Lunchtime Thesis Writing Clinic for Graduates

Prof. Richard McClatchey
UWE, Bristol UK

With acknowledgment of resources developed by Paul Spencer, Univ of Bristol, UK and others

Some tips and advice on how to:

- ■Moving towards thesis submission.
- Minimising problems with organising thesis material & avoiding writers' block.
- Focussing attention on the thesis and organising yourself towards submission
- □Writing an "examinable thesis"





Objectives of the Clinic

- to examine the issues and barriers associated with the process of writing up
- to provide helpful hints and tips about thesis completion and
- □to understand what a thesis committee member <u>looks for</u> in a thesis

So it needs to be as interactive as possible with lots of interaction, questioning and critique positively encouraged



Organisation

Two 1-hour lunchtime sessions during the UCC-BDCAT conference :

12noon-1pm on Wednesday 6th December in Salon B Maintaining Momentum Towards Thesis Submission

And

12noon-1pm on Thursday 7th December in Salon B What an Examiner or Thesis Committee Member will Look for in Your Thesis



Some issues that we might discuss

Session 1:

- □ The Starting Challenge
- □ Planning and Scheduling time
- Overcoming Research and Writing Blocks

Session 2:

- □ Thesis outline
- □ The Whole Thesis structuring and
- □ Typical examining approaches

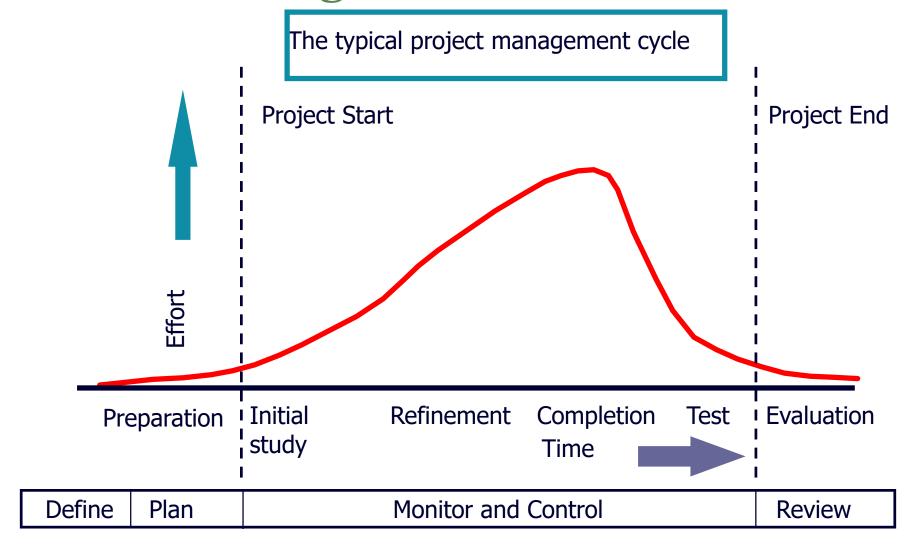


Session 1:

