

# CHAPTER 3

## The beginning stages of research

Kirsty Williamson

---

### Objectives

At the end of this chapter you will be able to:

- understand the ways in which research problems are identified;
- formulate clear research questions;
- formulate concise and testable hypotheses;
- understand the role of theory in research and how theory is generated;
- describe the role of the literature review in a research project; and
- understand the elements of a good literature review.

### Research problems and research questions

#### Introduction

Before undertaking a research project of any kind, you need to have a research problem and a set of clear, well-focused research questions. As mentioned in Chapter 1, the purpose of this book is not necessarily to create fully-fledged researchers. Nevertheless, the early stages of research need to be mastered so that you can write research proposals, a consultant's brief, or a pertinent literature review. If you are to be intelligent consumers of research, you also need to be able to gauge whether other researchers have begun with clear research questions. Einstein and Infield are quoted by Powell (1997, p. 19) as saying that 'the formulation of a problem is often more essential than its solution'.

One of the most common reasons for identifying a research problem arises from students having to find a topic for a research project. Some achieve this by reading the literature: by finding out what has already been done and where the gaps might lie. Others, who are already working in a professional field, have the opportunity to observe their work setting and identify problems and issues which seem to require investigation. If they are

conscientious professionals, they will probably try to keep up with the research being reported in their field.

One of the principal purposes of this subject is to encourage the use of research in the workplace where, as discussed at length in Chapter 1, it has much to contribute to the understanding of needs, and the development of services, systems and programs. Observation in the workplace is important, as is the sharing of ideas with colleagues. It is also still important to check the literature to ascertain what has already been done. As Powell (1997, p. 21) says:

... a problem does not have to be entirely new and unresearched in order to be worthy of investigation. Some of the most important research builds on and improves or refines previous research. The degree of uniqueness desired will in part depend upon the purpose of the research.

Problems which emerge from a workplace situation can still involve conceptual thinking. We need at least some of the research in our field to be concerned with ideas and theoretical concepts, in order to bring innovative approaches to problems and their solution and ensure the dissemination of those ideas to other professionals in the field.

### **Statement of the problem and major questions**

The first step is to write a clear statement of the problem, or major questions. This should be done in full grammatical sentences, not just as phrases. Powell (1997, p. 22) gives a very clear description of the process. Box 3.1 contains an example of major questions and Box 3.2 presents an example of a statement of a research problem. Boxes 3.3 and 3.4 refine these into sub-questions or specific research questions. Note that there is some flexibility in the way all these elements can be expressed. In each case the first examples are from a minor thesis, based on quantitative research using a questionnaire and a quasi-experiment, by a Masters student (Ellul 1996). This student was interested in whether many primary school libraries (in 1995) were providing their students with access to Online Public Access Catalogues (OPACs) and CD-ROMs and whether the use of OPACs and CD-ROMs meant an improvement in search outcomes (compared with traditional methods). In her second attempt at expressing her problem, the wording became: The extent to which OPACs and CD-ROMs are being used at primary school level and the extent to which students are able to retrieve information successfully and efficiently using this new technology. She further refined this into two major questions, as shown in Box 3.1. Notice that these questions are more specific again than the second attempt at the problem statement. As Powell (1997, p. 22) says, the manageability of the study which will investigate the problem needs to be considered.

**Box 3.1: Examples of major research questions for a quantitative study**

1. What is the extent of OPAC and CD-ROM use at primary school level in Victoria?
2. How successfully and efficiently are senior primary school students able to retrieve information using OPACs and CD-ROMs (as compared with traditional methods of information retrieval)? (Ellul 1996, p. 9).

With a qualitative study, the researcher tries to phrase a problem statement to indicate the kind of understanding that the project seeks to achieve, rather than to state relationships between variables as happens in quantitative research (Gorman and Clayton 1997, p. 72). Box 3.2 contains a research problem developed for a qualitative study which was undertaken with an ethnographic approach using participant observation. (Ethnography and participant observation are described in Chapters 10 and 16.)

