

Selecting a Topic and Writing a Thesis Proposal

Overview

- Today we'll cover two important tasks most PhD students and some MSc students will have to complete prior to starting work on a thesis:
 - Selecting a **thesis topic**
 - Writing a **thesis proposal**

Identifying Potential Research Topics

Where do I look?

- **Future work** section of research papers – often future research is not explicitly spelled out in a paper and you have to read between the lines or apply your own **insights**
- **Survey** papers with open problems – you can also conduct your own survey or literature review
- Talk to your **supervisor** and **other students**
- Attend **conferences**
- **Industry** needs

Selecting a Topic

- Thesis research – **what makes a good topic?**
 - Non-obvious?
 - Interesting?
 - Relevant?
 - Industry motivated?
 - Well-researched already?

Characteristics of a Good Topic

- The characteristics of a good topic include **[DP12]**:
 - The research is needed
 - The research is interesting
 - Has a firm theoretical and/or conceptual foundation
 - You can apply research methods from your area
 - Can be completed within your timeline
 - A good fit for your capabilities
 - Symmetrical research outcomes – limits risk!
 - ...

[DP12] Gordon B. Davis, Clyde A. Parker. "Writing the Doctoral Dissertation: A Systematic Approach, 3/E" 2012.

Contributions Resulting from a Good Topic

- According to Davis & Parker the contributions resulting from a good topic may include [DP12]:
 - New/improved **methodology**
 - New/improved **artifacts**
 - New/improved **evidence**
 - New/improved method of **analysis**
 - New/improved **theories**

[DP12] Gordon B. Davis, Clyde A. Parker. "Writing the Doctoral Dissertation: A Systematic Approach, 3/E" 2012.

Selecting a Topic

- A topic analysis is a great way to really understand the **quality** of a potential topic and the **trade-offs** between potential topics
- A topic analysis is also a great way to **communicate** your topic to your supervisor and supervisory committee

Topic Analysis

A topic analysis is 1-2 pages in length and typically structured as follows [DP12]:

1. Research Problem/Hypothesis
2. Importance of Research
3. Theoretical or Conceptual Foundation of Research
4. Prior Research
5. Proposed Methodology
6. Possible Research Outcomes

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Writing a Thesis Proposal

- The **benefit** of conducting a topic analysis is that the analysis for the successful topic can form the basis for your **thesis proposal**!
 - Many of the sections in a topic analysis and a thesis proposal are the same and differ only in detail, refinement, and development/maturity
 - The refinement process for a thesis proposal usually means that your document will go through multiple iterations between yourself and your supervisor/committee

Writing a Thesis Proposal

- Davis & Parker recommends the following thesis proposal structure [DP12]:
 1. Summary (1-2 pages)
 2. Research Problem/Hypothesis (1-3 pages)
 3. Importance of Research (1-2 pages)
 4. Theoretical or Conceptual Foundation of Research (1-5 pages)
 5. Prior Research (1-5 pages)
 6. Proposed Methodology (2-6 pages)
 7. Limitations & Key Assumptions (1-2 pages)
 8. Possible Research Outcomes and Contributions to Knowledge of Each (1-3 pages)
 9. Dissertation chapter outline (1-2 pages)

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The Importance of a Thesis Proposal and Defense

- A thesis proposal (and defense) allows for your supervisory committee and examiners to assess the **quality** and **strength** of your topic and your **preparedness** and **ability** to complete the topic
- Once your defense is over your proposal is still useful!
 - It is a **roadmap** for your thesis research
 - It lets you know when you are done!

Selecting a Topic and Writing a Thesis Proposal

Summary

- We reviewed the process of selecting a **thesis topic** and writing a **thesis proposal**

Things to consider...

- How much involvement will my **supervisor** have in selecting my thesis topic?
- How will I communicate my research interests to my supervisor? Will a topic analysis help?