Maintaining Momentum Towards Thesis Submission

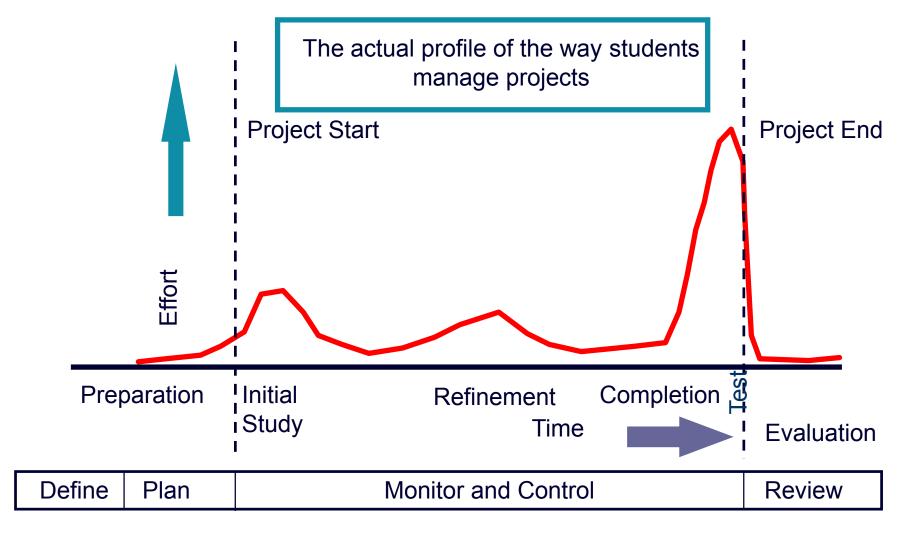


Time management 1





Time management 2





The top five #phdemotions

- 1) Elation when you realise you know more than your supervisor about your topic and you feel brave enough to argue about it.
- 2) Fear of being 'found out' as fraud, not really knowing enough/being smart enough to be PhD student.
- 3) Unexpected admiration of your own writing
- 4) the "I'm a genius! Why hasn't anybody thought to do that before?" moment before people point out the obscure paper you've not read
- 5) Misplaced smugness after photocopying/ downloading loads of stuff but not actually reading it.



The Starting Challenge

- 1. How do you start?
- 2. How can you gauge progress?
- 3. When do you know you have finished?

There are no simple answers to these questions just examples of what works for others which might work for you



To start: recall what it means to be a doctoral student?

You need to be:

- □ responsible for the management of your own work own it!
- □ acquire or possess the necessary skills to carry out your study learn them!
- □ have determination and motivation
- overcome problems and disappointments
- be aware and understand the criteria and requirements for the award







The Starting Challenge

- □ Use what you already have (yearly Progression Reports, summaries of supervision meetings, logbooks)
- Treat these as building blocks toward a draft thesis
- When you have a draft thesis you have a structure. **Structure** is the key to overcoming the starting challenge
- Make a plan!



WRITING YOUR THESIS OUTLINE

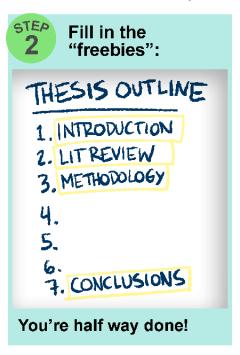
NOTHING SAYS "I'M ALMOST DONE" TO YOUR ADVISOR/ SPOUSE/PARENTS LIKE PRETENDING YOU HAVE A PLAN

Aim for a respectable number of chapters:

THESIS OUTLINE

1.
2.
3.
4.
5. chapter
6. #'s
7.

5 = "That's IT??"
6-7 = "Not bad"
8+ = "Are you crazy??"





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Photo credit: "Procrastination meter" by Emilie Ogez [CC BY-NC-ND 2.0]





Photo credit:"Motivations" by Nichole Burrows at Flickr [CC BY 2.0]



Procrastination

Definition:

to keep delaying something that must be done, often because it is unpleasant or boring

Why write today when you can write tomorrow? I'll work on that some more before writing. I'm not very good at expressing myself. I'm not sure that this paragraph is quite right. Just skip over that – I'll come back to it later.

Stop looking for excuses. Just write it down!



Motivating yourself

- □ Getting started requires motivation
- Only you can motivate yourself and only you know what motivates you
- Use friends, loved ones, colleagues, supervisors to help you maintain motivation
- Reconnect with your initial motivation to do a PhD (e.g. driving desire to carry out research, thirst for new knowledge, to be called Doctor etc. etc.)



Re-Motivating

- □ Find the right balance
- Make sure you have a comfortable place to work with limited distractions and preferably access to copious amounts of tea / coffee!
- □ Treats not tricks! Reward yourself when you have reached set targets... Don't have that cup of tea until you have written a page
- □ Shut up and write!
- □ It will not be right first time, but it's a start



Measuring progress?

