2 What makes a research question?

This chapter examines the nature of social scientific research questions. It explains why only certain types of question can be addressed by empirical research, and how thinking about what type of question you are asking can help develop, structure and order your research questions. The role of hypotheses in social research is also explained. The chapter begins by examining the important differences between research questions and other kinds of statements.

RESEARCH TOPICS, AIMS AND OBJECTIVES

Formulating good research questions can be very difficult. Students tend to be much more comfortable answering questions than asking them, perhaps because most programmes of education put more stress on the former (Dillon 1988). It is usually much easier to decide upon a topic or area of interest than it is to produce a set of well-structured and coherent questions. While topics and areas can be useful starting points for generating research ideas, they do not provide sufficient direction for conducting research. This is because, unlike questions, they are not sufficiently specific to inform you what data need to be collected or how these should be analysed. It is also the case that not every topic can be transformed into a feasible research project (Sellitz et al. 1965) and, in any case, most topics usually need to be narrowed considerably before they can generate researchable questions (Labovitz & Hagedorn 1971, Kane 1984, Lewis & Munn 1997). Booth et al. (2003) suggest that topics that cannot be summarized in four or five words are too broad and need further refinement before attempts at formulating research questions are made.

Moving from topics to aims and objectives can be a useful step towards formulating research questions. Aims and objectives provide more direction than do topics and can help you start thinking

about exactly what you want to achieve in your study. While the aims and objectives of a study tend to be less specific than research questions they are more useful than topics or areas of interest for directing an investigation. Unlike topics, they identify the outcomes (or 'goals') that are desired and point to the kind of questions that would need to be asked in order to achieve these outcomes. The *directive* role played by aims, objectives and purposes can be very valuable, and thinking about the goals of a research project can be a useful intermediary stage between deciding on a topic and formulating research questions.

An example of an objective and some corresponding research questions is provided below:

OBJECTIVE

To find out why certain individuals and groups adopt new technologies before others.

RESEARCH QUESTIONS

1. What are the patterns of consumption of new technologies amongst different groups of adults in the United Kingdom?
2. What reasons do different individuals provide for adopting or not adopting new technologies?

As you can see, it is often necessary to break down a single objective into more than one question. Indeed, this particular objective could have been broken down into three or even four questions. It is also important to notice that the language in the research questions is much more specific than in the objective. The study has been limited to researching adults residing in the United Kingdom, for example. It would also be necessary to provide a working definition of 'new technologies' before any data could be collected. The language used in research questions is a topic that is returned to later. The important point in terms of the present discussion is that reformulating your aims or objectives as research questions forces you to think more carefully about what you want to find out and can help you be more specific about what you want to achieve in your study.

As is the case with topics or areas, the more clearly defined the aims the better they are able to direct your research (Denscombe 2002).

Vague aims and objectives can lead to researchers being over-ambitious, collecting unnecessary data, floundering in too much data and wasting their time down 'blind alleys'. This is also true for poorly formulated research questions, of course. While it is possible for aims and objectives to be stated sufficiently precisely to guide an investigation (in which case it would be a fairly simple matter to derive research questions from them), it is often more helpful to think about your research in terms of the questions you want to answer.

Key Points

- Topics and areas of interest are useful starting points for a study
- Thinking about the aims and objectives of your research can also be a useful exercise
- Reformulating your aims and objectives as research questions will force you to think more carefully about what you want to find out
- The more specific your objectives or research questions, the easier it will be to design and plan your data collection and analysis

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THE FORM OF QUESTIONS AND THEIR CONTENT

Not all questions are social science research questions. Some questions do not relate to the social world and so are beyond the scope of social research. Other questions might be interesting to social scientists but cannot be answered using empirical evidence and so are not 'researchable'. In this section, some common problems with the form and content of research questions are highlighted to help new researchers avoid formulating problematic questions.

Problems of form

Problems of form relate to the way a question is *structured* rather than the *subject matter* it addresses. Three problems relating to the

form of questions are examined below, alongside advice on how they can be avoided.

Questions and other statements

Questions should always be 'open-ended'. If a sentence cannot properly be followed by a question mark, it is not an interrogative statement, and it cannot be considered to be a question. Questions invite a direct response and so are 'open' in a way that other statements are not. Posing a question suggests that a dialogue is unfinished and that the questioner seeks additional information (Fischer 1970).

Some readers may think that this point is so obvious that it does not need stating. It is akin to pointing out that 'questions should be questions'. However, when asked to state their research questions, it is common even for experienced researchers to reply with declarative statements rather than questions (Punch 1998). In my experience, for example, undergraduate and postgraduate students often reply that they want to 'prove' a particular relationship or 'demonstrate' the existence of a particular phenomenon or effect.

