6

THE REVIEW OF THE LITERATURE

Hart considers a review of the literature is important because

> without it you will not acquire an understanding of your topic, of what has already been done on it, how it has been researched, and what the key issues are. In your written project you will be expected to show that you understand previous research on your topic. This amounts to showing that you have understood the main theories in the subject area and how they have been applied and developed, as well as the main criticisms that have been made of work on the topic.
>
> (Hart 1998: 1)

In Hart's view, 'the review is therefore a part of your academic development – of becoming an expert in the field' (p. 1). A critical review of the literature will be required in most cases for a PhD but a project lasting two or three months will not require anything so ambitious. If your supervisor agrees, you may decide to omit an initial review altogether. However, evidence of reading will still be required and the procedures involved in producing that evidence will be much the same, regardless of the size of the task.

The 'critical review' of the literature

The main point to bear in mind is that a review should provide the reader with a picture, albeit limited in a short project, of the state of knowledge and of major questions in the subject. In principle, that sounds easy enough but in practice it can prove to be anything but easy. Haywood and Wragg wryly comment that critical reviews are more often than not uncritical reviews – what they describe as:

> The furniture sale catalogue, in which everything merits a one-paragraph entry no matter how skilfully it has been conducted: Bloggs (1975) found this, Smith (1976) found that, Jones (1977) found the other, Bloggs, Smith and Jones (1978) found happiness in heaven.
>
> (Haywood and Wragg 1982: 2)

They remind us that it requires discipline to produce a review which demonstrates 'that the writer has studied the work in the field with insight' (p. 2). It's easy to produce a furniture sale catalogue, to collect facts and to describe what is, but not so easy to produce this 'critical' review. It involves questioning assumptions, querying claims made for which no evidence has been provided, considering the findings of one researcher compared to those of others and evaluating. All researchers collect many facts, but then must select, organize and classify findings into a coherent pattern. Verma and Beard agree that literature reviews must identify and explain relevant relationships between facts, but they also consider that

> the researcher must produce a concept or build a theoretical structure that can explain facts and the relationships between them . . . The importance of theory is to help the investigator summarize previous information and guide his future course of action. Sometimes the formulation of a theory may indicate missing ideas or links and the kinds of additional data required. Thus, a theory is an essential tool of research in stimulating the advancement of knowledge still further.
>
> (Verma and Beard 1981: 10)

This raises a number of issues relating to the meaning of 'theory' and of 'theoretical structure' and so before we look at extracts from some successful literature reviews, perhaps I should make sure we all mean the same thing when we speak about 'theory'. And that presents a few little problems because different people have slightly different views about meaning.

Theory and theoretical (or conceptual) frameworks

'Theory' has been explained as being 'a set of interrelated abstract propositions about human affairs and the social world that explain their regularities and relationships' (Brewer 2000: 192), as 'a proposition about the relationship between things' (Denscombe 1998: 240) or '*theory* at the lowest level can be an *ad hoc* classification system, consisting of categories which organise and summarise empirical observations' (Bowling 2002: 139). She continues that:

> It can be a taxonomy which is a descriptive categorical system constructed to fit the empirical observations in order to describe the relationships between categories (e.g. in a health care budget: spending on acute services, non-acute services, health promotion activities and so on).
>
> (p. 140)

However, it can be and often is merely taken to refer to the current state of knowledge in a subject derived from the published literature – what Wolcott (1992: 3–52) described as 'theory first' rather than 'theory after'. Punch clarifies the difference between the two as follows:

> In theory-first research, we start with a theory, deduce hypotheses from it, and design a study to test these hypotheses. This is theory verification. In theory-after research, we do not start with a theory. Instead, the aim is to end up with a theory, developed systematically from the data we have collected. This is theory generation.
>
> (Punch 1998: 16)

Care has to be taken before embarking on a 'theory after' approach, mainly because it requires the collection of a great deal of data which is inevitably well beyond the time scale and scope of most small (or smallish) studies. Not impossible for a PhD but still difficult.