written/interviews/data

Useful Not so useful

Tasks completed Tasks started

Number of words Hours worked

standard

Percentage of the whole completed Lists of failures



Some words about Thesis Writing

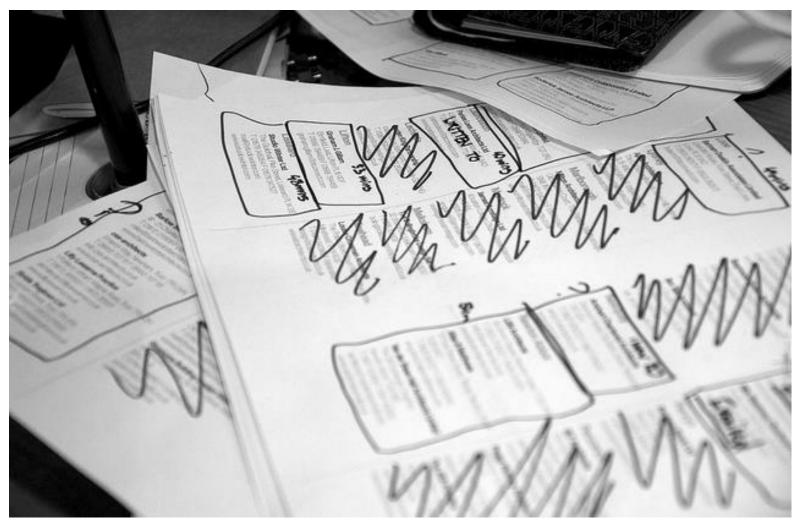


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Thesis writing

Before you start:

- Two methods : write as you go or write at the end
- Set a target date for submission
- Set intermediary goals and check points
- Read up on the rules regarding the thesis
- What format does it need to be in?
- □ Is there a word limit?
- Have you got everything you need to do the writing?
- Do you still need to be doing testing / result gathering?
- How will you balance this?
- Does you supervisor have any time restrictions? Such as going to a conference or on leave for a period



Words of caution

- Every supervisor/adviser may have their own preferred structure / way of thesis preparation
- These are general guidelines which should apply in most cases
- Communication with your supervisor/adviser is essential try to have an open discussion
- Don't get upset if you don't always like what you hear
- This is for your benefit so accept advice
- Query why you are asked to do something but never have heated discussions – will not help either of you



Writing up – Hints & Tips 1

Start early!

- write notes and drafts throughout the research period
- check/observe specific requirements, including document size
- > set a timetable with critical milestones

Planning and writing strategies

- brainstorm for main points (in sequence or random order)
 - could start from literature, then methodology, then your own findings
 - keep/put your notes in order
- visual maps can be helpful then translate part by part
- you don't have to write the thesis/dissertation in order



Writing up 2

Planning and writing strategies contd.

- if you do leave it till the last minute...
 - > define a structure and set it up in your word processor
 - fill it quickly to get volume draft quick intro/conclusions but leave their detail till last
 - do the quick stuff (context / methodology / equipment)
 - Then do your contribution carefully this is what you will be (largely) judged on
 - print/read/correct when two thirds done, open file for bibliography
 - get someone to read it and make comments (supervisor if possible)

Enter changes in order, do spell/grammar check, print chapter at a time, check & re-check.



Writing up contd...

Structure and content

- present in logical sequence, to make coherent argument
- standard hierarchy of headings (chapters, sections, subsections)
- standardize titles and headings for figures (sequential by type within chapter)
- number pages sequentially

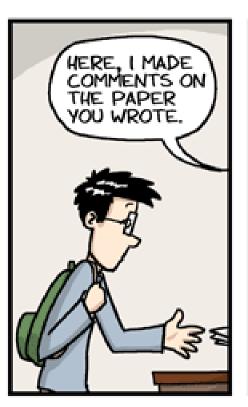
Style and layout

- be consistent re page size, layout, fonts, justification, use of colour
- readable font and font size
- attractive design
- use colour if possible, but in restrained fashion

Presentational forms

- locate figures close to relevant text
- vary forms of data representation to maintain interest

Get feedback on your work as you go along









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Thesis Panic



Photo credit: "Let's not panic" by Wackystuff [CC BY-SA 2.0]



Getting stuck

- □ Part of the problem is that <u>writing is</u> <u>thinking</u>
- Understanding of and learning about your research isn't linear
- Conceptual thresholds (Kiley & Wisker)



Struggles with PG research

- Making a claim and defense of a thesis not just a collection of work performed or way of proving existing beliefs
- Clearly articulating a position on 'the literatures' and being able to locate your work within it
- Being able to develop a theory or model that would allow your findings to be applied in other cases



Common problems

Performance anxiety:

Daunted by the size of the task

Perfectionism

Fear of consequences

Lack of self-belief



Some ideas that might work for you:

- Free writing
- 2. Three-draft approach
- 3. Use a draft stamp on your documents
- 4. Use sentence skeletons to help with generative writing
- 5. Try the whiteboard method to sketch out big ideas
- 6. Realise that <u>everyone</u> has to produce a first shitty draft



Good writing tasks to complete while you are doing the research include:

- □ Literature review
- □ Analysing data and detailing pilot studies
- □ Reports for your supervisor
- □ A personal journal/blog
- □ Methodology chapters
- □ Early drafts of other chapters



Talk, Talk, Talk

Research can be a lonely experience. Except for research teams most students retire to the silence of their own thoughts, sometimes for months, even years. But everything we know about writing and thinking suggests that most of us work more slowly and less well when we work alone...

...Most senior researchers rehearse their work all the time – for colleagues, friends, students, in seminars, at conferences, on e-mail lists or via social media, in grant proposals and so on...

...Sometimes the talk is as important as the reaction to it. Clarity of thought can come from saying out loud what we think we are thinking.

Dealing with thesis complexity

- Break it down. Work with smaller chunks but keep connections clearly in mind.
- Discuss the chunks and their connections with friends, fellow PhD students, supervisors other interested parties.

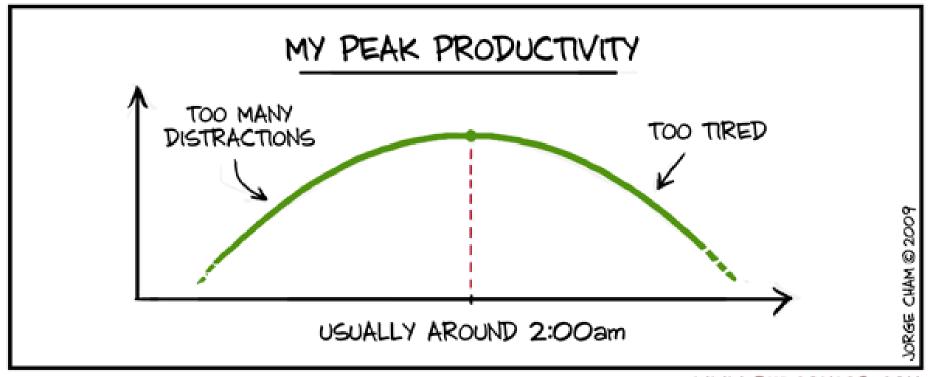


Some more tips

- □ Be positive! It's your Doctorate/Masters
- Try to achieve something concrete every day/week (focus on results not being busy)
- □ Reward achievement (treats not tricks)
- Keep track of the whole (eye on the big picture)



Work-Life Balance?



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A better way to think about it?

'Think of your thesis as part of your investigation, not as a duty to be undertaken when your work is otherwise complete.'



Recommended Reading

K L Turabian, A Manual for Writers (University of Chicago Press, 8th ed., 2013) and

M Wallace & A Wray, Critical Reading and Writing for Postgraduates (Sage, 2nd ed., 2011).

Inger Mewburn, How to Tame your PhD (Thesis Whisperer Books), see https://thesiswhisperer.com/

James Hayton, PhD: an uncommon guide to research, writing & PhD life (Published by Jame Hayton PhD), see jameshaytonphd.com

The Open University Press, How to Get a PhD, The Unwritten Rules of PhD Research, others, see https://www.openup.co.uk/



It's really about persistence









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Session 2:

- □ Thesis outline
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- □ Typical examining approaches



Session 2:

What an Examiner or Thesis
Committee Member Will Look for
in Your Work
OR
What makes a good thesis?



Features of a high quality Thesis

- 1. Logical argument, developed from title to conclusion, providing strong warrant for claims to knowledge. Argument should be summarizable in a sentence (and form the core of the abstract).
- 2. Clearly stated substantive focus, justified from literature.
- 3. Explicitly stated aims, linking to broad central question.
- 4. Critical literature review driven by review questions linked to central question, leading to specification of detailed research questions (RQs) or hypotheses.
- 5. Well-structured explicit research design.
- 6. Thoroughly presented and analyzed data, linking back to RQs.
- 7. Discussion of findings, <u>linking to RQ and literature</u>.
- 8. Reflective, integrative conclusion.
- 9. Accurate referencing.
- 10. Clear expression, producing a comprehensible account.



