A STRUCTURED APPROACH TO PRESENTING THESES:
NOTES FOR STUDENTS AND THEIR SUPERVISORS

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Abstract
This paper addresses the problem: how should a postgraduate research student in marketing or a similar field (and his or her supervisor) present the thesis? The structure developed provides a starting point for understanding what a thesis should set out to achieve, and also provides a basis for communication between a student and his or her supervisor. Firstly, criteria for judging a PhD thesis are reviewed and justification for its structure is provided. Then writing style is considered. Finally, each of the five 'sections' or 'chapters' and their sub-sections are described in some detail: introduction, literature review, methodology, analysis of data, and conclusions and implications.

Important note
A thesis can actually have more than five 'chapters', as discussed below, and so the term chapter is used in this paper in a generic sense; perhaps 'section' could have been used rather than 'chapter' but doing so may have been confusing because there are also 'sections' within each 'chapter'.

INTRODUCTION

Ideally, postgraduate research in marketing or a related field should:
• cover a field which fascinates the student sufficiently for him or her to endure what could be years of hard and solitary work;
• build on the student's previous studies, for example, his or her course work in a Master's degree;
• be in an area of 'warm' research activity rather than in a 'cold', overworked area or in a `hot', too-competitive, soon-to-be extinguished area;
• be in an area near the main streams of a discipline and not at the margins of a discipline or

straddling two disciplines - being near the main streams makes it easier to find thesis examiners, to gain academic positions, and to get acceptance of journal articles about the research;
- be manageable, producing interesting results and a thesis in the shortest time possible;
- have accessible sources of data;
- open into a program of research projects after the thesis is completed; and
- provide skills and information for obtaining a job in a non-research field, if a research or academic job is not available or not desired.

Whatever research the student finally chooses to do, he or she must record the research in a thesis. This note outlines a structure for a five 'section' or 'chapter' PhD, DBA, Masters or honours thesis, and is written for students in marketing or a related field and their supervisors. The structure is summarised in Figure 1 and in Table 1. (Note that there does not have to be exactly five 'chapters', for adding one or two chapters to the five 'sections' or 'chapters' presented here can be justified, as discussed below and shown in Table 1. That is, when I refer to 'chapters' below, I do so merely for easy reference, and having two chapters in Section 2 or two chapters in Section 3, for example, can be easily justified in a PhD or DBA thesis.) Other writers have provided general procedures for the many parts of the PhD research process (for example, Davis & Parker 1979; Phillips & Pugh 1987; Perry 1990), but these notes concentrate on the thesis itself and do so more comprehensively and with far more examples than other writers (for example, Clark 1986; Pratt 1984; Witcher 1990). That is, this paper addresses the problem:

How should postgraduate research students and their supervisors present the thesis?

Essentially, I argue that a thesis should follow certain style conventions and have five sections: introduction, literature review, methodology, analysis of data, and conclusions and implications. Following this structure and using care about a standard style will make the thesis match the expectations of most examiners and provide training for much research work afterwards.

This problem is important for postgraduate research students. Many universities provide little guidance to students, prompting the criticism that, at one university, 'the conditions for the award of degrees in the Graduate Study section of the calendar give more precise information on the size of the paper to be used and the margins to be left on each side of the sheet than on the university's understanding of what a thesis is' (Massingham 1984, p. 15). By using the structure developed below, a student will ensure his or her thesis demonstrates the key requirements of a PhD thesis (Moses 1985):
- a distinct contribution to a body of knowledge through an original investigation or testing of ideas, worthy in part of publication (see Chapter 5 described below) - this requirement is usually the most important one for a PhD thesis but may not be so important for a Master's or honours thesis, as Moses notes;
- competence in research processes, including an understanding of, and competence in, appropriate research techniques and an ability to report research (see Chapters 3 and 4, plus the whole report format); and
- mastery of a body of knowledge, including an ability to make critical use of published work and source materials (see Chapter 2) with an appreciation of the relationship of the special theme to the wider field of knowledge (see Chapters 2 and 5).

The student should ask to see a copy of the letter sent to examiners to determine the priorities of

his or her faculty for the three criteria above and if the faculty has additional criteria (Nightingale 1992). As well, a supervisor may be able to produce copies of previous examiners' reports.

The foundations for the structured approach were the writer's own doing supervising, examining and adjudicating conflicting examiners' reports of many Master's and PhD theses in marketing and related fields at several Australian universities, and examining requests for transfer from Master's to PhD research, together with comments from the people listed in the acknowledgments section.

The paper has two parts. Firstly, the five 'section' or 'chapter' structure is introduced, possible changes to it are justified and writing style is considered. Importantly, there does not have to be exactly five 'chapters', for adding one or two chapters to the five presented here can be justified, as discussed below and shown in Table 1. That is, I sometimes refer to the five sections or chapters as 'chapters' below merely for easy reference, and having two chapters in Section 2 or two chapters in Section 3, for example, can be easily justified in a PhD thesis. In the second part, each of the five chapters and their sections are described in some detail: introduction, literature review, methodology, analysis of data, and findings and implications.

Delimitations. The structured approach may be limited to postgraduate theses in marketing and related areas such as strategic management that involve similar quantitative and qualitative methodologies. That is, the structure may not be appropriate for theses in other areas or for theses using relatively unusual methodologies such as historical research designs or grounded theory. Moreover, the structure is a starting point for thinking about how to present a thesis rather than the only structure that can be adopted, and so it is not meant to inhibit the creativity of postgraduate researchers.

Another delimitation of the approach is that it is restricted to presenting the *final* version of the thesis. This paper does not address the techniques of actually writing a thesis. Moreover, the approach in this paper does not refer to the actual *sequence* of writing the thesis, nor is it meant to imply that the issues of each chapter have to be addressed by the student in the order shown. For example, the propositions at the end of Chapter 2 are meant to *appear* to be developed as the chapter progresses, but the student might have a well-developed idea of what they will be *before* he or she starts to write the chapter. Moreover, although the methodology of Chapter 3 must *appear* to be been selected because it was appropriate for the research problem identified and carefully justified in Chapter 1, the student may have actually selected a methodology very early in his or her candidature and then developed an appropriate research problem and justified it. Moreover, after a student has sketched out a draft table of contents for each chapter, he or she should begin writing the 'easiest parts' of the thesis first as they go along, whatever those parts are - and usually introductions to chapters are the last to written (Phillips & Pugh 1987, p. 61). But bear in mind that the research problem, delimitations and research gaps in the literature must be identified and written down before other parts of the thesis can be written, and that Section 1.1 is *one of the last* to be written. Nor is this structure meant to be the format for a research proposal - one proposal format is provided in Parker and Davis (1979). Finally, although this structure is meant for theses, it can also apply to journal articles. Varadarajan (1996), the Editor of the prestigious *Journal of Marketing*, offered guidelines for articles that are remarkably similar to those presented below, and so it is recommended reading.
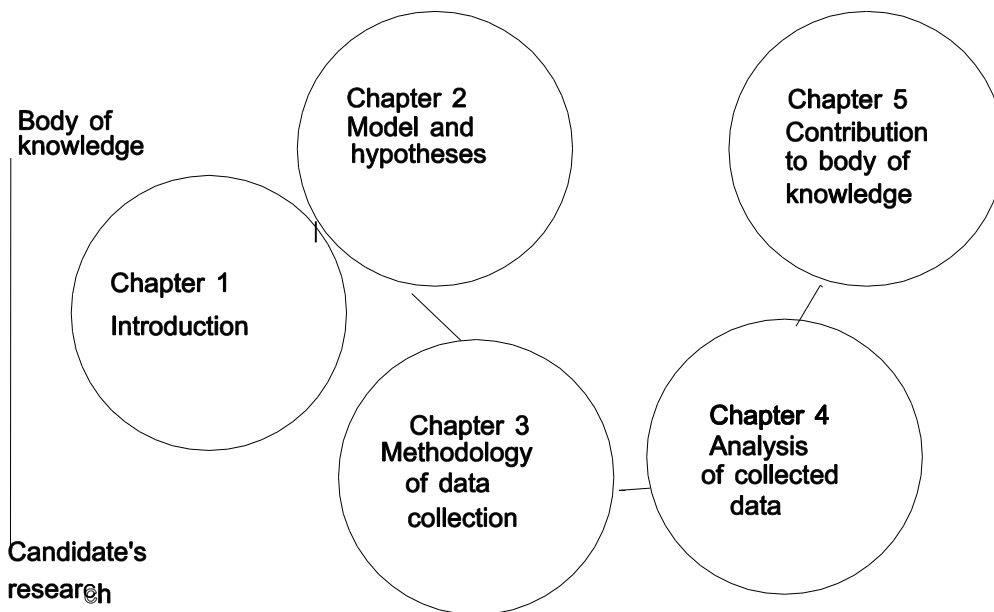
Table 1 Sequence of a structured thesis

Title page
Abstract (with keywords)
Table of contents
List of tables
List of figures
Abbreviations
Statement of original authorship
Acknowledgments

1   Introduction
1.1   Background to the research
1.2   Research problem, propositions/research issues and contributions
1.3   Justification for the research
1.4   Methodology
1.5   Outline of the report
1.6   Definitions
1.7   Delimitations of scope and key assumptions, and their justifications
1.8   Conclusion

2   Research issues (Sections 2.3 and 2.4 might be allotted a chapter to themselves in a PhD or DBA thesis)
2.1   Introduction
2.2   (Parent theories and classification models)
2.3   (Research problem theory: analytical, theoretical frameworks and related research issues or propositions) (this section sometimes has its own chapter)
2.4   Conclusion

3   Methodology (there may be separate chapters for the methodologies of stages one and two of a PhD or DBA thesis)
3.1   Introduction
3.2   Justification for the paradigm and methodology
3.3   (Research procedures)
3.4   Ethical considerations
3.5   Conclusion

4   Analysis of data (this chapter usually refers to the analysis of the major stage of the research project)
4.1   Introduction
4.2   Subjects
4.3   (Patterns of data for each research issue or hypothesis)
4.4   Conclusion

5   Conclusions and implications
5.1   Introduction
5.2   Conclusions about each research issue or proposition
5.3   Conclusions about the research problem
5.4   Implications for theory
5.5   Implications for policy and practice
5.5.1   Private sector managers
5.5.2   Public sector policy analysts and managers
5.6   Limitations (if the section is necessary)
5.7   Implications for theory (this section is optional)
5.8   Further research
Bibliography
Appendices

BASICS OF STRUCTURE AND STYLE

A five section or chapter structure can be used to effectively present a thesis, and it is summarised in Figure 1 and Table 1. Remember that a thesis can actually have more than five chapters, as discussed above and below, and in Table 1. Thus the term 'chapter' is used in this paper in a generic sense; perhaps 'section' could have been used rather than 'chapter' but doing so may have been confusing because there are 'sections' within each 'chapter'.

Figure 1 **Model of the chapters of a thesis**

Body of knowledge

Chapter 2
Model and
hypotheses

Chapter 5
Contribution
to body of
knowledge

Chapter 1
Introduction

Chapter 3
Methodology
of data
collection

Chapter 4
Analysis
of collected
data

Candidate's
research

In brief, the thesis should have a *unified* structure (Easterby-Smith et al. 1991). Firstly, Chapter 1 introduces the core research problem and then `sets the scene' and outlines the path that the examiner will travel towards the thesis' conclusion. The research itself is described in Chapters 2 to 5:
. the research problem and propositions/hypotheses arising from the body of knowledge developed during previous research (Chapter 2),
. methods used in this research to collect data about the hypotheses (Chapter 3),
. results of applying those methods in this research (Chapter 4), and
. conclusions about the propositions/hypotheses and research problem based on the results of Chapter 4, including their place in the body of knowledge outlined previously in Chapter 2 (Chapter 5).

Justification of the structured approach. This five chapter structure can be *justified*. Firstly, the structure is unified and focussed on solving the one research problem. Thus it addresses the major fault of postgraduate theses in Nightingales' (1984) survey of 139 examiners' reports, that is, it clearly addresses those examiners' difficulty in discerning what was the 'thesis' of the thesis? Nightingale concluded that unity and focus depend on supervisors emphasising

'throughout students' candidacies that they are striving in the thesis to communicate one big idea' (Nightingale 1984, p. 174). That one big idea is the *research problem* stated on page 1 or 2 of the thesis and explicitly solved in Chapter 5. Easterby-Smith et al. (1991) also emphasise the importance of consistency in a PhD thesis, Phillips and Pugh (1987, p. 38) confirm that a thesis must have a thesis or a `position', and Lindsay (1995, pp. 104, 105) insists that 'the unifying hypothesis … the purpose of the thesis must be clear from the very beginning'.

There are seven other justifications for the structure, for it:
carefully addresses each of the 31 requirements of an Australian PhD thesis outlined by the authoritative Higher Education Research and Development Society of Australia (Moses 1985, pp. 32-34) (five of the 31 are not required for Master's or honours theses and they relate to appreciation the relationship of the research to the wider body of knowledge and to originality as shown by the topic researched or the methodology employed);
is explicitly or implicitly followed by many writers of articles in prestigious academic journals such as The Academy of Management Journal and Strategic Management Journal (for example, Datta et al. 1992), and so students learn skills required by reviewers of those journals while writing their thesis;
has been the basis of several PhD and Masters theses at Australian universities that were completed in minimum time and passed by examiners with no or negligible revisions required;
is much like that which will be used by students later in their career, to apply for research grants (as shown in Krathwohl 1977; Poole 1993);
provides an analytical framework for studying the writing processes used in the five to ten previously completed theses that a student should read;
provides a mechanism to shorten the time taken to complete a postgraduate degree like a PhD, an aim becoming desired in many countries (Cude 1989), by reducing time wasted on unnecessary tasks or on trying to demystify the thesis-writing process; and
inhibits inefficient thesis writing that squanders taxpayers' funds, wastes supervisors' time and risks the health, careers and families of students.

Justified changes to the structure. Some changes to the five chapter structure could be justified, as noted above and shown in Table 1. For example, a student may find it convenient to expand the number of chapters to six or seven because of unusual characteristics of the analysis in his or her research; for example, a PhD might consist of two stages: some qualitative research reported in Chapters 3 and 4 of the thesis described below, which is then followed by some quantitative research to refine the initial findings reported in Chapters 5 and 6; the Chapter 5 described below would then become Chapter 7.

In addition, PhD theses at universities that allow huge theses may have extra chapters added to contain the extended reviews of bodies of knowledge in those huge theses. I am thinking here of those universities which allow a PhD thesis to rise from a minimum length of about 50 000 to 60 000 words (Phillips & Pugh 1987), through the 70 000 to 80 000 words preferred by many examiners, up to the upper limit of 100 000 words specified by some established universities like the University of Queensland and Flinders University. By the way, a thesis is normally at the lower end of this range, that is, it normally comes to about 220 to 250 pages. In brief, in some theses, the five chapters may become five *sections* with one or more chapters within each

of them, but the principles of the structured approach should remain.

As noted above, the five chapter structure is primarily designed for theses in marketing or related fields using common methodologies such as structural equation modeling. However, some qualitative methodologies such as case studies and action research (Perry & Zuber-Skerritt 1992; 1994; Perry 1998) can fit into the structure. Details of how the case study or the action research project are presented in Chapter 3 and case study details or the detailed report of the action research project are placed in appendices. In theses using these relatively qualitative methodologies of case studies or action research, the analysis of data in Chapter 4 becomes a *categorisation of data in the form of words*, with information about each research issue collected together with some preliminary reflection about the information. That is, the thesis still has five chapters in total, with Chapter 4 having preliminary analysis of data and Chapter 5 containing all the sections described below.

Nevertheless, some methodologies may be difficult to fit into the structure. For example, grounded theory research may not place as much significance on Chapter 2's review of the literature and historical research may require different structures.

In brief, the five chapter/section structure has some limitations but it also has many benefits for students learning the basics of their research craft and beginning their research career, as well as for a busy supervisor who has had little training in research writing or supervision. The structure provides a starting point for understanding what a thesis should set out to achieve, and also provides a basis for communication between a student and his or her supervisor. The structure is not meant to be a straightjacket that inhibits a researcher's creativity, for it merely provides a preliminary framework for reporting that research. Indeed, with this tested and proven structure, students can focus on being creative in their research and not dissipate their creative energies.

Moreover, with these guidelines for chapter content and construction, it is possible to plan a postgraduate research project. As a rough rule of thumb, the five chapters have these respective percentages of the thesis' words: 6, 34, 18, 22 and 20 percent. Using these approximate percentages, a candidate could plan the approximate time and pages for any chapter. For example, if a candidate plans to do a 50 000 or so word DBA thesis in 24 months, the planning pages and months for each chapter can be worked out along the lines shown in Table 1. These rule of thumb percentages are slightly different if a thesis has *two* stages of data collection rather than just the one stage that can be neatly described in a five chapter thesis. In this circumstance, Chapters 3 and 4 would be devoted to the two stages of methodology. Rule of thumb percentages for a six chapter thesis are about 6, 33, 11, 17, 20 and 13 percent. For example, a typical, 65 000 or so word PhD thesis with two methodologies of data collection done in 27 months might look like Table 2. These two tables are merely examples and are not templates for every thesis, because each research project must do whatever is required to solve its own, justified research problem. The tables measure pages from the start of Chapter 1 to the end of the final chapter and so they include tables and figures but do not include the table of contents, the list of references or the appendices. Note that some months have been added to direct percentage durations for the first and final chapters, to allow for starting and final drafting of the thesis. I have assumed that the margins, the font and the line spacing are those described below.