Cohen, Manion and Morrison point out that 'model' is sometimes used instead of or interchangeably with 'theory':

> Both may be seen as explanatory devices . . . though models are often characterized by the use of analogies to give a more graphic or visual representation of a particular phenomenon. Providing they are accurate and do not misrepresent the facts, models can be of great help in achieving clarity and focusing on key issues.
>
> (Cohen, Manion and Morrison 2000: 12–13)

I particularly like Miles and Huberman's admirably clear statement about what they see as theory building and conceptual frameworks. They write that:

> Theory building relies on a few general constructs that subsume a mountain of particulars. Terms such as 'stress' or 'role conflict' are typically labels we put on bins containing a lot of discrete events and behaviours. When we assign a label to a bin, we may or may not know how all the contents of the bin fit together, or how this bin relates to another. But any researcher, no matter how inductive in approach, knows which bins to start with and what their general contents are likely to be. Bins come from theory and experience and (often) from the general objectives of the study envisioned. Laying out those bins, giving each a descriptive or inferential name, and getting some clarity about their interrelationships is what a conceptual framework is all about.
>
> (Miles and Huberman 1994: 18)

The label is not important, but the process of establishing a map or framework of how the research will be conducted and analysed is. As Polit and Hungler point out:

> Frameworks are efficient mechanisms for drawing together and summarizing accumulated facts ... The linkage of findings into a coherent structure makes the body of accumulated knowledge more accessible and, thus, more useful both to practitioners who seek to implement findings and to researchers who seek to extend the knowledge base.
>
> (Polit and Hungler 1995: 101)

So, a theoretical framework is an explanatory device 'which explains either graphically or in narrative form, the main things to be studied – the key factors, constructs or variables – and the presumed relationships among them' (Miles and Huberman 1994: 18). It is 'an efficient mechanism for drawing together and summarizing accumulated facts ... which makes the body of accumulated knowledge more accessible and, thus, more useful both to practitioners who seek to implement findings and to researchers who seek to extend the knowledge base' (Polit and Hungler 1995: 101).

I find that 'theory' and 'theoretical frameworks' can on some occasions be used in variable ways, depending on the interpretation and understanding of individual researchers. I do sometimes become concerned at the view that research cannot proceed unless it has a sound 'theoretical base', mainly because I am not always sure what that means in the context of some of the research being considered. These issues need to be discussed or else, 'what might become an opportunity for an informed dialogue about theory, and a concomitant review of the roles it can play, is represented instead as an obstacle' (Wolcott 2001: 80). I hope you will always able to engage in 'informed dialogue' with your supervisor and to ask for clarification if terminology, principles, meaning and ideas are new to you.

The 'critical review' in practice

All the work you have already done in identifying keywords, major issues and categories will now help in establishing a framework for your analysis and review of the literature. Even where all the necessary groundwork has been done, difficulties can still

remain, not least because any research involving human beings has to take account of the inevitably large number of variables involved which make it difficult to establish any common patterns of behaviour or experience. And then there is the difficulty of researchers starting from different bases so that comparing like with like becomes problematic. However, in spite of the difficulties inherent in the production of any review of the literature, let's look now at short extracts from three successful reviews. The first two were produced by first-time researchers. The third was produced by two very experienced academics and researchers.

The Clara Nai review

The first extract comes from a literature review produced by Clara Nai. She was investigating barriers to what she described as continuous learning amongst mature workers at Singapore airport. She discussed in some detail her own methodology, the methodology used by other researchers and the problems she faced in synthesizing the very large amount of information obtained about barriers to learning. She had read a great deal and faced the usual difficulties in grouping what she felt to be significant research findings. She writes:

> Having read so much, it took me a while to reconcile what I can present in a condensed review. It seems so unfair that only a fraction of the months of painstaking reading could appear in print. Putting sentiments aside, I have decided . . . to classify the factors affecting participation under some major headings for ease of consolidation.
>
> (Nai 1996: 33)

I imagine a good many new and experienced researchers will sympathize with Clara's exasperation. Identifying categories early in reading helps, even if some have to be rejected and others added but if no attempt has been made, then deciding on categories becomes very difficult *and* extremely time-consuming. Clara sensibly examined the way other researchers had categorized their

findings and decided to use the broad grouping into situational, institutional and dispositional barriers to learning adopted by Cross (1981). There is no reason why researchers should not adopt a methodology devised by someone else, *as long as the source is acknowledged*.

