DA 401, Spring 2023

Professor Lavin

Scaffolding Assignment: Research Design

Purpose

This scaffolding should build on your literature review and the skills activity we did in class. The purpose of this assignment is to connect your research question to a logic of inquiry that states your design, measurement, and statistical choices. This assignment should feed directly into your methods section for your final research paper. Remember, the ultimate goal of your methods section is:

- To explain the methods you have selected, including their strengths and weaknesses
- To defend your choice of methods, drawing on outside sources, to provde information about parametric assumptions, common validations, best practices, etc.
- To link your focal data set to your chosen methods and demonstrate that they are appropriate for one another
- To apply your methods in a way that any result will advance our understanding of your research question
- To present the study clearly and concisely so that it is understandable and can be replicated.

Assignment Contents and Structure

1. Begin by discussing the needs dictated by the research question(s), or the "cause and effect relationship" between the objects of study. This sets up your methodological narrative and that the study methods are designed to meet the objective.

   - Include a discussion of causality given the level of control involved (experimental vs. non-experimental). This should include a statement of what can and cannot be said (causally) with the data.
   - If you haven't begun your analysis yet and you aren't sure if your method will work, compare at least one other competing research design strategy that you would use as a backup.

2. Describe the data that you are using.

   - If you are generating or collecting the data yourself, clearly describe your data collection process.
   - If you are using a previously published dataset, cite the dataset and document its use policy (including how you know that you have permission to use it).
   - If you are aggregating across multiple sources, clearly cite each source and describe your process for aggregating and structuring the data.
   - Include a table listing all important variables in the data, as well as what type of data each variable is (10-12 variables max)
   - Describe all data wrangling steps, as well as any new variables you are calculating or deriving. Include a table of these variables and their respective data types.
   - State whether the data include space, time, and/or multiple levels, and what the structure of your variables are or will be. Include any ethical considerations with the data here - e.g. data permissions, data sharing, data access/storage, human subjects, how you have accounted for potential bias, missing data issues, etc.
   - An entire dataset is rarely used in a single study - what were your inclusion and exclusion criteria, and why?

3. Discuss your statistical analysis choices and why they are appropriate based on the structure of your data and measurements.

   - Describe (in as much detail as you can) what the statistical and analytical design of the study will look like. What tests will you use and why? What are your key input/output variables? What will each test tell you that will help you answer your research question?
   - Address how you will validate your statistical and model choices - e.g. How will you check if you've violated any of the key assumptions? Do you have enough data points to ensure precision? Are there any validation or post hoc tests that you should do after the analysis?

4. Cite outside sources properly throughout.

   - You should have at least five separate sources for this assignment. You should have several citations in your methods section.
   - Make sure all outside sources are cited properly, with in-text citations and a works cited page (or footnotes with a bibliography). You can use any citation style your domain area tends to use, such as MLA for languages and literature; APA for psychology, biology and social sciences, and Chicago style for history. - Whatever you choose, you should use well-established standard and keep your choice consistent throughout the submission.
   - Every citation in the reference section should be cited at least once in the text, everything cited should appear in the list of works cited. The submission must contain at least eight citations.

Assignment Details

Writing: Complete sentences, and well organized into separate paragraphs

Required length: Approximately 4-6 full paragraphs long (about 2-4 pages, double spaced, in standard font and size)

How to turn it in: Upload as PDF on Canvas

Deadline: By 11:59 p.m. on Sunday, February 26

Additional Note: For this document, please be mindful of your choice of verb tense. If you are describing something you have already done, please write past tense. If you are writing about things that you plan to do, please write in the future tense.

Useful resources:

- Any methods sections from peer-reviewed, scholarly articles
- Miller, "Writing about Data and Methods" (on Canvas under 'Readings')
- Springer Journal guidelines for introduction, methods, and results < https://www.springer.com/gp/authors-editors/authorandreviewertutorials/writing-a-journal-manuscript/introduction-methods-and-results/10285524 >
- APA: Preparing Manuscripts for Publication (search for the "methods" section). < https://www.apa.org/pubs/authors/new-author-guide.pdf >