CPP 524: Eval II – Research Design

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Paper Requirements

You final assignment for the semester is to design a hypothetical program evaluation for a real-world program of your choice (or alternatively a public policy of your choice). The best way to think about the assignment is that the program has asked you, as an expert in program evaluation, to help them determine the impact of their activities. They have an internal evaluation team that is able to implement the process once they have the blueprint, but they need someone with your expertise to serve as the objective intellectual lead to design a robust evaluation framework for the impact assessment. You need to create a memo for the evaluation team that describes your proposed evaluation design and explains why the design was selected for the particular program, challenges that it addresses, challenges that you anticipate during the process. You will briefly describe the program itself and then explain what the team needs to do to ensure the study yields a valid assessment of impact.

Your job is to apply principles of research design that we have learned in the class. You will start by identifying your program, then find at least two evaluation or performance studies that examine a similar kind of program model. Use the background research to see what evaluation design others have used to establish an estimate of program impact.

If your topic necessitates measuring a latent construct (test scores which are proxy for mastery of content, self-esteem, physical health, mental health, etc.) then you also need to identify a valid instrument (one that has been developed and tested) and report the reliability scores.

You paper should have the following structure:

PART 1 - Research Question (1-page memo form – see example)

- What is the social problem or opportunity?
- What is the program, policy or intervention that will be evaluated?
- What would change if an intervention were successful (motivate the research question)?

PART 2 - Evaluation Design

- What design will you use? Recall the ones that we have covered in class:
    - Pretest-posttest control group design (diff-in-diff)
    - Posttest only control-group design

    - Pre-post reflexive design

- **You are not allowed to use a pure experiment where you have <u>full control</u> over assignment into treatment and control groups.** Very few real-world evaluations have the opportunity to randomly assign individuals into categories, so I want you to think creatively about designing an evaluation when you don't have that privilege.

- How will you measure the dependent variable in the analysis? Is there a previous "instrument" that has been validated (chapters from CPP 529 will be provided for review) - i.e. how do we know that we are measuring what we think we are measuring? Don't try to reinvent the wheel – 99 out of 100 times you will be able to find existing instruments that can be adapted for the study.

- How will you ensure that the research question is framed around a plausible counter-factual as the point of reference, and what steps need to be taken to ensure it is a valid comparison group? Specifically, does your comparison group represent what the world would have looked like if the program had not been implemented? Do your comparison group demographics need to be identical to the treatment group given the estimator you have selected for the study (T2-C1, T2-T1, or the diff-in-diff). Think hard about questions like selection and non-random attrition. Explain what other studies have done to address these issues and lay out a plan for how you revaluation will address the issue.

- How will data be collected? And over what period?

PART 3 - Competing Hypotheses

- What are the major threats to validity in the research design that you have chosen? Can your adequately account for each of the threats?

- You need to address the ten competing hypotheses outlines by the Campbell Scores. In essence, you will rate your own research design on a scale of 1 to 10. Note that it is very unusual for a study to receive a perfect ten, so I am looking for you to clearly identify issues, think through how they might be addressed, and if they cannot be addressed completely how would you report the limitations to ensure you are upholding high standards of transparency and ethics as an external evaluator.. You can address additional competing hypotheses if there is something specific to your research domain that is worth noting.

    - Selection
    - Non-random attrition
    - Maturation (if applicable)
    - Secular trends (if applicable)
    - Study time-frame (how do you know it's long enough?)
    - Testing (is there reason to suspect it in your case?)
    - Regression to the mean
    - Seasonality

    - Intervening events
    - Measurement error

- The primary hypothesis in your study is, "You can explain the results (the estimated effect) because of the impact of the program or policy." The term ***competing hypothesis*** refers to a statement, "You can explain the results through bias introduced by an omitted variable" or "You can explain the results as a result of maturation, selection bias, etc."

- The goal of the evaluation design is to eliminate ALL competing hypothesis so the only remaining explanation comes from the impact attributed to the program. It is rare that a single evaluation is able to eliminate <u>all</u> competing hypotheses. For those that are not addressed through your research design, articulate why the hypotheses cannot be eliminated.

The first page will be a quick snapshot of the program characteristics (see the template below). For the rest of the paper, I would spend roughly half talking through the research design and half talking about threats to validity. Be sure to include references for cited works.

The first page is written as a memo (this is a made-up example adapted from a former student's paper):

Evaluation of the Urban Naturalist Environmental Education Program

The problem: In a world that is increasingly dominated by technology, children are generally spending less time outdoors and have only limited interaction with nature. Lack of time outdoors has been associated with obesity, higher rates of asthma and allergy, and lack of concern for environmental issues.

Program: The Urban Naturalist program provides outdoor education to students in 15 public schools in Atlanta. Children meet at a local park once a week during the school year and participate in science lessons and outdoor wilderness activities.

Program theory: Case studies from a recent report have shown that students often learn more effectively within an environment-based context than within a traditional education framework and the benefits can include improved performance on standardized measures of academic achievement, reduced classroom management problems and increased enthusiasm for learning.[1] Among the five case studies examined in the report, the researchers observed performance improvements in reading, math, science and social studies and saw classroom discipline problems decline.

The dependent variable in the study: The study will examine overall classroom performance of 8th-graders that are part of an environment-based education program.

Motivation of the Study: Legislation has been proposed to provide $500 million over five years to schools with approved "environmental literacy" plans for students in grades kindergarten through 12, and offer competitive grants to schools and non-profits for outdoor education projects. Strong evidence is needed for program effectiveness before this kind of support is provided.[2]

Program inclusion criteria: All 8th-graders in the 15 Atlanta public schools included in the program are eligible to participate. There is a fee structure based upon the free-lunch status of students. Those eligible for free lunches can participate for free while others have to pay a $50 participation fee. There are no enrollment limits for this group. Students in the adjacent school districts can apply for the program if there are extra openings, but they are not guaranteed a spot and have a pay a nominal registration fee of $65.[3]

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[1] G. Lieberman, & L. Hoody, "Closing the achievement gap: using the environment as an integrating context for learning" (San Diego, CA, State Education and Environmental Roundtable, 1998).

[2] Penny Starr, "No Child Left Inside Act Would Spend $500M Teaching Environmental Literacy Starting in Kindergarten." *CNSNews.com*, 14 May 2009, http://www.cnsnews.com/news/article/48164 (accessed November 5, 2010).

[3] Information from the program website at http:fakewebsite.com.

The following grading rubric will be applied to the final papers:

[20 points] Program description (1st page memo format)

_____ [3 points] Statement of the social problem and its import (2 sentences)
_____ [3 points] Program (2 sentences)
_____ [4 points] Program theory – how it addresses the problem (1 paragraph)
_____ [3 points] Dependent variable(s) of the study (1 sentence)
_____ [3 points] Motivating the study
_____ [4 points] Program inclusion criteria – who qualifies (1 paragraph)

[30 points] Design of the counter-factual

_____ [15 points] Review of three other studies & their construction of the counterfactual
_____ [15 points] Clear description of evaluation design & data collection

[40 points] Threats to study validity (competing hypotheses framework)

_____ [4 points] Selection
_____ [4 points] Attrition
_____ [4 points] Maturation
_____ [4 points] Secular trends
_____ [4 points] Study time-frame
_____ [4 points] Testing
_____ [4 points] Regression to the mean
_____ [4 points] Seasonality
_____ [4 points] Intervening events
_____ [4 points] Measurement error

[10 points] Writing style and grammar

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[100 points] TOTAL