The choice of headings worked well. There is insufficient space here to reproduce the full review, but I hope the following extract from Clara's 'institutional barriers' section gives an idea of the way she approached the task.

> Institutional barriers rank second in importance after situational barriers, accounting for between 10 and 25% of potential learners among respondents in most surveys (Cross 1981). They are policies and procedures usually unintentionally put up by policymakers, human resource personnel or educational providers.
>
> Cross has grouped institutional barriers under 'scheduling problems', 'location/transportation problems', 'lack of interesting, practical or relevant courses', 'procedural registration problems', 'strict admission criteria' and 'lack of information'. Of these, up to a quarter cited inconvenient locations, inconvenient scheduling and the lack of interesting or relevant courses as the greatest barriers to participation.
>
> (Nai 1996: 35–6)

Finally, she concluded that reports of research into initiatives relating to the removal of various institutional barriers for adult learners in the UK and the USA were not encouraging. Numerous obstacles were identified confronting adults who wished to continue their education. Even though some higher education institutions were beginning to reschedule class times, to waive tuition or to reduce fees for economically disadvantaged students, the findings were that many adults still faced difficulties in returning to study.

Brief though this extract is, does it begin to provide you with at least some background to the problem of institutional barriers and also to the way Clara grouped her findings?

The Gilbert Fan review

Time to move on to the second review, which was carried out by Gilbert Fan. At the time he carried out his research, he was a member of staff in a School of Health Sciences in Singapore and was involved in his institution's Diploma in Nursing programme. He knew that certain concerns were being expressed nationally and internationally about nurse education, including a decline in student enrolment in nursing programmes, the apparent low status of nursing, which was believed to have contributed to poor recruitment, and high attrition rates leading to a shortage of nurses. He decided that a study of students' perceptions of their Diploma programme in particular and of the nursing profession in general would be useful to him and would contribute to the School's understanding of the programme *from a student perspective*.

He had read widely and his literature review was extensive. He knew he could not include all his sources and so he had to decide on specific topics which were of particular interest to him and under which he could group his findings. Though there were relatively few Singaporean studies on which to draw, he found there was plenty to choose from other countries, mainly the USA, the UK and Australia. He grouped his findings under the headings of:

- the decline in student enrolment in nursing education;
- curricula, types of nursing education and nursing competencies;
- teaching and clinical supervision in nursing education programmes;
- the relationship between nursing education and the profession; and
- nursing as a career choice.

Each of the above topics was thoroughly explored and documented and the review ran to 32 pages – more than was required for a Master's thesis, but Gilbert was nothing if not thorough. This small extract, which covered only half a page, is part of the section on the decline in student enrolment but I hope it gives you an idea of how he approached his task.

> Pillitteri (1994: 132) sees the decline in student enrolment in nursing education programmes to be a serious concern for the profession and Naylor (1990: 123) projected that the total number of new graduands from all the nursing programmes in the USA would drop from 82,700 in 1985 to 68,700 in 1995. Among the reasons for such a decline was that students did not find nursing attractive as a lifelong career. Such perceptions were perpetuated by unrealistic portrayal of nursing in the mass media and the alternative careers that women could enter today (Brooks 1989: 121; Fagin et al. 1988: 367; Kelsey 1990 cited in Pillitteri 1994: 132).
>
> (Fan 1998: 31)

Subsequent paragraphs deal further with research findings from all four countries (the USA, the UK, Australia and Singapore) which, in spite of the fact that each country has a different system of nurse education, identified similar reasons for the decline in student recruitment and high turnover, namely the traditional structure of nurse education, poor career advancement, job dissatisfaction, inflexible work schedules, staff shortage, low pay, family commitments, relocation of family, unsupportive supervisors and lack of opportunities for career advancement. He supports each of the items with the name, date and page number of the sources and of course, the full details of each are provided in the full list of references at the end of the thesis.

Gilbert made a good job of categorizing his findings under the five main headings, each of which had sub-headings. Even with the ongoing work of recording, categorizing and re-categorizing, the production of this review must have been complex. However, he succeeded and not only produced a good review, but also a good thesis.