What are examiners looking for 1?

- Review of literature
 - Is the literature relevant?
 - Is the review critical or just descriptive?
 - Is it comprehensive?
 - Does it link to the methodology in the thesis?
 - Does it summarize the essential aspects?

- Methodology
 - Is there a clear hypothesis?
 - Are precautions taken against bias?
 - Are the limitations identified?
 - Is the data collected appropriately?
 - Is the methodology justified?



What are examiners looking for 2?

- Presentation of results
 - Have the hypotheses in fact been tested?
 - Are the results shown to support the hypothesis?
 - Is the data properly analysed?
 - Are the results presented clearly?
 - Are patterns identified and summarized?

- Discussion and Conclusions
 - Are the limits of the research identified?
 - Are the main points to emerge identified?
 - Are links made to the literature?
 - Is there theoretical development?
 - Are the speculations well grounded?



7 sure ways of failing

- Not wanting a PhD
- Overestimating what's needed never getting started (frozen)
- Underestimating what's needed never getting started
- Getting disheartened or sidetracked
- Undervaluing (or overvaluing?) the worth of your research
- Not having a (testable/verifiable) 'thesis'
- Taking a job before completion (not always fatal)



Typical thesis structure

- Abstract
- 1. Introduction
- Previous work
- Your method introduced
- 4. Your method perhaps in more detail
- 5. Implementation
- 6. Results
- Conclusion and future work
- Bibliography
- Appendix



The thesis itself - general points.

- The object of your thesis is to communicate, not impress or blind with science!
- Help your reader as much as possible.
- Use ordinary plain English, free of jargon and slang.
- Use diagrams, charts etc as much as possible.
- Stick to conventional and consistent nomenclature.



Communicating your structure

It is key that you communicate your structure in your writing: effective signposting will help you to get your message across



Signposts

- □ A detailed contents page
- □ Abstract
- □ Introduction and conclusion
- Chapters
- □ Sub-headings
- □ Summary paragraphs
- □ In text, signposts, such as 'and now it will be argued that...'



It is essential in your writing to ensure that you address

Many PhD candidates are either:

- unclear about exactly the contribution they have made, or
- □ too modest to state the significance of the contribution

Many theses fail to indicate which part of the work is existing and which is **new and original**



The thesis itself - the start.

- Title page see the Requirements Guide.
- Acknowledgements keep it formal!
- Table of contents (STRUCTURE).
- List of figures.
- Nomenclature, Definitions and Nondimensionalisation.
- Abstract of about a few hundred words. The abstract is an important guide to the reader and must describe the main area of the work and your main results. *Usually written last.*



The thesis itself - the Introduction.

- What the project is about.
- A "map" of the work undertaken.
- Why your work is interesting/important.
- Possible applications.
- A review of previous work.
- A clear statement of how you have extended the previous work.
- The introduction is usually written at the end of the project.

The thesis itself - the Method.

- This can be very technical, so help your reader "navigate" through the work by:
 - clearly stating your assumptions.
 - stressing what is most important. Move some material to appendices.
 - using logical paragraph, section & chapter breaks.
 - using diagrams, charts, flow charts.
 - using equations with all terms defined; consider reminding the reader of earlier definitions.
- Think strategy, not detail.
- □ The method section is often written early and goes through a few drafts as the work progresses and the supervisor comments on it.

Chapter(s) about your work 1

- Plan each chapter carefully, list the content that you want to present down on paper before writing
- Organise your points in a logical flowing way
- Start off with a GENTLE introduction to your approach
- Remember that you will be an expert in the area of your thesis but the reader might need time to get your message or meaning
- Use simple examples to show how complex processes work
- Pick a case study and use it throughout your thesis to explain points
- Describe technical details very carefully and don't assume that the reader knows it already



Chapter(s) about your work 2

- Explain architectural points clearly
- Give clear reasons for the important decisions that you have made in designing your work
- If there are potential drawbacks to the approach then acknowledge them and suggest how they may be overcome
- Gradually go into more detail don't just jump in
- Use technical language appropriately and in the right context
- Link the technical details of your proposed system / architecture to the problems with existing work that you identified in your Previous Work chapter



Implementation

- Be very careful when you describe your implemented system
- Ask a friend to read your description to see if they think that using it they could build the system
- Be sure that you explain implementation choices
- Need to convince the reader that you have been rigorous in the way you have set up your prototype
- Ensure that implementation decisions don't influence your final results by biasing your experiments
- Try to predict potential nasty questions and answer them in advance – will make your final defense easier



The thesis itself - the Results.

