

Research Methods  
comp4809/7809  
Week 5

# Announcements

- Reminder: passing this course
  - Must attend 10 (of 13) lectures
  - Must submit **all** deliverables
  - Must obtain 50% over all deliverables (40/80)
- If you think you're close to these limits, check!

# Lecture 5 – Writing and structure

- Structure of a project report
- Writing up research

Much of this material is adapted from:

“Writing a Thesis – A Workshop for PhD and MPhil Students”, Dr. David Rowland, Learning Adviser, Student Support Services

# Structure of a thesis

- **Abstract**
- **Introduction**
- **Literature Review**
- **Methods**
- **Results**
- **Discussion**
- **Conclusion**
- **References**

“Writing a Thesis – A Workshop for PhD and MPhil Students”, Dr. David Rowland

# Structure of a thesis

- An abstract is a brief summary of the whole thesis, which says (not necessarily in this order):
  - What was done
  - Why it was done
  - How it was done
  - What the results were
  - What the significance of the results are

# How to think about your introduction

Your introduction is a story that explains your project to the reader.

When your story gets out of order, the reader can get confused.

You can't introduce concepts like "the goal of the research" before you've introduced the gaps in the field.

If your reader is ever surprised by your introduction, you need to fix something.

# Structure of a thesis

- Introduction
  - Research area
  - Significance of the work
  - Current knowledge in the area
  - Problem being addressed
  - Methods used to address the problem
- Literature Review
  - *A review of the relevant literature*
  - Not everything – enough to frame your project

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# The story of your thesis

- Once upon a time researchers believed that... (literature review)
- but then I thought that maybe... (aims),
- so what I did was... (methods)
- and I've discovered that... (results)
- which I think means... (discussion)
- which changed the way we... (conclusion)

# Structure of a thesis

- Methods
  - The approach or approaches you're taking to solve your problem
  - Enough detail so that someone else could replicate your results
- Results
  - Empirical description of what was discovered
- Discussion
  - What do your results *mean*?

# Structure of a thesis

- Conclusion
  - What do the findings mean in relation to the literature?
  - What contribution do the findings make to knowledge?
  - What difference does your research make?
  - What does your research leave unanswered?

# What the literature review does

- Shows that you are competent in the area of research that you are aiming to contribute to
- Justifies why your research is reasonable and necessary
- Establishes the basic theory that will underlie your research

# Give your literature review a conclusion

- When you're writing a literature review, you're giving the reader background
- Background will usually either:
  - Give background required for understanding
  - Frame your project, and not be essential
  - Convince the reader of your argument
- Your literature review must tell the reader:
  - Which part of the background is which
  - What conclusions you would like them to draw

# Be aware of copyright

- Referencing is about avoiding plagiarism
- Correct referencing *does not* mean that you haven't violated copyright law
- Copyright law protects a form of expression, such as
  - Specific passages of text
  - **Images and diagrams**
- You *can not* reuse someone's image or diagram and just reference them

Disclaimer: I am not a lawyer. The library will be able to give advice on this subject.

# Results – do...

- Specify what the data was and how it was prepared/preprocessed
- Present a textual summary
- Present descriptive statistics in a suitable graphical or tabular form
- Summarise the most important features of the above

# Results – *don't*...

- Interpret or offer any explanations for the results

# Discussion

- Summarise, interpret and explain the results
- Consider the implications of the results
- Compare, contrast and integrate results with the findings of the literature
- End with a concluding paragraph summarising the main findings and the lessons to be drawn from the study

# Conclusion

- Should:
  - Highlight the important discussion points
  - Relate your findings to the literature
  - Say what is still to be done
- Sometimes subsumed by the discussion

# Writing up research

- Writing for research
  - Critical phrasing
  - Structuring moves
  - Tables and figures
- Stylistic issues
  - Personal pronouns
  - Active and passive voice
  - Tense

# Hints on writing the critical aspects of the literature review

# Useful phrases for critiquing

- X's work allows him/her to draw conclusions that ...
- Developing X's work to its logical conclusion shows ...
- One consequence of this is that  $p$ ; another is that  $q$
- The substance of X's argument is that ..