The situation is complicated a little because of the relationship between research questions and hypotheses. Both are useful in empirical inquiry but while research questions are interrogative, hypotheses are declarative statements. These statements, however, are intended to be tested (not *proven*) and, as is discussed later in this chapter, play a particular role in scientific inquiry. As hypotheses can easily be reformulated as questions, the two are in some ways 'two sides of the same coin'.

A theme that runs throughout this book is that it is important, for many reasons, to begin an investigation with a question or set of questions. While we all use questions in our daily lives and can easily distinguish them from other statements, it is not always so straightforward to translate ideas for a research project into a set of questions. This is, however, one of the most important stages of the research process. It is vital that investigators translate their ideas into question form as soon as it is possible. First versions of a research question may need considerable modification, and

questions may change over the course of a study, but moving on to construct a research design should only be attempted *after* a set of questions have initially been generated.

'Many questions' and 'false dichotomies'

Methods texts often caution against asking respondents two questions at once, usually in the context of conducting interviews or questionnaires. However, it is also unhelpful for research questions to include more than one question, for a number of reasons.

Including more than one inquiry in a single question has been called 'the fallacy of many questions'. This fallacy can arise in several ways, some of which are more obvious than others. Fischer (1970, p. 8) identifies four ways this problem can arise:

1. Framing a question in such a way that two or more questions are asked at once, and a single answer is required.
2. Framing a question in such a way as to beg another question.
3. Framing a question which makes a false presumption.
4. Framing a complex question but demanding a simple answer.

The first type of question is easy to avoid. Although many commentators warn against having too many research questions (see Chapter 3) a sentence that contains more than one question can usually be split unproblematically into two single questions. For example, 'What were the aims of comprehensivisation and to what extent were these aims achieved?' is a compound question; it actually contains two separate questions. Indeed, it requires two separate, albeit related, answers in order to be addressed satisfactorily. This question could easily be separated into the following:

1. What were the aims of comprehensivization?
2. To what extent were these aims achieved?

It is important to separate these elements because each of the two questions has different implications for the kind of data collection and analysis that would be required to address it. The question 'What were the aims of comprehensivisation?' may require the retrieval

and analysis of policy documents, and perhaps also interviews with policy-makers and other key stakeholders involved in the process. 'To what extent were these aims achieved?' is a question that can only be asked after the aims of comprehensivization have first been established. It may require, for example, an analysis of secondary data on educational attainment and perhaps also the use of interviews to gain an insight into the experiences of students. While the relationship between research questions and research design is explored in greater depth in Chapter 4, the importance of research questions in directing the collection and analysis of data cannot be overstated. Well-formulated research questions should indicate exactly what data are required to answer them satisfactorily and what type of research design is needed to generate such data. As the example above illustrates, separating compound questions into their component parts is helpful simply because it differentiates between individual elements of an inquiry. This, in turns, leads to clearer thinking about what data are required and how they should best be collected and analysed.

There are other, less obvious ways in which a single question can require more than one answer. The second and third of Fischer's (1970) 'many question' types are those questions that 'beg' another question, or require an additional question to be answered before they can be addressed, and those that make false presumptions.

The following is an example of a question that appears at first sight to contain only one question but makes a false presumption:

At what age do boys stop underachieving at school?

The problem with this question is that it makes two presumptions: not only that boys *do* underachieve at some stage in their educational careers but also that this underachievement disappears at a later point. Both these facts need to be established before such a question can be asked. Assuming that a suitable definition of underachievement has been provided (see Smith 2005 for problems with this) it is possible to improve on this question by asking

1. Do boys 'underachieve' at any point in their compulsory schooling?
2. If so, during which periods of their schooling do they 'underachieve'?

These questions are far from perfect and, given that there tends to be variation within any social group, these questions might be further refined as follows:

1. Do boys 'underachieve' at any time during the compulsory schooling?
2. If so, which type of boys tend to 'underachieve'?
3. What is the timing and duration of any 'underachievement'?
4. Is the timing and duration of any 'underachievement' related to the characteristics of the 'underachievers'?

These questions are still some way from being fully developed but this example demonstrates the kind of processes that are involved in reformulating research questions in order to clarify the elements of an investigation. The original question contained certain assumptions and could only be meaningfully asked if these assumptions were warranted. In order to establish whether these assumptions had any basis in fact, it was first necessary to pose some additional, preliminary, questions. As this example demonstrates, some questions cannot even be *asked*, let alone answered, without a careful consideration of the assumptions that underlie them. *Descriptive* questions usually have to be answered before *explanatory* ones can be addressed, an issue that is returned to later in this chapter.

Problems with research questions often originate in a failure to consider all the stages of inquiry that must be undertaken before certain questions can even be raised. Thinking through these stages can lead both to better research questions and, as a consequence, a greater awareness of the data that are required to address them.