The Richardson and Woodley review

On to the third example which is a small extract taken from a journal article produced by John Richardson and Alan Woodley and entitled 'Another look at the role of age, gender and subject as predictors of academic attainment in higher education'

(Richardson and Woodley 2003). Both are experienced researchers, and over the years produced a number of research papers concerned with this topic (Woodley 1981, 1984, 1985, 1998; Woodley and McIntosh 1980 and Richardson and King 1998).

In 2003, they published the results of their updated and extended investigation into the academic attainment of mature students in higher education. Consider the first paragraph of the Introduction to this study which makes clear what they intend to do. They write:

> In this article, we examine the role of a student's age, gender and subject of study as predictors of their academic attainment in higher education, and in particular as predictors of the classes of first degrees awarded by institutions of higher education in the UK. There has been a good deal of interest in this topic over the last 30 years, and our analysis builds on the findings of several previous investigations that examined the performance of graduates in the UK.
>
> (Richardson and Woodley 2003: 475)

Readers are then referred to a table listing previous analyses of predictors of academic in UK higher education from 1964 to 2001.

They continue by analysing their own findings under the headings of: age and academic attainment; gender and academic attainment; subject of study and academic attainment. These are followed by variations and groupings relating to age, gender and subject of study. The following extract is taken from their section on age and academic attainment:

> Interest in the role of age as a predictor of academic attainment is often motivated by a stereotype of older people as being deficient in intellectual skills (Richardson and King 1998). Cross-sectional studies comparing groups of different ages have indicated that there is a slight decline in intellectual function between the ages of 18 and 60, with a more pronounced decline thereafter (e.g. Nyberg *et al.* 1996; Verhaeghen and Salthouse (1997). Such results are, however, contaminated by cohort differences in life experience, and

> longitudinal studies comparing the *same* groups at different ages often find no statistically significant decline before the age of 60 (Schaie 1996: 107–36). When any age-related changes in performance are observed, they typically amount to a reduction in information processing, whereas access to stored information is usually unaffected (Klatzky 1988; Nyberg *et al.* 1996). There is thus no reason to expect a reduction in attainment with advancing age in situations that demand the retrieval of knowledge (Baltes *et al.* 1984), except when they involve time pressure (Verhaeghen and Salthouse 1997). Of course, one situation that fits the latter description is the traditional unseen examination.
>
> (Richardson and Woodley 2003: 477–8)

Read this again, but perhaps more slowly this time. Take note of the language Richardson and Woodley use, the care they take in drawing conclusions from the research findings and the way some of the findings are qualified. If you have time, consult the full article and examine the ways in which findings are categorized.

Reviewing the reviews



Look back at all three extracts in this chapter. Richardson and Woodley already had extensive knowledge of their topic before they undertook the work involved in their 2003 article and they were able to produce an exhaustive review of previous studies relating to the influence of age, gender and subject of study on academic attainment. Clara Nai and Gilbert Fan were first-time researchers and though they knew a great deal about issues relating to their work and had identified a topic of interest very early in their studies, they did not have the advantage of a firm knowledge base about previous research. They were not required to produce an exhaustive review of the research findings relating to their topic: it was sufficient for them to produce a relatively brief account of the selected literature and to draw some conclusions where possible, bearing in mind the care needed in making claims. Their early ideas about likely headings, groups and

categories were based mainly on their personal and professional experience and were gradually added to, adapted or completely changed during the course of their reading.

Remember!

We can all learn a great deal by reading what other researchers have done. Look critically at all reviews which come your way. Ask yourself whether they are furniture sale catalogues or well-organized accounts which are relevant to the topic. Research findings can be dangerous if they are used in an undisciplined way and I feel a certain anxiety when I am told that 'research proves x or y' when I see no corroborating evidence to warrant such an assertion. Watch your language! Inferences may possibly be drawn, results 'might indicate', but remember that in any dealings with human beings, 'proof' is hard to come by.

The review of the literature checklist

1	Evidence of reading will always be required in any research.	Though in a small study, it may not be necessary to produce a full literature review.
2	Researchers collect many facts but then must select, organize and classify findings into a coherent pattern.	The aim is to produce a critical review, not a list of everything you have read.
3	Your framework will not only provide a map of how the research will be conducted and analysed but it will also give you ideas about a structure for your review.	It will help you to draw together and summarize facts and findings.
4	Literature reviews should be succinct and, as far as is possible in a small study, should give a picture of the state of knowledge and of major questions in your topic area.	If you have been able to classify your reading into groups, categories or under headings, writing your review will be relatively straightforward.

