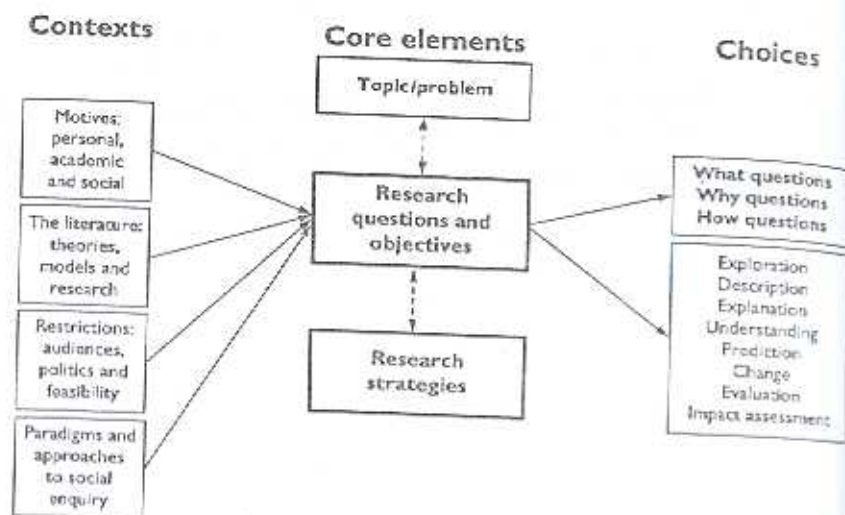

Figure 3.1 Research questions and objectives

- What is their characteristic behaviour?
- What social processes have brought this behaviour about?
- What are the patterns in the relationships between these characteristics?
- What are the consequences of these activities?

Why questions ask for either the causes of, or the reasons for, the existence of characteristics or regularities in a particular phenomenon. They are directed towards understanding or explaining the relationships between events, or within social activities and social processes. For example:

- Why do people think and act this way?
- Why did these patterns come to be this way? ✓
- Why do the characteristics or social process change, or remain stable?
- Why does this activity have these particular consequences? ✓

How questions are concerned with bringing about change, with practical outcomes and intervention. For example:

- How can these characteristics, social processes or patterns be changed?
- How can they be made to stop changing, or to slow down or speed up their rate of change?

These three types of research questions form a sequence: 'what' questions normally precede 'why' questions, and 'why' questions normally precede 'how' questions. We need to know what is going on before we can explain it, and we need to know why something behaves the way it does before we can be confident

about introducing an intervention to change it. However, most research projects will include only one or two types of research questions, most commonly 'what' and 'why' questions.

Some research may not proceed beyond one or more 'what' questions. While there may be a strong desire to include 'why' and possibly 'how' questions in a research project, the significance of producing good answers to 'what' questions should not be underestimated. In some fields, and on some topics, little research may have been undertaken anywhere, or recently, or in the context of interest. Before 'why' questions can be tackled, a good description of what is going on is needed. This may be an opportunity to make an important contribution to knowledge. In addition, some social scientists have argued that good description is all that is needed for an adequate understanding of many topics. Certainly, in comparative studies, description is the fundamental task. In short, good description is a vital part of social research.

Some writers have proposed more than three types of research questions. Yin (1993), for example, has discussed seven types: 'who', 'what', 'where', 'how many', 'how much', 'how' and 'why'. However, he does acknowledge that 'who', 'where', 'how many' and 'how much' questions are different forms of a 'what' question. Blaxter et al. have suggested five types of questions: 'how', 'who', 'what', 'when' and 'why'. Similarly, the first four of their questions can all be transposed into 'what' questions: 'what individuals' in 'what places', at 'what time', in 'what numbers or quantities' and in 'what ways'.

A different approach to research questions can be found in Hedrick et al. (1993: 23–32). They have identified four types of research questions that are relevant to applied research: descriptive, normative, correlative and impact. Marshall and Rossman (1995) have classified research questions as theoretical, as focusing on particular populations and as being site-specific. These categories relate to the context in which they are examined.

> Questions may be theoretical ones, which can be researched in any one of a number of different sites or with different samples. Or they may be focussed on a particular population or class of individuals; these too can be studied in various places. Finally, the questions may be site-specific because of the uniqueness of a specific program or organization. (Marshall and Rossman 1995: 27)

Throughout the book, I shall discuss only the three types of research questions, 'what', 'why' and 'how'. The process of developing research questions will inevitably produce a range of question wording similar to that discussed by Yin (1993). However, I believe the discipline of reducing all questions to these three types helps to make the links between research questions and research objectives clear.

The Purpose of Research Questions

Research questions are needed to define the nature and scope of the research. By selecting questions, and paying attention to their wording, it is possible to determine what is to be studied, and, to some extent, how it will be studied. The way a

particular research question is worded can have a significant influence on how much and what kind of research activity will be required.

Let us return to the four research topics discussed in chapter 2 and examine some possible research questions for each one.

Environmental Worldviews and Behaviour among Students and Residents
1 To what extent do students and residents hold different environmental worldviews?
2 To what extent is environmentally responsible behaviour practised?
3 What is the level and type of involvement in environmental movements?
4 To what extent, and in what ways, is environmental behaviour related to environmental worldviews?
5 In what ways and to what extent will environmental worldviews and behaviour change over the next five years?

As these are all 'what' questions, the study will have only *descriptive* objectives. It seeks to describe the distributions of environmental worldviews and behaviour in these populations, and the pattern of the relationship between these variables, now and in the future.

Age and Environmentalism: A Test of Competing Hypotheses
1 To what extent is age related to environmental worldviews and environmental behaviour?
2 If there are significant relationships, what are the forms of these relationships?
3 Why do these relationships exist?

These are straightforward research questions, two 'what' questions followed by a 'why' question. The study wishes to establish the nature of these relationships and to explain them.

Gender Differences in Environmentalism: Towards an Explanation
1 To what extent do women hold more favourable environmental attitudes than men?
2 To what extent are women more willing than men to engage in environmentally responsible behaviour?
3 Why do these gender differences in environmentalism exist?

Again, this is a combination of 'what' and 'why' questions seeking descriptions of relationships and explanations for them.

Motivation for Environmentally Responsible Behaviour: The Case of Environmental Activists
1 In what range and types of behaviour do environmentally responsible individuals engage?
2 Why do these people act responsibly towards the environment?
3 Why do some of these people manage to sustain this behaviour?
4 How can the incidence of this type of behaviour be increased?

Now we come to a combination of all three types of research questions. The study seeks to describe environmentally responsible behaviour, and then to explain why people engage in and manage to sustain that behaviour. Then comes the sting in the tail – how to get more people to engage in this behaviour. It will be unlikely that this study can do anything more than point in the direction of possible answers to this last question, using the answers to questions 2 and 3. But it could also suggest ideas for further research to pursue it. (See the Appendix for examples of different and more complex sets of research questions.)