A particular form of the 'fallacy of many questions' is the 'false dichotomous' question. Fischer (1970, pp. 9–10) warns against using this question type, as to do so properly is very difficult. This is because a dichotomy is a division into two parts, and if 'properly drawn, the parts are mutually exclusive and collectively exhaustive, so that there is no overlap, no opening in the middle, and nothing omitted at either end'. If these conditions are not met in full, a dichotomy is used incorrectly. Carrying on the theme of one of the previous questions, an incorrectly formulated dichotomous

question reads as follows:

> *Comprehensive education: force for equality or lowest common denominator?*

While this may be fine as an essay question, where the purpose is to stimulate debate, it is not a good research question. It assumes that comprehensive education is *either* a 'force for equality' *or* 'lowest common denominator' and that there is no middle ground between the two. It also assumes that these two situations cannot co-exist. Given the hotly contested definition of 'equality' (see Williams 1989) this would be a very controversial assumption to make.

An additional problem with dichotomous questions is that the term 'or' can be confusing. As Fischer (1970, p. 11) points out, 'or' can mean

a) either X or Y but not both
b) either X or Y or both
c) either X or Y or both, or neither

In essay questions, this kind of ambiguity is fine, as it leaves all three possibilities open and can encourage discussion. But research questions should be as clear and precise as possible, leaving little scope for alternative readings or misinterpretations. Because of this, it is advisable to avoid using the term 'or' in your research questions, unless its inclusion is *absolutely* necessary.

Tautological questions

Tautological questions are problematic because they are both true by definition and because they ask the same question twice. An example of a tautological research question might be

> *Why are the working classes over-represented in some types of occupation?*

At first sight this may appear to be a perfectly reasonable question for a social scientist to ask. To start with, it is a genuinely open

question. If we assume, for the sake of argument, that it has already been established that the working class are over-represented in certain types of occupation, then the question avoids making any false presumptions. So why is this question problematic?

The difficulty with this question is that the type of work a person is employed in is central to most definitions of social or occupational class. People are defined as working class at least partly *because* of the kind of occupations in which they are employed. This question is therefore redundant as it already supplies the answer: the working class are over-represented in certain types of occupation because working in these occupations leads people to be defined as working class.

There are a number of ways that this question could be reframed, the form and content of which will depend upon exactly what stimulates the researcher's curiosity. It may be for example, that they are interested in inter-generational mobility and wish to examine barriers to social mobility over time. In this case an appropriate question might be something like

What factors keep children from working-class backgrounds employed in working-class jobs for most of their lives?

Of course, to avoid making a false presumption (see above) it is first necessary to establish that at least some children from working-class backgrounds *are* employed in working-class jobs for most of their lives. But the point here is that, in contrast to the earlier example, this question is not tautological. It is neither self-evidently true, nor does it ask the same question twice.

Key Points
- Avoid using compound questions at all times
- Problems with compound questions can usually be resolved by breaking them down into their constituent parts
- Check that your research questions do not contain false presumptions
- Avoid using the term 'or' in your research questions if at all possible
- Do not ask research questions that are tautological

Problems of subject

As well as being appropriately structured, it is important that your research questions address topics suitable for social scientific investigation. Some questions cannot be answered using empirical evidence and so should be avoided altogether. Metaphysical, ethical and aesthetic questions, for example, all fall outside the realm of social science. In the following sections, some common problems with the subject of research questions are examined, starting with the issue of metaphysical questions.

Metaphysical questions

Metaphysical questions relate to debates that cannot be resolved through empirical inquiry (Cozby et al. 1989). Such questions inquire into the nature of existence, mind, matter, space and time, and, as Fischer (1970, p. 12) argues, 'will not be resolved before the oceans freeze over'.

Whilst it is unlikely that a social scientist would ask an obviously metaphysical question such as 'Do numbers exist independently of human thought?', there are more subtle ways in which metaphysical elements can creep into research questions. Fischer (1970) argues that 'why' questions tend to be metaphysical because the term is difficult to define, and lacks direction and clarity. 'Why' questions, he argues, are not consistent in terms of the type of answer that is required. They can seek causes, motives, reasons, descriptions, processes, purposes or justifications. Because of this, he argues that the other five W-Questions ('who', 'what', 'when', 'where' and 'how' – see below) are much more practical and should be used in place of 'why' whenever possible.

While Fischer's (1970) objection to the term 'why' may, at first sight, appear to be mere hair-splitting, it is simply a call for greater clarity and precision when formulating questions. The problem with this term lies in its ambiguity. The other five W-Questions are, arguably, more precise and their meanings are less subject to variation. Avoiding the use of 'why' may actually lead to better, more clearly specified research questions. Attempting to rephrase 'why' questions would certainly be a good exercise, as it focuses attention

on the essence of an inquiry and, as a consequence, the kind of data that would be required.

Similar, but perhaps weaker, objections could be made regarding the use of the term 'how'. While less problematic than 'why', this term still leaves room for some ambiguity. It has even been suggested that all the W-Questions can be reformulated unproblematically as 'what' questions (Hamblin 1967). 'When', for example, can be reformulated as 'at what time', and 'where' can be rephrased as 'at what place'. Similar results can be obtained with 'who', 'why' and 'how'.