**Box 3.2: Example of a research problem for a qualitative study**

'The primary goal of this study was to enhance the understanding of the networked learning community that emerged in an Internet-based, graduate-level course' (Rice-Lively 1994, p. 20, cited in Gorman and Clayton 1997, p. 72).

**Sub-questions or specific research questions**

Virtually every problem or major question can be broken down into a number of component parts. By framing sub-questions or specific questions, all of which fall within the scope of the larger problem or major question, the researcher makes manageable or easily researchable chunks. Powell (1997, pp. 22-23) warns that, when combined, the sub-questions or specific research questions should equal the whole of the main problem or question, but not exceed the whole. This means that the sub-questions should provide complete coverage of the research problem, but not introduce issues which are beyond its scope. If you find that some of the specific questions do not fit within the scope of the main question, you need to make adjustments until the necessary fit is achieved. As illustrated in Box 3.3, usually a researcher will formulate five to eight sub-questions, or specific questions. These questions relate to the major questions (for a quantitative study) in Box 3.1.

**Box 3.3: Examples of specific research questions for a quantitative study**

- How widespread is the use of OPACs and CD-ROMs at the primary school level?
- Are OPACs and CD-ROMs available at all primary schools in Victoria?
- How successful are students at retrieving required information using both of the technologies, mentioned above?
- Are students' success rates using OPACs and CD-ROMs the same as when they use card catalogues and print encyclopedias?
- What are the processes used by students to locate information using these technologies?
- Do students follow the same processes they used when using card catalogues and print encyclopedias?
- What form of teacher instruction has been provided in conjunction with the introduction of these two forms of Information Technology? (Ellul 1996, p. 9).

It might be argued that some of these specific questions are not directly matched to the major questions, for example the processes of use or teacher instruction. A counter argument would be that the processes used are likely to affect success and efficiency, as will the form of teacher instruction provided. The specific research questions, related to the research problem (for a qualitative study) in Box 3.2, are set out in Box 3.4.

**Box 3.4: Examples of specific questions for a qualitative study**

- Will a class conducted in a mostly electronic environment form a unique culture, complete with rules for communication and behaviour?
- Do the traditional educational roles of the students and the instructor change in the virtual classroom? If so, how are these new roles different?
- To what extent can ethnographic research techniques, using the traditional data-gathering methodologies of observation, interviews, and recording of field notes, be applied in an electronic community? (Rice-Lively 1994, p. 2, cited in Gorman and Clayton 1997, p. 72).

You will undoubtedly note that each of this last set of questions is much broader than those for the quantitative study. Remember that Rice-Lively's study was qualitative, and thus aiming to uncover the unexpected and to explore new avenues (Marshall and Rossman 1995, p. 26). Questions therefore require more flexibility than those used in the quantitative research style. Marshall and Rossman (p. 26) suggest that in a qualitative study, 'the research questions should be general enough to permit exploration but focused enough to delimit the study. Not an easy task'.

The exploration of the literature needs to be undertaken in conjunction with the development of research questions. It is very important to understand the way in which other researchers have viewed the topic (if at all) and to take into account other research. Maybe there has been quite a lot of research undertaken on your topic of interest, but maybe approaches have been mainly quantitative and, in your opinion, there has not been a deep understanding of the issues involved. Conversely, you may believe that the broader perspective of a quantitative approach is missing. Theory formulation also plays a part in this initial stage of research (with question development and reviewing of the literature).

Gorman and Clayton (1997, p. 73) emphasise the interactive, iterative nature of the process of research question development, theory formulation and reviewing the literature. They see this interaction as a triangle, with each of these components at one point of the points. If hypotheses are developed they, too, should be part of this iterative process. The formulation of hypotheses is dealt with in the next section.

### **Suggestions for setting questions**

The following steps may assist you to formulate your questions:

STEP 1. Write down your broad area of interest.

STEP 2. Write down a specific sub-area of this broad area in which you have a particular interest. Try to formulate a question based on this.

STEP 3. List five to eight unanswered questions you have in respect to the specific sub-area.