It is important to recognize that while it is highly desirable to produce a well-formulated set of research questions as part of an integrated research proposal or design, this may not always be possible without some preliminary research being undertaken. In addition, what is discovered in the process of undertaking the research is likely to require a review of the research questions from time to time. No research design can completely anticipate how a research project will evolve. It may turn out that some research questions cannot be answered because it is not possible to obtain the necessary data. What the researcher assumed, or was led to believe, about the availability of or access to the necessary data may turn out to be wrong. Consequently, the design may require some revision, and part of this may involve a change to one or more research questions. Hence, while it is necessary to be as clear as possible about the scope and direction of the research at the beginning, what the researcher learns in the course of undertaking the research may necessitate some changes. This is simply the nature of research in any discipline.

Research projects differ in the extent to which it is possible to be able to produce precise research questions. This is certainly true of exploratory research, the aim of which can be to provide information to assist in the development of research questions. It might also be argued that some studies that use qualitative or ethnographic research methods involve the researcher in a learning process. In these cases, the research questions may evolve in the course of the research. However, even this kind of research requires careful consideration of scope and direction at the beginning in order to ensure that it will be manageable and will have a high probability of successful completion. The developmental nature of a research design should not be used as an excuse for avoiding the effort required to formulate appropriate research questions.

A common feature of the research process is for the researcher to be deflected or distracted from their original intentions. Many influences may be at work:

- encountering new ideas, for example in published research, in conference papers or presentations, in previously unfamiliar theory, or in the media;
- discussion with colleagues;
- changing academic fashions;
- changing political agendas; and, more particularly,
- learning that takes place during the course of the research, for example, from observations, from interviews and discussions, and from working with data.

It is very easy to lose one's way and to forget or neglect the original research questions. Changes to research questions should be made only after careful

consideration and not by just drifting away from them. One way to counter this drift is to print the questions in large type and display them in prominent places, such as in your regular work space, or in the front page of your field book or journal. They should be read regularly to keep the focus of the research clear.

Developing and Refining Research Questions

The process of developing a set of research questions can be the most challenging part of any research project. This is particularly the case when the researcher initiates the project, as is the case in much academic and postgraduate research in the social sciences. However, the problem still exists in research that is commissioned by someone else for problem-solving or policy-related purposes. Organizations or groups that commission research are very often vague about what they want done, and usually need some assistance to clarify the research questions and objectives.

It is very rare for a researcher to commence a project with clearly formulated research questions already provided. This might occur where a researcher has joined a research programme in which the research questions have already been established, or if a researcher is taking up questions posed in previous research. However, it is much more common in the social sciences for researchers to approach a topic or field in which previous research is limited, or in which previous research has used an approach different from the one the researcher wants to use, or considers to be appropriate.

All researchers have to devise their own way of developing research questions. What I offer here is a process that I have used myself and found to work successfully with many postgraduate students. Research questions can be stimulated in many ways: from casual observation of possible regularities; from previous research; from theory; from reports in the media; or from discussions with colleagues. The source is not really important. What it is usually necessary is to bring some order into a range of loosely connected ideas about what should be researched. Neuman (1997: 122) has offered a similar set of techniques.

1 *Write down every question you can think of* Let both the results of your reading and imagination run riot for a reasonable period of time, and record every question that occurs to you. Brain-storming sessions, on your own or with others, may stimulate the process. Note down questions when they occur to you, wherever and for whatever reason. The list will include all kinds of questions; some will be seeking descriptions, some explanations, some will be concerned with action, and so on. There is no need to try to achieve any order or consistency in the list; simply record the questions as they arise. One question will usually stimulate other questions; they should all be recorded. This activity may produce a very long list, sometimes many scores of questions. The purpose in doing this is to try to expose all the ideas that you have on the topic, particularly those that may be taken for granted and which later you wish you had been fully aware of at the design stage. No question should be censored, even if it may seem to be marginal, outrageous or impractical.

2   *Review the list of questions*   Once you are satisfied that you have pretty well exhausted all the ideas you have on the topic, you should review your list. There are a number of strategies for doing this.

• Group the questions under similar themes or topics, if such exist in your list. This is likely to reveal overlaps between questions which will make it possible to eliminate some and to consolidate others. Part of this consolidation can be achieved by developing a single, general or abstract question that summarizes a group of more specific questions.
• Set aside questions that seem to be outside your main area(s) of interest, that *are* too outrageous, or that seem to take you in directions that may be too difficult or too demanding to deal with. You can always review these questions later if you decide to change the direction of the research.

3   *Separate 'what', 'why' and 'how' questions*   Within each group of questions, begin to identify those that appear to be 'what', 'why' and 'how' questions. Of course, some studies may be concerned ultimately with only one type of question, for example one or more 'what' questions, or just a 'why' question.

The wording of 'what', 'why' and 'how' questions requires very careful consideration, as the way a question is stated initially can be deceptive: 'what' and 'why' questions can begin with 'How', and 'how' questions can begin with 'What'. For example: 'How are environmental behaviour and environmental worldview related?' This needs be transposed into a descriptive question, as: 'What is the relationship between environmental behaviour and environmental worldview?' or 'To what extent, and in what ways, is environmental behaviour related to environmental worldview?' The question, 'How do some people manage to behave in an environmentally responsible way?' needs to be transposed into an explanatory question: 'Why do these people act responsibly towards the environment?' The question, 'What can be done to increase the incidence of environmentally responsible behaviour?' needs to be transposed into an intervention question: 'How can the incidence of environmentally responsible behaviour be increased?'

Make sure each question is worded as clearly and as simply as possible and that each one can be identified unambiguously as a 'what', 'why' or 'how' question. Complex questions may need to be broken down into a series of questions. For example, the question, 'What is the incidence of student plagiarism?' would be better broken down into at least two questions: 'What has been the extent of detected student plagiarism over the past five years?' and 'In what types of plagiarism have students engaged?' (see the Appendix).

4   *Expose assumptions*   Check each question to see what it assumes. Many questions, particularly 'why' questions, presuppose other questions. It is important to expose the 'what' question that must be answered before a 'why' question can be asked, or, perhaps, even formulated.

'How' questions may presuppose both 'what' and, particularly, 'why' questions. A research project may need to examine all three types of questions. Rather than reducing the number of questions on the list, this part of the process may add further questions.
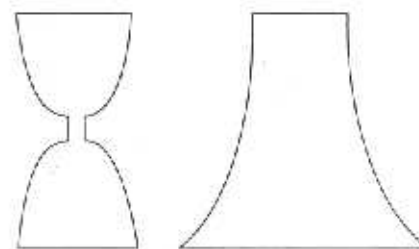
Figure 3.2   The hourglass analogy

5   *Examine the scope of the questions*   Now is the time to get practical and ask yourself how many groups of questions, and questions within groups, can be tackled in the project. A judgement has to be made about what is going to be manageable within the time and with the other resources available. There is an inevitable tendency to try to do too much; the questions for the topic on student plagiarism are a good example (see the Appendix). Therefore, it is advisable at this stage to reduce the project to what may appear to be an extremely limited or even trivial set of questions. Such innocent-looking questions usually have other questions lurking in their shadows.