Normative questions

Normative questions relate to judgements concerning value or virtue. They are often concerned with what 'ought to be' or 'should be', what is 'desirable' or 'undesirable', what is 'right' and 'wrong', or what is 'good' or 'bad'. In philosophy, normative statements are contrasted with 'descriptive' statements, which can in principle be tested through observation. Normative questions are often concerned with ethical or aesthetic judgements. Such questions have also been called 'deliberative questions' (Dillon 1984).

A simple example of a normative question is

> *Should corporal punishment be re-introduced in secondary schools?*

The main problem with this question is the inclusion of the term 'should'. This is not a question about the effect that corporal punishment has on a particular facet of students' schooling, rather it is a question seeking an opinion about an ethical issue. It cannot be resolved empirically because there is no one correct answer. While moral and ethical questions often contain words such as 'should', 'ought' or 'better than', these are best avoided in social scientific research questions and hypotheses as they tend to invite the expression of opinion rather than recourse to empirical evidence (Nachmias & Nachmias 1976, Kerlinger 1986, Andrews 2002).

It should be noted that although normative questions cannot be resolved through empirical investigation, normative views can

be the *subject* of such inquiry. A research question relating to the topic above might read

> *What proportion of parents think corporal punishment should be re-introduced in secondary schools?*

This question clearly has a single, correct answer and it could certainly be addressed by a well-designed and competently executed research project. But, unlike the previous questions it does not chase a definitive moral judgement; alternatively it seeks to determine the weight of opinion on this matter among a clearly defined population of interest.

The following, more subtle, normative question is adapted from an example provided by Kerlinger (1986, p. 21):

> *Does authoritarian teaching lead to poor learning?*

While this question contains none of the 'give-away' terms often found in normative questions, such as 'should' or 'ought', two of the terms used are problematic. The term 'poor' is both vague and suggests a value judgement. It is impossible to determine what is meant by 'poor learning', as this depends on what type of learning is valued by whoever posed the question. Replacing these terms with 'effective learning' may appear to be less problematic but can also cause problems if not linked to clearly defined outcomes (see later discussion).

'Learning' is another term that is too vague to be useful in a research question but it is 'authoritarian' that most obviously invites a value judgement. Although there is a degree of consensus about what 'authoritarian' means, whether or not a particular situation or teaching method would be classified as such depends upon individual preferences and perceptions. A teaching method cannot simply be characterized as 'authoritarian' or 'not authoritarian'; the same situation may be given either label depending on who is doing the labelling. This decision will depend ultimately on how desirable certain aspects of teaching practice, such as rigorously enforced discipline, are to those making the judgement.

It is sometimes easy to identify a normative question by the inclusion of terms such as 'should', 'ought' and 'better'. However, as Kerlinger's (1986) example demonstrates, value-laden terms might not always be immediately obvious. The only foolproof way to guard against

this problem is to scrutinize every term in a question and attempt to define them. You need to be particularly careful about words that might appear to be universally understood, such as 'successful', 'effective', 'satisfaction', 'frequent' and 'elderly' (Kane 1984). While these terms may not appear to be problematic at first sight, they are value laden, will vary according to context, and need to be defined and operationalized very carefully if they are to be used at all (see Chapter 4). It is probably best to avoid such terms altogether, unless they are absolutely central to an investigation.

Data collection questions

It is very important to differentiate between research questions and data collection questions (DCQs) (Mason 1996, Punch 1998). Research questions are the questions that the research is designed to address and that guide the conduct of the project. DCQs are questions that are posed during data collection, in a questionnaire or interview for example. The two types of questions serve different purposes.

Gorard (2003a) warns that a common mistake in questionnaire design is to ask respondents the research question rather than a DCQ. I have experienced this a number of times when agreeing to participate in a research project, as the following example illustrates. A questionnaire I received from a doctoral student who was researching the working conditions of academic staff in UK universities included questions of the following type:

1. Do the lecturing staff in your institution feel they are over-worked?
2. Do the lecturing staff in your institution think they are under-paid?

The main problem with these questions stems from the fact that they are only slightly modified versions of the study's research questions. The researcher was clearly interested in the degree to which academic staff felt they were over-worked and/or over-paid. However, instead of asking individuals to report their views on their own situations and then collating the results, he made the mistake of asking them about the general situation in their institution. The problem with this approach is that while individuals may be

perfectly able to provide information relating to their own pay and conditions and report their perceptions of these, they are unlikely to have access to the views of all the other members of staff in their institutions. Indeed, they would need to have conducted a research project themselves in order to obtain this information. Furthermore, even if they did so, they still would have not been able to answer the question satisfactorily, because it would be extremely unlikely that all the responses would have been the same. The likely result would have been that a certain proportion of staff thought they were over-worked, for example, and a certain proportion thought otherwise.

