Massey University

Writing up to Finishing up

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IVABS

Te Kunenga ki Pūrehuroa

Overview

- Outline the traditional thesis and a thesis-by-paper, and discuss the pros and cons
- Guidelines on scientific writing
- Tips on presentation and what the examiners are looking for
- Advice on managing the supervisor-student relationship, and the PhD oral examination

"The PhD degree is awarded for a thesis which is an integrated and coherent report that demonstrates a candidate's ability to carry out independent research, analysis and presentation of this research at an advanced level in a particular field of study. The thesis may consist of several studies or cases, in which event their relationship to one another must be demonstrated. The thesis may consist of the candidate's published or unpublished work or a combination of both, provided this has not been used for the award of any other academic qualification…"

Abridged from the Handbook for Doctoral Study: published by the Doctoral Research Committee, Massey University and available from the library website

Types of Thesis

- Traditional (simple)
  - Introduction
  - Literature Review
  - Materials and Methods
  - Results
  - Discussion / Conclusions
- Traditional (complex)
  - More than one study – may include a general method and a general discussion section

Types of Thesis

- Thesis-by-Paper (compilation of articles)
  - General Introduction
    - Background Information / Literature Review
  - Research Article 1 – repeat for each paper
    - Abstract
    - Introduction
    - Literature review
    - Materials and Methods
    - Results
    - Discussion / Conclusions
    - Reference List
  - General Discussion / Conclusions

In Addition to the Main Text

- Preliminary Pages
  - Title Page
  - Dedication (optional)
  - Abstract
  - Acknowledgments
  - Table of Contents
  - List of Tables
  - List of Figures
  - Notes on the Text
  - Documentation of Ethical Approval / Declarations

Note: Paginated in Roman numerals, but not visible on the Title Page

In Addition to the Main Text

- Final Pages (reference material)
  - Appendices
    - Raw Data
    - Publications
    - Models
    - Measures / Questionnaires
    - Information Forms / Consent Forms
    - Bulky Tables / Figures
  - Glossary of Terms / List of Abbreviations
  - General Reference List

Thesis-by-Paper Requirements

Based on Research that is published, in-press or submitted for publication:

- Published work may provide the basis for one or more chapters
- Must have an overall introduction / literature review that states the research objectives
- Consistency of style and format

Thesis-by-Paper Requirements

- Parts that have been published should be identified in a preface to the chapter
- Reprints of published papers may be bound as appendices
- If the candidate is not the sole author of a publication/s (i.e. supervisors are co-authors) a declaration must be bound in that shows other contributions

Example of Declaration

"Each chapter is set out in the style of the journal to which it has been submitted. Consequently, there is some repetition, particularly in the Methods section, and there are stylistic differences between chapters. The submitted manuscripts include other authors. For each chapter my input was greatest. I designed the research, undertook the fieldwork, analysed the data and wrote the manuscripts. I was, however, assisted by my co-authors."

(Linklater, 1998)

Pros and Cons of a Thesis-by-Paper

- Write as you go
- Good use of your time
- Papers get published sooner
- Continuous feedback from peers
- Motivating
- Helps with grant funding / employment
- Publication does not ensure a pass, but may make passing easier
- Trained to write concisely
- Trained to write for publication

Pros and Cons of a Thesis-by-Paper

- Supervisors' contribution to writing is (probably) increased
- May not suit some types of research (e.g. social sciences) where an argument may need to be developed
- Lose detail (and a handy 'door stopper')
- Considered less salubrious by some institutions
- Repetition throughout thesis
- Style issues – dependent on journal
- May be more difficult for Masters thesis - less time

The Supervisor – Graduate Student Relationship

- Thesis – outcome, structure, length, reference style
- Communication – frequency, duration, format
- Advice and support
- Time frame
- Role of joint supervisors
- Resolution of conflict
- Institute resources – study, technical support, funding
- Protocols – ethics, extension, submission, examination
- Participation in seminars, others' work

Refer: departmental guidelines

The Supervisor – Graduate Student Relationship

- These guidelines should be used in an early discussion with your supervisor(s)
- Effective supervision depends on an understanding between both parties
- Discussing the topics will help make for a good working relationship
- It is important that there is agreement over basic issues and expectations

The Basic Scientific Format

The length and detail of each section will vary depending on whether you are writing a Masters or a Doctoral thesis, and thesis type