- This can be very technical, so help your reader as before.
- When presenting results you should:
 - state any limitations on the generality of your results.
 - state the accuracy of your results.
 - describe the sensitivity of your results to changes in assumptions and parameter values.
 - Reconsider the model assumptions and refine them if possible (a modeling cycle).
- Explain your results; if you can't/won't do this, how do you expect the reader to be able to?
- □ The results section is often written early and goes through a few drafts as the work progresses and the supervisor comments on it.

Results 1

- Describe carefully what you are trying to show and how this relates to your hypothesis / problem statement / research questions
- Explain how you are going to do this using a set of experiments / tests
- Thoroughly describe each experimental set up
- As you do think about what a reader could question and try to give an answer in advance
- How have you ensured that all tests are fair?
- What assumptions have you made and why?



Results 2

- Look back to your literature review how do other researchers in your domain test their systems / techniques / approaches?
- What metrics are commonly used?
- Are there any standard datasets that researchers use to evaluate their work?
- Be careful with your technical language especially if mathematical or statistical where there is very little room for error
- Look up a term if you don't completely understand it don't guess



Results 3

- Relate your final results to the research method that you described in your first chapter
- Apply any criteria for success that you set at the beginning of your thesis
- Use appropriate methods of illustrating results such as graphs and tables
- Be careful with the presentation of any figures you use make sure they:
 - Have a clear title
 - Have a legend where appropriate
 - Are readable
 - Make the point you want them to
 - Are linked into the text and explained
- Don't have too many figures as they break the text up



The thesis itself - the Conclusion.

- □ This must not contain new ideas − NOT AFTERTHOUGHTS!
- This must contain only statements which are supported by your work and follow naturally and logically from it.
- Draw some conclusions, probably taking several pages of text; if you can't/won't do this, why do you expect the reader to do it for you?
- Conclusions MUST be defensible (in a court of law) on the basis of ONLY what you have presented – no unsupported conclusions.
- NB The conclusion is worth a lot of attention !



Conclusions / future work 1

Very important chapter don't rush it!

- Often read by examiner in conjunction with your abstract and introduction
- Start by reviewing what you said you would do in your abstract and Introduction
- Summarise the main points that you have covered in the thesis – give special focus to your experimental set up and results
- Show areas where you have made a contribution and answer any research questions you have set yourself



Conclusions / future work 2

- Make a judgement regarding your hypothesis / problem statement and explain how your results confirm this
- Say what directions your work may take in the future
- Your chance to say what you would have done if you weren't constrained by time
- You can speculate regarding how your work could be used by others in the future
- Be sensible though don't claim too much



The thesis itself - Recommendations.

- This should contain many of the ideas which will have occurred to you as you worked, and which were written down in your log book ... weren't they?
- This must contain ideas for future work. Imagine yourself starting a similar project ... what would you want to read? Be as specific as possible about:
 - new applications of the present theories/techniques.
 - application in areas with similar mathematical/programming structures.
 - Extensions which avoid the limitations/weaknesses of your work. Be honest - this is a sign that you know what you are doing and will be rewarded rather that penalised!
- NB The Recommendations are worth a lot of attention !

Reference management

- Make sure you keep your reference materials up to date and in the format required for your thesis.
- Many research students encounter unnecessary blocks due to poor organisation of their references. Missing or partial reference details can be time consuming to track down and very dispiriting! Don't fall into that trap.



Reference management

Make sure you use a reference manager software that suits how you work Lots of choice in terms of features etc.

- □ Refworks
- Endnote
- □ Mendeley
- □ Zotero
- □ And many more



The Whole Thesis

- A complex interconnected document of substantial size with significant intellectual effort expanded in its production
- □ Remember the Law of Diminishing Returns
- Increasing effort expanded will bring smaller and smaller rewards after a threshold is passed
- ☐ This is a risk assessment that you have to undertake for yourself



The Whole Thesis

- How much do I need to do in order to pass the defence?
- □ How do I know when it's good enough ?
- → What does my supervisor/advisor(s) say?
- □ What are the word limits that constrain me?
- □ Have I brought it all together ?
- How much do I want to go beyond the "defence pass" stage?
- □ Are my results publishable ?