Table 1 **An approximate plan for a 50 000 or so word DBA thesis, completed in 24 months**

Chapter	Topic	%	Pages	Months
1	Introduction	6	10	3
2	Lit review	34	55	6
3	Methodology	18	30	4
4	Data analysis	22	35	5
5	Conclusions	20	30	6
Total		100	160	24

Table 2 **An approximate plan for a 65 000 or so word PhD thesis with two methodologies, completed in 27 months**

Chapter	Topic	%	Pages	Months
1	Introduction	6	15	2
2	Lit review	33	75	7
3	Methodology I	11	25	3
4	Methodology II	17	40	5
5	Data analysis of methodology II	20	45	5
6	Conclusions	13	30	5
Total		100	230	27

Links between chapters. With the overall structure justified above, we can turn to how to the chapters themselves and how they are linked**.** Each chapter described below should stand almost alone. Each chapter (except the first) should have an introductory section *linking* the chapter to the main idea of the previous chapter and outlining the *aim* and the *organisation* of the chapter. For example, the core ideas in an introduction to Chapter 3 might be:

> Chapter 2 identified several research issues; this next chapter describes the methodology used to provide data to investigate them. An introduction to the methodology was provided in Section 1.4 of chapter 1; this chapter aims to build on that introduction and to provide assurance that appropriate procedures were followed. The chapter is organised around four major topics: the study region, the sampling procedure, nominal group technique procedures, and data processing.

The introductory section of Chapter 5 (that is, Section 5.1) will be longer than those of other chapters, for it will summarise all earlier parts of the thesis prior to making conclusions about the research described in those earlier parts; that is, Section 5.1 will repeat the research problem and the research issues/propositions. Each chapter should also have a concluding summary section that outlines major themes established in the chapter, *without introducing new material*.

Style

As well as the structure discussed above, examiners also assess matters of style (Hansford & Maxwell 1993). Within each of the chapters of the thesis, the spelling, styles and formats of *Style Manual* (Australian Government Publishing Service 2002) and of *Macquarie Dictionary* should be followed scrupulously, so that the student uses consistent styles from the first draft and throughout the thesis for processes such as using bold type, emphasising with italics, indenting block quotations, using single and double inverted commas, making references, spaces before and after side headings and lists, and gender conventions. After all, the *Style Manual* will be the standard for later submissions to the Australian Research Council and to most journals published in Australia. Moreover, using the authoritative *Style Manual* provides a defensive shield against an examiner who may criticise the thesis from the viewpoint of his or her own idiosyncratic style. By the way, Peters (1995) may also be useful on style matters, for it elaborates on issues that *Style Manual* is sometimes too succinct about. A summary of main points about style and referencing in Australia is in appendix A.

In addition to usual style rules such as each paragraph having an early topic sentence, a thesis has some style rules of its own. For example, Chapter 1 is usually written in the present tense with references to literature in the past tense; the rest of the thesis is written in the past tense because it concerns the research after it has been done, except for the findings in Chapter 5 which are presented in the present tense. More precisely for Chapters 2 and 3, schools of thought and procedural steps are written about using the present tense, and published researchers and the student's own actions are written about using the past tense. For example: 'The eclectic school has [present] several strands. Smith (1990) reported [past] that...' and `The first step in content analysis is [present] to decide on categories. The researcher selected [past] ten documents...'

In addition, value judgements and words should not be used in the objective pursuit of truth that a thesis reports. For example, `it is unfortunate', `it is interesting', 'it is believed', and 'it is welcome' are inappropriate. Although first person words such as 'I' and 'my' are now acceptable in a thesis (especially in Chapter 3 of a thesis within an interpretive paradigm), their use should be controlled - the student is a mere private in an army pursuing truth and so should not overrate his or her importance until their degree has been finally awarded. In other words, the student should always *justify* any decisions where his or her judgement was required (such as the number and type of industries surveyed and the number of points on a Likert scale), acknowledging the strengths and weaknesses of the options considered and always relying upon as many references as possible to support the decision made. That is, authorities should be used to back up any claim of the researcher, if possible. If the examiner wanted to read *opinions*, he or she could read letters to the editor of a newspaper.

Moreover, few if any authorities in the field should be called 'wrong', at the worst they might be called 'misleading'; after all, one of these authorities might be an examiner and have spent a decade or more developing his or her positions and so frontal attacks on those positions are likely to be easily repulsed. Indeed, the student should try to agree with the supervisor on a panel of likely people from which the university will select the thesis examiner so that only appropriate people are chosen. After all, a greengrocer should not examine meat products and an academic with a strong positivist background is unlikely to be an appropriate examiner of a

qualitative thesis, for example (Easterby-Smith et al. 1991), or an examiner who will require three research methods is not chosen for a straightforward thesis with one. That is, do not get involved in the crossfire of 'religious wars' of some disciplines.

Moreover, this early and open consideration of examiners allows the student to think about how his or her ideas will be perceived by likely individual examiners and so express the ideas in a satisfactory way, for example, explain a line of argument more fully or justify a position more completely for an examiner who may not have a strong background in a particular area. One starting point for thinking about who could be an examiner is to consider the journals in which articles about the research may be published during or after the candidature. Then finding out who is the Editor and who is on the Editorial Board of these journals will be a starting point for thinking about examiners and their interests, publications and styles. (Day (1996) confirms the importance of this procedure for getting articles published in academic journals). That is, in a student's thesis, he or she must communicate with real-life people in an easily-followed way.

This issue of communication with examiners is crucial. Consider an examiner. He or she may be reading the thesis at 11 pm on Friday after a hard day's work on more important things like their own research, their own students' research or morale in their Department. A major reason for their agreeing to examine the thesis is a sense of duty to their discipline. Thus the student should try to make the process of examination as much like a journey on 'autopilot' as possible, with changes in direction clearly marked, the track clearly flagged and each step in an argument explicitly explained, as described below. The examiner should not have to do any hard critical thinking as he or she follows the student's journey. In brief, the candidate should try to neither make the examiner *think too much* nor to *go to sleep*; rather, the examiner may hopefully drowse off for a minute or two, snapping fully awake every now and then to check that the thesis is still 'on track' and fulfilling the expectations set up at the start of each section and sub-section of material. In brief, the reader must be guided along a smooth, easily-followed path towards the conclusions that have excited the candidate and will hopefully excite the examiner into passing the thesis and perhaps asking the candidate to work with him or her on a research project in the future.

This *easily-followed communication* can be achieved by using several principles. Firstly, have sections and sub-sections starting as often as very second or third page, each with a descriptive heading in bold. Secondly, start each section or sub-section with a phrase or sentence linking it with what has gone before, for example, a sentence might start with 'Given the situation described in Section 2.3.4' or 'Turning from international issues to domestic concerns, ...' The important issue here is that the examiner is led on from old ideas which he or she has already digested with, to new ideas: we all need 'an opportunity to get "comfortable" with old material before new material is thrown at us' (Lindsay 1995, p. 56). Thirdly, briefly describe the argument or point to be made in the section at its beginning, for example, `Seven deficiencies in models in the literature will be identified'. Fourthly, make each step in the argument easy to identify with a key term in italics or the judicious use of `firstly', `secondly', or `moreover', `in addition', `in contrast' and so on. Finally, end each section with a summary, to establish what it has achieved; this summary sentence or paragraph could be flagged by usually beginning it with `In conclusion,...' or `In brief,...' In brief, following these five principles will make arguments easy to follow and so guide the examiner towards agreeing with a student's views.

Another style rule for theses is that the word 'etc.' is too imprecise to be used in a thesis, and that the use of adjectives and adverbs should be kept to bare minimum to avoid the impression of being imprecise and flowery. Furthermore, words such as 'this', 'these', 'those' and 'it' should not be left dangling - they should always refer to an object; for example, 'This rule should be followed' is preferred to `This should be followed'. Some supervisors also suggest that brackets should rarely be used in a thesis - if a comment is important enough to help answer the thesis' research problem, then it should be added in a straightforward way and not be hidden within brackets as a minor concern to distract the examiner away from the research problem.

As well, definite and indefinite articles should be avoided where possible, especially in headings; for example, `Supervision of doctoral students' is more taut and less presumptuous than `The supervision of doctoral students'. Paragraphs should be short; as a rule of thumb, three to four paragraphs should start on each page if my preferred line spacing of 1.5 and Times Roman 12 point serif font is used, to provide adequate structure and complexity of thought on each page. (A line spacing of 2 and more than about three paragraphs per page make a thesis appear disjointed and `flaky', and a sanserif font is not easy to read.) A final note of style is that margins should be those nominated by the university or those in *Style Manual* (Australian Government Publishing Service 2002); the left hand margin is usually set at 3 or 4 centimetres.

Chunkiness. The concept of a 'chunk' can help summarise some of the discussion above. As shown at the start of the thesis in Section 1.2, the whole *thesis* is one big chunk of an idea. But each part of the thesis should be a chunky part of the whole thesis, with links to other parts. For a start, each *chapter* should have its own role within the thesis such as Chapter 2's identification of research issues about which data is collected in Chapter 3. Each chapter has *section* and subsection chunks with a numbering system that reflects their interrelationships (such as 3.2, 3.2.1 and 3.2.2). Then each subsection has chunks of paragraphs within it, sometimes indicated with run-in headings.

Next there are individual *paragraphs*. These are almost always longer than one sentence and take up about one third of a page or so. Each paragraph usually have a 'linker' word at the start such as 'Next' or 'Furthermore'. These linkers at the start of a paragraph lead the examiner from already-digested ideas into a new idea. Each paragraph deals with one idea that is introduced and summarised in a theme sentence near the start, for the start of a paragraph is a 'hot spot' that the reader will normally concentrate upon (Lindsay 1995). Finally, each *sentence* has one small idea, with the most important aspect of the sentence presented at its start; that is, do not waste the hot spot at the start of a sentence on a relatively unimportant phrase like 'As shown in Table 6', rather, place these unimportant phrases at the end of a sentence after a comma. Sentences also often have a linker word at the start such as 'However' to guide the reader from the known content of the previous sentence into the new material in the sentence. If there is no linker, the reader will assume the new sentence leads *directly* from the previous sentence. In brief, the thesis should be a string of clear chunks of ideas.

An example will illustrate this easily-followed chunkiness. Notice in the example:
> the *hierarchy of paragraphs* from a side heading with a number, through a side heading without a number, to a run-on heading that leads into two or three paragraphs of text;

the headings are quite long and descriptive, rather than terse one- or two-word announcements;

some text follows each heading, for example, even though the second side heading closely follows the first, there is nevertheless some text between the two headings;

the *text reads as though the headings were not there*, that is, the reader can skip the headings and still not miss the argument; and

the *text outlines the topics to be covered in each section before going into the details* of those topics.

Here is the example (adapted from McKinsey 1994, p. 42-43):

3.1 Why some joint initiatives work and others do not

While there is still much to learn about joint initiatives in Australia, our observations of high-growth firms overseas and of Australia's shipbuilders have provided insights into what works and what barriers are still to be overcome.

Some common features of successful joint initiatives

There appear to be three necessary ingredients in successful joint initiatives: a large and/or expanding market, and complementary interests and skill. Physical proximity may also be important in joint initiatives other than those with customers, suppliers and R&D providers.

Large and/or expanding market. The most successful joint initiatives among Australia's high-growth firms were often in industries with large or expanding markets – and for Australia that means export markets. A strong export orientation creates a common focus and the sense of a bigger pie that allows partners to work together. This common perspective is often absent when firms compete for a small domestic market. The shipbuilding and downstream chemical industries in Australia and abroad provide two contrasting examples of this. Norwegian shipbuilders…

On the other hand, the domestic focus and history of competition among downstream chemical firms in Australia may help to explain their lack of enthusiasm for joint initiatives compared with their Norwegian counterparts…

Complementary interests and skills. Complementary interests and skills seem to be important, if obvious, ingredients of successful joint initiatives. It is not enough to simply get together – firms must have enough common ground to be useful to one another. Hunternet is a good example of how a network of firms with diverse but complementary interests can become a force for innovation and growth….

Final considerations. The above comments about structure and style correctly imply that a thesis with its readership of one, two or three knowledgeable examiners is different from a book which has a very wide readership among relatively ignorant undergraduate students (Derricourt 1992), and from shorter conference papers and journal articles which do not require the burden of proof and references to broader bodies of knowledge required in some theses. Research students should be aware of these differences and could therefore consider concentrating on completing the thesis before adapting parts of it for other purposes. However, it must be admitted that presenting a paper at a conference in a candidature may lead to useful contacts with the `invisible college' (Rogers 1983, p. 57) of researchers in a field. As well, some students

have found referees' comments on articles submitted for publication in journals during their candidacy, have improved the quality of their thesis' analysis (and publication has helped them get a job). Nevertheless, several supervisors suggest that it is preferable to concentrate on the special requirements of the thesis and adapt it for publication *after* the PhD has been awarded or while the student has temporary thesis `writer's block'.

The thesis will have to go through many drafts (Zuber-Skerritt & Knight 1986). The first draft will be started early in the candidature, be crafted after initial mindmapping and a tentative table of contents of a chapter and a section, through the `right', creative side of the brain and will emphasise basic ideas without much concern for detail or precise language. Supervisors and other students should be involved in the review of these drafts because research has shown that good researchers 'require the collaboration of others to make their projects work, to get them to completion' (Frost & Stablein 1992, p. 253), and that social isolation is the main reason for withdrawing from postgraduate study (Phillips & Conrad 1992). By the way, research has also shown that relying on just one supervisor can be dangerous (Conrad, Perry & Zuber-Skerritt 1992; Phillips & Conrad 1992).

Indeed, by facilitating the creative first drafts of sections of a thesis, the relatively visible and structured 'process' of this paper's structure allows the student to be more creative and rigorous with the 'content' of the thesis than he or she would otherwise be. After the first rough drafts, later drafts will be increasingly crafted through the 'left', analytical side of the brain and emphasise fine tuning of arguments, justification of positions and further evidence gathering from other research literature.

DETAILS OF CHAPTERS AND THEIR SECTIONS

Turning from the general issues of style and structure above to more precise details of the structure of each section, each chapter of a thesis and its parts are discussed next.

Chapter 1 Introduction

1.1   Background to the research

Section 1.1 outlines the broad field of study and then leads into the focus of the research problem. This section is short and aims to orient the readers and grasp their attention. In journal articles, the introduction has four stages (Swales 1984): establish the overall field, summarise previous research, indicate the research gap, and state the purpose of the article and outline it. However, in a thesis, these stages are spread through the whole of Chapter 1 and parts of Chapter 2, rather than in Section 1.1. Nevertheless, the first three stages could be borne in mind when structuring Section 1.1, with the following Section 1.2 providing the fourth stage. In graphical form, Section 1.1 is the triangle shown in Figure 2.

A thesis should be able to reference at least four or five writers in the first one or two paragraphs, to demonstrate from the start of the thesis that care has been taken to acknowledge and chart the depth and breadth of the existing body of knowledge. Most of the material in Section 1.1 is covered in more detail in later sections such as Section 1.3, and so these sections

will have to be referred to and Section 1.1 is usually only about one or two pages maximum. For this reason, Section 1.1 is often *one of the last sections of Chapters 1 and 2* to be written.

Section 1.1 could use either a `field of study' approach or a `historical review' approach. For example, using a field of study approach, Section 1.1 of a thesis about a firm's licensing of technology would start with comments about international trade and development, Australia's GDP, the role of new product and process development in national economic growth, and then have an explanation of how technology licensing helps a firm's new product and new process development leading into a sentence about how little research has been done into it.

Figure 2 **The triangle of Section 1.1 of Chapter 1**
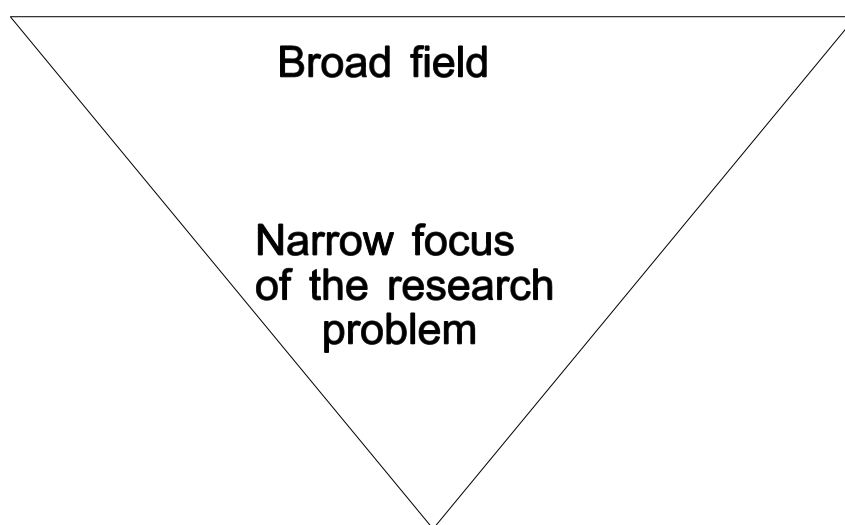
An alternative to the field of study example of the previous paragraph is to provide a brief historical review of ideas in the field, leading up to the present. If this alternative approach to structuring Section 1.1 is adopted, it cannot replace the comprehensive review of the literature to be made in Chapter 2, and so numerous references will have to be made to Chapter 2. While the brief introductory history review may be appropriate for a journal article, Section 1.1 of a thesis should usually take the field of study approach illustrated in the paragraph above, to prevent repetition of its points in Chapter 2.