A more appropriate way of formulating these DCQs would be as follows:

1. Do you think you are over-worked?
2. Do you think you are under-paid?

The responses to these questions could then have been collated, enabling the researcher to ascertain the proportion of staff who believed they were over-worked, and the proportion reporting that they were under-paid.

When formulating research questions, it is important that they take an appropriate form, and are not confused with DCQs. It is less common, in my experience, for novice researchers to present DCQs as research questions, but students often find it difficult to distinguish between the two. The main point to remember is that it is rarely, if ever, appropriate to ask respondents the research questions directly. It is almost always the case that DCQs must take a different form from the research questions.

Key Points

- Any research questions you formulate must be answerable using empirical evidence
- 'Why' questions can lack direction and clarity, and may be better formulated using one of the other 'W-Questions'
- Questions relating to value judgements should always be avoided
- It is important not to confuse your research questions with your data collection questions

QUESTION TYPES

The kinds of question we ask are as many as the kinds of things which we know.

Aristotle (Posterior Analytics) (89b)

In the first part of this chapter, it has been argued that there are different kinds of questions, some that can be answered by social research and some that cannot. There is, however, considerable variation even amongst those questions that we have decided are social scientific research questions. But how do they differ? And what are the most important differences?

In order to answer these questions, some authors have developed 'typologies' of research questions. Examining your research questions in terms of these typologies can be very useful, as this process can help you think about what kind of questions you are asking and, consequently, the type of data you will need in order to answer them. Some of the most useful typologies are examined directly below, alongside advice about how they can help you clarify the goals of your research.

Descriptive and explanatory questions

One of the most useful typologies is provided by de Vaus (2001, p. 1) who divides research questions into two categories, 'descriptive' and 'explanatory'. He argues that social researchers pose two fundamental types of research questions:

1. *What* is going on? (descriptive research)
2. *Why* is it going on? (explanatory research)

It is useful to distinguish between these types of questions for several reasons. Firstly, as was noted earlier in this chapter, it is important to recognize that descriptive questions usually precede explanatory ones, as 'before asking "Why?" we must be sure about the fact and dimensions of the phenomenon' (de Vaus 2001, p. 2). Because of this, dividing questions into these types can help you decide which much be tackled first and which can be left until later. And as different kinds of data are needed to answer descriptive and

explanatory questions, dividing them in this way will help you plan your research design (see Chapter 4).

Dividing questions into descriptive and explanatory types is certainly a useful first step. However, as discussed in the previous section, 'Why?' questions are sometimes problematic because they do not indicate precisely the kind of data they require. Reformulating your 'Why?' questions using any of the other five W-Question types (see below) may make it easier to pinpoint exactly what data you need to collect.

W-Questions: four descriptive and two explanatory question types

The W-Questions or Journalistic Six – 'who', 'what', 'where', 'when', 'why' and 'how' – are often used by journalists as an 'imaginative checklist' to generate questions relating to a particular topic or incident. They are also used in many other areas, such as creative writing and business planning, to stimulate innovative thinking. Their strength lies in their familiarity, and they are certainly a good place to start when generating initial ideas for research questions.

The W-Questions can be usefully divided to correspond with de Vaus's (2001) typology, as shown in Table 2.1.

Thinking about your research in terms of the W-Questions can be useful if you have decided on a topic or area of interest but have yet to formulate any specific research questions. Attempting to rewrite your ideas as sentences that include these terms will help you move from statements about what you want your research to achieve to direct questions that you intend to address. You should then

Table 2.1 Descriptive and explanatory questions

Descriptive Questions	Explanatory Questions
What	How
Who	Why
When	
Where	

be able to divide your questions into those that are 'descriptive' in their aims and those that are 'explanatory'. This can help you structure and prioritize your questions so that you can turn your attention to the kind of data you will require.

Purpose-led typologies

Whether you have reached the stage of formulating research questions or not, it can be useful to think about the *purpose* of your research. As mentioned previously, being clear about the purpose of your study is no substitute for a set of research questions but thinking about what you intend to achieve in your research may help you focus your ideas.

Even if you *have* formulated a set of research questions, thinking about the purpose of individual questions can be a useful exercise. Considering the purpose of a question can help clarify the role that it plays in the wider context of a study and even suggest whether it is a necessary element of a particular investigation. As is discussed in the next chapter, it is sometimes necessary to reduce an initial list of questions into a smaller more tightly focused set. Thinking about the purpose of every question, and the relationship between them, can help you with this task. And as with almost every activity that requires you to think carefully about the questions you are asking, thinking about the purpose of your questions will also naturally lead to a consideration of data collection and analysis.

Denscombe (2002, p. 26) divides questions into six types, according to purpose:

1. Forecasting an outcome or making predictions
2. Explaining causes or consequences
3. Criticizing or evaluating
4. Description
5. Developing good practice
6. Empowerment

I have provided the following examples to illustrate questions that correspond to the different purposes outlined by Denscombe.