5	Ensure that all references are complete. Note the page numbers of any quotations and paraphrases of good ideas. You cannot use them without acknowledging the source. If you do, you may become involved in a plagiarism challenge.	It should be possible for any readers to locate your sources.
6	Watch your language. Perhaps inferences may be drawn, but 'proof' is hard to come by when dealing with human beings.	Make no claims which cannot be justified from the evidence you have presented. Consider again the wording Richardson and Woodley use in the extract from their article.
7	Examine your sources critically before you decide to use them.	Any sign of bias, inappropriate language, or false claims? Are you able to trust the authors' judgements?
8	Remember that unless you are comparing like with like, you can make no claims for comparability.	Researchers often start their research from different bases and make use of different methods of data collecting. You may still wish to use their findings, but be careful about how you discuss them.
9	Do not be tempted to leave out any reports of research merely because they differ from your own findings.	It can be helpful to include differing results. Discuss whether they undermine your own case – or not.
10	Start the first draft of your review early in your reading. Many more drafts will be required before you have a coherent and 'critical' account but better to start small and then build on your first attempt than to have to make sense of everything you have read at one attempt.	As you continue, entries will be deleted and others added, but you will have made a start. Better to be faced with a badly-written, inadequate review than a blank page.

Further reading

Baker, S. and Carty, J. (1994) 'Literature searching: finding, organizing and recording information', in N. Bennett, R. Glatter and R. Levačić (eds) *Improving Educational Management Through Research and Consultancy*. London: Paul Chapman Publishing.

Blaxter, L., Hughes, C. and Tight, M. (2001) *How to Research*, 2nd edn. Buckingham: Open University Press. Pages 110–25 give really useful guidance about reading for research, sources of information in the library and on the Internet, literature searches and critical reading.

Gash, S. (1989) *Effective Literature Searching for Students*. Aldershot: Gower.

Hart, C. (1998) *Doing a Literature Review: Releasing the Social Science Research Imagination*. London: Sage, in association with The Open University (Open University reader for course D820 'The Challenge of the Social Sciences'). Chapter 7, 'Writing the Review', is helpful, though its 30+ pages are rather detailed for researchers who are not required to produce a full literature review. However, even if no full review is required, the appendices on 'the proposal', 'how to cite references', 'presentation of a dissertation', 'managing information and keeping records' and 'a checklist of dos and don'ts for reviewing' will still be useful.

Laws, S. with Harper, C. and Marcus, R. (2003) *Research for Development: A Practical Guide*. London: Sage. Chapter 12, pages 213–32 provides excellent checklists about planning, carrying out and writing up the literature, together with guidance about using a library and how to use the Internet for research.

Murray, R. (2002) *How to Write a Thesis*. Maidenhead: Open University Press. Pages 101–16 discuss definitions and purposes of literature reviews, justification for the inclusion and omission of literature and plagiarism.

Richardson, J.T.E. and Woodley, A. (2003) 'Another look at the role of age, gender and subject as predictors of academic attainment in higher education', *Studies in Higher Education* 28 (4): 476–93.

Talbot, C. J. (2003) *Studying at a Distance: A Guide for Students*. Maidenhead: Open University Press. Pages 119–24 deal with literature searching and reviewing, using the World Wide Web for research, search strategies, information about bibliographic databases on the web and off-campus access to electronic resources. Brief but helpful.



Part II

SELECTING METHODS OF DATA COLLECTION



INTRODUCTION

When you have decided on a topic, refined it and specified objectives, you will be in a position to consider how to collect the evidence you require. The initial question is not 'Which methodology?' but 'What do I need to know and why?' Only then do you ask 'What is the best way to collect information?' and 'When I have this information, what shall I do with it?'

No approach depends solely on one method any more than it would exclude a method merely because it is labelled 'quantitative', 'qualitative', 'case study', 'action research', or whatever. As I indicated in Chapter 1 some approaches depend heavily on one type of data-collecting method – but not exclusively. You may consider that a study making use of a questionnaire will inevitably be quantitative, but it may also have qualitative features. Case studies, which are generally considered to be qualitative studies, can combine a wide range of methods, including quantitative techniques. Methods are selected because they will provide the data you require to produce a complete piece of research. Decisions have to be made about which methods are best for particular purposes and then data-collecting instruments must be designed to do the job.