A metaphor to illustrate the need to narrow the focus of the project at this stage can be taken from the shape of an hourglass, the ancient method of measuring time (see figure 3.2). At the beginning of the design of a project, our ideas are usually wide-ranging and scattered, as represented by the broad top of the hourglass. What we need to do is to narrow, consolidate and focus these ideas so that they can easily pass through the neck of the hourglass. Once we have achieved this, and the research commences, we are likely to find that the ideas and questions begin to expand, and by the end of the project they may have grown to the size of the base of the hourglass. What we must ensure is that the size of the project at the final stage is still manageable and that it can be successfully completed. If the narrowing process is avoided at the design stage, the inevitable expansion during the course of the research is likely to produce a project that becomes unmanageable or directionless.

6   *Separate major and subsidiary questions*   Once the list of questions has been reduced to what appears to be a manageable set, further work can be done on them. It may be useful to separate the questions into two broad categories, *major* questions and *subsidiary* questions.[1] Major research questions are those that will form the core of the research project, the key questions that are to be answered. They may also be stated more abstractly than some of the other questions. Research projects may have only one major research question, perhaps a 'what'

[1] Hedrick et al. (1993) have suggested a similar division between 'primary' and 'subordinate' research questions.

question. However, most are likely to have a combination of major questions: 'what' questions and a 'why' question, or a set of 'what', 'why' and 'how' questions. About five or six major research questions is probably more than enough for any project. Subsidiary questions will include those that deal with background information or issues that are presupposed by one or more major questions that, while being necessary, are not absolutely central to the project. Here is an example of a set of major and subsidiary questions.

Major research question
- To what extent is environmentally responsible behaviour practised?

Subsidiary research questions
- What proportion of residents regularly recycle household waste products?
- What proportion of residents avoid buying environmentally damaging products?
- What proportion of university students are actively involved in environmental groups?

In this example, the subsidiary questions can be used to specify categories of environmental behaviour and thus focus the study.

7 *Is each question necessary?* As your set of questions begins to take shape, you need to subject them to critical scrutiny by asking of each question: 'Why am I asking this question?' 'Is it necessary?' 'Why do I want to know this?' 'What will I do with the results from it?' 'How does it relate to other questions?' 'Is it researchable?' 'Can I manage all these questions?' This process needs to be taken very seriously and not glossed over quickly. It is very easy to include questions because 'that would be interesting to explore', or 'I would really like to know about that'. This critical examination needs to be ruthless.

A common mistake in drafting research questions is to confuse them with questions used to elicit information from respondents or participants, for example interview questions, or questions that would go into a questionnaire. Research questions are what you want the research project to answer. Questions you ask respondents can provide the basis for answering research questions, but their style and scope are very different. A wide variety of data may contribute to the answering of any research question.

Many postgraduate students seem to have a desire to do the definitive piece of research on their topic. Even if the research is for a Ph.D., and even if the degree is based entirely or almost entirely on a thesis, the research must be limited and focused in order to be manageable. There is just so much that one person can do within the time limits prescribed, and this can only make a small contribution to knowledge. While some students may be quite pragmatic about doing just what is necessary to qualify for a higher degree, many appear to have a strong need to be seen to be making a major contribution to knowledge. This is not only an unrealistic expectation for a fully research-based Ph.D.; it is impossible in research for any other kind of postgraduate degree. The problem is most acute for students

undertaking a coursework (taught) master's degree in which there is a minor thesis/dissertation/project component. Because of its limited duration, such a research project is very difficult to design.

In short, the number and nature of the questions selected has got to reflect the available resources. This is the stage at which the scope of the project is determined, and bad decisions can produce serious problems later.

Influences on the Choice of Research Questions

The choice of research questions and objectives can be subject to the same influences as those affecting the choice of the topic itself. Research questions may be developed to satisfy *personal* or *academic* curiosity as well as to address *social* problems. They may be inspired by the work of a particular social theorist or by the results of previous research. In addition, they may be influenced by a variety of audiences. The latter is particularly the case in applied research where someone other than the researcher sets the agenda. In the end, however, the task of formulating research questions, and ensuring that they form a consistent set, lies with the researcher (see 'Influences on the Choice of Topic' in chapter 2 above).

Research Questions and Hypotheses

It is a common view that social research should be directed by one or more hypotheses. However, in some types of research it is impossible or inappropriate to set out with hypotheses. In the types of research in which hypotheses are considered to be essential, it is not always clear what the role of these hypotheses is or where they are to come from. In some traditions of research, it is expected that hypotheses will be stated very precisely, in the null and directional forms, to facilitate statistical testing. In other traditions, hypotheses are stated much more loosely, and their acceptance or rejection is a matter of general evidence and rhetoric rather than tests of significance. In practice, hypotheses are drawn from a variety of sources, such as hunches or intuition, previous research, discursive argument and carefully formulated theories. While the latter is advocated in some traditions (see the discussion of the *deductive* research strategy in chapter 4), their source is frequently vague and their purpose unclear.

Lundberg's early (1942) textbook on social research provides a classical view of the role of hypotheses. He argued that there are four steps in 'the scientific method': the formulation of a working hypothesis, the observation and recording of data, the classification and organization of the data collected, and the production of generalizations that apply under given conditions. In this context, Lundberg defined a hypothesis as 'a tentative generalisation, the validity of which remains to be tested. In its most elementary stages, the hypothesis may be any hunch, guess, imaginative idea or intuition whatsoever which becomes the basis for action or investigation' (1942: 9). This view of a hypothesis simply requires the researcher to have a guess at what they think the data might reveal, and then proceed to see

if it is the case. So conventional has this view become that the novice researcher feels compelled to make such guesses, even if it makes no sense to do so; one feels naked without a hypothesis for a fig leaf. The fear of not being able to 'prove' their hypothesis hangs like the sword of Damocles over the novice's head; guessing the wrong hypothesis, or the wrong version of it, can be regarded as a disaster. The stress in this tradition of research is on having a hypothesis, not always on where it comes from, what it might be connected to, and what purpose it serves. It is not uncommon to invent such hypotheses after the research has been completed.[2]

Some writers conflate hypotheses and research questions: 'We do research to get answers to questions. Therefore, to do research, we must start with a research question that can be answered. This question is usually stated as a hypothesis – an idea, a prediction, capable of being disproven' (Mitchell and Jolley 1992: 15). The confusion is further compounded in their view that hypotheses can be deduced from theories, and that theories can be expressed as a series of hypotheses. From this, it is difficult to know what a research question is and what role it is supposed to play.

It is my view that *hypotheses are tentative answers to 'why' and, sometimes, 'how' research questions.* They are our best guesses at the answers. But they are not appropriate for 'what' questions. There is little point in hazarding guesses at a possible state of affairs. Research will produce an answer to a 'what' question in due course, and no amount of guessing about what will be found is of any assistance; it might even prejudice the answer. Therefore, hypotheses should be reserved for the role of tentative answers to 'why' and 'how' questions, and particularly 'why' questions. While it may not always be possible to produce a hypothesis for such research questions, to do so is to give research a much clearer sense of direction; decisions about what data to gather, and how to analyse them, are easier to make. However, it is important to note that some traditions of research that are concerned with 'why' questions may not set out with hypotheses. In grounded theory, for example, hypotheses are proposed in response to the patterns in the accumulating data, and they will be tested in a continuing trial and error process, being refined and, perhaps, discarded along the way.