1.2   Research problem, propositions/research issues and contributions
Research problem. Section 1.2 outlines the core or one big idea of the research, starting with the research problem printed in bold or italics on page 1 or 2 of the thesis. The research problem is one or two sentences that cannot be answered `yes' or `no'; it is the broad problem that the researcher will examine more precisely later in the propositions/research issues/hypotheses and is the problem prompting and placing a boundary around the research without specifying what kind of research is to be done (Emory & Cooper 1991). As Leedy (1989, p. 61) notes in his thorough introduction to writing research problems, `The statement of the research problem *must* imply that, for the resolution of the problem, *thinking on the part of the researcher* will be

required'. Sometimes there may be sub-problems to the major research problem. Examples of research problems in a master's thesis would be:

- How and why do New South Wales and Queensland private sector managers successfully implement telemarketing into their organisations?
- How and why do Australian manufacturers select distribution channels for their exports to Japan?

The research problem in a PhD thesis is often more theoretical than the two examples from Master's theses above, for a PhD research problem should not be merely a `problem-solving' one but should `test out' the limits of previously proposed generalisations (Phillips & Pugh 1987, p. 45). That is, '[PhD] research, even when narrowly and tightly defined, should be guided by some explicit theoretical or conceptual framework' and without this, the thesis becomes a 'mindless ... theoretical wasteland' (Adams & White 1994, pp. 566, 574). That theoretical framework will be developed in Chapter 2, but one or two of its constructs could be reflected in the research problem. Examples of appropriate PhD research problems are:

. How culturally appropriate is TQM for `reconceptualising' African management?
. How effective for strategic marketing in the Australian finance industry are Porter's models of competition and European models of networks?

Note that the constructs referred to in the research problem are high level ones and are not the more specific constructs developed for propositions/research issues at the end of Chapter 2 or for hypotheses and their operational definitions developed in Chapter 3.

When formulating the research problem, its boundaries or delimitations should be carefully considered, even if these considerations are not made explicit in the wording of the research problem. Indeed, it is requires judgement to decide how 'delimited' the statement of a research problem should be. Examiners are *academics* and they want academic research to be different from research done by mere consultants that is very context-specific, for example, developed for just one firm. Thus, the research problem in a PhD thesis that is about the finance industry in Australia might be advised to not include 'Australia' in the research problem statement. The thesis might then simply refer to 'Australia' in a sentence after the research problem statement, or even leave mention of it to the delimitations in Section 1.7. This 'judgement call' about how context-specific the research problem statement should be, probably depends on the importance of the context to the contributions of the thesis. For example, if Australia was merely a research setting in a PhD thesis and was not expected to affect results much, then it could be left out of the research problem statement. However, if DBA thesis' contributions were based upon its Malaysian context, then 'Malaysia' should be included in the research problem statement. This issue of the context of research is explored further in the discussion of Chapter 2 below.

In effect, the research problem and the delimitations in the later Section 1.7 outline the research area, setting boundaries for its generalisability of:

- one broad area of interest, for example, `telecommunications marketing', (students might consider ensuring that this area of interest has its *own* academic discipline from which several examiners could be selected - a two-discipline thesis may produce conflicts among examiners from different disciplines),
- level of decision making, for example, directors, managing directors, senior managers, customers, or public policy analysts,

- private or public sector organisation,
- industry, for example, transport industry,
- geographic limits, for example, Queensland or Australia, and
- time or business cycle limits, for example, in the late 1980s before the Australian economy entered a recession.

Asking the familiar questions of 'who, 'what', 'where', 'how' and 'why' (Yin 1989, p. 17) may lead the student towards placing these appropriate boundaries around the research problem.

All the boundaries of the research problem will be explicit in the research problem *or* in Section 1.7, however, *all* the boundaries should be *justified* in Section 1.7. In the example above, restricting the research problem to Queensland and New South Wales' telemarketing could be based on those states being more advanced than the rest of Australia. That is, the boundaries cannot be arbitrary. Within those boundaries, the data and the conclusions of this PhD research should apply; outside those boundaries, it can be questioned whether the results will apply.

Identifying the research problem will take some time, and is an exercise in 'gradually reducing uncertainty' as it is narrowed and refined (Phillips and Pugh 1987, p. 37). Nevertheless, early identification of a preliminary research problem focuses research activity and literature searches, and so is an important early part of the PhD research project (Zuber-Skerritt & Knight 1986). The Introductory Notes on page 1 of these notes outlined some considerations in choosing a research problem. An example of the gradual narrowing of a research problem is a student's problem about the partners in small Australian architectural practice which initially referred to `practice of strategic management', then to `designing and implementing a strategy', then to `implementing a strategy' and finally to `the processes involved in implementing a strategy'.

After the research problem is presented, a short paragraph should say how the problem will be solved in the thesis. This step is necessary because academic writing should *not* be a detective story with the solution kept a mystery until the end (Brown 1995). An example of this paragraph following a research problem statement is (based on Heide 1994, p. 71):

> The problem addressed in this research is:
> *How can relationships involved in interorganisational governance in marketing channels be managed?*
> Essentially I argue that interorganisational governance is a heterogeneous phenomenon and that different relationship management strategies are appropriate under different conditions.

Another example of a research problem and its solution in Section 1.2 is (based on Eisenhardt & Zbaracki 1992, pp. 17-18):

> The problem addressed in this research is:
> *Which of the three major paradigms best explains strategic decision making?*
> I conclude that a strategic decision makers are boundedly rational, that power wins battles of choice and chance matters. I also propose a new agenda for future research which centres on a few, key research areas and opens up research to new paradigms.

This openness right at the beginning of a thesis about the positions that will be developed later should also be shown in chapters, sections and even in paragraphs. That is, *expectations are created* about the intellectual positions that will be developed in the chapter, section and

paragraph (in the topic sentence of a paragraph), then those expectations are *fulfilled* and finally a conclusion *confirms* that the expectations have been met.

Theories and issues/propositions. After the research problem and a brief summary of how it will be solved is presented, Section 1.2 presents the major bodies of theory which will be covered in Chapter 2 (in about one page or so) and then lists the *research issues* or *propositions* that will be developed in Chapter 2 to focus later data collection and analysis. The research problem above usually refers to *decisions*; in contrast, the research issues and propositions usually require *information* for their solution. The research issues or propositions are the specific questions that the researcher will gather data about in order to satisfactorily solve the research problem (Emory & Cooper 1991).

The research issues or propositions listed after the research problem in Section 1.2 are developed in Chapter 2, so they are little more than merely listed in Section 1.2. The section states that they are established in Chapter 2 and notes the sections in which they appear in that chapter.

Note that early drafts of parts of Chapters 1 and 2 are written *together* from the start of the candidature, although not necessarily in the order of their sections (Nightingale 1992). That is, the major ideas in Chapters 1 and 2 should have crystallised in drafts before the research work described in Chapter 3 starts, and the thesis is not left to be `written up' after the research. It is especially important that Chapter 2 is crystallised *before* the data collection actually starts, to prevent the data collection phase missing important data or wasting time on unimportant material. In other words, the research 'load' must be identified, sorted out and tied down before the 'wagon' of research methodology begins to roll. Despite this precaution, students will probably have to continue to rewrite some parts of Chapters 1 and 2 towards the end of their candidature, as their understanding of the research area continues to develop.

Contributions. As part of the approach to a thesis not being a detective story, this Section 1.2 should also briefly describe the *contributions* that the thesis will make in its final chapter. This description should be limited to less than one or two pages. This part could begin with 'Answering the research issues provided contributions that will be presented in Section 5.2. In summary, this research made seven contributions. Firstly,…'

1.3 Justification for the research

Examiners are concerned that the student has not addressed a trivial research area. It is not enough to show there are gaps in the body of knowledge, they must be *important* gaps (Varadarajan 1966). That is, the research problem should be important on several theoretical and practical grounds; for example, a thesis about small businesses could justify its research problem through about four points, starting with the theory gap because that is the gap that most interests an examiner before moving on to demonstrations that the gap is an important one (as recommended by Varadarajan 1996):

i   relative neglect of the specific research problem by previous researchers (some of this justification would refer to Chapter 2, for there is no need to repeat parts of Chapter 2 here; however, Chapter 2 deals with the nitty gritty of *individual* research issues while this section should emphasise the *whole* research problem and possibly conclude with some appropriate quotes from authorities about the research problem);

ii importance of small business and/or the importance of the specific area of the small business discipline being investigated (this justification is usually accompanied by a mass of statistical data showing how huge the area of the research problem is in terms of constructs such as revenue, employment and assets, and often by authoritative discussions and quotations from government publications about committees of inquiry);

iii relative neglect of the research's methodologies by previous researchers (with references to Chapter 3 being required, with an acknowledgment that the methodology is *justified* there and is not simply used for the sake of novelty); and

iv usefulness of potential applications of the research's findings (this justification is based on the researcher's *initial* assumptions, in contrast, Section 5.4 is a statement of the completed research's usefulness).

These four sorts of justification could also be used to justify a research problem in other areas, with several paragraphs of Section 1.3 devoted to each.

1.4 Methodology

Section 1.4 is an introductory overview of the methodology, and is placed here in Chapter 1 to satisfy the initial curiosity of the examiner. This section should refer to sections in Chapters 2 and 3 where the methodology is described and justified in far more detail.

That is, this section first describes the methodology in general terms, including a brief, one or two paragraph description of major statistical processes, for example, of regression. Then the section could refer to sections in Chapter 2 where methodology is discussed, and possibly justify the chosen methodology based upon the purpose of the research, and justify not using other techniques. For example, the choice of a mail survey rather than a telephone survey or case studies should be justified. Alternatively and preferably, these justifications for the methodology used could be left until the review of previous research in Chapter 2 and the start of Chapter 3. Details of the methodology such the sampling frame and the size of the sample are provided in Chapter 3 and not in Section 1.4.

In summary, this section merely helps to provide an overview of the research methodology, and can be perfunctory - two pages would be a maximum length. Because of the openness of thesis writing noted above, this section should also introduce the data analysis methods as well as the data collection methods and briefly summarise the findings of the data analysis.

1.5 Outline of this report

Each chapter is briefly described in this section. (Incidentally, the student must use either 'report' or 'thesis' consistently.)

1.6 Definitions

Definitions adopted by researchers are often not uniform, so key and controversial terms are defined to establish positions taken in the PhD research. (The previous sentence could be used to begin this section). The term being defined should be in italics or in bold, and the format for presenting each of the definitions should be standard. Definitions should match the underlying assumptions of the research and students may need to *justify* some of their definitions. The

definitions will underly the data collection procedures and so put boundaries around the findings (although literature using other definitions will of course be included in the literature reviewed in Chapter 2). A definition of a core construct may be discussed in depth later at the beginning of Chapter 2, and defining the construct in this Section 1.6 can merely present the definition and refer to the discussion in Chapter 2.

Students should try to use definitions of authorities wherever possible, so that the results of the research can be fitted into the body of literature and so that the thesis can withstand attacks by examiners with trivial personal preferences. For example, Emory and Cooper (1991) could be used as a standard for research procedures and terms - their definitions of terms such as 'construct', 'research issue', 'hypothesis' and 'operational definition' are assumed for this paper. Perhaps the student could make some minor changes to a standard definition to make it particularly appropriate to the thesis; doing this will illustrate a critical mind at work which is aware of the overriding need to solve the research problem. Justification for some of these definitions might have to refer to the next section about the justified delimitations of the thesis, but do not use definitions that restrict the generalisability of the findings too much.

1.7   Delimitations of scope and key assumptions, with their justifications

This section `builds a fence' around the research findings which are additional to the limitations and key assumptions established in the previous section about definitions. For example, the explicit boundaries of the research problem described in Section 1.2 above should be noted again in this section and other boundaries should be clearly expressed. Other delimitations could be the industries chosen, the locations chosen, environmental factors, and variables that could not be controlled. In effect, the `population' about which findings are to be made, is outlined here. By the way, by definition, 'delimitations' are within the control of the researcher and 'limitations' are not. In most theses, the limitations caused specifically by the *methodological* methods chosen are placed in Chapter 3 or in Section 5.6 along with any other limitations.

In this section, the researcher is trying to forestall examiners' criticisms, so *justifications* for these delimitations must be provided in the section. It would be wise to not mention that time and/or resources were major influences on these delimitations of the research, for an examiner may think that the student should have chosen a research project that was more appropriate for these obvious limitations of any research. For example, if the population is restricted to one state rather than a nation, perhaps differences between states may be said to have caused just one state to be selected. No claims for the *conclusions* beyond these delimitations will be made, although *implications* of the findings beyond the delimitations may be made.

Incidentally, 'delimitations' are sometimes called 'limitations' in theses and is common in US theses. Strictly speaking, limitations are beyond the researcher's control while delimitations are within his or her control. For example, a limitation may be that a very good sampling frame could not be found and a delimitation may be that the research was restricted to financial services industries because of their special nature that was appropriate to the research. The term of delimitation is suggested here as referring to the planned, justified *scope* of the study beyond which generalisation of the results was not intended.

Some students might like to describe the *unit of analysis* here, for example, firm or manager. Whether it is described here or in Chapter 3 is not important, just as long as it is identified and justified somewhere in the thesis.

1.8   Conclusion

The final paragraph of each chapter usually summarises the key achievements of the chapter. So the conclusion of Chapter 1 should read something like:

> This chapter laid the foundations for the report. It introduced the research problem and research issues. Then the research was justified, definitions were presented, the methodology was briefly described and justified, the report was outlined, and the limitations were given. On these foundations, the report can proceed with a detailed description of the research.

Chapter 2 Research issues

The second chapter aims to build a *theoretical foundation* upon which the research is based by reviewing the relevant literature to identify research issues which are worth researching because they are controversial and have not been answered by previous researchers. That is, the literature review is *not an end in itself,* but is a *means to the end* of identifying the worthy research issues that will be listed in the chapter's conclusion and were briefly introduced to the examiner in Section 1.2. It is this point about the chapter being a means to an end that prompts its title being 'Research issues' rather than 'Literature review'. Incidentally, the chapter is about the extant literature, so the students' own ideas or opinions have no place in this chapter, except where they are used to structure the treatment of the literature and to create the theoretical framework at the end of the chapter, *and* are clearly supported by authorities, evidence or logic.

The survey of the literature in a thesis should not only concentrate on the area of the research problem described in Section 1.2, for as well as including the *research problem theory* of the research problem (for example, employee motivation or customer service), the literature review should also demonstrate a familiarity with some *parent theories* (for example, employee psychology or services marketing). University of Oregon (n.d.) called these two types of 'theories' the parent and immediate disciplines. The authorities Phillips and Pugh (1987) descriptively named these two types of theories as background and focus theories, respectively. I prefer to combine these two sources into the 'parent theory' and the 'research problem theory' because 'parent' emphasises that the parent must be relevant to resolving the research problem and not any mere background theory, and 'research problem' emphasises why the theory is a focus of Chapter 2, that is, and why it is immediate.

Relatedly, Phillips and Pugh (1987) said that a student's research should be 'testing out' research, that is, research which tests out the limits of previously proposed theories. For example, theory about marketing brands has almost been completely based on research about goods; PhD research could test out whether this goods-based theory applies to services. Brands and services marketing would be the parent theories and the research problem theory would consider them together. Another example would be to test out whether the theory about relationship marketing applies to cybermarketing. Yet another example would be to test whether traditional theory about product strategy applies in database marketing. Thus this concept of

testing out research is valuable for ensuring postgraduate research makes a contribution and helps the design of Chapter 2.

The research problem theory should preferably relate to *one* academic discipline from which examiners will be selected, as noted above. However, there may be more than one parent theory; for example, a thesis examining the research problem of marketing orientation might discuss two parent theories of marketing theory and strategic management. In other words, the literature review of a thesis tends to extend further beyond the boundaries of the research problem than it does in most other types of research. Nevertheless, the literature review should be focussed and should not contain theories that are not directly relevant to the research problem theory - these indirectly associated disciplines should be relegated to Section 5.4 of the thesis as areas for which the research has implications. In other words, only *parent* theories needed to develop a theoretical framework in the research problem theory are involved, not uncles, aunts, or other relatives.

The relationships between several of the concepts above are shown in Figure 3. In that figure, the literature review covers the parent theories and the research problem theory. Note that the research problem theory is only about the research problem. Of the total, possible aspects of the research problem, only some aspects are within the delimited scope described in Section 1.7, but the literature reviewed about the research problem theory usually covers *all* aspects of the research problem. That is, in Figure 3, some boundaries of the research problem are made explicit in Section 1.2 and all are made explicit in Section 1.7; this difference is shown by some but not all of the line around the boundaries of the delimited research problem in the figure being the same as the line around the research problem area. All boundaries of the research problem should have been justified in Section 1.7, as noted above.

Figure 3 also shows that some of the literature about the research problem theory will already provide some answers to parts of the research problem, but it is the *gaps* of unresearched or controversial parts of the research problem about which the research will collect data. That is, the statements of the research issues or propositions about these gaps are the ultimate goal of Chapter 2, and provide a focus for the data collection and analysis described in the next two chapters.