While some of the questions are quite similar, they are all phrased in slightly different ways in order to reflect their underlying purpose:

1. What do current trends suggest about future levels of membership in political parties in the United Kingdom?
2. What factors are associated with membership of political parties in the United Kingdom?
3. To what extent have recent initiatives impacted on the level of membership in political parties in the United Kingdom?
4. How did patterns of political-party membership change in the United Kingdom between 1979 and 2007?
5. What administrative measures are most effective in reducing rates of unplanned lapses in party membership?

Categorizing your research questions according to this typology can help you clarify exactly what each question aims to achieve and how your questions fit together to fulfil the overall aim of the study. This may help you order your research questions, either into a sequence or hierarchy, or reveal that some of your questions do not fit well with the others. In such cases, do not be too cautious about discarding some of your original questions. It is better to have a less ambitious, more tightly focused study than one that is incoherent and vague.

'Empowerment'

I feel that a note of caution should be sounded in relation to Denscombe's category, 'empowerment'. While many researchers are concerned with empowering particular individuals or groups through the conduct of research, the clearest route to this objective is through the conduct of high-quality empirical research. The first step to helping a disadvantaged group is the provision of accurate information about the nature and extent of their disadvantage, and the context in which it arises and is sustained. All too often, the political motives of researchers can interfere with the research process and jeopardize the integrity and rigor of a study. This can lead to the paradoxical situation where those researchers who are most vocal about the needs of a disadvantaged or minority group can impede effective policy or practice interventions because of the questionable nature of the

evidence base they have produced. Hammersley (1999) provides a useful discussion of the dangers of politically motivated research.

Agendas of 'empowerment' are, in short, best avoided in social research. A researcher who endeavours to describe and explain the circumstances of a disadvantaged group can, however, produce knowledge that may be used by policy-makers and practitioners to implement ameliorative measures aimed at improving the situation of that group. Understanding the social world is a necessary precursor to improving it.

Comparison

An important term that is missing from both de Vaus's (2001) and Denscombe's (2002) typologies is 'comparison'. Making appropriate comparisons is an essential part of social research but one that can easily be overlooked (Gorard 2003a). Dillon (1984) suggests that comparison usually takes place *after* descriptive questions have been addressed but *before* explanations have been sought. A very simple, yet comprehensive, model of the research process might be as follows:

1. Description
2. Comparison
3. Explanation

While it can be argued that comparison is part of the descriptive stage of research, I feel it deserves a separate category simply to remind students and new researchers of its importance. I regularly read reports of research that is fatally flawed because of the author's failure to make appropriate comparisons. These problems are not only common in research conducted by undergraduate students but can also be found in articles published in high ranking peer-reviewed academic journals. This suggests that comparison is frequently overlooked by both those responsible for conducting research and those responsible for ensuring its quality.

It is fairly common for researchers to pay insufficient attention to this sequence of inquiry. Many studies have devoted considerable time and resources attempting to explain phenomena that have not been adequately established though careful description. During the 1990s

and early 2000s, for example, researchers went to great lengths to explain why a shortage of teachers had reached crisis proportions and was steadily worsening. Pay levels, morale, workload and student discipline were commonly cited as 'explanations' for this crisis, and policy initiatives followed in the form of financial incentives to train, performance-related pay and media recruitment campaigns. A careful examination of existing data sets, however, revealed that there were more teachers than ever, in a context of declining student numbers, with nearly twice as many applicants as available places in training courses (see Gorard et al. (2006a) for a detailed report). Most researchers had been so keen to look for explanations for this apparent 'crisis' that they over-looked the task of carefully describing the very situation they were attempting to explain.

As the example above illustrates, while the prospect of *explaining* a particular aspect of social life is a very exciting one, it is first necessary to ensure that it has been depicted accurately. It is all too easy to ignore this crucial first step in an inquiry but to do so can jeopardize an entire study. This can have consequences outside of the research community and, as was the case with this example, public money can be wasted trying to solve problems that never really existed.

Categorizing your questions according to their purpose and proper place within the sequence of inquiry can help you avoid making these kinds of mistakes. It will alert you to any descriptive work that needs to be carried out before you attempt to explain a particular phenomenon and will provide guidance as to the different kinds of data that will have to be collected in order to satisfactorily address your research questions.