Constraints

The extent of your data collecting will be influenced by the amount of time you have. This may seem a rather negative approach, but there is no point in producing a grandiose scheme that requires a year and a team of researchers if you are on your own, have no funds and in any case have to hand in the project report in three months. Even so, if possible, efforts should be made to cross-check findings, and in a more extensive study, to use more than one method of data collecting. This multi-method approach is known as *triangulation*.

Laws points out that 'the key to triangulation is to see the same thing from different perspectives and thus to be able to confirm or challenge the findings of one method with those of another'. She warns that

> Accounts collected from different perspectives may not match tidily at all. There may be mismatch and even conflict between them. A mismatch does not necessarily mean that the data collection process is flawed – it could be that people just have very different accounts of similar phenomena. You need to critically examine the meaning of any mismatches to make sense of them.
>
> (Laws 2003: 281)

One problem for short-term researchers is that examining the meaning and making sense of any mismatches takes time and so most 100-hour projects are likely to be limited to single-method studies. You just do the best you can in the available time. There are likely to be other constraints. For example, if you wish to observe meetings, you will be limited by the number and timing of meetings that are scheduled to take place in the period of your study. The willingness of people to be interviewed, or observed, to complete the questionnaire or diaries will inevitably affect your decisions as to which instruments to use. You may feel that a postal questionnaire would be the most suitable method of obtaining certain information, but postal questionnaires can cost quite a lot of money, so you will have to consider whether funds can be found, and whether this expenditure would be worthwhile.

Reliability and validity

Whatever procedure for collecting data is selected, it should always be examined critically to assess to what extent it is likely to be reliable and valid. *Reliability* is the extent to which a test or procedure produces similar results under constant conditions on all occasions. A clock which runs ten minutes slow some days and fast on other days is unreliable. A factual question which may produce one type of answer on one occasion but a different answer on another is equally unreliable. Questions which ask for opinions may produce different answers for a whole range of reasons. The respondent may just have seen a television programme which affected opinions or may have had some experience which angered or pleased and so affected the response. Wragg (1980: 17), writing about interviews asks: 'Would two interviewers using the same schedule or procedure get a similar result? Would an interviewer obtain a similar picture using the procedures on different occasions?' These are reasonable questions to put to yourself when you check items on a questionnaire or interview schedule.

There are a number of devices for checking reliability in scales and tests, such as 'test–retest' (administering the same test some time after the first), the 'alternate forms method' (where equivalent versions of the same items are given and results correlated) or the 'split-half method' (where the items in the test are split into two matched halves and scores then correlated). These methods are not always feasible or necessary, and there are disadvantages and problems associated with all three. Generally, unless your supervisor advises otherwise, such checking mechanisms will not be necessary unless you are attempting to produce a test or scale. The check for reliability will come at the stage of question wording and piloting of the instrument.

Validity is an altogether more complex concept. Usual definitions of validity are that it tells us whether an item or instrument measures or describes what it is supposed to measure or describe, but this is rather vague and leaves many questions unanswered. Sapsford and Jupp (1996) offer a more precise definition. They take 'validity' to mean 'the design of research to provide credible conclusions; whether the evidence which the

research offers can bear the weight of the interpretation that is put on it' (p. 1). They argue that what has to be established is whether data:

> *Do* measure or characterize what the authors claim, and that the interpretations *do* follow from them. The structure of a piece of research determines the conclusions that can be drawn from it and, most importantly, the conclusions that *should not* be drawn from it.
>
> (Sapsford and Jupp 1996: 1)

If an item is unreliable, then it must also lack validity, but a reliable item is not necessarily also valid. It could produce the same or similar responses on all occasions, but not be measuring what it is supposed to measure. Measuring the extent of validity can become extremely involved, and there are many variations and subdivisions. For the purpose of 100-hour projects that are not concerned with complex testing and measurement, it is rarely necessary to delve deeply into the measurement of validity, though efforts should be made to examine items critically.