A central issue that researchers confront at the stage of formulating research questions and hypotheses (if required) is what concepts to use and how to define them. How this is handled will depend largely on the particular research strategy or strategies, and theories or theoretical perspectives, adopted. This issue will be introduced in the next section and will be discussed in more detail in the early part of chapter 5.

[2] I was a victim of this kind of thinking while undertaking research for my master's degree back in the 1960s. The thesis reported over thirty hypotheses, most of which were only very loosely connected to previous research or theory. The research was reported in such a way that it appeared that I had been guided by these hypotheses and had systematically tested them. The whole performance was nothing more than a ritual that I was required to perform by the conventions of the discipline at the time. What I really needed was a clear set of research questions, but none of the textbooks discussed the need for such questions; one had to have hypotheses for the research to be acceptable. Little seems to have changed since then!

Research Questions and the Literature Review

A literature review is a customary component of any research report or thesis. Its main purpose is to provide a background to and context for the research, and to establish a bridge between the project and the current state of knowledge on the topic. This review may include:

- background information that establishes the existence of the problem to be investigated;
- previous research on the topic, or related topics;
- theory of relevance to the 'why' question(s);
- theoretical perspective(s) as a source of concepts as well as ontological and epistemological assumptions;
- methodological considerations of relevance to the selection of a research strategy or strategies; and
- a review and/or elaboration of the methods to be used.

These components of the literature review may end up in various places in the thesis or research report. The first may be part of the introductory chapter; the last two may appear in a methodology and methods chapter; and the fourth may be part of a discussion on the choice of research strategy or strategies. It is the second and third, on previous research and theory, that are particularly relevant to the research questions.

A major dilemma in any research project is to establish what literature to review – what literature is relevant. This can be a daunting and confusing task, particularly for novice researchers. I have observed many students spending an excessive amount of time reading rather aimlessly. Some will not really be satisfied until they have read 'everything', but the problem is to know what to include in 'everything'.

One solution to this problem is to use the research questions to guide and structure the review of previous research and relevant theory. Each question can be used to put a boundary around a body of literature, be it theory, published research or reports. *The aim of the literature review is to indicate what the state of knowledge is with respect to each research question, or group of questions.*

If hypotheses are used, they should have some connection with this literature. In some cases it may be possible to derive such an answer from existing theory, or it may be necessary to construct a new theory for the purpose. As we shall see, within the *deductive* research strategy, the development of a theory from which a hypothesis or hypotheses can be deduced is an essential part of answering 'why' questions. In the *retroductive* research strategy, the literature review may provide some assistance in the construction of hypothetical explanatory models. When the *abductive* research strategy is used for theory generation, hypotheses are an integral part of the continuing process of data collection and analysis, of observation, reflection, hypothesizing and testing. However, advocates of this strategy usually argue that research should *not* begin with hypotheses.

Research Objectives

In contrast to the researcher's personal motives and goals for undertaking a particular research project, research objectives are concerned with the types of knowledge to be produced. Social research can have a number of objectives ranging from relatively simple to very complex, and encompassing both basic and applied research. Research objectives include *exploration, description, explanation, understanding, prediction, change, evaluation,* and *impact assessment* (see figure 3.1).

A research project can pursue just one of these objectives or, perhaps, a number of them in sequence. For example, a study may be purely *descriptive*, or it might begin with a *descriptive* stage and then proceed to *explanation* and then to *change*. Basic research focuses on the first five objectives, *exploration, description, explanation, understanding* and *prediction*, but particularly *description, explanation* and *understanding*. While applied research may include some of these 'basic' objectives, it is particularly concerned with *change, evaluation* and *impact assessment*.

Types of Objectives

Basic Research

To *explore* is to attempt to develop an initial, rough description or, possibly, an understanding of some social phenomenon.

To *describe* is to provide a detailed account or the precise measurement and reporting of the characteristics of some population, group or phenomenon, including establishing regularities.

To *explain* is to establish the elements, factors or mechanisms that are responsible for producing the state of or regularities in a social phenomenon.

To *understand* is to establish reasons for particular social action, the occurrence of an event or the course of a social episode, these reasons being derived from the ones given by social actors.

To *predict* is to use some established understanding or explanation of a phenomenon to postulate certain outcomes under particular conditions.

Applied Research

To *change* is to intervene in a social situation by manipulating some aspects of it, or to assist the participants in doing so, preferably on the basis of established understanding or explanation.

To *evaluate* is to monitor social intervention programmes to assess whether they have achieved their desired outcomes, and to assist with problem-solving and policy-making.

To *assess social impacts* is to identify the likely social and cultural consequences of planned projects, technological change or policy actions on social structures, social processes and/or people.

In case you might be wondering why *comparison* is not included as a research objective, I regard it either as a form of *description* or as a technique for arriving at *explanation* or *understanding*, i.e. for theory generation or testing. In fact, comparison is one of the best methods for generating theory, as is evident in grounded theory (Strauss and Corbin 1999). As such, it is not an objective but it can be a means for achieving such objectives. Therefore, a list of objectives should not include statements like 'To compare the environmental attitudes of university students and logging contractors'. A research project might set out to *describe* the attitudes of each group, and to try to *explain* why they hold particular attitudes, but a comparison of their attitudes can be part of either of these objectives.

Exploration   Exploratory research is necessary when very little is known about the topic being investigated, or about the context in which the research is to be conducted. Perhaps the topic has never been investigated before, or never in that particular context. Basic demographic characteristics of a group of people, or some aspects of their behaviour or social relationships, may need to be known in order to design the study. The relevance of particular research questions, or the feasibility of using certain methods of data gathering, may also need to be explored. Essentially, exploratory research is used to get a better idea of what is going on and how it might be researched.

While exploratory research is usually conducted at the beginning of a research project, it may also be necessary at other stages to provide information for critical design decisions, to overcome an unexpected problem, to better understand an unanticipated finding, or to establish which avenues of explanation would be worthwhile pursuing.

The methods used to conduct exploratory research need to be flexible and do not need to be as rigorous as those used to pursue other objectives. The researcher may need to be creative and resourceful in gaining access to the information required. In terms of the pursuit of other objectives in later stages of the research, exploratory research is double-edged. On the one hand, it may help to establish rapport with individuals or groups being studied and thus smooth the way for later stages of the project; on the other hand, it has the potential danger of raising suspicion and developing resistance. Therefore the management of exploratory research cannot be taken lightly, as it may have long-term consequences for the project.

In the context of his advocacy of symbolic interactionism, Blumer (1969) gave exploratory research a more substantial role. He believed this was necessary to counter the common tendency to move straight into research without an adequate understanding of the sector of social life being investigated. He saw the exploratory phase as being necessary to sharpen the focus of the research; not as an optional extra, but as an essential part of any project.