Key Points

- Typologies can help you think about exactly what type of questions you are asking
- Reformulating your aims and objectives as W-Questions can help you move from topics to questions
- Remember that descriptive questions will need to be answered before explanatory ones can be asked
- Make sure you think about any appropriate comparisons that need to be made

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HYPOTHESES

Hypotheses are often a source of much confusion amongst students and new researchers. This is not at all surprising, given the strange place that they occupy in the methods literature. They are discussed in great detail in some methods text but are completely ignored in others, and are much more likely to be discussed in texts written between the 1950s and 1970s than in more recent publications. Greater emphasis is paid to testing hypotheses in certain disciplines, such as psychology, than in the social sciences more widely. Hypotheses tend to be associated with 'quantitative' research and statistical analysis but their use is by no means, and *should not* be, restricted to these contexts. And while some authors insist that hypotheses are only useful when derived from existing theory, others suggest that the source of hypotheses is unimportant.

The aim of this section is to clarify the role of hypotheses in social research and, in doing so, to minimize confusion in this area. Hypotheses can be a very useful tool for the researcher but in order for them to be useful it is necessary to understand exactly what they are and how they can be used.

What are hypotheses?

The most important defining characteristic of a hypothesis is that it is a *prediction*. A hypothesis is 'an imaginative preconception of *what might be true*' (Medawar 1972, p. 26). Hypotheses are different from research questions because rather than simply *asking* a question they suggest an *answer* to one. These answers are speculative, however, and need to be tested against empirical evidence before they can be either confirmed or refuted.

Hypotheses and research questions are closely related, however. While the research questions states 'what we are trying to find out', the hypothesis 'predicts ... the answer to that question' (Punch 1998, p. 39). Because a hypothesis is simply a predicted answer to a research question it is important to be clear about the question you are asking as well as the answer you expect. As the following example shows, however, it is usually relatively simple to work backwards from a hypothesis to a research question.

HYPOTHESIS

On average, working mothers spend more time doing housework than employed fathers living in the same household.

RESEARCH QUESTION

Do working mothers spend more time doing housework, on average, than employed fathers living in the same household?

Some authors (e.g. Nachmias & Nachmias 1976) include references to 'dependent' and 'independent' variables, and the relationships between them, in their definitions of hypotheses. Thinking about your research question in terms of variables and relationships can be very useful when planning your research design but is not strictly necessary when you are still generating ideas for research. In the very early stages of your study, it is much more important to be clear what questions you want to address and, in the case of hypotheses, what you expect to find out. If thinking about variables helps you clarify your research questions then it is clearly a useful exercise. However, if this line of thought confuses you, it can safely be left until later in the research process.

Hypotheses are also discussed alongside statistical analysis. Particular types of statistical tests require researchers to formulate two types of hypotheses, 'null' hypotheses and 'alternative' hypotheses. 'Alternative' hypotheses, contrary to what the name suggests, usually state what the researcher has predicted will occur. 'Null' hypotheses, on the other hand, state that this will not be the case. Strictly speaking, researchers should specify their alternative and null hypotheses before conducting inferential statistical tests.

The fact that hypothesis testing is central to some statistical analyses *does not* mean that formulating hypotheses should be *restricted* to this context. As is repeatedly argued in this chapter, hypotheses can be useful in a very wide variety of research designs and their formulation has no necessary link with the kind of analysis conducted. As Punch (1998, p. 41) makes clear, 'there is no logical difference between research questions and research hypotheses, when it comes to their implications for design, data collection and data analysis'.

Neither is it the case, as some commentators have suggested, that hypotheses are only useful if they are derived from theory. This is

an unnecessary restriction with no logical basis. Hypotheses can arise in many contexts and, like research questions, are tools to be used by social researchers. After all, they are merely 'hunches' about what you might find out (Verma & Beard 1981).

Hypotheses can be useful because they are often more focused and precise than research questions (Kerlinger 1986). Questions can be asked without any prior knowledge of a topic but some background knowledge is often required in order to generate a hypothesis (Andrews 2003). Hypotheses tend to offer more direction than research questions in terms of both the type of data that need to be collected in a study and also to the way these data must be subsequently analysed (Sellitz et al. 1965, Medawar 1979).

Whether you use hypotheses in your research will depend on many factors, including what you want to find out and whether you have any ideas about what you might find. Hypotheses will be more or less useful in different contexts and there seems little to be gained by insisting that researchers *always* formulate hypotheses at the beginning of a research project. Studies that include hypotheses are not necessarily more scientific than those that do not (Sellitz et al. 1965) and failing to formulate a hypothesis is not necessarily a 'sin of omission', as in some cases hypotheses will simply not arise (Black 1993, p. 31). There is certainly no point in having hypotheses for their own sake, and researchers should not be concerned if their research is led by questions rather than predictions (Punch 1998). The best course of action is to formulate hypotheses when they are useful and appropriate but not to be concerned if you begin your research with only questions rather than predictions about the probable findings of your study.

Key Points
- Hypotheses are *predicted answers* to research questions
- They can help provide focus and direction to your study
- Their use is not restricted to particular types of inquiry
- Don't feel that you *must* formulate a hypothesis – only use them if they are useful

Where do hypotheses come from?