Classification models of the literature review and analytical models of the theoretical framework. Some judgement may be required to balance the need to focus on the research problem theory, and the need for a thesis to show familiarity with the literature of the parent theories. One way of balancing these two needs is to develop `mind maps' such as a new *classification* model of the body of knowledge showing how concepts can be grouped or clustered together according to schools of thought or themes, without necessarily considering relationships between groups (Figure 3 is an example). These concepts could be the section headings in the outline of the chapter that should precede the writing of the chapter (Zuber-Skerritt & Knight 1986). The new classification model will begin to show that the student's literature survey is constructively analytical rather than merely descriptive, for the rigour in a thesis should be predominantly at the upper levels of Bloom and Krathowl's (1956) six-level hierarchy of educational objectives. Levels 1, 2 and 3 are mere knowledge, comprehension and application that every undergraduate should display. Levels 4, 5 and 6 are analysis, synthesis

and evaluation - the higher-order skills which academic examiners consider a postgraduate research student should develop (Easterby-Smith et al. 1991).

Figure 3 **Relationships between the parent theories and research problem theory, and between the research problem and the research issues or propositions**
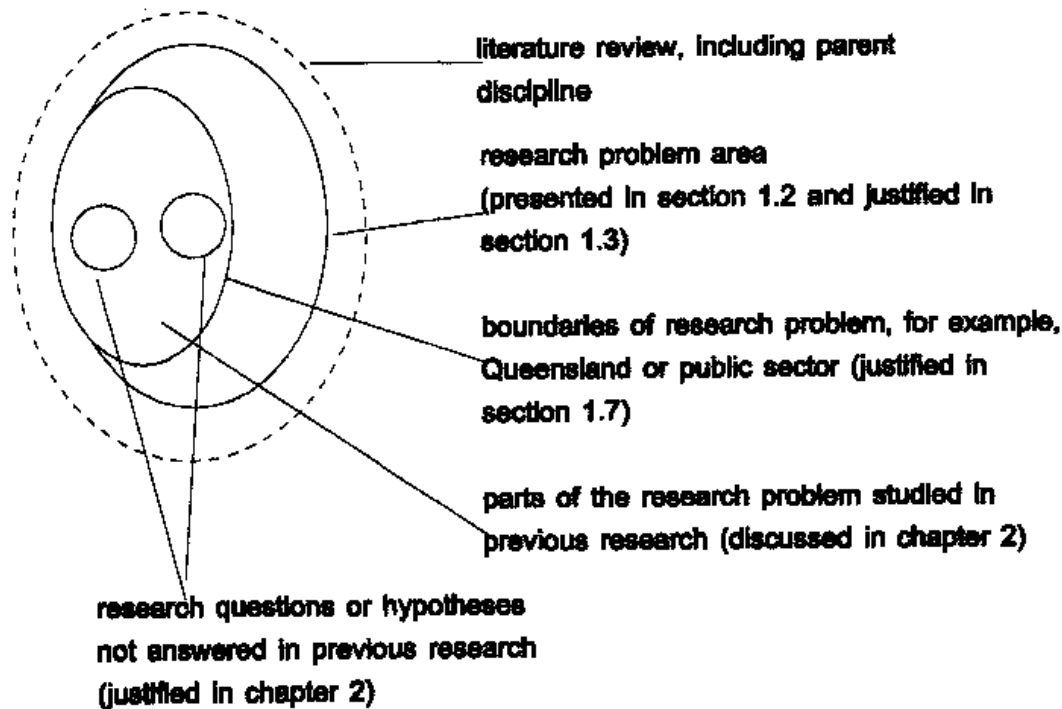
Presenting a classification model of the sections of the whole chapter in a figure near the beginning of Chapter 2 will help the examiners follow the sequence of the chapter. Referring briefly to the figure as each new group of concepts is begun to be discussed, will help the examiner follow the intellectual journey of the chapter. In other words, the literature review is *not* a string of pointless, isolated summaries of the writings of others along the lines of Jones said...Smith said...Green said... Rather, the links between each writer and others must be brought out, and the links between each writer and the research problem should also be clear. What the student says about a writer is more important than a description of what a writer says (Leedy 1993), and this emphasis is helped by using a bracketed reference like `(Leedy 1993)' in the first part of this sentence, rather than leading with the writer by saying `Leedy (1993) says...'. In brief, the literature review is not a textbook that describes the literature for a reader who knows little about a topic, rather, it is an interesting rearrangement and synthesis of material with which the examiner should already be familiar.

After the classification models of the parent theories are developed, the research problem theory is explored to unearth the research issues or propositions; these should appear to `grow' out of the discussion as gaps in the body of knowledge are discovered. This research problem theory of the literature review is clearly different from the parent theory parts, for the student's *own*

views come to the fore now, as he or she constructs a new theoretical framework which has not been developed previously in the literature - this theoretical framework is used to develop the propositions or research issues about the previously unexplored research problem theory, about which data will be collected in later chapters. The parent theories were merely the *points of departure* for the main journey of the research, that is, the development of the *new* theoretical framework that is the research problem theory – within this theory, research issues/propositions from the theoretical framework will be used to focus data collection. Indeed, some thesis writers prefer to put this research problem theory into a chapter of its own, to clearly demonstrate how it differs from the somewhat less creative literature review of the parent theories.

A second, more *analytical model* of core constructs and their relationships based on this analysis of the research problem theory, is developed as the text describing the theoretical framework that is created. This analytical model will usually explicitly consider *relationships* between concepts, and so there will be arrows between the groups of concepts (Figure 1 is an example). Sekaran (1992, Chapter 3) discusses this model building procedure for quantitative research. This analytical model is a very important part of Chapter 2, for it summarises the theoretical framework from which the propositions or research issues flow at the end of the chapter. Showing appropriate section and subsection numbers on these models (like 2.1, 2.2 and so on) will help referencing of them in the body of the report. In other words, a theoretical framework with justified variables and their relationships that provides an anchor for the development of research issues/propositions towards the end of Chapter 2, is essential.

Examples. In brief, Chapter 2 reviews the parent and research problem theories, with the aims of charting the body of knowledge with a summary model or two, showing where the research problem fits into that body of knowledge and then identifying research issues or propositions. These will focus the discussion of later chapters on directions where further research is required to answer the research problem, that is, having sections in Chapter 3 and 4 explicitly related to the propositions or research issues facilitates the 'seamless' characteristic of an effective thesis.

Of course, each student will write Chapter 2 differently because it involves so much personal creativity and understanding and so the chapter's structure may end up being different from that suggested in these notes. Nevertheless, two examples of Chapter 2 based on the structure might be useful for beginning research students. Note how skilfully the students have linked their reviews of the parent and research problem theories.

The first example of how to structure Chapter 2 is provided in a PhD thesis which had a research problem about inward technology licensing. Chapter 2 began by developing a definition of inward technology licensing, and then reviewed the parent theory of new product development. In a chronological discussion of major researchers, the review showed a familiarity with major conceptual issues in the parent theory of new product development such as: approaches to new product development which are alternatives to inward technology licensing the importance of new product development, its riskiness, and its stages with their influencing factors. The review acknowledged disagreements between authorities without developing research issues or propositions, and established that inward technology licensing was an interesting part of the parent theory to research, summarised in a table which compared inward technology licensing with some other methods of new product development on three criteria,

using a high-medium-low scale. After fifteen pages of reviewing the parent theory, the chapter addressed the research problem theory of inwards technology licensing by reviewing literature in four groups of influencing factors, summarised in a classification model of the theoretical framework being constructed. As sections of the chapter considered each of these groups, researchers were compared with each other and some hypotheses were developed where controversy or methodological weaknesses existed or research `gaps' in possibly interesting areas were identified. Particular concepts and the hypothesised directions of relationships between them were summarised in a detailed analytical model that grew out of the earlier classification model used to structure the literature review.

The second example of Chapter 2's structure is from a PhD thesis with a research problem about the marketing of superannuation services. Chapter 2 first demonstrated a familiarity with the parent theory by tracing the historical development of the term `service' so as to develop a definition of the term, but this survey became too big for Chapter 2, and so it was placed in an appendix and the main points summarised in Section 2.2 of Chapter 2 in words and a classification model with three major groups, each having four sub-groups. The research problem theory was then identified as falling into one of the sub-groups of the parent theory, its importance confirmed, and propositions worthy of further research unearthed as the chapter progressed through the research problem theory's own classification model and developed an analytical model of the theoretical framework being constructed. (Incidentally, some examiners may think too many appendices indicate the student cannot handle data and information efficiently, so do not *expect* examiners to read appendices to pass the thesis. They should be used only to provide evidence that procedures or secondary analyses have been carried out.)

Context of the research. Some candidates might think that the context of the research should alos be described in the literature review. But should it? For example, should the economy of Thailand be summarised in the literature review if cases were to be collected in that country, or should the financial services industry in Australia be described if a survey was to be done in that industry in that country? In my own opinion, including a description of the context in the literature review is required only if the main *contribution* of the research depends on this context (this issue was introduced in the discussion of the research problem statement in Section 1.2). For example, consider a student who is researching how internet marketing communication (which was established in the West) is done in Thailand with its different type of economy and different culture (where the topic has not been researched by academics). That student *should* present a background to Thailand as one of the parent theories. But in a second example, a student who was researching the effect of internet marketing on relationships in the financial services industries in Australia would *not* need to include a description of the financial services industry in Chapter 2. The reason is that internet marketing might be done a bit differently in Australia than the way it is the United States, but that difference is not as important to the research's contributions as the difference between internet and non-internet marketing. In this second example, the parent theories would be internet marketing and relationship marketing, and *examples* from financial services in Australia would be used to illustrate the points being made in those parent theories and in the research problem theory of Chapter 2. In this second example, a *brief* description of the Australian economy and internet activity within it could be placed in Chapter 2 just before the research problem theory is presented, or in an appendix.

Details of Chapter 2. Having established the overall processes of Chapter 2, this discussion can now turn to more detailed considerations. Most pieces of literature should be included in a summary table which covers all or most of the details below. The accompanying text does not need to be as detailed unless some of the details are particularly relevant, but the text should nevertheless demonstrate that you have read the understood the role that each reference has played in the development of the body of knowledge, that is, the contribution to the body of knowledge *that is relevant to the research problem* - how it compares and contrast with the positions developed by other researchers.

The details in a table should cover all or most of:
- topics covered, including the year, the industry, the country and/or region, and the subjects in the research (for example, managing directors or middle managers),
- survey and statistical methodologies used,
- findings, and
- limitations and problems of the research, for example, was the data collection or its analysis appropriate?

In brief, providing a concise description of the research topics and methodologies underlying findings reached by writers will provide a basis for the students' view of the value of their findings to the body of knowledge, will remind the examiner of the research involved, and will help the student to carefully chart the boundaries of the body of knowledge. (Incidentally, it is courteous to reference as many publications as possible of likely examiners.)

Useful guides to how contributions to a body of knowledge can be assessed and clustered into groups for classification and analytical models are many articles in each issue of *The Academy of Management Review*, the literature review parts of articles in the initial overview section of major articles in *The Academy of Management Journal* and other prestigious academic journals, and the chairperson's summing up of various papers presented at a conference. Heide (1994) provides an example of a very analytical treatment of two parent theories and one research problem theory, and Leedy (1993, pp. 88-95) provides a thorough guide to collecting sources and writing a literature review. Finally, Cooper (1989) discusses sources of literature and suggests that keywords and databases be identified in the thesis to improve the validity and reliability of a literature review.

If a quotation from a writer is being placed in the literature review or elsewhere in the thesis, the quotation should be preceded by a brief description of what the student perceives the writer is saying. For example, the indirect description preceding a quotation might be: 'Zuber-Skerritt and Knight (1986, p. 93) list three benefits of having a research problem to guide research activities:...' Such an indirect description or precis preceding quotations demonstrate that the student understands the importance of the quotation and that his or her own ideas are in control of the shape of the review of the literature. Moreover, quotations should not be too long, unless they are especially valuable; the student is expected to precis long slabs of material in the literature, rather than quote them - after all, the student is supposed to be writing the thesis. For this reason, one supervisor I know insists on students keeping quotations to less than three words.

References in Chapter 2 should include some old, relevant references to show that the student is aware of the development of the research area, but the chapter must also include *recent* writings - having only old references generally indicates a worn-out research problem. Old references that have made suggestions which have not been subsequently researched might be worth detailed discussion, but why have the suggestions not been researched in the past?

Incidentally, having numbers in the headings of each section and subsections of the thesis, as shown in Table 1, will also help to make the large thesis appear organised and facilitate cross-referencing between sections and subsections. However, some supervisors may prefer a student to use headings without numbers, because articles in journals do not have headings with numbers. But articles are far shorter than theses, and so I prefer to include an explicit skeleton in the form of numbered sections and subsections to carry the extra weight of a thesis.

Exploratory/theory building research and research issues. If the research is *exploratory/theory building* and uses a qualitative research procedure such as case studies or action research, then the literature review in Chapter 2 will unearth *research issues* or *questions* that will be the focus of the data collection described in later chapters and answered in Chapter 4. (Essentially, exploratory research is qualitative and asks `what are the variables involved?'; in contrast, explanatory research is quantitative and asks `what are the precise relationships between variables?' Easterby-Smith et al. (1991) distinguish between qualitative and quantitative methodologies in management research, in detail.) Research issues or questions ask about `what', `who' and `where', for example, and so are not answered with a `yes' or a `no', but with a description or discussion. For example, a research issue might be stated as:

> How and why are conflicts between owners and managers which are resolved in the board of directors of a big business, resolved in a small professional practice without a board of directors?

'Pure' exploratory research or induction which does not use research issues developed in Chapter 2 to guide data collection, is *not* appropriate for PhD research because a body of knowledge (the core of a PhD) is not the foundation for that kind of research (Phillips & Pugh 1994; Perry & Coote 1994; Perry 1998b). Indeed, Phillips and Pugh (1994, p. 52) assert that pure exploratory research is *less* likely to produce a contribution to knowledge than the testing out research recommended in this paper. Nevertheless, the exploratory research issues suggested above should supplement and not displace the subjects' own meanings and interpretations during the *qualitative research* methodologies often used in exploratory research. That is, they provide an indication of areas of interest but should not be the only areas discussed during an interview. For example, an interview should begin with trying to discover the interviewee's *own* meanings and subjective understandings, and the research issues should only be raised as probes towards the end of the interview if their topics have not been discussed in the earlier unstructured discussion (Perry & Coote 1994; Perry 1998b; Patton 1992).

By the way, the word 'how' in an exploratory research issues does not mean that an experiment is required to establish a direct cause and effect link between A and B. In social science research, such links are very hard to establish and so exploratory research searches for causal tendencies or generative mechanism that suggest a causal relationship only in some limited contexts (Perry, Reige and Brown 1998). As well, as noted earlier, the first person may be used in Chapter 3 of

exploratory research theses when describing what the researcher actually did; similarly, many quotations from interviewees should be used in Chapter 4 to illustrate findings.

Explanatory/theory testing research and propositions. On the other hand, if the research is *explanatory/theory testing* and so refers to queries about `how' or `why' and uses some *quantitative research* methodology often used in explanatory research such as regression analysis of survey data, then Chapter 2 unearths *testable* propositions that can be answered with a 'yes'or 'no' with a precise answer to questions about 'how many' or 'what proportion' (Emory & Cooper 1991). That is, research issues in exploratory/theory building research are open and require *words* as data to answer, and propositions in explanatory/theory testing research are closed and require *numbers* as data to solve. For example, a proposition might be presented as a question that can be answered 'yes' or `no' through statistical testing of measured constructs such as:

> Does the number of successful telemarketing calls correlate with the level of specialisation of telemarketing representatives?

Each construct in the proposition (for example, 'specialisation of telemarketing representatives') must be capable of being measured; *precisely* how the instruments were designed to measure the constructs is described later in Chapter 3. That is, operational definitions of the constructs developed for propositions are not divulged until Chapter 3, that is, the statistical form of a hypothesis involving null and alternative hypotheses about means, distributions or correlation coefficients, for example, is not presented until Chapters 3 and 4. Indeed, this distinction between hypotheses about constructs in Chapter 2 and hypotheses about population statistics in Chapter 3 can be confusing. Thus we have chosen to refer to Chapter 2's focii for data collection and analysis as propositions and restrict the term *hypothesis* to the associated and similarly numbered statistical forms developed in Chapter 3*, after* operational definitions of constructs identified in Chapter 2 have been constructed to allow the constructs in the propositions to be put into the detailed form required for a hypothesis that can be directly tested statistically with survey data. In Chapter 3, the direct links between the propositions and the hypotheses should be made explicit in the text and in a table. Some candidates and their supervisors may prefer to not make this distinction between propositions and hypotheses if the differences are small.

