

Writing a research/project proposal...

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There is no one way to do this...

Every proposal will have its own needs.

These are general thoughts, which should help guide you in any specific field...

The first step is to have a clear statement of an original research idea, a solid rationale of why this should be done and why you are the person to do it, and to make sure that the project is not too large (if it is, you will want to rethink how you can break your big idea into several self-contained and worthwhile stages).

Big Picture

Think of a proposal as the start of creating a contract (either with yourself or an advisor or a funding agency). You will specify things such as:

- Background information about your project's domain.
 - Prior work on which you will build will be there.
 - Sometimes known as the literature review.
- What you will do and how you will do it?
 - Your research question will be there.
- Why it is something that is worth doing?
 - This is sometimes called the need for research.
- What data you will collect, how you will collect the data, how you plan to process it and how you might plan to interpret it?
 - Your methodology.
- What your timeline is going to be?
 - How you will know that you are done?

The Title

Silly as it might seem, I find that the title often sets the stage for readers and reviewers. Know your audience!

My official dissertation title (short, serious, specific):

Empirical Studies in Parallel Sorting

The focus was on empirical studies. The domain was parallel sorting.

My unofficial dissertation title (which was deemed too “cute” to be my real title):

Taking Probability Seriously

You are likely to keep changing the title as you work on the proposal.
This is fine!

Literature Review

This is where you summarize all *relevant* work that came before the project you are about to undertake...

- What existing work will you be extending?
- What mistakes of the past will you be avoiding? (NOTE: Be careful how you word this since the people who *made* those mistakes might be reviewing your proposal.)

You need to establish that your work is unique. If there have been similar projects in the past, how is yours different? (Your literature review can also reveal to you that your work would not be unique, in which case you need to work up a new project that is new!)

- This is also going to serve as a way to show that you understand the problem and are well positioned to integrate your results into the existing pool of knowledge.

Why explore the past?

Before undertaking a new project, it is often important to perform a literature review and/or write a need for research statement in order to:

- Avoid doing something that's already been done.
- Learn from the experiences of those who have already worked in the area.
- Look for gaps in existing work that you can help fill.
- Better define what you will be doing and why.

How broad and deep to search?

There are times when you will want a very broad review of previous work in an area.

There are times when you will want to dig down deep on a very narrow aspect of a domain.

There are times when you want a little of both.

- For your project proposals, you should try to explore both. Start with a broad search of your area of concern. Give a “big picture” overview of things. Then, select the works that are most related to yours and dig a little deeper.

Relating Previous Work to Your Project

Let’s say that you have found a paper by John Smith that talks about something related to your project. Don’t just say that Smith did XYZ.

- Yes, say what Smith did.
- Also, explain how Smith’s work directly or indirectly relates to your intended work.
- Say whether Smith’s work left something undone that your work looks to address.
 - Hint: If Smith’s work left something open and your project isn’t going to address it, you should be thinking about how your project *could* address it.

Learning from the work of others.

Aside from making sure what you want to do hasn't already been done, reading what others have done can help you plan out your project.

What methods and tools did others use that you can apply to your project?

What techniques did others use to analyze and assess the quality or impact of their project that you could use?

Did you see any paper-writing styles and structures that you felt were effective and could use as models?

Give credit to the work of others.

If you make a statement such as “It has been shown that XYZ is true.” make sure you cite your source for this claim.

Any time you refer to the work of others, use the words of others, or summarize the work and words of others, you need to *give them credit!*

Proper citations are about more than using the correct style guide. Proper citations includes making sure that you cite all resources used.

What, why, who, why, why, what, how?

Some of the biggest take-away answers that your project proposal document should provide towards the start of this semester are:

- What is the context of this project?
- Why is this project interesting?
- Who has worked in this domain before you?
- Why have you decided to take the project in the specified direction given the different directions available?
- **Why do you feel you are qualified the person to be exploring this direction?**
- What skills will you need to gain to accomplish this project?
- How will you accomplish your project?

Need for Research/Work

When you present what the research question / project is, it is often useful to say who will benefit from the result of your research and how. You are likely going to be adding a missing piece to the existing body of knowledge in that area. Is this generically for others to then use or do you have a specific application in mind?

- Related to this is the audience for your results. Who is interested in the existing body of work? Why should they be interested in your results?

You might consider where you intend to publish your results or present your creation as part of this.

- If there is a “hot” topic in the public eye to which your work can connect, it might be worth mentioning.

Methodology

Do you have a hypothesis/outcome/goal?

Is your approach appropriate? Rigorous? Can you really implement it?

What are your independent variables? Dependent variables?

Will it be quantitative or qualitative or mixed methods? Is that acceptable to your community?

Will there be human-subject participants? How will you gather them?

Are there instruments that you will be using? How will you gain access to them? Calibrate them?

Identifying Benchmarks

Does the project have a natural beginning, middle, and end?

Does an exploratory or pilot stage make sense? Is the project itself an exploratory or pilot stage for a larger one?

Should the project be divided into stages where each stage can be identified and indicate progress?

If benchmarks are not reached, do you have a plan to adapt/adjust the project to respond to whatever stood in the way of that benchmark?

Thanks...

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