> On the one hand, it is the way by which a research scholar can form a close and comprehensive acquaintance with a sphere of social life that is unfamiliar and hence unknown to him [sic]. On the other hand, it is a means of developing and sharpening

his inquiry so that his problem, his directions of inquiry, data, analytical relations, and interpretations arise out of, and remain grounded in, the empirical life under study. Exploration is by definition a flexible procedure in which the scholar shifts from one to another line of inquiry, adopts new points of observation as his study progresses, moves in new directions previously unthought of, and changes his recognition of what are relevant data as he acquires more information and better understanding. In these respects, exploratory study stands in contrast to the prescribed and circumscribed procedure demanded by current scientific protocol. The flexibility of exploratory procedure does not mean that there is no direction to the inquiry; it means that the focus is originally broad but becomes progressively sharpened as the inquiry proceeds. The purpose of exploratory investigation is to move toward a clearer understanding of how one's problem is to be posed, to learn what are the appropriate data, to develop ideas of what are significant lines of relation, and to evolve one's conceptual tools in the light of what one is learning about the area of life. (Blumer 1969: 40)

Exploratory research should provide as detailed and accurate a picture of the phenomenon as is necessary to enable the researcher to feel at home and to be able to speak about the research problem with some confidence.

The picture provides the scholar with a secure bearing so that he knows that the questions he asks of the empirical area are meaningful and relevant to it, that the problem he poses is not artificial, that the kinds of data he seeks are significant in terms of the empirical world, and that the leads he follows are faithful to its nature. (Blumer 1969: 42)

Blumer has left us in no doubt about how essential exploratory research is to the development of a good research design.

Description   Descriptive research seeks to present an accurate account of some phenomenon, the distribution of characteristics in some population, the patterns of relationships in some social context, at a particular time, or the changes in those characteristics over time (Bulmer 1986: 66). These descriptive accounts can be expressed in words or numbers. They can include the characteristics of a social group or a demographic category, the stages or sequences in social processes, or patterns in social relationships. They may involve the development of sets of categories or types.

In practice, the boundary between exploratory and descriptive research is blurred. Descriptive research is more rigorous and is usually narrower in its focus; it should be directed by clearly stated research questions. However, both types of research require the use of concepts and they will be structured by at least some theoretical assumptions.

Explanation and understanding   Explanatory research seeks to account for patterns in observed social phenomena, attitudes, behaviour, social relationships, social processes or social structures (Bulmer 1986: 66–7). *Explanation* is making intelligible the events or regularities that have been observed and which cannot be accounted for by existing theories; explanation eliminates puzzles. To explain

some phenomenon is to give an account of why it behaves in a particular way or why particular regularities occur.

Explanations provide intellectual satisfaction; they make the obscure plain to see. This is true of both semantic and scientific explanation. Semantic explanation is concerned with the meanings of words and phrases, while scientific explanation seeks the causes for the occurrence of a particular event or regularity. However, making something intelligible is not just a subjective matter.

There is a difference between *having* an explanation and *seeing* it. In the case of semantic explanation, we do not have one unless and until we see it, but in the case of scientific explanation either the having or the seeing may occur without the other. That an explanation is often resisted when it is first offered is a commonplace of the history of science – men [sic] have it, but do not see it. The reverse is characteristic of the sort of explanations occurring in myths, paranoia, the occult 'sciences', and the like.... They provide a certain intellectual satisfaction, but it is one unwarranted by the actual state of affairs. Those who accept them only see an explanation, but do not have one. (Kaplan 1964: 330)

In everyday language, *explanation* refers to all attempts to achieve intelligibility. In short, explanations produce understanding. However, it could be argued that descriptions also provide understanding; they give us the details of what is going on. Detailed descriptions can begin to provide the beginnings of explanations. Nevertheless, I am going to use the distinction between *explanation* and *understanding* that has been discussed by writers such as Taylor (1964) and von Wright (1971) and, subsequently, by Giddens (1979: 258). The latter regarded them as different ways of answering queries in the social sciences.

The difference between *explanation* and *understanding* is a matter of how intelligibility is achieved; it is the difference between *causal* explanation and *reason* explanation. *Explanations* identify *causes* of events or regularities, the factors or mechanisms that produced them, and *understanding* is provided by the *reasons* or accounts social actors give for their actions. The latter is also associated with the *meaning* of an event or activity in a particular social context, either that given by social actors or the meaning that researchers derive from social actors' accounts. *Explanations* are produced by researchers who look at a phenomenon from the 'outside', while *understanding* is based on an 'inside' view in which researchers grasp the subjective consciousness, the interpretations, of social actors involved in the conduct (Giddens 1976: 55).

The distinction between *erklären* (to explain) and *verstehen* (to understand) has a long history in German scholarship. While some writers (e.g. Winch 1958) have argued that causal explanation is appropriate in the natural sciences and reason explanation is appropriate in the human or social sciences, other writers have argued either that both can be used in the social sciences (e.g. Habermas 1972), or that characterizing the two fields of science as being exclusively concerned with only one of these is inappropriate (e.g. Giddens 1976). The position adopted here is that both *explanation* and *understanding* are appropriate objectives in the social sciences, but that they produce rather different kinds of intelligibility.

Hence, various strategies to achieve *explanation* or *understanding*, based on different assumptions and the use of different logics of enquiry, have been

advocated in both the natural and social sciences. These strategies look in different places and in terms of different factors or mechanisms for answers to their puzzles. In chapter 4, three of these explanatory strategies (the *inductive*, *deductive* and *retroductive*), and one that is used to achieve understanding (the *abductive*), will be outlined and compared in terms of their relevance to the design and conduct of social research. For the present, a brief introduction to them will have to suffice.

In the *inductive* research strategy, explanation is achieved by locating a particular pattern within a known and more general pattern or network of relationships (Kaplan 1964: 298, 333). The growth of knowledge is achieved by indefinitely filling in and extending the patterns. This form of explanation is also known as structural explanation, using network or functional theories. Network explanations have three main forms: they refer to broader patterns of which the case in point can be seen as a specific case; they identify developmental sequences in social relationships; or they specify certain patterns in the way interaction occurs. Functional explanations locate events or patterns of behaviour and relationships within a larger social system; the phenomenon being investigated is explained in terms of the functions it performs for the larger system (Neuman 1997: 53–5).

In the *deductive* research strategy, explanation is achieved by constructing a deductive argument to which the phenomenon to be explained is the conclusion. The premises of the argument will be either well-established abstract propositions, or hypothetical propositions that are to be tested. While each proposition in the argument may consist of nothing more than a statement of a relationship between two concepts, a set of such propositions provides the *explanation* by linking the lower-level concepts, associated with the described pattern, to more abstract theoretical concepts.