You need to scrutinise your questions carefully to make sure they are communicating exactly what you mean. Note that questions may relate to your sample. For example, if the main focus of your study is the factors influencing library use, sub-questions might concern the differences between males and females, or the differences between certain age groups in your sample.

## Hypotheses: Their role in research and their formulation

### Introduction

Hypothesis testing is central to the positivist or quantitative approach to research, as described in Chapter 2. The following long paragraph from Busha and Harter (1980) provides a definition of the term, 'hypothesis', together with an explanation of the role of hypotheses in research and how they are derived:

In scientific inquiry, the *hypothesis* is a tentative, declarative statement about the relation between two or more variables which can be observed empirically. As a vitally important intellectual instrument of research, the hypothesis is a scientific guess about the relationship among variables related to a practical or theoretical problem. Hypotheses can be derived from intuition or theories, and from relevant facts produced during the course of previous observation, research, or experience. Hypotheses offer explanations for certain phenomena and serve as guides to the collection and analysis of research data. Implicit in the process of hypothesis formulation is the notion that statements of the relationship between or among variables must be tested. The essential function of the hypothesis in scientific inquiry is to guide the collection of research data and the subsequent discovery of new knowledge (Busha and Harter 1980, p. 10).

As Busha and Harter suggest, convenient and logical sources of hypotheses are theory and the findings of other studies reported in the literature (discussed further below). Each hypothesis should be closely related to at least one of the research sub-questions. In other words, there should be a close link between research questions and hypotheses.

### Types of hypotheses

Burns (1990, p. 78) talks about a hierarchy of hypotheses – each becoming tighter and more testable. The first level is the *problem* or *general hypothesis*, from which the more specific *research hypothesis* is developed. When this is re-expressed in operational terms, it becomes an *operational hypothesis*. He provides the following example:

Problem or General Hypothesis: You expect some children to read better than others because they come from homes in which there are positive values and attitudes to education.

Research Hypothesis: Reading ability in nine-year-old children is related to parental attitudes towards education.

Operational Hypothesis: There is a significant relationship between reading ability for nine-year-old children living in major cities in NSW as measured by standardised

reading test X and parental attitudes to education as measured by attitude test Y (Burns 1990, p. 79).

It is this last hypothesis – the operational one – which is sufficiently specific to be testable.

Powell (1997) lists several different types of hypotheses. One of the most important of these is the *directional hypothesis* which Powell defines as:

... a hypothesis that indicates the nature of the relationship between or among variables. For example, it could be hypothesized that the assignment of term papers results in more library use by certain students (Powell 1997, pp. 28-29).

Burns' operational hypothesis, above, is a directional hypothesis. Borg (1981) in the further reading list at the end of the chapter, gives several examples of directional hypotheses. Boxes 3.5 and 3.6 provide further examples of directional hypotheses. Those in Box 3.5 are two of the four hypotheses developed for a study which focused on users of a Citizens Advice Bureau (CAB), the kinds of problems they brought to the Bureau and the degree of their dependence or independence in their information seeking.

**Box 3.5: Examples of directional hypotheses: Information seeking in a CAB**

- Higher and lower socio-economic groups will present different categories of problem.
- The preferred responses of people in lower socio-economic groups indicate they are more dependent in their information seeking than those in higher socio-economic groups (Williamson 1984, p. 35).

Notice that each of these hypotheses involves a comparison of variables. In the first case, it involves higher and lower socio-economic groups and the different categories of problem which they brought to the CAB; in the second case, higher and lower socio-economic groups and different levels of dependency in information seeking.

Ellul (1996), whose research questions are outlined in Box 3.3, also framed directional hypotheses. If you look at her hypotheses (in Box 3.6) alongside her research questions you will notice the close relationship between three of the research questions and the four hypotheses.

**Box 3.6: Examples of directional hypotheses: OPAC/CD-ROM study**

- That students using OPACs to locate information follow steps similar to those they use with card catalogues.
- That students using CD-ROMs to locate information follow steps similar to those they use with print encyclopedias.
- That success rates for OPACs will be better than those for card catalogues for the same students.
- That success rates for CD-ROMs will be better than those for print encyclopedias for the same students (Ellul 1996, pp. 9-10).