Have you finished?

- Sadly not \(\operatorname{\operatorname{O}} \)
- Now go through and make sure it is consistent
- Get the logical flow right
- Remove loose ends that examiners could latch on to
- Will likely require significant tweaks to each chapter
- Finally do a last proof read format check and get ready to submit



Finishing off

- Don't underestimate the time needed here
- Identify examiners internal and external
- Notice of submission, then thesis to examiners
- Preparation for Defence including performance
- Following up the Defence
- Printing of final thesis
- GRADUATION



The thesis itself - the Appendices.

- Program listings on a disc to help future students.
- Data printouts again on disc.
- List of software used.
- Logbook?
- Instructions for reading data and/or running any programs on the disc. Remember that the External Examiner may well want to do this, so be specific and include everything that is needed unless this infringes copyright laws.
- Proofs and material which underpins, but is not part of, the main narrative.
- Include material here which will help future PhD students.



Thesis writing style tips

- Guidelines
 - aim for a readable writing style
 - make it interesting, comprehensible, and legible
 - short, lucid sentences; a new paragraph for each new idea
 - precise and correct use of words
 - avoid jargon, slang, and clichés
 - use spelling and grammar checkers (judiciously)
 - get names right
 - proof read (yourself)
 - use first person only sparingly
 - use footnotes and Latin abbreviations sparingly
 - include and attribute relevant quotations and illustrations
 - use appropriate form of presentation for quantitative data
 - tables, charts, graphs



More thesis writing style tips

- A popular approach is to work (write) outwards from the middle
 - Start with literature review, methodology, analysis and results sections
 - Finish with introduction and conclusions
- Write as the third person
 - DO NOT Use "I did this..." "We did that ..."
 - Rather: this was done, that was completed etc.
- Chapters are numbered 1, 2, 3 etc.
 - some people like to "frame" each chapter with a brief introduction to and summary of the chapter



More thesis writing style tips

- Write in a structured fashion using
 - sentences, paragraphs, sub-sections, sections and chapters
 - Each sentence should have at least one verb
 - sentences should follow on logically from each other
 - Paragraphs introduce a definitive break between a group of related sentences
 - start a new paragraph when you move on to a new issue about the current topic
 - Sections and sub-sections introduce more "coarsely grained" breaks than paragraphs
 - sections are numbered 3.1, 3.2, 3.3 etc.
 - subsections are numbered 3.1.1, 3.1.2, 3.1.3, etc.
- Remember signposting! Lead-out and lead-in chapters.



Yet more thesis writing style tips

- Wherever possible try and use diagrams, tables and lists
 - "a picture paints a thousand words"
 - readers find it easier to relate to you ideas through diagrams, tables and lists
 - If a diagram or table is not self-explanatory add a paragraph to explain the picture or table
 - try to place the explanatory paragraph close to the picture (directly above or below)
- Where appropriate lists
 - are easier to read than two or three paragraphs of text
- Use of the 'worked example' builds familiarity



Web sites

Remember, invest your time wisely when reviewing these sites. They only advise on how you might write a PhD, they don't do it for you.



Final Words

□Good Luck

- □Keep happy, but keep focussed
- □Believe in yourself
- □It's only a thesis
- □Use your time wisely











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Recommended Reading

K L Turabian, A Manual for Writers (University of Chicago Press, 8th ed., 2013) and

M Wallace & A Wray, Critical Reading and Writing for Postgraduates (Sage, 2nd ed., 2011).

Inger Mewburn, How to Tame your PhD (Thesis Whisperer Books), see https://thesiswhisperer.com/

James Hayton, PhD: an uncommon guide to research, writing & PhD life (Published by Jame Hayton PhD), see jameshaytonphd.com

The Open University Press, How to Get a PhD, The Unwritten Rules of PhD Research, others, see https://www.openup.co.uk/



Avoid self-citations!



Jane suddenly realised that her reference list had too many self citations...