In some PhD research, there may be a mix of qualitative research issues and quantitative hypotheses, and a case study methodology can combine both in either exploratory and explanatory research (Yin 1989). Generally speaking, the total number of research issues and/or propositions should not exceed about four or five or so; if there are more, sufficient analysis may not be done on each within the space constraints of a PhD thesis. Whether research issues or propositions are used, they should be presented in the way that informed judges accept as being most likely. For example, the proposition that `smoking causes cancer' is preferred to `smoking does not cause cancer'. The transformation of the propositions into *statistical* null and alternate hypotheses (where the null hypothesis always refers to a 'no difference' situation, for example, that 'smoking does not cause cancer') is left until Chapter 3.
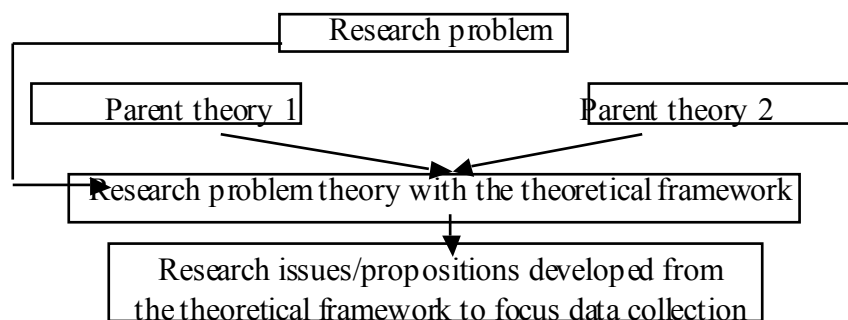
The research issues or propositions developed during Chapter 2 could be developed in a relationship theory section towards the end of the chapter, or they could be presented

throughout the chapter as the literature survey unearths areas that require researching. Wherever they are presented, they should appear to 'grow out' of the review, even though the student may have decided on them long before while writing very early drafts of the chapter. That is, the development of the research issues or propositions should make it clear that ideas from the parent theories have laid the groundwork for their development by referring to relevant ideas and gaps in the literatures, and make it clear that they are gaps that this research will fill.

When first presented in Chapter 2, the research issues or propositions should be numbered and indented in bold or italics. The concluding section of Chapter 2 should have a summary list of the research issues or propositions developed earlier in the chapter.

Figure 4 summarises the links between the research problem, the parent and immediate theories and the research issues/propositions that were developed above. Note that the figure clearly shows the link between the research problem and the theory that is the focus of its solution.

Figure 4 **The link between the research problem and the theoretical framework developed in the research problem theory to solve it, and the parent theories and the research issues/propositions**

In brief, Chapter 2 identifies and reviews the conceptual/theoretical dimensions of the literature and discovers research issues or propositions from a new theoretical framework that are worth researching in later chapters.

Chapter 3 Methodology
Chapter 3 describes the major methodology used to collect the data which will be used to answer the hypotheses. In some theses, *several* methods may be used because `increasingly authors and researchers who work in organisations and with managers argue that one should attempt to mix methods to some extent, because it provides more perspectives on the phenomena being studied' (Easterby-Smith 1991, p. 31) and the same position is recommended in PhD theses by Gable (1994). But within the time and other resource constraints of most theses, I consider that there will usually be only one *major* methodology which suits the research problem and associated research gaps uncovered in Chapter 2. Other methodologies would be used in a *secondary* role to help formulate research issues (for example, some interviews to help design a survey's questionnaire could be described in Chapter 2 if they help in formulating propositions or in

Chapter 3 if they help in developing the operational definitions of constructs) or to slightly extend or generalise the findings of the main method (for example, some interviews to confirm an unexpected result which could be described in Chapter 4 or 5). So Chapter 3 usually centres on the major methodology of the research, although the same considerations might be briefly mentioned when discussing any secondary methodologies.

Level of detail in Chapter 3. Chapter 3 about data collection must be written so another trained researcher could replicate the research. That is, there must be enough detail for 'a reasonably knowledgeable colleague' to repeat the data collection and analysis (Lindsay 1995, p.14). But there is a second consideration involved in deciding how much detail to put in the chapter - the candidate must also show the examiner that he or she understands the methodology. The candidate can assume that the examiner has a good undergraduate training in the methodology and two to three years research experience (Brown 1996, p. 49), but the *examiner cannot assume that about the candidate*. Thus students will have to provide *enough detail* to show the examiner that the student also knows the body of knowledge about the methodology and its procedures, even if it is in only a couple of sentences with references. If the techniques are advanced ones like structural equation modelling which are only covered in postgraduate courses, one or two of the examiners may have to be 'brought up to steam' on the technique and so more material will be necessary to cover more details of the technique and why they were used, than when a basic technique is being used.

That is, examiners need to be assured that *all* critical procedures and processes have been followed. For example, a thesis using regression as the prime methodology should include details of the pilot study, handling of response bias and tests for assumptions of regression. A thesis using factor analysis would cover preliminary tests such as Bartlett's and scree tests and discuss core issues such as the sample size and method of rotation. A thesis using a survey would discuss the usual core steps of population, sampling frame, sample design, sample size and so on in order (Davis & Cosenza 1993, p. 221)

In addition to critical procedures and processes, students must show familiarity with controversies and positions taken by authorities. That is, students must show familiarity with the body of knowledge about the methodology, just as they did with the bodies of knowledge in Chapter 2. Indeed, Phillips and Pugh (1987) equate the body of knowledge about the methodology with the body of knowledge about the background and focal theories of Chapter 2, calling the former the `data theory'. An example of this familiarity for students using a qualitative methodology would be an awareness of how validity and reliability are viewed in qualitative research, in a discussion of how the ideas in Easterby-Smith et al. (1991, pp. 40-41) and Lincoln and Guba (1985, Chapter 11) were used in the research. Familiarity with this body of knowledge can often be demonstrated when the methodology is *justified* and when research procedures are described and *justified*, rather than in a big section about the body of knowledge on its own. For example, providing details of the telephone survey used for the research is inadequate, for the advantages and disadvantages of *other* types of surveys must also be discussed and the choice of a telephone survey justified (Davis & Cosenza 1993, p. 287). Another example would be to show awareness of the controversy about whether a Likert scale is interval or merely ordinal (Newman 1994, pp. 153, 167) and justify adoption of interval scales by reference to authorities like a student who said:

A number of reasons account for this use of Likert scales. First, these scales have been found to communicate interval properties to the respondent, and therefore produce data that can be assumed to be intervally scaled (Madsen 1989; Schertzer & Kernan 1985). Second, in the marketing literature Likert scales are almost always treated as interval scales (for example, Kohli 1989).

Yet another example would be to show awareness of the controversy about the number of points in a Likert scale by referring to authorities' discussions of the issue, like Armstrong (1985, p. 105) and Newman (1994, p. 153).

This issue of how much detail and what detail to put into the methodology chapter is not a clear cut one. The student has to steer a fine line between giving the examiners a 'tutorial' about the methodology (which the examiners definitely do not need for the reasons noted above), and merely telling the story of what was done to collect the data and analyse it. That is, the thesis writer has to demonstrate research training and justify the steps undertaken but without boring the examiner. One way to steer the fine line is to frequently reference literature about the methodology and to describe what was done in the order and using the language of that literature. The following example shows how this could be done. The sentences are written in the past tense but clearly demonstrate that the writer is familiar with the methodology literature that is lavishly referenced:

The fourth issue about this research design concerned sample design. Sample design involved the selection of a technique to choose elements from the population of interest and involved the choice of either probability or non-probability design (Emory & Cooper 1991; Frazer & Lawley 2000). Determination of sample design followed five steps synthesised from the literature that are discussed next (Malhotra et al. 1996; Smith 2000; Rubin 1996)

The student must not only show that he or she knows the appropriate body of knowledge about procedures as noted above, but must also provide *some evidence* that the procedures have been followed. For example, dates of interviews or survey mailings should be provided. Appendices to the thesis should contain copies of instruments used and instruments referred to, and some examples of computer printouts; however, well constructed tables of results in Chapter 4 should be adequate for the reader to determine correctness of analysis, and so *all* computer printouts do not need to be in the appendices (although they should be kept by the student just in case the examiner asks for them). Note that appendices should contain all information to which an intensely interested reader needs to refer; a careful examiner should not be expected to go to a library or write to the student's university to check points.

Details of the methodology are required whether a qualitative or quantitative research methodology is used (Yin 1989). Indeed, a qualitative thesis may contain even *more* details than a quantitative one, for a qualitative researcher may influence subjects more - for example, how subjects were chosen, how they answered, and how notes and/or recordings were used. Moreover, the student should occasionally use 'I' in the methodology chapter when a qualitative methodology is used in thesis, to describe what he or she actually did in the field, so as to reflect an awareness that the researcher cannot be independent of the field data. Indeed, perhaps a qualitative researcher could briefly describe themselves in the validity and reliability section of this chapter, as a way of trying to make themselves and the reader aware of values that may

bias their findings. For example, one researcher wrote (Pettigrew 1999, p. 151):

> At the time of the data collection, the researcher was self-described as a white, Australian, late-twenties, middle class, non-beer drinking, non-smoking, tertiary-qualified, married female. Numerous preconceptions came along with these characteristics.

Incidentally, I think that as rough rules of thumb, PhD research requires at least 350 respondents in a quantitative survey or at least 35 to 45 interviews in four to twelve qualitative case studies. Honours research requires about 50 to 100 respondents in a survey, or at least four to five interviews, in four to five case studies. Master's research will be between these two limits.

A rigorous methodology. In brief, Chapter 3 describes the methodology adopted (for example, a mail survey and a particular need for achievement instrument), in a far more detailed way than in the introductory description of Section 1.5. The *operational definitions* of constructs used in questionnaires or interviews to measure an hypothesised relationship will be described and justified, for example, how an interval scale was devised for the questionnaire. Note that some authorities consider that PhD research should rarely use a previously developed instrument in a new application without extensive justification - they would argue that an old instrument in a new application is merely Master's level work and is not appropriate for PhD work. However, often *parts* of the PhD instrument could have been developed by authorities (for example, a need for achievement instrument), but those parts must still be justified through previous studies of reliability and validity and/or be piloted to the PhD student's requirements in order to assess their reliability and validity, and alternatives must be carefully considered and rejected. Any revisions to the authority's instrument must be identified and justified. Alternatively, multi-item measures could be developed for constructs that have been previously measured with a single item, to increase reliability and validity. It can be argued that an old instrument in a new application will be an original investigation, and so a new or partly-new instrument is not an absolute necessity for PhD research (Phillips, E. 1992, pers. comm.). Nevertheless, I recommend some qualitative pilot studies before an old instrument is used - they will confirm its appropriateness and may suggest additional questions that help develop new ideas for the thesis, thus reducing the risk that an examiner will disapprove of the thesis.

Let us turn to more precise details of Chapter 3. The chapter should have separate sections to cover:
- *justification for the methodology* in terms of the research problem and the literature review, for example, a qualitative methodology requires a research problem involving people's constructions of meanings which have not previously been explored (Hassard 1990) - Yin (1989, p. 17) has a table which might help in writing about this; incidentally, recent theses are showing an awareness of the strengths and weaknesses of the positivist and phenomological *paradigms* as a basis for discussing choice of methodology (Phillips & Pugh 1987, p. 55; Orlikowski & Baroudi 1991; Easterby-Smith et al. 1991, pp. 22-32; Patton 1992, pp. 1-63; Newman 1994, Chapter 4; Perry & Coote 1994; Perry 1998b; Guba & Lincoln 1994); Table 2 summarises these considerations;
- the *unit of analysis* and subjects or sources of data, for example, explicit reference to steps such as deciding the population, the sampling frame and the sample, and the sample size; for case study research, these are discussed in Perry & Coote (1994) and Perry (1998b);

- instruments or procedures used to collect data, including how the *dependent variable* was measured, details of pilot studies and explicit concern about specific procedures used to handle internal and external validity (as in Yin 1989, p. 41; Parkhe 1993, p. 260-261 and - for qualitative research - Lincoln & Guba 1985, pp. 290-294); note that the boundaries of external validity were *implicitly* addressed in Sections 1.2, 1.6 and 1.7;
- administration of instruments or procedures (for example, when, where and who, non-response bias (which is a *very* important issue and is discussed in Armstrong & Overton (1977)), response rates, dates and protocols of interviews (Yin 1989)), so that the research is reliable, that is, it could be repeated;
- *limitations* of the methodology if they were not explicitly discussed in Section 1.7, for example, practical limitations on the sampling frame or size of questionnaire in survey research might be clarified and justified (for example, some types of respondents might have been missed because of their religious beliefs), and Parkhe (1993, p. 255) discusses some possible limitations of the case study methodology which should have been addressed in a thesis;
- any special or unusual treatments of data before it was analysed (for example, special scoring of answers to a survey question);
- evidence that the *assumptions* of analytical techniques were met, for example, that the sample sizes were large enough and assumptions of normality were tested for (Hair at al. (1995) clearly discusses these assumptions for each multivaraite technique); validity and reliability issues and how they were addressed; in qualitative research, these issues will be discussed in the way formulated in Lincoln and Guba (1986);
- computer programs used to analyse the data, with justifications for their use (for example, why chisquare was used instead of a Wilcoxon test) - this may require a brief description of the type of data and some appropriate references where similar procedures had been used in similar circumstances; and
- ethical issues.

In addition to the above, Chapter 3 should show that other variables that might influence results were *controlled* in the research design (and so held at one or two set levels) or properly measured for later inclusion in statistical analyses (for example, as a variable in regression analysis). This point is a very important consideration for examiners.

To fully demonstrate competence in research procedures, the *statistical* forms of hypotheses could be explicitly developed and justified in a thesis, even though such precision is often not required in far shorter journal articles describing similar research. Sekaran (1992, pp. 79-84) provides an introduction to how this hypothesis development is done. Some students are confused between these statistical hypotheses and the more abstract propositions developed towards the end of a literature review. The propositions are framed in the *form with which most experts would agree,* for example, that smoking causes cancer. In contrast, the statistical hypotheses developed in Chapters 3 or 4 are in a form that is directly ready for statistical testing and have a format of a formal null hypothesis of *zero difference,* for example, that there is no association between smoking and cancer, and an alternative hypothesis of some difference. The null and the alternative hypotheses could be either directional or not. A directional hypothesis will require different forms of statistical tests of significance than a non-directional hypothesis; for example, the use of a directional hypothesis allows a one-tailed test of significance.

Table 2 **Aspects of a unified thesis**

Qualitative research	Quantitative research
Research problem: how? why?	Research problem: who (how many)? what (how much)?
Literature review: exploratory - what are the variables involved? constructs are messy research issues are developed	Literature review: explanatory - what are the relationships between the variables which have been previously identified and measured? hypotheses are developed
Paradigm: critical realism/interpretive	Paradigm: positivist
Methodology: for example, case study research or action research	Methodology: for example, survey or experiment

The penultimate section of Chapter 3 should cover ethical considerations of the research. Emory and Cooper (1991), Easterby-Smith et al. (1991), Patton (1992), Lincoln and Guba (1986) and Newman (1994, Chapter 18) describe some issues which the student may consider addressing. A student may like to include in appendices the completed forms required for Australian Research Council (ARC) grant applications and reports - his or her university's Research Office will have copies of these. By the way, it is an ethical position of theses that the writer has verified that a reference does actually say what the thesis says it does. For example, if a thesis says Smith (1995) referred to the sample size for a multivariate technique, the student must have read Smith's article, or at the very least read an abstract which clearly confirms that Smith did discuss sample sizes in the way the student says Smith did. The final section is the conclusion.

In summary, writing Chapter 3 is analogous to an accountant laying an 'audit trail' - the student should treat the examiner as an accountant treats an auditor, showing he or she knows and can justify the correct procedures and providing evidence that they have been followed.

Chapter 4 Analysis of data
Chapter 4 presents patterns of results and analyses them for their relevance to the research issues or propositions/hypotheses. Frequent *summary* tables and figures of results are essential, so that readers can easily see patterns in the mass of data presented in this chapter. Tables of statistical data are presented in quantitative research and matrices are used in qualitative research (Miles & Huberman 1985). But note that an examiner should not *have* to look at tables and figures to be able follow your arguments. If there is an important point in a table or figure,

you have to incorporate it into your text – the examiner should not have to do *your work* by ferreting for points in tables and figures. That is, an examiner should be able to pass a thesis without having to look at any of its tables or figures, if he or she is in a hurry. Similarly, tables and figures should be able to be read somewhat independently of the text, so ensure the titles of tables and figures are rather long and self-explanatory, and any symbols in a table are explained in a note to the table. That is, a table should be understood by someone who has not read the text. By the way, a table has rows and columns and a figure does not.

This Chapter 4 should be clearly organised. The introduction has the normal link to the previous chapter, chapter objective and outline, but often also has basic, *justified* assumptions like significance levels used and whether one or two tailed tests were used; for example:

> Significance of test results is reported in the three ways suggested by Coolican (1990, p. 174), based on p the probability level:
> * `significant': $0.05 > p < 0.01$;
> * `highly significant': $0.01 > p < 0.001$; and
> * `very highly significant': $0.001 > p$.
> All probabilities reported are based on two-tailed tests as each comparison had two possible directions.

Note that some statisticians prefer to not *accept* the null hypothesis just because it is *not rejected* (because the type II error involved in acceptance is not known, although the Type I error involved in rejection is), hence the *practical* implications of a statistical test involving no significant difference between test statistics must be made explicit from the statistically expressed result, that is, it should not be not confused with the statistical result. An example of this separation of statistical and practical meanings of statistical test is shown below.