The converse of the directional hypothesis is the *null hypothesis* which Powell (1997, p. 29) defines as:

... a hypothesis that asserts that there is no real relationship between or among the variables in question. It involves the supposition that chance rather than an identifiable cause has produced some observed result. It is used primarily for purposes of statistical testing.

Box 3.7 shows how the hypotheses developed for the CAB study would have appeared had null, rather than directional, hypotheses been chosen.

**Box 3.7: Example of null hypotheses: Information seeking in a CAB**

- There will be no difference in the categories of problem presented by higher and lower socio-economic groups.
- There will be no differences between the higher and lower socio-economic group in the responses they prefer from the CAB.

**When hypotheses should be used**

If you have a quantitative approach in mind (and provided your sample, as discussed in Chapter 13, is appropriate), you should develop operational hypotheses, along with your research questions. Hypotheses often help to clarify what it is you are trying to find out. Mostly used in positivist research, they are usually regarded as inappropriate for qualitative

research which uses small samples, does not submit its data to statistical tests, and which aims to uncover the unexpected and explore new avenues of related inquiry as they open up. However, for some interpretivist studies, researchers develop propositions which are similar to research hypotheses (described above). They do not require such precise wording, nor the rigorous testing associated with operational hypotheses. They, nevertheless, can help to provide a similar kind of clarification as hypotheses give to a quantitative study. Historians also sometimes use hypotheses of the 'research' kind.

### Criteria for good hypotheses

Good hypotheses should:

- be stated in correct terminology;
- be as brief and clear as possible;
- state an expected relationship or difference between two or more variables;
- be testable; and
- be grounded in past knowledge, gained from the literature review or from theory.

A hypothesis should *never* be double barrelled. Box 3.8 gives an example of an *unacceptable* hypothesis.

<b>Box 3.8: Example of an unacceptable hypothesis</b>
The older age group is much more likely than the younger group to do press ups and eat porridge first thing in the morning.

This hypothesis is problematic because there could be different results for the separate variables concerning press ups and porridge. The two issues need separate hypotheses.

## **Theory: Its role in research and its development**

### **What is theory?**

Very simply, a *theory* is a viewpoint or perspective which is explanatory. According to Babbie (1989, p. 46), social science theory is 'a systematic explanation for the observed facts and laws that relate to a specific aspect of life'.

There is a sense in which we develop theories all the time in our everyday lives, for example, to account for someone's behaviour or explain certain problems which we face. Professionals, such as information service providers, also construct viewpoints or theories. For example, suppose staff from a particular public library observe that the children's collection of the library is used less than would be expected (or they believe that is the case). Their theory of why this is so could include the fact that there are very good school libraries in the area; and that the area is basically working class with the result that parents do not encourage their children to use the library as much as middle-class parents do. They might develop other theories about what can be done to change this situation.

Likewise researchers act on the basis of theory, but differ in the extent to which they are aware of it, make it explicit and develop it. There are also differences between quantitative and qualitative researchers with regard to the stage of the research at which they focus on theory development. With regard to positivist approaches, Powell (1997, p. 24) says '... theory or theory construction is the first major component of the scientific method of inquiry'. On the other hand interpretivists, or qualitative researchers, use theory at various stages of the research process. In particular, those who are users of 'grounded theory' (Glaser and Strauss 1967) will be seeking to generate theory based on data collected from the field work stages of their research. These differences were discussed at greater length in Chapter 2.

A number of the definitions of 'theory' mention the relationships between variables. In addition to the definition of social science theory, above, Babbie also defines theory as 'a complex set of relationships amongst several variables' (Babbie 1989). Sekaran says that:

The theoretical framework is the foundation on which the entire research project is based. It is a logically developed, described and elaborated network of associations among variables that have been identified through such processes as interviews, observations, and the literature survey (Sekaran 1992, p. 73).