# Useful phrases for critiquing

- Essentially, X (2005) argues that ...
- When X's work is examined closely, it is evident that ...
- In this, it is possible to agree with X ...
- X's argument relies on the assumption that ...
- In 1957, X proposed the following analysis ....  
Y's (1965) reformulation of this analysis separates out ...

# Say what you think about the literature

- When there is essentially no doubt in a particular result or claim
  - Smith (1985) has shown that ...
  - It has been established that ... (Smith, 1985).

# Say what you think about the literature

- Delaying your indication/being initially neutral
  - In studies of X and Y it was found that... (Smith, 1985)
  - Based on ..., Jones (1985) argues that ...
- Then indicating that you disagree or have doubts
  - However, the results of these studies cannot be considered conclusive because ...
  - While these results are strongly suggestive [in one situation], they may not be applicable [in another situation] and so further studies [in that situation] would be needed before any firm conclusions could be drawn.

# Structuring moves: signposts

- A **signpost** signals direction and structure:
  - “There are three approaches to X, namely A, B and C.”  
The reader would then expect a discussion of A, then B then C.
  - “An alternative viewpoint ...”  
The reader would then expect a discussion about the same issue that had just been discussed, but from a different perspective.

# Structuring moves: focus

- Use **Foci** to highlight key points:
  - e.g., “The basic processes necessary to ...”;  
“The key feature of ...”

# Structuring moves: frames

- **Frames** mark the start and end of topics:
  - “When it comes to ..., one issue that needs to be addressed is X. ...” Frames the beginning of a topic, namely a discussion of X.
  - “Another issue that needs to be considered is Y. ...” Signals both the end of the discussion of X and the beginning of the discussion of Y.
  - “In summary ...” Signals that you are wrapping a section up.

# Structuring moves: logical connectives

- **Logical connectives** are used to show the reader what the relationship is between your statements
- Without logical connection, your writing is difficult to follow

# Logical connectives

- *Although* and *while* indicate that you are going to find fault with or limitations in what you are next going to say.
- *Thus, therefore, consequently, hence* indicate that what comes next is a logical conclusion based on the preceding ideas.
- *However, but, still, unless* indicate that what comes next is a qualification of ideas.

# Logical connectives

- *In fact, in any case, rather, either* suggest an emphasis of ideas.
- *Because* and *since* indicate causal relations.
- *For example* indicates that what comes next is not a new point, but rather an illustration of the previous point.
- The suggestive nature of these words help a reader anticipate the thread of your ideas.

# Tables and Figures

- Like results, tables and figures are used to support an argument
  - If you don't have an in-text reference to a table or figure, why is it there?
- Use informative captions for figures and tables
  - In a figure, point out to the reader what they are supposed to be seeing in the figure

# Stylistic issues

- Personal pronouns
- Active and passive voice
- Tense

# 'I', 'we' and other options

- Why is using 'I' and 'we' discouraged?
  - Objectivity
    - Not using 'I' does not make a word objective any more than using it destroys subjectivity
  - Focuses on the person, not on the research
    - Same reason for talking about research and not people in the literature review
- Ideally avoided, but you'll probably have to break this rule some time

# Active voice or passive voice?

- There is no golden rule; both active and passive voice are appropriate in different situations.
- Active voice:
  - is generally easier to read
  - is frequently easier to write
- Passive voice:
  - can be seen as more detached/objective & ‘scientific’
  - can lead to very confusing sentences
- Sometimes active voice sounds a lot more confident than you actually are...

# Tense

- When did things happen?
- General rules:
  - your studies, experiments, etc. have already happened, so they are past tense
  - your analysis, interpretation and discussion is part of the writing process, so they're present tense
  - literature... can be either

# Review

- Writing for research
  - Critical phrasing
  - Structuring moves
  - Tables and figures
- Stylistic issues
  - Personal pronouns
  - Active and passive voice
  - Tense

# Resources

- “PhD – First thoughts to finished writing”  
<http://www.sss.uq.edu.au/linkto/phdwriting/>

# Attendance sheet

Break

# Exercise

- Using the mark sheet questions assess the quality of each section for the draft report

# D5 Draft

## D6 Polished

- [Sample swales intro.pdf](#)

# Announcements

- ...

**There is perfection in timing not just in doing the work.**