The introduction of Chapter 4 may be different from introductions of other chapters because it refers to the following chapter as well as the preceding chapter, for Chapter 5 will discuss the findings of Chapter 4 within the context of the literature. Without this warning, an examiner may wonder why some of the implications of the results are not drawn out in Chapter 4. Chapter 4 should be restricted to presentation and analysis of the collected data, without drawing general conclusions or comparing results to those of other researchers who were discussed in Chapter 2. That is, although Chapter 4 may contain references to the literature about methodologies, it should not contain references to other literature. If the chapter also includes references to other research, the more complete discussion of Chapter 5 will be undesirably repetitive and confused. In any case, it is traditional in science to separate the results from the discussion of their significance, to preserve objectivity. 'To qualify each result, or group of results, with comments and comparisons gives the strong impression that you are trying to influence the objective judgment of the reader.' (Lindsay 1995, p. 17)

After the introduction, descriptive data about the subjects is usually provided, for example, their gender or industry in survey research, or a brief description of case study organisations in case study research. This description helps to assure the examiner that the student has a 'good feel' for the data, that is, they know good researchers have to 'handle their own rats' (Frost & Stablein 1992, p. 271).

Then the data for each research issue or proposition is usually presented, in the same order as they were presented in Chapters 2 and 3 and will be in Sections 5.2 and 5.3. Structuring the data analysis around the research issues or propositions/hypotheses will ensure the student does not make the mistake of falling in love the data (Brown 1996) and tell the reader how beautiful all the data is – the data analysis must focus only on solving the research problem by looking at each research issue or hypothesis in turn. Sensitivity analyses of findings to possible errors in data (for example, ordinal rather than assumed interval scales) should be included. If qualitative research is being done, an *additional* section could be provided for data that was collected that does not fit into the research issue categories developed in the literature review of Chapter 2.

Note that the Chapter 4 structure suggested in the two paragraphs above does not include tests for response bias or tests of the assumptions of regression or similar statistical procedures. Some students may like to include them in Chapter 4, but they could discussed in Chapter 3 for they refer primarily to the methodology rather than to the data analysis which will be directly used to test research issues or hypotheses.

In Chapter 4, the data should not be merely presented and the *examiner* expected to analyse it. One way of ensuring adequate analysis is done by the *student* is to have interpretive words describing the data followed by numbers placed in brackets, for example, 'most survey respondents (69 percent)...' For the same reason, test statistics, degrees of freedom or sample size (to allow the examiner to check test statistics details in tables, if he or she wishes) and p values should be explained in words that show the student knows what they mean, followed by their values placed in brackets. An example of an appropriate analysis is:

> Question 9 explored attitudes to product quality and respondent's answers are summarised in Table 4.6. Most respondents (59.2 percent) agreed that the product quality was important, but a sizeable minority (27.8 percent) had no view about product quality - a somewhat surprising finding which will also be discussed within the context of the literature in Section 5.4.3... A t-test was used to discern the relationship between attitudes to product quality and price (Section 4.9), because both were measured with an interval scale. No significant difference between the means of attitudes to the two variables was found ($t = 1.56$, dof = 23, 25; $p = 0.35$). A practical implication of this finding is that the shoppers considered product quality and price separately.

Most researchers in reputable journals do not provide precise p values when reporting the analysis of their data and merely say whether the test statistic is significant at a certain level, for example, '$p<0.05$'. However, other researchers consider that this procedure does not provide all the information offered by modern computer programs and so prefer to report the precise p value, as was done in the example above. One compromise between these two positions would be to use a particular level in the text, for example, '$p<0.01$', and have the precise p levels listed in a table.

The discussion of results above was based on quantitative analysis. Reporting the analysis of qualitative data is slightly different. Firstly, the overall patterns in the data are presented, with *reasons* for those patterns occurring included. There is no reference to *numbers* of respondents or cases here, because the sample will have been chosen in a purposive way and so there can be no claim for statistical representativeness (Patton 1992). Then the reader could be referred to a matrix of the findings (Miles & Huberman 1994) where more details can be found to support the

claim that the pattern in the data does indeed exist. Finally, specific examples and quotations to further corroborate the existence of the pattern in the data, are presented. An brief example of this presentation of qualitative findings is:

> Most respondents thought shipping was not important because schedules were reliable (row 2 of Table 4.3). 'Thank goodness the unions are tame' (A2).' No worries - we have good port agents and shipping lines' (B1).

Presenting analyses of qualitative data can be difficult because *patterns* if the wordy data must be made clear without overlooking the *particulars* in the data that provide the indepth strength of qualitative data. These paragraphs from the introduction to a data analysis chapter outline these two considerations and how they were addressed in the chapter:

> Two considerations made it difficult to blend qualitative details and synthesised patterns in the data, within this chapter; that is, blend the 'wood' and the 'trees'. The patterns in the data that explained why and how the world operates is the 'wood' and was the primary concern of this chapter. However, details of the 'trees' also had to be presented in this chapter to confirm the trustworthiness of the patterns described. First, because this research was an in-depth investigation of a complex and under-researched area, this chapter had to be quite detailed in some parts of its analysis, for example, there are matrices for each type of finding (Miles and Huberman 1994) that show the results for *each* case. Secondly, the requirement for trustworthiness in qualitative research made it necessary to provide detailed quotations and other evidence for the patterns found in the data, together with the sources of the quotations. In brief, patterns had to be synthesised from the data without losing sight of the rich, qualitative sources on which they were based.
>
> To draw these considerations together, this chapter is clearly structured around the three research issues and there are frequent summaries of the patterns of data being uncovered, with supporting quotations. In particular, the tables and figures are critical to following the patterns being uncovered in the data, for readers can gain an overall picture of the findings from them. In particular, Figure 4.9 summarises the findings examined throughout the whole chapter and so provides an overview of the whole chapter.

Whether the data is qualitative or quantitative, all patterns of results in Chapter 4 must be supported by the evidence unearthed by the procedures described in Chapter 3. That is, a reader should be able to check findings by looking at tables or figures. So each table or figure should be referred to in the body of the chapter, with the reason for its presence. As the example in the previous paragraph showed, a topic should be introduced in words and the main findings presented; *then* the table or figure referred to and evidence from it should be introduced in one or two sentences; and then the highlights of the table or figure should be discussed more fully, together with a brief description of what the reader will look for in the table or figure when he or she turns to it. In other words, a reader should not be expected to develop the links between the words in Chapter 4 and a table or figure by himself or herself. Indeed, the reader should be able to grasp the meaning by reading *either* the words *or* the figures without reference to the other.

When figures are used, the table of data used to construct the figure should be in an appendix. All tables and figures should have a number and title at the top and their source at the bottom, for example, 'Source: analysis of survey data.' If there no source is listed, the examiner will assume the researcher's mind is the source, but a listing such as 'Source: developed for this research from Chapter 2' might reinforce the originality of the student's work. The title of a table or graph

should contain enough information that its findings can be discerned without referring to the text, for example, 'Relationship marketing propensity among Overseas Chinese and Australians: they are similar despite cultural differences'.

Chapter 5 Conclusions and implications

5.1   Introduction
Chapter 5 is the most important chapter of the thesis, for after ensuring the methodology and research processes are sound, the examiners will spend much time studying Chapter 5. But the chapter is often marked by fatigue and Phillips and Pugh (1987, p. 56) note that `in our experience its inadequacy is the single most common reason for requiring students to resubmit their theses after first presentation'. So the student must discover springs of interest and creativity to make his or her Chapter 5 worthy of the rest of the thesis, and make it clearly show that the research does make a distinct contribution to the body of knowledge. Thus the research's contributions to knowledge should be the *explicit* theme of Sections 5.2 to 5.4.

Actually, identifying what is a distinct contribution to knowledge can bewilder some students, as Phillips (1992, p. 128) found in a survey of Australian academics and students. Nevertheless, making a distinct contribution to knowledge 'would not go beyond the goal of stretching the body of knowledge slightly' by using a relatively new methodology in a field, using a methodology in a country where it has not been used before, or making a synthesis or interpretation that has not been made before'. So this task should not be too difficult if the research and the preceding chapters have been carefully designed and executed as explained in these notes.

We make it clear to the examiner what we mean by a 'contribution' by having a table at the start of the final chapter which lists the seven or so 'new' themes of the thesis for each research issue/proposition and notes the degree that the extant literature had explicitly addressed them, with words like 'to some extent', 'to a very small extent', and 'none'. Then we introduce the terms we will use in the final chapter along the lines of:
> Some of this research's findings do confirm expectations from the extant literature but it is the first time that this has been done for Australian situations. These will be called *advances* on that previous research in this chapter – they are of interest because they add a new depth to our understanding of the phenomenon. However, these advances will not be called contributions in this chapter because our focus will be on more important *contributions* or additions to knowledge arising fro from findings about:
>> disconfirmations of expectations derived in Chapter 2 from the literature, indicated by the themes with a 'to some extent' entry in the table;
>> areas about which there were some speculations in the literature but no empirical testing, indicated by the themes with a 'to a very small extent' entry in the table; and new areas which had not been raised in the previous literature, indicated by themes with a 'none' entry in the table.

A jigsaw puzzle analogy is useful for understanding what Chapter 5 is about. Research begins like a jumbled jigsaw puzzle about the research problem. Chapter 2's literature review starts

putting the pieces together to try to uncover a picture, but shows that some pieces are missing and so the complete picture cannot be known. Then Chapters 3 and 4 describe the hunt for the missing pieces and the matching together of a few newly found pieces. Finally, Chapter 5 returns to the puzzle, briefly summarising what the picture looked like at the end of Chapter 2 and then explaining how the new and the old pieces fit to make the *whole* picture clear.

Do remember that the introduction to Section 5.1 is longer than the introduction of other chapters, as the section above titled 'Links between chapters' noted.

5.2   Conclusions about research issues or propositions

Findings for each research issue or proposition are summarised from Chapter 4 and explained *within the context of this and prior research examined in Chapter 2*; for example, with which of the researchers discussed in Chapter 2 does this research agree or disagree, and why? For each research issue/proposition, the agreement or disagreement of the results of a numbered section in Chapter 4 with the literature should be made clear and the reason for disagreement thought through. For example, the disagreement might be because some previous research was done in Asia and this research was done in Australia. Disagreement suggests the PhD research is making a contribution to knowledge and this *contribution of the research* should be clearly developed. Each research issue or proposition would have its own subsection, that is, 5.2.1, 5.2.2 and so on, and each section will have a reference to the appropriate section of Chapter 4 so that the examiner can clearly see that the conclusions come from the findings in Chapter 4. Of course, each section will also have *many* references to the writers discussed in Chapter 2 because this chapter's primary aim is to show how the findings in the previous chapter fit into the body of knowledge. A brief example of one of these discussions is:

> The final set of factors in the initial conceptual framework of this research illustrated in Figure 2.10 was the strategic objectives of the firm. The interaction between entry mode choice and strategic objectives has attracted considerable attention in the literature (Jones 1991; Anderson & Gatignon 1986; Hwang 1988; Hill et al, 1990). For example, Minor, Wu and Choi (1991) argue that entry mode choice is based on strategic objectives when considered in tandem with ...

> This research had varied findings about these factors. Section 4.3.5's findings were that innovation learning and whether firms consider a global strategy, are unimportant. These findings are *inconsistent* with the literature. The reasons for this inconsistency appear to be the small size of the firms in this survey and their industry. Jones (1991) surveyed firms with turnovers above $1 million in the pharmaceutical industry, and Hwang (1988) surveyed... In contrast, Australian small jewellers are... Presumably, they are more entrepreneurial and have less at stake than larger firms and ...

5.3   Conclusions about the research problem

Based on Section 5.2, implications of the research for furthering understanding of the research problem are explored. The section goes beyond the mere number-crunching of Chapter 4 and *incorporates qualitative findings about the research problem developed during the research*, including those insights discovered during interviews in qualitative research which had never even been considered in the literature reviewed in Chapter 2. Again the contribution of the research to the body of knowledge should be clearly developed.

You are warned that examiners are careful that conclusions are based on *findings* alone, and will

dispute conclusions not clearly based on the research results. That is, there is a difference between the *conclusions* of the research findings in Sections 5.2 and 5.3 and *implications* drawn from them later in Sections 5.4 and 5.5. For example, if a qualitative methodology is used with limited claims for statistical generalisability, the conclusions must refer specifically to the people interviewed in the past – 'the Hong Kong managers placed small value on advertising' rather than the present tense of 'Hong Kong managers place small value on price'.

This section may sometimes be quite small if the propositions or research issues dealt with in the previous sections cover the area of the research problem in a comprehensive way. Nevertheless, the section is usually worth including for it provides a conclusion to the *whole* research effort. Thus it is advisable to try to put together a final *conceptual* framework that encapsulates the achievements of the thesis. For example, a thesis that used structural equation modelling could present the *final* model chosen from the rival models in Chapter 4, without the coefficients that cluttered up the many figures of the several models in Chapter 4.

Moreover, I suggest that this section conclude with a summary listing of the contributions of the research together with justifications for calling them 'contributions', if that is not clear from the discussion in the previous sections of this chapter. As noted earlier, the examiner is looking for these contributions and it may make his or her task easier if the student explicitly lists them after introducing them in earlier parts of this chapter.

This section should be especially important for qualitative, *theory-building* research for it will show the final theory that is developed and have a model of it in a figure, and also develop some propositions which later researchers can use to test the theory. That is, the section must have 'a rigorously developed conceptual framework with clearly defined and measurable variables, empirically testable research propositions' (Varadararajan 1996, p. 6). Reference to these propositions will be made in the later 'Implications for further research' section.

In a report of non-thesis research such as a journal article or a high-level consulting report, this section might be the 'conclusion' of the report, but a thesis must also discuss parent and other theories (Nightingale 1984), as outlined in the next section.

5.4   Implications for theory

The *full* picture of the research's findings within the body of knowledge is provided in Section 5.4, that is, it provides the theoretical implications of the research. This section aims to convince examiners that the PhD research has not only made a significant contribution to knowledge in its research problem theory as outlined in Sections 5.2 and 5.3, but also has implications for the wider body of knowledge, including the parent theories of Chapter 2 but also other related theories or discipline that were not even mentioned among the few parent theories of Chapter 2. The parent theories are those that are the *direct* background to the theoretical framework developed at the end of Chapter 2, but there may be other theories that could benefit from the findings of this research; the broad range of disciplines mentioned in Section 1.1 might suggest some of these related theories. For example, in a PhD thesis with a research problem involving customer service, Section 5.4 might refer not only to the parent theories of services marketing but also to consumer behaviour, personality characteristics and psychological motivations. In a PhD thesis about international education, Section 5.4 might refer to international marketing and

services marketing.

If one or more of the models developed in Chapter 2 have to be modified because of the research findings, then the modified model should be developed in Section 5.3 or 5.4, with the modifications clearly marked in bold on the figure. Indeed, development of a modified model of the classification or analytical models developed in Chapter 2 is an excellent summary of how the research has added to the body of knowledge, and is strongly recommended.

In brief, Sections 5.3 and 5.4 are the `conclusion' to the whole thesis (Phillips & Pugh 1987) and are the student's complete answer to the research problem.

5.5   Implications for policy and practice
Practical implications for private sector managers are covered in Section 5.5.1 and implications for public sector analysts and managers are covered in Section 5.5.2. Needs for training or new government policies are often raised here. Examiners may be impressed if this section develops a checklist of procedures for managers which incorporates the research findings, and this may help to fulfill justification iv of Section 1.3.

5.6   Limitations
Section 1.7 has previously outlined major delimitations of the research that were a deliberate part of the research (for example, industry boundaries to the research problem). This section discusses other limitations that became apparent during the progress of the research, for example, questionnaire results may indicate that age of respondents is a limitation. Sometimes this section is unnecessary. Indeed, do not make too much of any limitations, for too much discussion here will make the examiner think the research was poorly designed and any conclusions are not worth awarding a degree for.

This section should end with a sentence stating that that the limitations are acknowledge but they do not detract from the significance of the findings. Indeed, the section could begin with a brief statement of the strengths of the research, for example, the size of the sample and the unusual methodology. Then the section could discuss some limitations like the use of perceptions in data collection rather than figures, the use of a convenience sample and the use of cross-sectional rather than longitudinal data. Finally, the section could end with a paragraph that the strengths of the study remain for the limitations o not detract from them but merely provide platforms for future research (which are addressed in the next section).

5.7   Implications for methodology
This section is optional and has the writer's reflections on the methodology used. For example, it could discuss what parts were especially successful and what parts were especially difficult, what procedures had to be developed that were not previously described in the literature about the methodology, and if any of that literature was especially useful or misleading. The section normally takes up only about half a page or so.

5.7   Implications for further research
This final section is written to help students and other researchers in selection and design of future research. Further research could refer to both topics and to methodologies or to both. A

case study methodology thesis should mention the need for positivist survey research to generalise the findings. Removing some delimitations mentioned and justified in Section 1.7 usually provides opportunities for further research, for example, similar research could be done different regions or countries, different industries and different levels of management. This section is enhanced by the development of the actual propositions or research issues that a follow up researcher could use to start his or her research design stage.

A final sentence or short paragraph could summarise and tie the whole thesis together. For example, a thesis might end with 'The literature suggests that the marketing/entrepreneurship interface is direct and similar to the marketing/organisation interface of large firms. This theory-building research showed the marketing/entrepreneurship interface is more complex than the literature suggests and set a foundation for further research about the interface.'

References

Adams, GB. & White, JD 1994, `Dissertation research in public administration and cognate fields: an assessment of methods and quality', *Public Administration Review,* vol. 54, no. 6, pp. 565-576.

Australian Government Publishing Service 2002, *Style Manual,* AGPS, Canberra.

Armstrong, JS & Overton, TS 1977, `Estimating nonresponse bias in mail surveys', *Journal of Marketing Research*, vol. 14, pp. 396-402.