Many research projects begin with hypotheses of some kind, even if these are not stated explicitly. Any predictions about the findings of a study are hypothetical, and researchers often have some ideas about what their research might reveal, whether this originates from their previous experience, from reviewing the related literature or is merely an intuitive hunch. Hypotheses are 'tentative answers to research problems' (Nachmias & Nachmias 1976, p. 23) and it is common for researchers to start a study with *some* ideas about the nature of the phenomena they are studying, and the relationships between them (Bulmer 1979).

While the formulation and testing of hypotheses is central to what Punch (1998, p. 26) characterizes as 'theory verification research' (see Chapter 1), the generation of hypotheses is certainly not restricted to this type of inquiry. While theories can provide plenty of opportunities for hypothesis generation, hypotheses frequently arise outside of this context (Sellitz et al. 1965, Robson 1993). Indeed, Medawar (1979, p. 84), a distinguished natural scientist, argues that hypotheses arise 'by a process as easy or as difficult to understand as any other creative act of mind; it is a brainwave, an inspired guess, the product of a blaze of insight. [They come] ... from within and cannot be arrived at by the exercise of any known calculus of discovery'.

Hypotheses and research design

As has already been noted, hypotheses, like research questions, can be useful in providing guidance as to the most appropriate research design for a particular study. It was also argued that hypotheses are more likely to be used in certain types of study, such as those that seek to test well-developed theories. Hypotheses also play a central role in experimental studies and when inferential statistical analyses are necessary.

However, the use of hypotheses should not be restricted to certain research designs. While it has been suggested that their use is only appropriate for 'quantitative empirical research' (see Dillon 1983), and incompatible with 'qualitative studies' (Creswell 2003)

and ethnographic research (Dobbert 1982), there are no strong arguments why this is the case and many prominent researchers disagree.

Bell (1993), Guba and Lincoln (1994) and Holliday (2002) all argue that hypotheses can be useful in 'qualitative' research, while Barton and Lazarfield (1969), Spradley (1980) and Reason (1994) view hypothesis testing as perfectly compatible with ethnographic studies. Hammersley and Atkinson (1995, p. 19) write explicitly about the identification and testing of 'hypothetical patterns' and Hymes (1978, in Spradley 1980, p. 31) argues for a 'hypothesis-oriented' ethnography.

Holliday (2002) provides a very useful review of the arguments for and against the use of hypotheses in 'qualitative' research. She concludes that

> hypotheses are used in qualitative research which investigates a relationship between several entities. This essential nature of hypotheses does not have to be restricted to the controlled world of quantitative research. In qualitative research too there can be relationships which the research sets out to investigate in a systematic, though not quantifiable way.
>
> Holliday (2002, p. 34)

The key point in Holliday's (2002) argument is that hypotheses are concerned with the relationship between variables. As most research is concerned with such relationships, there seems little reason to restrict the use of hypotheses to a narrow range of methods of data collection and analysis. Hypotheses may be useful wherever relationships between variables are examined; that is to say, in most social scientific research.

Key Points

- Hypotheses have traditionally been linked to theory testing but any prediction about research findings is 'hypothetical'
- They can be useful in many different types of study and are not just restricted to 'quantitative' research or statistical analysis.
- Hypotheses are also used by those conducting 'qualitative' and ethnographic research.

SUMMARY

A central aim of this chapter is to show how research questions differ from aims, objectives and other statements about the purpose of your study. It has provided guidance on how to move from a topic or area of interest to a set of research questions that reflect the goals of your research. The problems that can arise with the form and content of questions have also been discussed, as have the different types of questions that you can ask. The final section considered the role of hypotheses in social research and their relationship to research questions.

The next chapter examines the process of turning research questions into *researchable* questions. It outlines the differences between questions that are researchable 'in principle' and those that are researchable 'in practice' and suggests practical strategies for identifying and reformulating unresearchable questions. The central role played by the resources available to the researcher is stressed, and guidance on prioritizing and structuring research questions is offered.

FURTHER READING

A philosophical discussion of the nature of questions can be found in

Hamblin, C.L. (1967) 'Questions', in Edwards, P. (Ed.) *The Encyclopedia of Philosophy: Volume 7*. New York: Macmillan & The Free Press. pp. 49–53.

The most comprehensive review of typologies of research question can be found in Dillon's paper:

Dillon, J.T. (1984) 'The Classification of Research Questions', *Review of Educational Research*, 54 (3), pp. 327–61.

Fischer provides a very comprehensive review of the problems that are encountered when framing research questions.

Fischer, D.H. (1971) *Historians' Fallacies: Toward a Logic of Historical Thought*. London: Routledge and Kegan Paul. ch. 1.

The role of hypotheses in social science is discussed in greater depth in the following texts:

Black, T.R. (1993) *Evaluating Social Science Research: An Introduction*. London: Sage. pp. 28–38.

Kerlinger, F.N. (1986) *Foundations of Behavioural Research*. (3rd Edn.) New York: CBS Publishing.