One metaphor which might help is to think of a project's theoretical framework (sometimes described as the 'conceptual framework') as an architect's plan of a house. Just as a house plan

describes the rooms of the house and how they are connected, the theoretical framework describes the key ideas underpinning the research and how they are related.

### **The role of theory in research**

Theory is very important in research. It 'informs' the research process and helps to direct it. When an investigator is aware of the theoretical implications of a study, more pertinent and potentially significant research questions are likely to be posed. When researchers set out to develop theory, they will usually search for other theories and research to inform the process. They, themselves, will then contribute theories and research on which others can build. In this way, theory helps to encourage a cumulative, rather than a fragmented approach. From the theoretical framework, hypotheses are usually easily formulated.

Powell (1997, pp. 24-25) provides a very good discussion of the role of theory in research. Schauder (1989) eloquently expounds the role of theory in research in professional practice. The latter's axiom is: 'Don't be afraid to theorise: the rest is implementation' (Schauder 1989, p. 318). He begins with definitions of 'theory' and 'model' then discusses how the use of 'theory' is implicit in library work, as in other fields. He makes a sound case for the benefits of using metaphor to aid the understanding of theory, for developing the capacity to theorise, and to enable the creation of alternative perspectives. His major theme is the power that imaginative, alternative theories can bring both to research and professional practice.

### **How theory is developed**

How theory is developed depends, to some extent, on whether a researcher is from the quantitative or qualitative tradition. Nevertheless, most researchers generate some theory initially, using observation and discussions, as well as a review of the literature. A period of deep thought and gestation is usually very beneficial. An interesting article, providing a conceptual framework for theory building in library and information science, is provided by Grover and Glazier (1986). At least in quantitative research and, to some extent in a qualitative study, the theoretical framework for a study should emerge from the literature review. Box 3.9 provides an example of the development of part of a theoretical framework.

**Box 3.9: Part of a theoretical framework: How it was developed**

For research concerning the information, communication, and telecommunication needs of older adults (Williamson 1995), one of the key components of the theoretical framework was concerned with how information is acquired. The central question became: is information always purposefully sought or is it sometimes incidentally acquired? The idea for this came from Wilson's (1977) theory of informing behaviour. Wilson talked about the habits or routines which people use to keep their internal model of the world up-to-date. He postulated that this involves monitoring the environment by personal observations, discussions with friends, relatives and colleagues and use of the mass media. Such routines, he considered, may or may not have the gathering of information as their goal. In the latter case, information is incidentally acquired.

In the theoretical framework for the Williamson study, this concept of purposeful/incidental information acquisition was related to a range of different sources of information for everyday living, for example, family, friends and the mass media. Another related key concept was everyday life activities and the effect these might have on information needs and the sources used to satisfy them. All these concepts were defined and explained in relation to the relevant literature and to each other.

At the conclusion of the research described in Box 3.9, a diagrammatic model of the theory was developed based on the findings of the study. (See Figure 3.1.) It incorporated the initial theoretical ideas, which had been supported empirically in the study, and illustrated the relationships between the concepts as they emerged from the research. For example, as illustrated in the model, purposeful information seeking and incidental information acquisition occurred with all sources of information, except institutional sources, from which information was almost always purposefully sought. In information systems research, particularly, but also in information management, researchers will often begin with diagrammatic models which represent their theoretical framework.

The literature review plays an important part in the formulation of the theoretical framework. Innovative theoretical frameworks will draw on a range of literature, not necessarily restricted to the field of the proposed study. For example psychology, sociology, education, anthropology and computer science, may all have interesting ideas to contribute to a study in the field of information management.

(Williamson 1998, p. 36.)

**Figure 3.1:** Everyday life information: An ecological model of use

## **The literature review**

### **The role of the literature review**

The literature search and review involve identifying, locating, synthesising, and analysing the conceptual literature, as well as completed research reports, articles, conference papers, books, theses, and other materials about the specific problem or problems of a research topic. It is important that a literature review should include evaluative and critical judgments about the literature, and that it should present a comparison of ideas and research findings, tying them together. As mentioned above, at least in the quantitative paradigm, the theoretical framework for the proposed research study should emerge from the literature review.