- Title page
- Table of Contents
- Abstract
- Introduction
- Literature review
- Materials and Methods
- Results
- Discussion
- Conclusion
- References
- Appendices

Adapted from: Emerson, L. (2005). Research / Lab Reports. Student Learning Centre, Massey University, Turitea Campus

A guide to the presentation of theses, published by Massey University's library, is available from library website

The Title Page

- The title should:
  - Answer the question: *What is the thesis about?*
  - Be brief, specific and descriptive
  - Contain key words from the research
  - Capture the interest of the reader

The page contains:

- Title of the thesis
- Degree, subject and campus details
- Author's name and date

Example

- Poor title

  Precipitation and evaporation influences on bovine lactation and the consequences for industrial dairy production planning

- Better title

  Soil moisture deficit as a predictor for dairy factory milk intake

Table of Contents

- Outlines the project – guides the reader to information
- Neat and professional
- Should contain the most important headings and subheadings that appear in the main text
- Always include page numbers
- Finalised after the thesis is in final format – accuracy!
- Followed by a list for tables and figures

Abstract

- A miniature report in < 350 words
- Separate page
- Brief and informative
  - Why you did what you did (purpose)
  - How you did it (method)
  - What you found (main results)
  - What it means (key conclusions)
- Written in past tense
- Self-contained i.e. no referencing to the main text

Introduction

- Answers the main questions:
  - *Why did you do the work?*
  - *What is its purpose?*
- Short and condensed – hold reader's interest
- Contain:
  - A statement of the problem or subject
  - Reasons to justify investigation
  - Your hypothesis or research question(s)
  - Study objectives

Introduction

- May also include:
  - An indication of recent research on the subject
  - What you examined and where
  - Your experimental approach
  - Key findings
  - Limitations to your research
  - Outline of the structure of the thesis

Literature Review

- The purpose of academic research is to contribute to the current body of knowledge in a given field
- The literature review should show what is known and what remains to be investigated – your hypothesis can then be related to both past and future directions
  - A summary of all key research findings on a particular subject
  - Shows how your work relates to others'
    - puts your research in context

Literature Review

- Functions:
  - Defines frontiers in the field
  - Understanding the theory enables research questions to be placed in context
  - Identifies useful and not so useful research techniques
  - Avoids replication of previous studies
  - Helps with interpretation of own results

Literature Review

- Develop good library skills
- Become familiar with computer databases
- Organise your references – e.g. topics
- EndNote - bibliographic management system
  - Create, store, manage references / citations
  - Imports and stores from electronic databases
  - Creates instant bibliographies
  - Locate and inserts citations into Word documents

The Massey University Library offers free tuition on the use of EndNote

Materials and Methods

- Answers the main questions:
  - *What materials did you use?*
  - *How did you use them?*
- Contains:
  - The experimental design (or theoretical approach)
  - Materials used in detail
  - What you did and how (method) – include methods of statistical analysis
- Written in the past tense
- Present in a logical order – subheadings

Materials and Methods

- The purpose is to provide enough information to allow an experienced colleague to repeat your experiment/work or assess approach
- Precise and concise – accurate detail but not drowned in description
- Widely accepted methods can be stated and referenced
- Tip: never use personal pronouns in this section such as ‘I’, ‘we’, ‘you’

Results

- Answers the question:
  - *What did you find or see?*
- All results should be presented in the Results section – no results should be presented for the first time in the Discussion or Conclusion
- Present key results that relate to your hypothesis / objectives – place at start of a paragraph
- Present in a logical order - subheadings
- Structure results in the same order as objectives

Results

- Concise and accurate – check all workings
- May combine with brief discussion as results are presented
- Graphics (tables and figures) are used to clarify but *not duplicate* data given in the text or other graphic
- Text and graphics are dependent on each other – use text to show link by highlighting the main points in the table
- Tables are best for displaying specific data in a small space
- Label all graphics appropriately

Discussion

- Answers the question:
  - *What do your findings mean?*
- Interprets the results for the reader
- Discuss what the results mean in relation to your hypothesis (as stated in the intro)
- Consider the relevance, usefulness and limitations of your study
- Must be supported by your findings and the relevant literature – connect with your literature review

Discussion

- State what is new in your work and why your results are important
- Don’t be too extravagant - avoid sweeping generalisations and unsubstantiated speculation
- Present in order of importance – place at start of paragraph
- Ideally, follow same order as objectives and results