The *retroductive* research strategy seeks to explain a pattern by locating the causal mechanism that produces it. The pattern of association between two concepts is usually viewed as entailing a direction of influence, and the existence of a causal mechanism provides the *explanation* for the influence. For example, the explanation of the association between religion and occupation, which was of concern to Weber (1958) as part of his account of the rise of capitalism in Europe, can be explained by the mechanism of the meaning particular social actors gave to work.[3]

This type of causal explanation should not be confused with more common forms which, while not fitting neatly into any of these three research strategies, comes closest to the *deductive* strategy. The classical conception involves a cause and an effect, and is based on four principles:

- temporal order in which the cause must precede the effect;
- association which requires that the two events occur together;
- the elimination of alternatives in order to be able to claim that the effect was due to the specified cause and not something else; and

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[3] While Weber did not frame his explanation in this way, it is possible to reconstruct his concern with the meaning of work as a causal mechanism. This example will be taken up again later.

- making sense of the causal relationship in terms of broader theoretical ideas or assumptions.

Another version involves not just one cause but a sequence or chain of events or variables which cumulatively produce the effect. While it is normally expressed in diagrammatic form and/or in statistical models rather than as a deductive argument, this view of causal explanation does much the same as a deductive argument: they both involve connected sequences of relationships between concepts, which together produce an *explanation*.

The fourth research strategy is different from the other three in that it is the only one that specifically addresses the objective of *understanding*. Abduction is the logic of enquiry in which the researcher, at least initially, takes on the role of learner and seeks to be educated by the people being studied. The initial task is to learn about their form of life and the way they conceptualize and make sense of it. With this knowledge as an ingredient, the researcher may then proceed to redescribe lay accounts of the social world in social scientific language. The objective is to both describe and understand the problem at hand.

Whereas *explanation* is concerned with abstract patterns of relationships in deductive arguments or causal sequences, *understanding* is concerned with the reasons social actors give for their actions. The focus is not so much on the explanations that the researcher constructs but on the explanations social actors can offer and which can be used by the social researcher to construct a social scientific account of their activity.

Prediction   The objective of *prediction* in research is to make claims about what *should* happen under certain conditions. *Prediction* needs to be distinguished from prophecy; the latter makes claims about what will happen in the future while the former makes claims about what will happen if certain laws or mechanisms operate under certain conditions (Popper 1961: 128). Prediction involves time only in the sense that, whenever particular laws or mechanisms operate under the specified conditions, the predicted outcome can be expected. Therefore, the possibility of prediction is dependent on the state of knowledge at a particular time.

Prediction can be achieved in two ways: in terms of well-established patterns of association between concepts (as in the *inductive* research strategy); or by shifting the emphasis in a theoretical argument (as in the *deductive* research strategy). In the case of established patterns, whenever one part of a relationship is present, it can be expected that the other part will also be present. For example, if it has been consistently established that juvenile delinquents come from broken homes, then locating particular juvenile delinquents can lead to the prediction that they will be found to have come from broken homes, or, alternatively, that children from broken homes are likely to become delinquents.

Some writers have argued that the logic involved in *explanation* and *prediction* is essentially the same; it is just a matter of where the emphasis is put and what can be taken as given (Popper 1959, 1961; Hempel 1966). This claim is based on the assumption that a set of propositions that has been used as an explanation of an observed pattern can also be used to predict another pattern. For example, if an explanation has been constructed to explain why the suicide rate is low in a

country in which a particular religion is predominant, and if religion has been shown in the deductive argument to be related to suicide rates (as Durkheim claimed to have established), then it is possible to predict that other countries of a similar religious composition will have similar suicide rates (see the discussion of Homans's (1964) reconstruction of Durkheim's theory of suicide in chapter 4).

Writers who have advocated the *retroductive* research strategy (e.g. Bhaskar, 1979) have argued that *prediction* is only possible in closed systems, perhaps only under experimental conditions. As social scientists have to work in open systems, it follows that prediction is not possible in the social sciences. While *explanation* in terms of causal mechanisms is possible, there is no scope for *prediction* because the conditions under which a mechanism operates can never be fully established. As the natural sciences also operate in open systems, apart from artificially controlled experiments, the advocates of this position also claim that prediction is not possible in the natural sciences.

Change Research that adopts the objective of *change* endeavours to intervene in the social world to bring about partial or major changes, either in conjunction with the research itself, or as a consequence of the research outcomes. Change can only be achieved with confidence if the actions taken are based on those that a well-established *explanation* or *understanding* would suggest. However, the process of intervention itself can be used as a learning process. Knowledge of a phenomenon can be developed in a trial and error process, as intervention is conducted in stages. What is learnt from one stage can be used to decide what action to take in the next stage. The outcome can be *understanding* and *explanation*, as well as *change*. In fact, some philosophers of science (e.g. Popper) have argued that this trial and error process is the only way scientific knowledge can be advanced; that all research involves the use of 'piecemeal technology' rather than gigantic leaps into unknown territory. Nevertheless, it is possible to distinguish between intervention that is used primarily for the purpose of advancing knowledge, and intervention that tries to change the world; between purely scientific concerns or essentially social or political concerns; between basic research and applied research.

The 'action research' tradition has the joint objectives of increasing knowledge and changing some aspect of the world at the same time. It differs from more conventional research in that the researcher may take the role of facilitator or resource person to help a group of people change their own situation from the inside, rather than the researcher adopting the role of outside expert who tries to bring about change by 'external' intervention (see e.g. Winter 1987, 1989; McNiff 1988; Oja and Smulyan 1989; Whyte 1991; Stringer 1996; Zuber-Skerrit 1996).

Some schools of social theory (e.g. critical theory and feminist theory) have argued that *change* is the fundamental objective of social science; all other objectives must serve that of the emancipation of oppressed groups. Therefore, objectives must serve that of the emancipation of oppressed groups. Therefore, while the objective of *change* may be regarded as an add-on stage in research, it has been regarded by some as being either the only way to generate scientific knowledge, or the only legitimate form of social science.

Hence, intervention research may adopt 'outside' or 'inside' methods; it may be done to a group or community at the researcher's initiative, or on behalf of someone else, or it may be done in conjunction with, or as a result of the initiative

of, a group or community. In the latter case, it is directed towards the goals *they* have defined or have been helped to define. This type of research is usually referred to as 'participatory action research' (Whyte 1991).

Intervention research can also be done 'top down', thus serving the needs of the powerful, or 'bottom up' by serving the needs of the powerless. Hence, it may be viewed loosely as either 'radical' or 'conservative'. Radical interventionist research is emancipatory research that is designed to improve the conditions of less powerful sections of society and to replace oppressive regimes (Habermas 1971, 1987; Fay 1975, 1987; Bhaskar 1979, 1986). Some radical interventionist research is also 'bottom up' because it begins with the felt needs of oppressed people, it helps them to understand the causes of their oppression and then it tries to bring about change to overcome it. A major example of 'radical' intervention research is that based on critical theory (Fay 1987; Habermas 1987). Habermas has described this kind of researcher as being a 'reflective partner' who helps to raise consciousness and facilitate action.

More conservative versions of intervention research can be found in fields such as organizational change. While some organizational research may be concerned with producing a more humane working environment, and with the welfare of employees, generally the ultimate concern is to bring about changes that will achieve greater productivity and efficiency.