Bloom, BS & Krathowl, DR 1956, *Taxonomy of Educational Objectives*, McKay & Co., New York.

Brown, R 1995, `The "big picture" about managing the writing process', in *Quality in Postgraduate Education - Issues and Processes*, ed. O. Zuber-Skerritt, Kogan Page, Sydney.

Brown, R 1996, *Key Skills for Publishing Research Articles,* Write Way Consulting, Brisbane.

Clark, N 1986, `Writing-up the doctoral thesis', *Graduate Management Research*, Autumn, pp. 25-31.

Conrad, L, Perry, C & Zuber-Skerritt, O 1992, `Alternatives to traditional postgraduate supervision in the social sciences', in Zuber-Skerritt, O. (ed), *Starting Research - Supervision and Training,* Tertiary Education Institiute, University of Queensland, Brisbane.

Coolican, H 1990, *Research Methods and Statistics in Psychology*, Hodder and Stoughton, London.

Cooper, HM 1989, *Integrating Research a Guide for Literature Reviews,* Sage, Newbury Park.

Cude, W 1989, `Graduate education is in trouble', *Challenge*, September-October, pp. 59-62.

Datta, DK, Pinches, GE & Narayanan, VK 1992, `Factors influencing wealth creation from mergers and acquisitions: a meta-analysis', *Strategic Management Journal*, vol. 13, pp. 67-84.

Davis, D & Cosenza, RM 1994, Business Research for Decision Making, Wadsworth, Belmont, California,

Davis, GB & Parker, CA 1979, *Writing the Doctoral Dissertation*, Woodbury, Barron's Educational Series.

Day, A 1996, *How To Get Research Published in Journals*, Gower, Aldershot

Derricourt, R 1992, `Diligent thesis to high-flying book: an unlikely metamorphosis', *Australian Campus Review Weekly*, 27 February - 4 March, p. 13.

Easterby-Smith, M , Thorpe, R & Lowe, A 1991, *Management Research: an Introduction,* Sage, London.

Eisenhardt, K M & Zbaracki, M J 1992, `Strategic decision making', *Strategic Management Journal*, vol. 13, pp. 17-37.

Emory, CW & Cooper, DR 1991, *Business Research Methods*, Irwin, Homewood.

Frost, P & Stablein, R 1992, *Doing Exemplary Research*, Sage, Newbury Park.

Gable, GG 1994, `Integrating case study and survey research methods: an example in information systems', *European Journal of Information Systems*, vol. 3, no. 2, pp. 112-126.

Guba, EG & Lincoln, YS 1994, `Competing paradigms in qualitative research', in *Handbook of Qualitative Research*, eds NK Denzin & YS Lincoln, Sage, Thousand Oaks.

Hair, JF, Anderson, RE, Tatham, RL & Black, WC 1995, *Multivariate Data Analysis with Readings,* Prentice Hall, Englewood Cliffs.

Hansford, BC & Maxwell, TW 1993, `A master's degree program: structural components and examiners' comments', *Higher Education Research and Development*, vol. 12, no. 2, pp. 171-187.

Hassard, J 1990, `Multiple paradigms and organisational analysis: a case study', *Organisational Studies*, vol. 12, issue 2, pp. 275-299.

Heide, JB 1994, `Interorganisational governance in marketing channels', *Journal of Marketing*, vol. 58, pp. 71-85.

Krathwohl, DR 1977, *How to Prepare a Research Proposal,*

University of Syracuse, Syracuse.

Kohli, A 1989, `Determinants of influence in organisational buying:
a contingency approach', *Journal of Marketing*, vol. 53, July, pp. 319-332.

Leedy, P 1989, *Practical Research,* Macmillan, New York.

Lincoln, YS & Guba, G 1986, *Naturalistic Inquiry,* Sage, London.

Lindsay, D 1995, *A Guide to Scientific Writing,* Longman, Melbourne.

Madsen, TK 1989, `Successful exporting management: some empirical evidence',
International Marketing Review, vol. 6, no. 4, pp. 41-57.

Massingham, KR 1984, `Pitfalls along the thesis approach to a higher degree',
The Australian, 25 July, p. 15, quoted in Nightingale, P, `Examination of research theses', *Higher Education Research and Development*, vol. 3, no. 2, pp. 137-150.

McKinsey and Co. 1994, *The Wealth of Ideas*, Australian Manufacturing Council, Melbourne.

Miles, MB & Huberman, AM 1985, *Qualitative Data Analysis*, Sage, New York.

Moses, I 1985, *Supervising Postgraduates*, HERDSA, Sydney.

Newman, WL 1994, *Social Research Methods,* Allyn and Bacon, Boston.

Nightingale, P 1984, `Examination of research theses', *Higher Education Research and Development,* vol. 3, no. 2, pp. 137-152.

Nightingale, P 1992, `Initiation into research through writing', in Zuber-Skerritt, O (ed) 1992, *Starting Research - Supervision and Training*, Tertiary Education Institute, University of Queensland, Brisbane.

Orlikowski, WJ & Baroudi, JJ 1991, `Studying information technology in organisations: research approaches and assumptions', *Information Systems research*. vol. 2, no. 1, pp. 1-2.

Parkhe, A 1993, `"Messy" research, methodological predispositions, and theory development in international joint ventures', *Academy of Management Review,* vol. 18, no. 2, pp. 227-268.

Patton, MQ 1992, *Qualitative Evaluation and Research Methods*, Sage, Newbury Park.

Perry, C, Reige, A and Brown, L 1998, 'Realism rules OK: scientific paradigms in marketing research about networks', competitive paper, Australia and New Zealand Marketing Academy Conference (ANZMAC98), University of Otago, Dunedin, New Zealand, December.

Perry, C 1990, `Matching the minimum time requirement: notes for small
business PhD candidates', *Proceedings of the Fifth National Small Business Conference*, June 28-
30, University College of Southern Queensland, Toowooomba.

Perry, C & Zuber-Skerritt, O 1992, `Action research in graduate management
research programs', *Higher Education*, vol. 23, March, pp. 195-208.

Perry, C & Zuber-Skerritt, O 1994, `Doctorates by action research for senior practicing
managers', *Management Learning*, vol. 1, no. 1, March.

Perry, C & Coote, L 1994, `Processes of a cases study research methodology:
tool for management development?', Australia and New Zealand Association
for Management Annual Conference, Victoria University of Wellington, New Zealand. (A
later version of this paper is Perry (1998b).)

Perry, C 1998a, 'A structured approach for presenting theses', *Australasian Marketing Journal*,
vol. 6, no.1, pp. 63-85.

Perry, C 1998b, 'Processes of a case study methodology for postgraduate research in marketing',
European Journal of Marketing , vol. 32, issue 9/10, pp. 785-802.

Peters, P 1995, *The Cambridge Australian English Style Guide*, Cambridge University Press,
Cambridge.

Pettigrew, S 1999, Culture and consumption a study of beer consumption in Australia, PhD
thesis, University of Western Australia.

Phillips, EM & Conrad, L 1992, `Creating a supportive environment for
postgraduate study', in Zuber-Skerritt, O (ed), *Manual for conducting Workshops on
Postgraduate Supervision*, Tertiary Education Institute, University of Queensland, Brisbane,
pp. 153-163.

Phillips, EM 1992, `The PhD - assessing quality at different stages of
its development', in Zuber-Skerritt, O (ed), *Starting Research - Supervision and Training*,
Tertiary Education Institute, University of Queensland, Brisbane.

Phillips, EM & Pugh, DS 1987, *How to Get a PhD*, Open University Press,
Milton Keynes.

Poole, ME 1993, `Reviewing for research excellence: expectations, procedures
and outcomes', *Australian Journal of Education*, vol. 37, no. 3, pp. 219-230.

Pratt, JM 1984, `Writing your thesis', *Chemistry in Britain*, December, pp. 1114-1115.
Rogers, EM 1983, *Diffusion of Innovation*, The Free Press, New York.

Schertzer, CB & Kerman, JB 1985, `More on the robustness of response scales'
Journal of Marketing Research Society, vol. 8, no. 4, pp. 261-282.

Sekaran, U 1992, *Research Methods for Business: a Skill-Building Approach*, Wiley, New York.

Swales, J 1984, `Research into the structure of introductions to journal
articles and its application to the teaching of academic writing', in Williams, R & Swales, J (eds),
Common Ground: Shared interests in ESP and Communication Studies, Pergamon, Oxford.

University of Oregon n.d., *General Guidelines for Research Writing*, Oregon Graduate
School,University of Oregon, Oregon, based on an original document by the College of Health,
Physical Education and Recreation, Pennsylvania State University.

Varadarajan, PR 1996, 'From the Editor: reflections on research and publishing', *Journal of
Marketing,* vol. 60, October, pp. 3-6.

Witcher, B 1990, `What should a PhD look like?', *Graduate Management Research*, vol. 5, no. 1,
pp. 29-36.

Yin, RK 1989, *Case Study Research Design and Methods*, Sage, London.

Zuber-Skerritt, O & Knight, N 1986, `Problem definition and thesis writing',
Higher Education, vol. 15, no. 1-2, pp. 89-103.

Zuber-Skerritt, O (ed.) 1992, *Starting Research - Supervision and Training*, Tertiary
Education Institute, University of Queensland, Brisbane.

APPENDIX A   REFERENCING AND OTHER STYLE ISSUES FOR THESES IN AUSTRALIA/ 2002

(Developed by Chad Perry and colleagues, revised on 15.08.02)

Consistently using a 'house style' like *Style Manual* (2002) in your thesis will protect you from the criticisms of idiosyncratic and pedantic examiners. There are two or three style manuals to choose from but I recommend *Style Manual* because it is used in all communications with the Australian government, for example, in proposals for consulting projects, and is used by most publishers of books and journals in Australia.

Thus this note shows how to present references in the text of your thesis, how to present a list of references at the end of a thesis, and also covers some other some style issues. The note is based primarily on the 2002 edition of *Style Manual* (2002), and on Peters (1995) and Smith and Summers (1999). Details of these publications are at the end of this note. A note at the end of this appendix discusses how the 2002 edition of *Style Manual* differs from previous editions.

By the way, spelling in Australia should follow **either** the *Macquarie Dictionary* **or** *The Australian Oxford Dictionary* and follow its first preferences consistently. As a prelude for this, set up Tools/Language/Set Language/English (Australian)/OK in your Microsoft Word software. For a thesis, your left margin should be 3 or 4 cm (depending on your university; it is 3 cm at SCU) and the other margins should be 2.54 cm. Font should be 12 point Times New Roman.

PRESENTING REFERENCES IN THE TEXT OF YOUR THESIS

In the **text** of your assignment or dissertation, the citations of ***authors*** are presented in the Harvard style, for example, Smith (1998), (Smith 1998), Smith (1998, p. 3) and (Smith 1998, p. 3). Note that there is no comma between the name and the year, but there is a comma after the date if a quotation necessitates the page number being added. You have to put in the page number if you are referring to a quotation or to figures/data produced in a research project.

If there is ***no author*** to cite, cite the name of the sponsoring organisation or the title of the book or article, for example, Australian Government publishing Service (1994) or *Style Manual* (1994) or ('Here and there' 2001). If there is no date, put n.d., for example, Smith (n.d.).

If you are referring to ***more than one reference***, place them in *alphabetical* order; and if you have more than one reference from one author, place them in *chronological* order. Examples are (Abel 1999; Baker 1990) and Smith (2000, 2001). For multiple citations in the same year use a, b, c... immediately following the year of publication, for example, (Fox 1997a, 1997b)

Use the ampersand symbol (&) only within brackets and in the list of references at the end of the thesis; in contrast, use 'and' when the names of the authors are being incorporated in the

text *outside of brackets*. Examples are: (Larsen, Smith & Green 1987) and Larsen, Smith and Green (1987).

When referring to a work that has ***four or more authors***, use only the first author and add 'et al.', for example, (Carson et al. 2001) and Carson et al. (2001). In contrast, all authors have to be named every time if there are one, two or three of them.

The above principles of referencing are also used for ***internet sources***. That is, the author or the title of the article or the sponsoring organisation is placed in the text, for example, Smith (1996, p. 2) and (*The World in Cyberspace* 1999; 'Hello and goodbye' 2000; World Health Organisation 2000).

Sometimes ***newspapers or magazine*** articles need to be cited. If the author of the article is known, then the procedures above are used (for example, Keating 1999). If the author is not known, then the name of the publication and its date is used in the citation, for example, (*The New Straits Times*, 24 Jan., 2000, p.32).

By the way, ***personal communications*** are not placed in the list of references described below because the reader cannot retrieve them. Thus they are only referred to in the text, for example, (C Perry 2001, pers. comm., 2 May) and C. Perry (2001, pers. comm., 2 May). It may sometimes be helpful to note the organisation a person represents, as in (S Savieri [Asian Defence Council] 2000, pers. comm., 3 May)

EXAMPLES OF ENTRIES IN THE REFERENCE LIST

The full details of the references referred to in the citations above are given in the list of references at the end of the thesis, as shown in the following examples arranged in alphabetical order of type of source. Note that there are no brackets around the year, there is no full stop after an initial, and there is no space between two initials. As well, the volume and number of a journal are not capitalised. There is a space after each entry. Note that some examples in *Style Manual* (2002) do not have page numbers at the end of chapters from books, but it does note that is page numbers have to be added, they can be (Style manual 2002, p. 203. I strongly recommend that page numbers of chapters or papers in books and conference proceeding *do* have the page numbers at the end because people overseas who want to publish any paper or article of yours will probably want page numbers in the list of references of the published paper or article.

Article or chapter in an edited book or book of readings

Jones, B & Smith G 1992, 'Foreign market entry - the textbook vs the network theory', in *Industrial Networks: A New View of Reality,* eds B Axelsson & G Easton,, Routledge, London, pp. 34-56.

If there is only one editor, use 'ed.' (with a full stop) before the editor's name instead of

'eds'. The initials follow the family name of an author but *precede* the family name of an editor.

Article in a journal

Minor, M, Wu, WY & Choi, MK 1991, 'A proposition-based approach to international entry strategy contingencies', *Journal of Global Marketing*, vol. 4, no. 3, pp. 69-87.

Deshpande, R 1983, ' "Paradigms lost": on theory and method in research in marketing', *Journal of Marketing*, vol. 47, Fall, pp. 101-110.

Anderson, E & Coughlan, AT 1987, 'International market entry and expansion via independent or integrated channels of distribution', *Journal of Marketing*, vol. 51, January, pp. 71-82.

'Here and there' 2001, *Atlantic Journal*, vol. 10, no. 2, pp. 36-37.

For an **article in an electronic journal**, see that heading below.

Article in an electronic journal

Tellis, W 1997, 'Application of a case study methodology', *The Qualitative Report*, vol.3, no.3, September, viewed 3 May 1999, <http://www.nova.edu//ssss/QR/QR3-3/tells2.html>

See the **Internet site** heading below for non-journal electronic references.

Article in a newspaper or magazine

Keating, P 1999, 'The "quiet revolution" ', *Asian Business Review*, April, pp. 16-17.

Austrade 1993, 'Exporting of services come into focus', *Business Review Weekly*, September 17, p. 1.

The New Straits Times 2001, 'One more time', 24 Jan., p.32.

Book

Bradley, F 1991, *International Marketing Strategy,* Prentice Hall, London.

Thorelli, HB & Cavusgil, ST (eds) 1990, *International Marketing Strategy,* Pergamon Press, Oxford.

Tom Thumb 1991, Wiley, New York.

Conference paper

Note that some examples in *Style Manual* (2002, p. 203) do not have page numbers at the end of chapters from books, but it does note that if page numbers have to be added, they *can* be. I strongly recommend that page numbers of chapters or papers in books and conference proceeding do have the page numbers at the end because people overseas who want to publish any paper or article of yours will probably want page numbers in the list of references of the published paper or article.

Ritchie, JB 1993, 'Accessing international education markets', Paper presented to the 3rd Internationalising Education Conference, Sydney, 22-23 September.

Healy, M and Perry, C 1998, 'Structures and processes of Australian small business' international networks', *Proceedings*, work-in-progress paper, Australia and New Zealand Marketing Academy Conference (ANZMAC98), University of Otago, Dunedin, New Zealand, December 1998, pp. 34-56.

Richardson, J & Taylor, G 1996, 'Firm embeddness and performance within Japanese network organisations', Paper presented to the Academy of International Business South-East Asia Regional Conference, *Competitive Advantage through Global Networks*, eds. V. Gray & Llanes, University of Otago, Dunedin, 17-20 June, pp. 533-556.

Document at an internet site (to show author *or* title/sponsoring authority if there is no author, then the date, title, name of sponsor, date of viewing and URL)

Lee, MT 1996, *Guidelines for Citing References and Electronic Sources of Information* United Nations, Vienna, viewed 12 May 1999, <http://www.eliz.tased.edu.au/refs.htm>.

Guides to Citing Electronic Information n.d., viewed 6 May 2000, <http://www.uvm.edu/~ncrane/estyles/apa.html>.

'Hello and goodbye' 2000, *Appaloosa Notes,* viewed 6 May 2000, <http://www.mas.edu/estyles/apa.html>.

See the **article in an electronic journal** heading above for electronic journal references.

Thesis or dissertation

Crowley, FK 1949, 'Working class conditions in Australia, 1788-1851', PhD thesis, University of Melbourne.

