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Research Design Outline

Overall, your research proposal should have an hourglass structure. Namely, it should begin by stating a broad problem or puzzle that your reader would easily and immediately recognize as important. Then, you want to become increasingly specific and detailed to the point that your reader can imagine clearly what you are proposing to do and could even carry it out by themselves. In the final section, you want to again broaden your discussion, reconnecting the particular proposal you've developed to the puzzle/problem that you introduced in the beginning and further developing the broader implications that concrete findings from your research would have.

Statement of the problem and its significance

This is where you will introduce your reader to the big picture puzzle that you want to explore with your research design. You should assume the reader is intelligent, but completely unfamiliar with the literature you're drawing from. So you cannot frame the big picture puzzle in terms of a specific author, theory, or jargon laden academic statements (e.g. "Interoceptive insular activation during egalitarian decision-making contra Eagleston's hypothesis"), but you must connect to a broad question that your reader will easily recognize as important (e.g. "Does the brain use regions involved in empathy when we decide to give to the poor and take from the rich?"). This puzzle should be clearly stated within the first two or three sentences, with some additional explanation following.

You will want to highlight why this problem is significant by giving a few examples of the implications that resolving this puzzle will have. Be creative here, but be sure to tie the implications clearly to potential answers to the puzzle. One approach is to use IRAC here, imagining a Rule that could come out of this research and then showing how you could Apply this new rule to a couple of very diverse Issues and what Conclusions would follow. One way of evaluating the significance of a problem is to observe how wide of a range of issues it influences. If a research design really does have a big significance, then it should have implications for concrete problems in a few different areas.

This section should contain introductory versions of your answers to questions 1-3 of the Research Design handout. You will fully flesh out your answers to those questions in the later sections, but the reader should have a rough idea of your answers to questions 1-3 before the first page is finished.

At the end of this section (and before the first page is over), you will also give a very, very brief explanation of your research design and how it connects to the puzzle that you have articulated. At this point, your reader should have a clear idea of the problem and then, having seen a quick sketch of your research design, be hungry for the details of how you will illuminate this important problem.

Introduction and background

After you have enticed the reader on the first page, you want to start to get increasingly specific. While your first page will have a few citations to authors that back up your claims about the nature of the puzzle or your arguments about its significance, the following pages will be where you get into the details of the existing literature that has attempted to investigate this problem, develop the methods, or who have lead you to see the puzzle that you're addressing as important. This is NOT a place to include any kind of "summary" or book report style discussion of a particular author or literature. Everything in the proposal should be oriented around specific problems and how you will propose to solve that problem. The subsections that I am describing here need to be discussed as you give the introduction and background, but you should feel free to rearrange them as needed to carry your particular narrative effectively.

Relevant literature review

Like all of the section titles in this handout, you do **not** want title this section with the name I am giving you. The "statement of the problem and its significance" will ideally be headed with a title that states the problem and its significance. Similarly, this section should have a one-line title that boils down the existing literature into its central point (e.g. "Rational actor models of political party formation").

Here are some central questions to address:

What aspects of the current state-of-the-art lead to this proposal? Why are these the right issues to be addressing now?

What lessons from past and current research motivate your work? What value will your research provide? What is it that your results will make possible?

What is the relation to the present state of knowledge, to current work here & elsewhere? Cite those whose work you're building on (and whom you would like to have review your proposal). Don't insult anyone. For example, don't say their work is "inadequate;" rather, identify the issues they didn't address.

You will also want to discuss any existing data or previous research that will guide the hypotheses. What have other authors found and how does that point to solutions to the problem you're identifying? Note that if the previous research gives no clue as to what we might find then it will be hard to give your reader confidence that your method will give the requisite insight (and it will signal you haven't properly IRAC'd the implications from the existing research). Conversely, if the previous research tells us exactly what we should expect, then it is hard to justify this as a true puzzle. By the time you are finished with this section, the reader should fully understand your answer to question 1 on the Research Design handout.

Conceptual or empirical model

Here you will explain how the existing literature leads you to suggest the framework that you're proposing to use for studying this problem. E.g. why does the preceding literature review suggest that we should invoke a rational actor model for this particular problem? Or, why would we think that using a twin design study of heredity would illuminate the central puzzle at issue here?

Justification of approach or novel methods

If the existing literature hasn't solved the problem you're proposing, then one likely reason is that the other researchers didn't use the approach or method that you are suggesting. So, now that you've introduced that literature, you will want to articulate the advantages of this new approach. Science can be extremely conservative and many researchers will balk at the idea of using some new approach (e.g. a biological theory of political behavior) or some new method (e.g. testing of testosterone levels to evaluate political dominance). Thus, you need to make a strong case that, accounting for the costs and risks of the new methods, we are likely to get payoffs that are better than the existing ways we have used to study this problem.