Evaluation *Evaluation* research, as well as *impact assessment* of various kinds, is concerned with policy and programme development and implementation in particular, and with problem-solving and decision-making in general. Evaluative research seeks to examine the consequences of the adoption of particular courses of action. It sets out to determine whether a particular policy or programme has achieved what it set out to achieve, that is, the extent to which it has been effective in achieving certain policy or programme goals. Evaluation research compares 'what is' with 'what should be' (Weiss 1972: 6): 'The purpose of evaluation research is to measure the effects of a program against the goals it set out to accomplish as a means of contributing to subsequent decision making about the program and improving future programming' (Weiss 1972: 4).

Evaluation research has many uses:

- to continue or discontinue a programme;
- to improve a programme's practices and procedures;
- to add or drop specific programme strategies and techniques;
- to institute similar programmes elsewhere;
- to allocate resources amongst competing programmes; and
- to accept or reject a programme approach or theory (Weiss 1972: 16–17; Bulmer 1986: 156).

However, Weiss has argued that, in practice, 'evaluation is most often called on to help with decisions about improving programs. Go/no go, live or die decisions, are relatively rare' (1972: 17).

Evaluation research seeks answers to questions posed by decision-makers, not academics. However, as Levine (1987: 30–1) has pointed out, in providing

decision-makers with analysed information, the evaluation researcher has to accept that these decisions are likely to be made according to poorly specified personal, political and national goals.

In arguing for 'responsive constructivist evaluation', Guba and Lincoln (1989) have shifted the focus from decision-makers to the claims, concerns and issues of stakeholders. The latter include any groups whose stake may be placed in jeopardy by the evaluation. Their concern is to adopt an approach that will make it possible to take the concerns of all stakeholders into account.

There are two types of evaluation research: *formative evaluation*, in which built-in monitoring or continuous feedback is used during the implementation of a policy as a basis for helping to improve it; and *summative evaluation*, which is conducted after a policy has been implemented to establish its overall effectiveness in achieving the original goals.

Pawson and Tilley (1997) have identified four main perspectives on evaluation research: the *experimental* (Campbell and Stanley 1963a; Cook and Campbell 1979); the *pragmatic* (Weiss 1972, 1976; Weiss and Bucuvalas 1980); the *naturalistic* (Guba and Lincoln 1989); and the *pluralist* (Cronbach 1963, 1982; Rossi and Freeman 1985). The first on the scene in the 1960s, the *experimental* perspective, used classical or quasi-experimental procedures to try to establish whether change is the result of the planned intervention. In the wake of disappointing results from this first phase, the *pragmatic* perspective became less ambitious and advocated the careful use of any kind of sound research. The *naturalistic* perspective took a different turn and saw evaluation as a matter of negotiation between stakeholders with different interpretations (constructions) of a programme. The *pluralists* called for greater depth and breadth in programme evaluation by examining the way programmes are conceptualized, dealing with both institutional and individual diagnoses of the problem and focusing on outcome effectiveness. Pawson and Tilley have added a fifth perspective, *realistic evaluation*, based on scientific realism (see chapter 4), for which they claim superiority over the other perspectives. They have provided eight rules for the conduct of evaluation research.

Commonly used tools in both *evaluation* research and *impact assessment* are *needs analysis* and *cost-benefit analysis*. However, it is because of the deficiencies in cost-benefit analysis, due to its narrow economic focus, that the development of both *social impact assessment* and *environmental impact assessment* has occurred.

Impact assessment Impact assessment (IA) has been defined as '*the process of identifying the future consequences of a current or proposed action*' (Becker 1997: 2). In the case of social impact assessment (SIA), these consequences are related to '*individuals, organizations, institutions and society as a whole*' (Becker 1997: 123). Following the definition of SIA in the United States by the Interorganizational Committee on Guidelines and Principles (1994), Burdge and Vanclay have included cultural as well as social impacts. They include

all social and cultural consequences to human populations of any public and private actions that alter the way in which people live, work, play, relate to one another,

organise to meet their needs, and generally cope as members of society. Cultural impacts involve changes to norms, values, and beliefs of individuals that guide and rationalise their cognition of themselves and their society. (Burdge and Vanclay 1995: 32)

Becker limited his definition of SIA to future consequences of present or proposed actions. The assessment of the consequences of past actions is seen to be part of evaluation research. However, because of the particular concerns in the practice of SIA, it is possible to work with a broader definition. Hence SIA can be concerned with assessing or predicting the demographic, socio-economic, institutional, community and psychological impacts of resource development and large-scale construction projects, as well as social or economic policies and programmes. The tasks of SIAs are to:

- assess and predict potential impacts;
- mitigate and monitor these impacts; and
- audit and analyse the impacts of past actions.

Social impact assessment attempts to complement the study of natural, or biophysical, environmental impacts with information on the social and socio-economic impacts which may be associated with a new project, policy or programme. These impacts, or alterations in living conditions, include changes in psychological and physiological factors, community processes, and changes in the production, distribution and consumption of goods and services. (Bulmer 1986: 146)

For example, a major road construction scheme may lead to population movements, the fragmentation of social communities, psychological stress and changes in property values. Similarly, a new social welfare policy may lead to disadvantages among groups that it was supposed to benefit. SIA will endeavour to identify the range and extent of such impacts; it can be used to trade off the benefits of the project (e.g. reduced traffic congestion and accidents) against social costs. An important aspect of *social impact assessment* is the relative gains and losses that particular groups in a community or society are likely to experience as the result of a construction project. Some form of compensation for such losses might then be built into the costing of the project (see also Finsterbusch 1983, 1985).

In many ways, SIA has grown out of the related and increasingly significant field of *environmental impact assessment* (EIA). While the latter's primary concern is with the natural and biophysical impacts of major physical projects, it is now generally accepted that EIA and SIA are complementary and that the latter must accompany the former.

A narrow definition of EIA is the assessment of the impact of a planned activity on the environment. However, it can be conceived more widely as a process for identifying, predicting and evaluating the biogeographical, socio-economic and human health and welfare consequences of implementing particular activities (Wathern 1988). The ultimate purpose is to indicate to decision-makers the likely consequences of their action, and, therefore, to improve the quality of their decisions (Wathern 1988; Ortolano and Shepherd 1995).

The positive influences of ELA are:

- withdrawal of unsound projects;
- legitimation of sound projects;
- selection of improved locations;
- reformulation of plans, for example land use;
- redefinition of goals and responsibilities of project proponents (van de Gronden 1994: 12–18; Ortolano and Shepherd 1995: 8–9).

Relationships among Research Objectives

The four research objectives of *exploration*, *description*, *explanation* and *prediction* can occur as a sequence in terms of both the stages and the increasing complexity of research. *Exploration* usually precedes *description*, and *description* is necessary before *explanation* or *prediction* can be attempted. *Exploration* may be necessary to provide clues about the patterns that need to be described in a particular phenomenon. The sequence, beginning with the *description* of patterns, and followed by an *explanation* of why they occur, is central in any form of social research. Description of what is happening leads to questions or puzzles about why it is happening, and this calls for an explanation or some kind of understanding.