The literature review has a crucial role in research. According to Marshall and Rossman (1995, p. 28) 'a thoughtful and insightful discussion of the literature builds a logical framework for the research that sets it within a tradition of inquiry and a context of related studies'. In other words, it provides a background and context for a study. It also assists the researcher in understanding the problem and its context.

As pointed out above, the literature review plays an important role in the generation of theory and in the formulation and refinement of research questions and hypotheses. In addition, a thorough search of the literature enables the researcher to identify the gaps in previous research and thus to justify a proposed study in relation to a demonstrated need. Gorman and Clayton (1997, p. 74) state that '... a chosen topic should aim to fill the gap, or at least put a new complexion on existing research'. In other words, the absence of coverage in the literature is a good indication that an investigation of a topic will break new ground. It is still possible to write a literature review which covers related areas, especially if you look for inspiration beyond the specific field of study, as discussed above. Pointing out the gaps in the literature, through the literature review, is very important.

Very importantly, the literature can help in the choice of a research method for the study. Not only are the findings of research reported in the literature, but the methods used will usually be discussed. This may enable a researcher to say that the chosen method is well accepted by other researchers. Alternatively it may be that a particular problem has been investigated only by quantitative methods and that a researcher can see that a qualitative approach will provide a greater depth of understanding. For example, if the use of public libraries has mainly been examined through a survey approach, a deeper understanding of what motivates use by some groups, in comparison with others, may be lacking.

A further role is the documentation of the research results already available for the topic. Researchers can then use these results for comparison with the findings of their own studies. In this way, results are placed in the context of the findings of past research.

### **Undertaking a literature search**

Because of the discipline areas to which this book relates, many readers will be trained in retrieval of information. Given the vast range of possible sources of literature, it is not feasible to include more than a brief mention of the literature search. As discussed in Chapter 1, it is important not to limit your thinking to your own disciplinary field. There is much to gain from thinking laterally to other fields (depending on your topic).

The World Wide Web is now an important source of material, but should be used in conjunction with other sources. Sometimes you can be lucky enough to find a review article which gives a detailed coverage of the literature of your topic. If you are initially lucky enough to locate one or more recent key articles, the bibliographies of these will very often lead you to

other relevant items. If you are writing a literature review, you should try to include a range of literature – not all books, journal articles, or Internet sites, for example. Remember to look for theses, conference papers and government or industry reports, if relevant.

### **Basic steps for writing a literature review**

Below is a list of basic steps for writing a literature review. The relevant further readings and references will provide more information.

1. Categorise your literature into subject/topic areas. **Categories should be clearly related to your research questions.**
2. Begin with an introduction to the topic, including its significance and importance.
3. End the introduction with an overview of the contents of the review.
4. Organise the body of the review under headings **which relate to your research questions.**
5. Critically analyse the relevant literature – conceptual, anecdotal and research – under those headings.
6. Write a conclusion which draws the threads together, indicating the gaps in the literature and other reasons why research, or further research, is needed. The key concepts for the proposed research should be highlighted.
7. End with the research questions which the proposed research will investigate.
8. Finally, check that you have written a **critical** and **evaluative** literature review. For example, did you examine the quality of the research which you discussed? Or did you simply assume that the findings are useful and valid? Did you simply report the views of other authors, rather than questioning and evaluating those views?

(Note that an alternative is to place the research questions towards the end of the introduction. If you are writing a literature review which is not part of a research project, it is still a good idea to write some questions which the review is intended to answer. In this case, the questions would be placed towards the end of the introduction.)

## References for a literature review

There must be a high standard of referencing for a literature review. The best approach is to use *Style manual for authors, editors and printers* (1996). Whichever style you choose, it is important to use it consistently. The Harvard System is recommended.