Conclusion

- Wraps up your report
- Summarises the major points in your discussion in relation to the hypothesis
- Keep it short and to the point
- May include a list or a short discussion of specific recommendations and directions for future research

References

- A section where you list all the sources you have cited in your thesis in full
- EndNote will automatically create one for you in the reference style of your choice
- A bibliography is sometimes used after the reference list to cite sources that were influential, but not cited (check dept.'s rules for inclusion)
- The style of references (e.g. APA) used in the text should concur with the reference list

Appendices

- Contain material that is complex, lengthy, or supplementary so as not to detract readers from main theme
- If raw data is extensive – use a CD ROM
- Professionally presented in an organised manner
- Titled and numbered as they appear in the text
- Explain significance in the main text
  - Poor: "…refer to Appendix A." at the end of a sentence
  - Better: "Refer to Appendix A for a detailed description of this model."

The Writing Process and Elements of Style

Consult the Student Learning Centre at Massey University for a wealth of free information and tuition on: (http://studentservices.massey.ac.nz/default.asp?articleid=81)

- The writing process – draft, edit, revise (repeat), proof-read
- Grammar and punctuation
- Topic sentences
- Thesis statements
- Transitional words
- Words / phrases to avoid
- Presentation

Checklist

- Introduction
  - *Is my opening interesting?*
  - *Have I stated my intentions clearly?*
  - *Is the detail appropriate?*
- Body
  - *Does each paragraph have a topic sentence?*
  - *Have I kept to one idea per paragraph?*
  - *Are my paragraphs fully developed?*
  - *Have I used transitions to connect my ideas?*

Adapted from Emerson, L. and Hampton, J. (2005). Writing guidelines for science and applied science students. Thomson Dunmore Press

Checklist

- Conclusion
  - *Have I summed up my arguments effectively?*
  - *Is there a clear restatement of my intentions?*
  - *Does the thesis have a sense of completion?*
- Style
  - *Have I varied the length and structure of my sentences?*
  - *Can I cut out unnecessary words?*
  - *Could I write more clearly or simply?*

Checklist

- Referencing
  - *Are quotations relevant, accurate and introduced smoothly?*
  - *Are all sources acknowledged, and in the required style?*
- Grammar
  - *Have I checked for errors in spelling, punctuation and sentence structure?*
- Presentation
  - *Is my thesis professionally presented?*

Additional Tips on Presentation

- Discuss style with supervisors early
- Look at a number of theses within discipline
- Candidate's responsibility
- Be succinct – content and contribution that is important
- PhD word limit of 100,000 words (exc. appendices / refs)
- Must be word processed or similar, paginated appropriately
- Care with grammar and spelling – seek assistance if necessary
- Abstract of up to 350 words bound in at beginning
- If embargoed, bind in a copy of the approved application
- Archive data for 5 yrs after completion – must be available for independent analysis by supervisors, examiners or other researchers
- Get it proof-read prior to submission

What Examiners Are Looking For

General criteria (vary depending on thesis type/discipline):

- Familiarity with, and understanding of, relevant literature
- The thesis provides a sufficiently comprehensive study of the topic
- Aims and objectives be clearly stated
- The methods adopted are appropriate to the subject matter and are properly applied
- The research findings are suitably set out and accompanied by adequate exposition
- The quality of English and general presentation is of a satisfactorily high standard
- PhD: the thesis as a whole makes an original contribution to the knowledge of the subject with which it deals, and the candidate understands the relationship of the thesis to the wider context of knowledge in which it belongs

- You have submitted your thesis
- Your examiners have been appointed
- If conducting a PhD, you have been assigned an exam convener who will oversee the whole process and ensure it is conducted properly and fairly

What Now?

Relax

You've earned it

But…

Some of you still have to face…

the oral defence committee

So What Can You Do?

Oral exams here

Preparing for the Oral Defence

- Know the format
- Talk to other students about their experiences
- Re-read your thesis!
- Practice run?
- Prepare own summary and learn it by heart – it will give you confidence
- Whether or not to give a formal or informal presentation? Your choice, but keep it under 15 minutes

Preparing for the Oral Defense

- Headings could include:
  - What you did
  - Why you did it
  - How you did it
  - Main findings - what is important, new and how it contributes
- Pitch as if talking to professionals, not experts in the field
- Take a copy of your summary, thesis and other articles of importance

Oral Defence Format

- *Who attends?*
  - Candidate, internal examiner, the NZ external examiner and the convenor are required
  - Supervisors may attend, but have no formal status re. the outcome
  - In exceptional circumstances, a teleconference or video technology may be used (must be applied for)

Oral Defence Format

- *How long?*
  - From 1 – 2.5 hours, usually 1.5 – 2 hours
- Should be intellectually stimulating, not antagonistic - given the opportunity to defend the work and answer questions or criticisms
- Opportunity to shine!