Ask yourself whether another researcher using your research instrument and asking factual questions would be likely to get the same or similar responses. Tell other people (colleagues, pilot respondents, fellow students) what you are trying to find out or to measure and ask them whether the questions or items you have devised are likely to do the job. This rough-and-ready method will at least remind you of the need to achieve some degree of reliability and validity in question wording even though it is unlikely to satisfy researchers involved with administering scales and tests with large numbers of subjects. If you are involved in the validity of scaled measures, you might wish to consult the items included in the Further Reading at the end of this section.

Thinking about computer data analysis?

If you think you might wish to make use of computer software to analyse your returns, take care over the design of all your data-collecting instruments because the way you word questions

may result in responses that are difficult to analyse. Ask what courses and advice are available about using computer packages for analysing quantitative *and* qualitative data. These days, simple data analysis is made fairly easy. There is no longer any necessity or requirement to learn and remember complex formulae. The computer does it for you. Magic? Well, a help but not magic. It's easy to become seduced by yards and yards of computer printouts, but they have to be filtered to get to the *meaning* of all those figures and sheets, to understand what can be claimed from them and what can't.

Using computer packages for data analysis requires preparation. For a start, make sure you are familiar with what your own or your department's computers will do. Obvious? Well, of course, but many new research students have optimistically bought a new, or even their first computer in the hope that it will simplify the whole business of research. It might, but not until you have mastered the techniques involved.

Find out what computer use and computer data analysis courses are available, if possible *before* your research proper begins. Ask for advice about who in your organization is available to give advice. These days, many departments have a research and data analysis adviser, so make sure you know who that is. The way you word your questions may influence the type of analysis you are able to carry out, so always make sure the wording is checked by your supervisor/research adviser/data analysis adviser before you finalize all data-collecting instruments and regardless of whether your research will be mainly quantitative or qualitative.

Not thinking about computer data analysis?



No problem with that and particularly in small or relatively small, time-limited studies, it may be better to keep to manual methods of data analysis and interpretation of the results. Research is not about computers, though there is little doubt that they have eased our burdens in many ways. As I've said throughout this book, it is about careful selection of a topic, being sure about the purpose of your study, negotiating access to institutions, materials and people, devising suitable methods of data

collection, observing the ethics of research, collecting, analysing and interpreting results and producing a well-written report ON TIME. So, time to read on.

A reminder



It is often worrying for first-time researchers to know how many questionnaires should be distributed or interviews given. There are no set rules, and you should ask for guidance from your supervisor before you commit yourself to a grand plan that will be far in excess of what is required. Your aim is to obtain as representative a range of responses as possible to enable you to fulfil the objectives of your study and to provide answers to key questions.

Research instruments are selected and devised to enable you to obtain these answers. The instrument is merely the tool to enable you to gather data, and it is important to select the best tool for the job. The following chapters take you through the processes involved in the analysis of documentary evidence, designing and administering questionnaires, planning and conducting interviews, diaries and observation studies. Little attention is given to the analysis of data in this part, but all data have to be analysed and interpreted to be of any use, and so Chapters 12 and 13 in Part III should be studied in association with the chapters in Part II.

Further reading



Hayes, N. (2000) *Doing Psychological Research*. Buckingham: Open University Press. Pages 209–12 consider reliability in discourse analysis; pages 98–101 in psychometric tests and page 169 in qualitative research. Validity is examined throughout the book, so consult the index.

Oppenheim, A.N. (1992) *Questionnaire Design, Interviewing and Attitude Measurement*, new edition. London: Cassell. Oppenheim discusses the reliability of attitude questions, pages 147–8; of attitude scales, pages 163–6; of coding, pages 266–8; of questions, pages 144–8; and of scaled measures, pages 159–60, pages 162, 188 and 283. Validity is dealt

with in even more detail, from pages 147–63. However, there is more, so once again, best to consult the index.

Punch, K.F. (1998) *Introduction to Social Research: Quantitative and Qualitative Approaches*. London: Sage. In four pages (99–102), Punch provides a brief but very sound introduction to reliability and validity. Well worth reading.

Sapsford, R. and Jupp, V. (1996) *Data Collection and Analysis*. London: Sage.

Scaife, J. (2004) 'Reliability, validity and credibility', Chapter 4 in C. Opie (ed.) *Doing Educational Research: A Guide to First-time Researchers*. London: Sage.