The importance of *description* is often underrated in research, with *explanation* being seen as the ultimate goal. However, without adequate description there may be nothing to explain; it is necessary to be sure what the patterns or regularities are before any attempt is made to explain them. In addition, some forms of *explanation* for example, pattern explanations, are nothing more than complex descriptions. It has been argued that explanation works 'not by involving something beyond what might be described, but by putting one fact or law in relation to others' (Kaplan 1964: 329). This is known as the 'pattern' model of explanation and is characteristic of the *inductive* research strategy (to be discussed in chapter 4).

There are a variety of views on the relationship between *explanation* and *prediction*. It is possible to make *predictions* without having an *explanation* of a phenomenon. This kind of *prediction* relies on well-established generalizations about patterns of relationships between concepts, sometimes referred to as statistical laws. It is a common belief that the natural sciences aim to establish *universal laws* about the regularities in the natural world, laws that are claimed to hold at all times and in all places. Whether it is possible to establish such laws in the social sciences is a matter of considerable dispute. What might be claimed is that the social sciences can establish patterns or regularities, but that these are limited in time and space. The concept of statistical law refers to such regularities.

While some philosophers have argued that these patterns provide a basis for *explanation*, others have argued that it is necessary to find the mechanism that produces such patterns before explanation can be achieved (see chapter 4). However, the *description* of patterns or relationships between concepts can be used for *prediction*.

The objectives of *evaluation* and *impact assessment* share much in common. They, together with *intervention*, constitute the main fields of applied research. As

we have seen, a major distinguishing feature of applied research is that it has a sponsor and/or client. Its goals are either set by the sponsor, or are the outcome of negotiation between the sponsor and researcher, and its outcomes have to address the concerns of the client. While it may be possible to attempt *evaluation* and *impact assessment* from an atheoretical point of view, by building on only a descriptive research base and side-stepping the objectives of *explanation* or *understanding*, sophisticated *evaluation* and *impact assessment* need to use existing theories. If relevant theories are not available, they will need to be developed. Because applied research is normally done within severe time and resource constraints, there is pressure to take short cuts to avoid these essential components. Good applied research has to draw on well-established theories, because, after all, there is nothing as practical as a good theory.

It is unlikely that the whole gambit of objectives can be or need to be tackled in most research projects, and certainly not within the limitations of postgraduate research. Previous research may have achieved some objectives that can be used as a background in a particular research project. For example, if good *descriptive* research has already been done in the field, it may be possible to begin with an *explanatory* objective, or if well-established and relevant theories are available, it may be possible to engage directly in the objectives of *change*, *evaluation* or *impact assessment*. But, to repeat an earlier comment, without an adequate descriptive base, it is not possible to begin to pursue the other research objectives.

Research Objectives and Questions

Each of the eight research objectives is related to a particular type of research question. If we take some imaginary social process as an example, the three types of research questions would be associated with the eight research objectives are as follows.

Exploration	What might be happening?
	What people are involved? In what way?
Description	What is happening?
	What people are involved? In what way?
Understanding	Why is it happening?
Explanation	Why is it happening?
Prediction	What is likely to happen?
Change	How can it be made to be different?
Evaluation	What has happened? Why did it happen?
Assessment	What have been, or are likely to be, its individual, social and
	environmental consequences? Why have these consequences
	occurred?

The objectives of *understanding* and *explanation*,[4] and, to a lesser extent, *evaluation* and *impact assessment*, are the only ones that require 'why'-type

[4] While *understanding* and *explanation* entail the same kind of research question, it is necessary to keep them separate as research objectives as they answer 'why' questions in different ways.

questions. *Change* is the only objective that requires 'how'-type questions. All the other objectives have questions beginning with 'what', or their questions can be transposed into this form. They are, therefore, either descriptive in nature, or involve comparisons between situations in the present, between a present and a past situation, or between a present situation and a desired future. To avoid the confusion that can result from other question wording, for example the pursuit of the objectives of *description* or *explanation* with questions that commence with 'how', this three-category classification of questions should be followed.

Conclusion

By way of summary, let me review the key points that emerge from this discussion of the role of research questions in social research.

- All research projects are built on the foundation of research questions.
- Research questions define the nature and scope of a research project.
- Research questions can be grouped into three main types, 'what', 'why' and 'how' questions.
- The three types of questions form a sequence for the research process; 'what' questions followed by 'why' questions followed by 'how' questions.
- Many research objectives require 'what' questions. It is only the aims of *understanding* and *explanation*, and possibly *evaluation* and *impact assessment*, that require 'why' questions, and the aim of *change* that requires 'how' questions.
- The importance of answering 'what' questions should not be underestimated.
- The developmental nature of a research design should not be used as an excuse to avoid the effort required to formulate appropriate research questions.
- While the process of developing a set of research questions can be the most challenging part of any research project, techniques are available to assist the process.
- Research questions are what the research is designed to answer, not the questions asked of respondents or participants.
- The aim of the literature review is to indicate what the state of knowledge is with respect to each research question, or group of questions.
- Hypotheses are our best guesses at answering 'why' and, possibly, 'how' questions.
- If required, hypotheses should be derived from the literature review, particularly from theory or research results. On rare occasions, a theory may have to be generated.
- In some research, hypotheses may emerge, and be tested, in the course of the data collection and analysis.

As an aid to the conception, clarification and classification of research questions, it is useful to think about a research project in terms of its objectives. These objectives are not a list of the activities the researcher is going to carry out. Rather, they can be either the analytical or the practical aims of a project.

4

Strategies for Answering Research Questions

Every inquiry must start somewhere. (Kaplan 1964)

Introduction

Having established a set of research questions, the next task is to devise ways to answer them. The approach taken to answering research questions depends on the type of question. Answering a 'what' question is usually easier than answering a 'why' or 'how' question. 'What' questions can be dealt with by making appropriate observations or measurements, i.e. collecting appropriate data, and then producing descriptions based on them. However, this process is not as simple as it sounds; descriptions of what we believe we have observed may not be, perhaps cannot be, pure descriptions. The observer, as an active participant in the process, has to make many decisions before a description can be produced, and cannot avoid imposing concepts and categories.

Answers to 'how' questions require a different kind of description; a possible state of affairs has to be described and ideas about how to get there have to be provided. As we saw in chapter 3, 'how' questions usually require answers to related 'what' and 'why' questions, either in the research being undertaken, or in previous research. Unless a good understanding of the nature of the phenomenon being investigated has already been achieved, and why it behaves the way it does, it is difficult, undesirable and even dangerous to begin to propose any form of intervention. However, the monitoring of limited interventions in 'safe' situations (i.e. ones that will not have ethically undesirable or socially unacceptable consequences) is one way of discovering answers to 'why' and 'how' questions. Action research is such a learning process. I will come back to the ways of answering 'what' and 'how' questions later in the chapter. In the meantime, I want to concentrate on how to answer 'why' questions.

The main problem in answering 'why' questions is where to look for the answers. How we deal with this will determine where the research process begins and how it