During the Exam

- Don't panic! - you know more about your work than the examiners
- Questions may be simpler than you expect
- When you get to this stage, the examiners are there to help you
- Take your time and give the examiners time
- Ask for a question to be rephrased if necessary
- The phrase *"That's a good question"* can be useful

During the Exam

- Acknowledge shortcomings. If a question is raised that puts the work in doubt, then the response *"You have identified a limitation which has to be considered when interpreting the results"* is better than an outright denial – the examiner may help to answer it
- Be succinct
- May have to speculate – identify if doing so, do not state as fact
- If you really don't know the answer – say so
- Do not compete with 'grandstanding' - smile, nod and say *"That's an important point"* and move on

Commonly Asked Questions

- *What is your thesis about?*
- *What have you done that merits a PhD?*
- *What do your findings mean?*
- *Why did you choose that methodology/analysis?*
- *What current theory/model best fits your findings?*
- *What are the implications of your findings for future research/industry?*
- *Could you describe areas for further investigation?*
- *Any unexpected findings?*
- *If you had to do it again, what would you do differently?*
- *What are the problems/limitations in your study?*
- *What does your study contribute to current knowledge?*
- *How do you explain the difference between your results and those of Dr Evil?*

Possible Responses

S: *"I think you should run another analysis and see what results you get."*

R: *"I certainly could do that, but would prefer not to hold up the dissertation unless you feel it is necessary for approval. I will, however, do the analysis as a post dissertation activity and if appropriate include the results in a journal article."*

C: *"You state the case too strongly on page X..."*

R: *"You make a valuable argument. If the committee agrees, I will make the corrections you suggest."*

Q: *"Why didn't you do X, it was an obvious extension?"*

R1: *"Yes, that would have been interesting. However it would have been too time consuming and was not included to keep the dissertation within reasonable scope."*

R2: *"I considered this, but preliminary investigations showed the technique was not feasible."*

Adapted from Davis & Parker (1997)

Other Tips

- Best not to get drunk the night before
- No point in saying get a good nights sleep – you probably won't
- Try and eat breakfast – avoid too many caffeinated drinks
- Relax as much as you can – do what works for you (meditation, breathing exercises, mantra, rescue remedy)
- Check out venue location in advance
- Consider taking a support person
- Wear something smart and comfortable
- Don't forget to thank the committee – they have done a great deal on your behalf

Finally PhinisheD

Thanks

- Prof. Tom Barry, IVABS, and Dr. Natilene Bowker, Student Learning Centre for access to information

Sources of Information

Books

- Cone, J. D., & Foster, S. L. (1993). *Dissertations and theses from start to finish: psychology and related fields.* Washington, DC: American Psychological Association.
- Davis, G. B., & Parker, C. A. (1997). *Writing the doctoral dissertation: a systematic approach* (2nd ed.). NY: Barron's Educational Series.
- Mauch, J. E., & Park, N. (2003). *Guide to the successful thesis and dissertation: a handbook for students and faculty* (5th ed.). NY: Marcel Dekker.
- Rountree, K., & Laing, T. (1996). *Writing by degrees: a practical guide to writing theses and research papers.* Auckland: Longman.

Online journal articles/electronic sources (with full text and links)

- Guide to presentation of theses. Massey Univ. Library. Retrieve from http://library.massey.ac.nz/learnit/presentationoftheses.htm#format
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- McMahon, N. *Planning a PhD thesis: structuring and writing a dissertation.* School of Computing, Dublin City University. Retrieve from http://www.computing.dcu.ie/~nmcmahon/essays/planning_a_thesis.htm
- Paltridge, B. (2002). Thesis and dissertation writing: an examination of published advice and actual practice. *English for Specific Purposes, 21*(2), 25-143.
- Wolfe, J. *How to write a PhD thesis*. School of Physics, Univ. of NSW. Retrieve from http://www.phys.unsw.edu.au/~jw/thesis