Research plan

This is where you identify what you will actually do to address the problem. And, you will explain how when you complete the plan, it will bring us closer to an answer to the problem. By the time your reader is finished with this, they should have a really strong idea of how exactly to do what you're proposing and why it will solve the problem. Remember to constantly connect the methodological choices you are making along the way to the core puzzle that you have identified. Every method has limitations, so by connecting the details of the design to that puzzle you will signal to your reader that you understand the limitations and have made the sacrifices in a way that is most appropriate for the problems your trying to solve.

Overview of Research Design

Consistent with the hour glass approach, you will start out the research plan section with a more general overview of what your research design will actually do. As you move through the later subsections, you will get more and more specific. The strategy is that you get them interested in the overall ideas and then feed their hunger for the important details.

Again, you want to connect to the problem that is being addressed and the goal of the particular research design you are proposing. You will want to sketch out the broad hypothesis you are testing and connect that to your claims about how this is an important problem with broad significance.

Objectives, hypotheses, and methods

Now you will get very specific about the exact hypotheses you want to evaluate and how those tie to the broader objectives of the study and the big picture puzzle that you posed in the very beginning. You will more fully explain your answers to questions 2-8 of the Research Design handout in this section. And, you will get particular about precisely what you will be doing in this study. As you can see, this is where the real meat of the proposal goes. If the devil is in the details, then the reader should meet the devil in this section.

You will want to specify your more narrow hypothesis here and set up the research design so that it is clear how this particular design tests the main hypothesis. In political science we almost never get to directly observe the phenomena that we are most interested in. Rather, we are constrained to study some set of observable implications of that phenomena. So as you articulate the research design you should constantly be connecting the particular details to the hypotheses and showing that they are an effective way of getting at that phenomenon that you've identified as important and interesting. The specific research design should result in some concrete evidence that reflects the observable implications of the hypotheses and illuminate the big picture puzzle. These hypotheses should tie back to the earlier research you have identified in the literature review above and make sense in light of them.

You will also want to identify the main rival hypotheses and their observable implications. Because your literature review gave the reader a good sense of the debate about this puzzle, it also suggested rival explanations for the phenomena of interest. This is the place where you connect back to the alternative views that you raised in the literature review and show how your research design could help to rule them out.

The heart of this section is the identification of the critical test that will distinguish between the main and the rival hypotheses. If you've really nailed it, then one possible result in the data will justify the main while ruling out the rival and the other possible result in the data will justify the rival while ruling out the main hypothesis. Developing a critical test is difficult, but this is the key to good science and the center point for the hourglass.

As you flesh out this section, you will want to talk about the type of participants that you will recruit if you're using human subjects. You will need to talk about how you're recruiting them and the limitations that inherently come from using whatever number of people, age, demographic characteristics, etc. that this population will have. You need to also talk about the procedure of the study and any stimuli, questions, or equipment that you will use. While you don't have to give every single detail, you want to be specific enough that a smart scientist could take your blue print, fill in the specifics, and actually run your study even if you weren't there. When you're writing the description of the methods that you're using, you will want to draw heavily from previously published papers that use this method, rather than reinventing the wheel.

You also need to identify what steps you will take to control for extraneous factors that might bias or cloud your findings. Every study is limited in the number of other factors that can be held constant and that might contaminate the results. However, you want to convince you reader that you understand the design limitations and have taken them into account in the choices you have made with this particular study.

Analysis and expected results

In this subsection, you will take the literature that you spelled out early on in the proposal and apply it to the study that you are proposing here. Since you are just proposing the study, you will not be able to talk about any findings, but if you have carefully explored the literature and connected a very specific research design to the main and rival hypotheses then you will be able to make some predictions about what concrete evidence the study will be likely to find. Talk about those predictions here and enable the reader to visualize what the study will result in if everything goes as planned (note that it rarely does go as planned, but that's how you really learn the interesting stuff).

Timetable and budget

Finally, you want to give your reader a sense of the timeframe and costs of doing this study. Does it take place over a day? Or, a few weeks? Or, is this a longitudinal study that will investigate phenomena over decades? How much will it cost roughly? If the study is complicated and expensive, then you want to be extra sure that you have justified the expenses in light of the significance statement for this problem.

Conclusion

As you get to the end, you want to reconnect the specific details that you just waded through to the big picture problem that you identified in the introduction. The reader now has seen the details and their mind has hopefully been thinking with you about how exactly to pull off the study you're proposing. So you want to draw their attention again to the puzzle and why this is important. You want to reconnect with exactly how this is an important problem and talk about a few specific implications. One way to do this is to take the expected results that you were just identifying and show how those would change the way we see some other problem. Would this change the way that a government should craft its policy? Does this alter how a campaign should advertise its candidate? Etc. After you give a couple of these examples, then you again broaden out to the big picture and conclude with a last statement about why this study is imperative.