Working paper series

Selvarajah, CT 1988, 'Marketing education in Malaysia: implications for Australian tertiary institutions', *Faculty of Business Staff Papers*, Working Paper no. 43, Swinburne Institute of Technology, Melbourne.

SOME STYLE ISSUES

Here are some key ideas about style from *Style Manual* (2002) and my own experience.

About small things like words and numbers

There is a difference in the use of a full stop at the end of an abbreviation and a contraction. For example, 'Dr' and 'Oct.' are different because the 'r' in Dr is the last letter in the full word but 't' is not the last letter in October.
Use *single* quotation marks rather than double quotation marks, except when you have a quotation within a quotation when double quotation marks should be used. Here is an example: He said, 'Bill shouted at me, "Go away!" I could not believe it.'
However, if your quotation is more than 30 words, present it as an indented paragraph *without* quotation marks and with a one line space before and after the indented paragraph. As well, the font should be one point less than normal, that is, 11 point font in a thesis that follows the usual 12 point font. This font size difference does not apply for quotations less than 30 words. For example, he said:

> I am going to speak more than 30 words. I am going to speak more than 30 words. I am going to speak more than 30 words. I am going to speak more than 30 words.

Note that *all* quotations should be preceded by a precis *in your own words* of what is in the quotation – you cannot hide behind someone else's words just because you do not have the brains to express the idea in your own words. It is your task to read the literature and synthesise its ideas into a pattern for your thesis. You should not force the examiner to do this by just plopping in a quotation for him or her to read. In brief, use short quotations that you have first expressed in your own words, and use them sparingly.

If you use your own, unusual words or slang words, present them with quotation marks the *first* time you use them but *not* when you use the words after that; for example, 'quasi-probabilistic' and 'confirmatory/disconfirmatory test'.

Present a *title* of a book or journal in italics, for example, *Tom Thumb*. *Style Manual* gives you the choice of capitalising the first letter of all the words in a tittle or only the first one – I strongly recommend capitalising *all* of them because that is what most academic journal require.

Do not place full stops between the letters in established abbreviations like 'US' or 'ASEAN'.

Use *country* names and abbreviations like this: 'United States' is a noun or an adjective and 'US' is only an adjective.

Use a capital letter only at the start of a heading or the title of a figure and table, and then use lower case for all the other words. More advice on presenting tables and figures is provided below.

Use a capital for one *particular* unit but all lower case for *many, generic* units, for example, 'my University' and 'many universities'.

Write out numbers from one to nine in *words*, and larger numbers as *numbers*, for example, 'nine' and '10'. However, if you are comparing a number above 10 with a number below 10, present both of them as number, for example, '7 out of the 15 people were blind'.

However, never use numbers at the *start of a sentence*. For example, do not start with '1998 was…' or '77 percent was…'; instead, start with 'The year 1998 was…' or 'As much as 77 percent…'

Nevertheless, use numbers rather than words for *parts of a document*, and present them with a capital when referring to a particular part of the document, for example, 'Chapter 2' and 'Figure 6.1'.

Occasionally use 'I' or 'we' when describing what you actually *did*, but do not use them to present your own value judgements in phrases like 'I feel' or 'I consider'.

Do not use slangy contractions like 'don't' or 'can't'; instead, write 'do not' or 'cannot'.

Please do not use adjectives and adverbs because what they are essentially just *value judgements* and if the examiner wanted to know about value judgments he or she would look at the letters to the Editor of a newspaper.

Use *italics* for emphasis very sparingly – as a usual maximum, italicise only one or two words per one or two pages. Using italics too often will make them lose their impact. (This is not a thesis, so I have used italics here more often than I would in a thesis.)

A date is written as 12 May 2002, in that order and without a comma. The terms 'pm' and 'am' are written without full stops, for example, 12.15 am. For numbers, thousands do not need a comma but larger numbers should be presented with spaces instead of commas, for example, 5000 and 50 000 000.

About bigger things like headings, sentences, paragraphs and so on

Headings. Use reasonably long *headings and titles of figures and tables* - about 0.5 to 0.75 lines are usually required. By the way, the use of headings should be able to help the reader follow your pattern of argument. Thus, you could have a side heading at least every two or three pages, perhaps, and a run-in heading every three to four paragraphs, say. ('**Headings.**' at the start of this item is an example of a run-in heading, but it should have covered at least two or three paragraphs of material.)

Use *bullet points* sparingly in academic writing, and only when the material in each point can expressed as a phrase or clause with a comma or a semicolon; that is, do not put *sentences* as bullet points. This academic convention about bullet points exists because a thesis is written to be read carefully by thoughtful examiners; in contrast, a consultant's report with many bullet points is written to be read quickly by busy executives. (This list of bullet points is therefore inappropriate, I know, but I am not writing a thesis!). Do not

indent a list of bullet points and do not have a blank line after the semicolon that leads into the list. *Style Manual* suggests that a semi colon or comma is not required if you use a half space between each bullet point item, but using a half space is too tiresome when using a word processor – so just use a comma or semi colon at the end of each item without a space at all.

The *start of a sentence or paragraph* is the most powerful part – it has the most impact on a reader's mind - so put the main idea you are trying to get across there at the start and do not waste that part on parenthetical issues. For example, the first sentence of a paragraph should be a topic or theme sentence that summarises the main idea or position that will be developed in the paragraph.

Use short sentences - about 1.5 to 2 lines is usually long enough.

Paragraphs should be about one main idea but do not use *one-sentence paragraphs* – academic ideas should be deep enough to warrant more than one mere sentence to present them.

Try to have *'linkers'* at the start or near the start of paragraphs so the reader will definitely follow your line of thought from paragraph to paragraph. For example, use words and phrases like 'Furthermore', 'Thus', 'These influences', 'The next step is to…' and '…these…'.

Use 12 point Times New Roman font, 1.5 line spacing, a left margin of 3 or 4 cm (whichever your university requires; SCU requires 3 cm) and other margins of the default 2.54 cms.

Examples of these style issues from Perry (1998) that talk about the style issues at the same time as they illustrate them

The issue of communication with examiners is crucial. **[this is a theme sentence or 'flag' about the whole of this next section]** Consider an examiner. **[this is the theme sentence that summarises the whole of this paragraph]** He or she may be reading the thesis at 11 p.m. on Friday after a hard day's work on more important things like their own research, their own students' research or morale in their Department. A major reason for their agreeing to examine the thesis is a sense of duty to their discipline. Thus the student should try to make the process of examination as much like a journey on 'autopilot' as possible, with changes in direction clearly marked, the track clearly flagged and each step in an argument explicitly explained, as described below. The examiner should not have to do any hard critical thinking as he or she follows the student's journey. In other words, the candidate should try to neither make the examiner *think too much* nor to *go to sleep*; rather, the examiner may hopefully drowse off for a minute or two, snapping fully awake every now and then to check that the thesis is still 'on track' and fulfilling the expectations set up at the start of each section and sub-section of material. In brief, the reader must be guided along a smooth, easily-followed path towards the conclusions that have excited the candidate and will hopefully excite the examiner into passing the thesis and perhaps asking the candidate to work with him or her on a research project in the future. **[this is a summary sentence that summarises and ties the whole paragraph together]**

This *easily-followed communication* can be achieved by using several principles. **[notice the linker of 'this… communication' with the previous paragraph that leads straight into the**

theme sentence next that summarises the whole of this paragraph] Firstly, have sections and sub-sections starting as often as very second or third page, each with a descriptive heading in bold. Secondly, start each section or sub-section with a phrase or sentence linking it with what has gone before, for example, a sentence might start with 'Given the situation described in Section 2.3.4' or 'Turning from international issues to domestic concerns, ...' The important issue here is that the examiner is led on from old ideas which he or she has already digested with, to new ideas: we all need 'an opportunity to get "comfortable" with old material before new material is thrown at us' (Lindsay 1995, p. 56). Next, briefly describe the argument or point to be made in the section at its beginning, for example, `Seven deficiencies in models in the literature will be identified'. As well, make each step in the argument easy to identify with a key term in italics or the judicious use of `firstly', `secondly', or `moreover', `in addition', `in contrast' and so on. **[as is being done in this paragraph]** Finally, end each section with a summary, to establish what it has achieved; this summary sentence or paragraph could be flagged by usually beginning it with `In conclusion,...' or `In brief,...' In brief, following these five principles will make arguments easy to follow and so guide the examiner towards agreeing with a student's views.

Chunkiness. The concept of a 'chunk' can help summarise some of the discussion above.**[another linker and a theme sentence that introduces the whole of this next section]** As shown at the start of the thesis in Section 1.2, the whole *thesis* is one big chunk of an idea.. **[a theme sentence for this paragraph]** But each part of the thesis should be a chunky part of the whole thesis, with links to other parts. For a start, each *chapter* should have its own role within the thesis such as Chapter 2's identification of research issues about which data is collected in Chapter 3. Each chapter has *section* and subsection chunks with a numbering system that reflects their interrelationships (such as 3.2, 3.2.1 and 3.2.2). Then each subsection has chunks of paragraphs within it, sometimes indicated with run-in headings.

Next there are individual *paragraphs*. **[another linker and theme sentence]** These are almost always longer than one sentence and take up about one third of a page or so. Each paragraph usually have a 'linker' word at the start such as 'Next' or 'Furthermore'. These linkers at the start of a paragraph lead the examiner from already-digested ideas into a new idea. Each paragraph deals with one idea that is introduced and summarised in a theme sentence near the start, for the start of a paragraph is a 'hot spot' that the reader will normally concentrate upon (Lindsay 1995). Finally, each *sentence* has one small idea, with the most important aspect of the sentence presented at its start; that is, do not waste the hot spot at the start of a sentence on a relatively unimportant phrase like 'As shown in Table 6', rather, place these unimportant phrases at the end of a sentence after a comma. Sentences also often have a linker word at the start such as 'However' to guide the reader from the known content of the previous sentence into the new material in the sentence. If there is no linker, the reader will assume the new sentence leads *directly* from the previous sentence. In brief, the thesis should be a string of clear chunks of ideas. **[another summarising sentence to finish off the section or paragraph]**

An example will illustrate this easily-followed chunkiness. Notice in the example:
the hierarchy of paragraphs from a side heading with a number, through a side heading without a number, to a run-on heading that leads into two or three paragraphs of text;
the headings are quite long and descriptive, rather than terse one- or two-word announcements;

some text follows each heading, for example, even though the second side heading closely follows the first, there is nevertheless some text between the two headings;

the text reads as though the headings were not there, that is, the reader can skip the headings and still not miss the argument;

if the reader *does* read the heading, the sentence following a heading is not exactly the same as the heading – it says the same thing but is phrased a little differently; and

the text outlines the topics to be covered in each section before going into the details of those topics.

Here is the example (adapted from McKinsy 1994, p. 42-43):

3.1.2 Why some joint initiatives work and others do not
[a side heading with numbers]

While there is still much to learn about joint initiatives in Australia, our observations of high-growth firms overseas and of Australia's shipbuilders have provided insights into what works and what barriers are still to be overcome.**[this is what the whole of this Section 3.1 is about]**

Some common features of successful joint initiatives
[a side heading without numbers – do not go beyond three numbers in a numbered side heading]

There appear to be three necessary ingredients in successful joint initiatives: a large and/or expanding market, strong leadership and shared vision, and complementary interests and skill. **[each of these will be looked at in turn]** Physical proximity may also be important in joint initiatives other than those with customers, suppliers and R&D providers.

Large and/or expanding market. [a run-in heading to show that the first of the three ingredients is going to be discussed in the next three or so paragraphs] The most successful joint initiatives among Australia's high-growth firms were often in industries with large or expanding markets – and for Australia that means export markets. A strong export orientation creates a common focus and the sense of a bigger pie that allows partners to work together. This common perspective is often absent when firms compete for a small domestic market. The shipbuilding and downstream chemical industries in Australia and abroad provide two contrasting examples of this. Norwegian shipbuilders…

On the other hand, **[nice linker]** the domestic focus and history of competition among downstream chemical firms in Australia may help to explain their lack of enthusiasm for joint initiatives compared with their Norwegian counterparts…

Complementary interests and skills. [this is the third point – we have skipped the second point in this example, as shown by the three full stops, called an ellipsis, above] It is not enough to simply get together – firms must have enough common ground to be useful to one another. Complementary interests and skills seem to be important, if obvious, ingredients of successful joint initiatives. Hunternet is an example of how a network of firms with diverse but complementary interests can become a force for innovation and growth….

Tables and figures

Note that an examiner should not *have* to look at tables and figures to be able follow your arguments. If there is an important point in a table or figure, you have to incorporate it into

your text – the examiner should not have to do *your work* by ferreting for points in tables and figures. That is, an examiner should be able to pass a thesis without having to look at any of its tables or figures, if he or she is in a hurry. Similarly, tables and figures should be able to be read somewhat independently of the text, so ensure the titles of tables and figures are rather long and self-explanatory, and any symbols in a table are explained in a note to the table. That is, a table should be understood by someone who has not read the text. By the way, a table has rows and columns and a figure does not.

The title or a table or figure should be reasonably self-explanatory that is, it should not be too short, and it source should be at the bottom. A table or figure should be referred to by number, not as 'above' or 'below'. *Style Manual* (2002, p. 348) has instructions about tables and figures for type setters but not for people using a word processor to write a thesis. I have tried to develop some rules of thumb for thesis writers that are as close as possible to *Style Manual's* standards, and examples of titles (with bold for the name but not for the number, and no full stop, 12 point font), and of notes and sources (with a full stop at the end of them, and they are in that order, in 11 or 10 point font) are:

Table 4.1 **Types of market entry into Thailand**
Figure 4.1 **Type of channel structure used in each market**
Note: Figures are for civilians whose family status could not be determined.
Source: Gibbs (1999).
Source: developed for this research.
Source: analysis of field data.
Source: analysis of survey data.

The information in a table or figure can sometimes be entered in 11 point font rather than the normal 12 point font, but note that journals do not usually want this done.

More details

For further guidelines on referencing and style in Australia, refer to these four publications. The publications are in alphabetical order. The first is a classic for postgraduate students and an updated version can be obtained from the author. The fourth is the most authoritative about style; the third is a summary of the fourth and also has a good treatment of how to reference internet sources, but note that it is based on the 1994 edition of Style Manual; and the second is an excellent treatment of nearly all style issues in Australia.

Perry, C. 1998, 'A structured approach for presenting theses', *Australasian Marketing Journal*, vol. 6, no. 1, pp. 63-85.
Peters, P. 1995, *The Cambridge Australian English Style Guide*, Cambridge University Press, Cambridge.
Smith, B. & Summers, J. (eds) 1997, *Faculty of Business Communications Skills Handbook*, 2nd edn, Faculty of Business, University of Southern Queensland, Toowoomba.
Style Manual for Authors, Editors and Printers 2002, 6th edn, Australian Government Publishing Service, Canberra.

POSTSCRIPT: THESIS LENGTH

It is possible to plan the months and pages of a postgraduate research project. As a rough rule of thumb, the five chapters have these respective percentages of the thesis' words: 6, 34, 18, 22 and 20 percent. Using these approximate percentages, a candidate could plan the time and pages for any chapter. For example, if a candidate plans to do a 50 000 word DBA thesis in 24 months, the planning pages and months for each chapter can be worked out along the lines shown in Table 1. The rule of thumb percentages are slightly different if a thesis has *two* stages of data collection rather than just the one stage that can be neatly described in a five chapter thesis. In this circumstance, Chapters 3 and 4 would be devoted to the two stages of methodology. Rule of thumb percentages for a six chapter thesis are about 6, 33, 11, 17, 20 and 13 percent. For example, a typical, 65 000 word PhD thesis with two methodologies of data collection done in 27 months might look like Table 2. These two tables are merely examples and are not templates for *every* thesis, because each research project must do whatever is required to solve its own, justified research problem. The tables measure pages from the start of Chapter 1 to the end of the final chapter and so they include tables and figures but do not include the table of contents, the list of references or the appendices. Note that some months have been added to direct percentage durations for the first and final chapters, for starting and final drafting of the thesis. I have assumed that the margins, the font and the line spacing are those described in Perry (1998), that is, 12 point font and 1.5 line spacing.

Table A.1 **An approximate plan for a 50 000 word thesis done in 24 months**

Chapter	Topic	%	Pages	Months
1	Introduction	6	10	3
2	Lit review	34	55	6
3	Methodology	18	30	4
4	Data analysis	22	35	5
5	Conclusions	20	30	6
Total		100	160	24

Table A.2 **An approximate plan for a 65 000 word thesis with two methodologies, completed in 27 months**

Chapter	Topic	%	Pages	Months
1	Introduction	6	15	2
2	Lit review	33	75	7
3	Methodology I	11	25	3
4	Methodology II	17	40	5
5	Data analysis of methodology II	20	45	5
6	Conclusions	13	30	5
Total		100	230	27

NOTE ABOUT THE 2002 EDITION OF *STYLE MANUAL*

The latest issue of Style Manual has a few small changes that necessities the updating of this document. In particular, the **parts** of a document in Australia can now referred to with capitals, eg Chapter 2, Figure 6.1. As well, there are no capitals after initials in the list of references, there are single quotation marks around titles of papers in the list of references (as well as around titles of other documents like they were in the past), and there is now at last some specific guidelines on how to present the titles etc of figures and tables. I hope I have incorporated them all in this revised paper.