## Conclusion

All the components of the beginning stages of research, discussed above, are inextricably linked. The development of research questions needs to be undertaken in conjunction with an exploration of the relevant literature and the development of the theoretical framework. If hypotheses are appropriate to the research, they should be developed in association with the research questions. When the research is written up, the links between these elements should be clear. The researcher's research questions, hypotheses and key concepts should be clearly related to each other, and to the literature review. For example, all the issues encompassed in the research questions should be covered in the literature review. Conversely the literature review should reflect the issues of the research questions. Conscientious attention to the beginning stages of research lays the foundation of a good research project.

## Discussion questions

- How can problems which warrant research be identified in the work place?
- What do you think are the elements of good research questions?
- When is hypothesis testing appropriate in research and what should you consider when formulating hypotheses?
- How can theory be generated so that a study can be informed and enriched?
- What are the elements of an effective literature review?

## Further readings

Powell, Ronald. (1997). *Basic research methods for librarians*. 3rd edn. Ablex Publishing: Norwood NJ, pp. 19-28 (for setting questions and theory).

- Borg, Walter R. (1981). *Applying educational research: A practical guide for teachers*. Longman: New York, pp. 69-72 (for hypotheses).
- Schauder, Don. (1989). Research in librarianship and information services: the scope for innovation and inquiry in Australia. *Australian Library Journal*, **38** (4), pp. 318-324 (for theory).
- Cooper, H.M. (1989). *Integrating research: A guide for literature reviews*. 2nd edn. Sage: Newbury Park, Ca.

### References for Chapter 3

- Babbie, Earl. (1989). *The practice of social research*. 5th edn. Wadsworth: Belmont, Ca.
- Borg, Walter R. (1981). *Applying educational research: A practical guide for teachers*. Longman: New York.
- Burns, Robert B. (1990). *Introduction to research methods in education*. Longman: Melbourne.
- Busha, Charles H. and Harter, Stephen P. (1980). *Research methods in librarianship: Techniques and interpretations*. Academic Press: Orlando, NY.
- Ellul, Rita T. (1996). An evaluation of the impact of OPACs and CD-ROMs on the information retrieval skills of upper primary school students. Master of Business (Information Technology) thesis. RMIT, Department of Information Management and Library Studies, Faculty of Business: Melbourne.
- Glaser, Barney G. and Strauss, Anselm L. (1967). *The discovery of grounded theory: Strategies of qualitative research*. Aldine de Gruyter: New York.
- Gorman, G.E. and Clayton, Peter. (1997). *Qualitative research for the information professional: A practical handbook*. Library Association Publishing: London.
- Grover, Robert and Glazier, Jack. (1986). A conceptual framework for theory building in library and information science. *Library and Information Science Research*, **8**, pp. 227-242.
- Marshall, Catherine and Rossman, Gretchen B. (1995). *Designing qualitative research*. 2nd edn. Sage: Thousand Oaks, Ca.

Powell, Ronald. (1997). *Basic research methods for librarians*. 3rd edn. Ablex Publishing: Norwood, NJ.

Rice-Lively, Mary Lynn. (1994). Wired warp and woof: An ethnographic study of a networking class. *Internet Research*, **4** (4), cited in Gorman, G.E. and Clayton, Peter. (1997). *Qualitative research for the information professional: A practical handbook*. Library Association Publishing: London.

Schauder, Don. (1989). Research in librarianship and information services: the scope for innovation and inquiry in Australia. *Australian Library Journal*, **38** (4), pp. 318-324.

Sekaran, Uma. (1992). *Research methods for business*. 2nd edn. Wiley: New York.

*Style manual for authors, editors and printers*. (1996). 5th edn. Australian Government Publishing Service: Canberra.

Williamson, Kirsty. (1984). Information seeking by users of a citizens advice bureau. Master of Librarianship thesis. Monash University: Clayton, Vic.

Williamson, Kirsty. (1995). Older adults: information, communication and tele-communications. PhD Thesis. RMIT: Melbourne, Vic.

Williamson, Kirsty. (1998). Discovered by chance: The role of incidental information acquisition in an ecological model of information use. *Library and Information Science Research*, **20** (1), pp. 23-40.

Wilson, Patrick. (1977). *Public knowledge, private ignorance*. Greenwood Press: Westport, Ct.