Research Proposal Guidelines

AP Research

May 21, 2019

Consider using the following structure for your research proposal. Change the title at the top of this document to reflect your research topic and hypothesis. Replace the subsequent line (AP Research) with your name. You may use this document as a template, but make sure to organize your ideas into paragraph form. The bullet points below are only guiding questions to help you formulate your ideas. Please limit your proposal (including references) to two or three pages single spaced.

Research Topic

Provide a brief overview of your research topic and question, which will be elaborated in the Hypothesis section. Include the aims and objectives of your proposed research.

Literature Review

Your literature review should not just be a simple summary of the previous work related to your research topic. You should synthesize a theoretical framework with associated findings based on previous research in the field. The theoretical framework should help you develop your hypothesis in the next section. Similarly, the associated results and findings from your collected sources can serve as a starting point for the data and methods you will use to test your hypothesis.

You may decide to organize your literature review in one of the following approaches:

- Organize your sources thematically. As you read relevant research papers, brainstorm a conceptual map of all the theories related to your research topic. You might first introduce perspectives and contributions from various schools of thought. Then describe and assess related findings that fall under each theory.
- Trace the historical development of research related to your topic. How has the theoretical framework evolved in your chosen research topic as a result of different findings from researchers?

In-text citation example: Aqda et al. (2011) conducted a small study of junior high students, showing that computer-aided instruction boosted math creativity.

Parenthetical citation example: Other studies have suggested that computer-aided instruction does not necessarily lead to higher student achievement (Angrist and Lavy, 2002; Ross and Schulz, 1999).

At the end of this section, you should identify gaps or deficiencies in the literature as a way to motivate your research question. What is currently missing in the literature that you plan on addressing with your research? How will you use the existing research in the field as a way to extend your scholarly inquiry?

Hypotheses

Now that you have reviewed the literature relevant to your research topic, you should develop a hypothesis or set of hypotheses that addresses your research question. Your hypothesis will eventually develop into your thesis statement in your research paper. However, at this point, your hypothesis is simply your first attempt to delineate possible explanations for your research question based on existing theories and results from your literature review. The following Data and Methods sections will describe how you will test your hypothesis.

Data

Identify and describe the data that you plan to use to test your hypothesis. The data could be quantitative, qualitative, or both. At this stage of your research, you should not dig too deeply into the data, as this could bias your analysis by forcing the data to fit your hypothesis. Instead, you should explore a wide range of data sources that will be pertinent to your research question.

If you plan on using existing data, please cite the data sources. Example: I plan to use the 2010–2012 National Survey of Early Care and Education (NSECE Project Team (National Opinion Research Center), 2019) to analyze the relationship between early-childhood program participation and subsequent academic achievement.

The following questions and prompts may help you describe the data. If you are planning to collect your own data, you can still use these guiding questions to describe your proposed data-gathering procedures and process.

- Describe the general classification and characteristics of the dataset.
  - Classification examples: survey data, experimental data, observational data, administrative data, census data, historical documents
  - Characteristic examples: longitudinal standardized testing data of U.S. high school students from 1992 to 1996, cross-sectional data of household socioeconomic indicators aggregated at the county level, time-series data of annual precipitation in London from 1980 to 2010
- How was the data collected?
  - For survey data, describe the sampling method (e.g., simple random sampling, stratified sampling, cluster sampling).
  - For administrative data, describe the inclusion criteria (i.e., factors or conditions that led to the collection of the data; e.g., de-identified library usage data captured by self-service kiosks and published on the city's open data web page).
  - For experimental data, describe the experimental research design.
  - For qualitative data, describe the collection process such as interviews or fieldwork observations.
- Describe the results from previous papers that analyzed this dataset or similar data. Your literature review may have included these sources, but you may decide to use this section to elaborate more on

the details of the data analysis from previous research. This will help you segue into the following question as well as the Methods section.

- How will the data help you investigate your research question?

Methods

Briefly describe the methods you will employ to analyze your data. While you do not need to delve into the specific details of research methodology at this point, you should provide enough information to demonstrate that your research blueprint is feasible for completion within a one-year timeline.

How will you apply your proposed methods to the data to test your hypothesis? What are the underlying assumptions of the research methods? Do your data meet the criteria of the assumptions for applying these methods? If not, what proper adjustments will you need to make to ensure sound research methodology?

Generally, you will not need to cite the source of commonly employed methods, such as basic statistical tests covered in AP Statistics. However, for uncommonly used or more specialized methods, you should cite the sources that originated the methods. Similarly, if you are emulating or modifying specific methods used in previous research, you need provide to the proper citations to acknowledge the methodological foundations from which you are designing your research.

Most importantly, use this section to address any ethical issues with data collection and research methodology. Researchers need to abide by data privacy standards such as de-identification of individual records. For non-public data, the method of obtaining and storing the data should follow any applicable policies and regulations. If you are collecting data on human subjects, you may need to submit a proposal to an institutional review board for approval.

At the end of this section, describe the skills that are needed to conduct this research. If the methods require skills that you currently do not possess, describe the resources you will use to acquire the necessary skills. While your teachers will likely cover general research methods in the AP Research course, you will need to take ownership of your own learning to demonstrate competency as an independent researcher. For more specialized techniques, your teachers may decide to provide individualized advising or conduct mini-workshops for small groups of students conducting similar research. In cases involving highly specialized research, your teachers may work with you to identify another teacher with the subject-area expertise necessary to provide supplementary advising.

References

Angrist, J. and Lavy, V. (2002). New Evidence on Classroom Computers and Pupil Learning. *The Economic Journal*, 112(482):735–765.

Aqda, M. F., Hamidi, F., and Rahimi, M. (2011). The comparative effect of computer-aided instruction and traditional teaching on student's creativity in math classes. *Procedia Computer Science*, 3:266 – 270. World Conference on Information Technology.

NSECE Project Team (National Opinion Research Center) (2019). National Survey of Early Care and Education (NSECE), 2010-2012. Inter-university Consortium for Political and Social Research. `https://doi.org/10.3886/ICPSR35519.v12`.

Ross, J. and Schulz, R. (1999). Can computer-aided instruction accommodate all learners equally? *British Journal of Educational Technology*, 30(1):5–24.