**Assignment 4: Experimental Design**

This is a **Team Assignment.** You can determine the members of your team. Each team must have a minimum of three members. Given that we have an enrollment of nine, this works out real well. Please label your submission with the last name of each team member in alphabetical order and Assignment\_4. Like this: Alvarez\_Jones\_Mbuya\_Assignment\_4. I have divided the assignment into two parts, but you do NOT need to submit the two parts separately. I do think you will find Part 2 is hard to complete until you have Part 1 completed and have time to conduct a team meeting to work on your responses for Part 2. The Nov. 02 class session is for you to have the discussion and focus on your responses to the questions in Part 2.

**General Rules**

Insert your answer under each question as you did in Assignments 2 and 3.

Provide short (**200 words or less**) answers to each question. The first paragraph of this assignment (above) has 130 words.

**Use, cite and reference materials** about research design to develop your responses. This is particularly important in Part B of the assignment.

**Use** means to seek out information for your responses in the literature and other resources that we have used in this class. Example: This design will use a stratified random sample assigning participants to one of three levels of socio-economic status, low, medium or high. Greater precision would be useful, but our small sample size of 500 is not enough to allow more categories because the n for each category would be too small for robust statistical analysis.

**Cite** means an in-text note that tells the reader *exactly* where you got the information. Example: (Greenwood, 2021:38).

**Reference** Provide the complete reference for the material used in APA style. List the references at the end of the document – they do not count in the word limit. If you are not familiar with APA style, you can find an abbreviated version on-line. Example: Ting, Carol and Fitzgerald, Richard. (2020) The work to make an experiment work. *International Journal of Social Research Methodology* 23(3):329-345. DOI: [10.1080/13645579.2019.1694621](https://doi.org/10.1080/13645579.2019.1694621) **You may want to look at this reference – it provides details about the “tough parts” of specific design types.**

Use your own words to express your ideas. If you cannot explain something in your own words, it often means that you do not have a good grasp of the ideas. I use your ability to explain things in your own terms to see if you are struggling so that I can offer some assistance.

**Part 1: Developing a Design** These questions lead you through the process of developing a research design. This assignment is comparable to the first version of your thesis or dissertation proposal or of a proposal for a project-based study.

1. State the problem, issue or need that informs the topic of your research.
2. State the research question clearly, preferably in a single sentence, no more than two or three sentences. You will need more than one sentence if there are two or more factors in your question. See the Haiti Extension Experiment document for an example of a primary question and two secondary questions. Assignment 4 requires you to develop an experimental design. Make sure the question(s) you pose are appropriate for an experimental design. Assignment 5 requires that you use a cross-sectional, longitudinal or case study design. You will need to adjust your question to “fit” the design. If you start by asking a question that requires a longitudinal design and then create a design, like a cross sectional, that does *not* track change at the individual level over time, everything in the assignment will be flawed.
3. State the objectives of your study What you intend to contribute to the body of knowledge as a result of *this study*.
4. What kind of conclusions do you anticipate producing – descriptive, explanatory, theory-based, or perhaps action oriented (like policy recommendations), etc.?
5. How will you generalize the conclusions you reach in the study (statistical or theoretical generalization)?
6. Will you implement an intervention (treatment) as part of the study? If yes, briefly describe the intervention.
7. Will you have a temporal component in the study – take measurements at two or more points in time? Explain when you will take measurements (like pre- and post-test) or the events that will trigger data collection.
8. What are the critical traits of the theoretical population(s) for this study (e.g., the criteria you will use to identify and select participants)?
9. Identify one or more accessible populations.
10. How will you assign participants to treatment and comparison groups?
11. What is the sampling logic for your design – replication or statistical sampling?
12. What kind of sample will you take? Be specific, such as random sample with proportional representation among three different age groups. Or referral sampling with a minimum of three tiers of respondents.
13. How will you determine sample size? (Do not try to determine the sample size – you do not have the needed information to do that. Explain the factors you will consider in determining sample size.)
14. How will you analyze the data – you do not need to provide detail. Indicate whether you will use statistical or qualitative approaches or both and the general type of analytic procedure – such as statistical tests of differences between mean values of the outcome variable(s).

**Part 2: Assessing Your Design.** The objective of Part 2 is for you to identify strengths and weaknesses in your design *from the perspective of research design.* Focus on the aspects of your design with regard to their impacts (positive or negative) on internal validity, external validity and the potential contributions your study can make to the body of knowledge. List the greatest weaknesses and the greatest strengths of your proposed design with regard to each of the three critical parameters and briefly explain why you think it is a weakness or a strength. **Word limit: 500 per parameter.**

1. Explanatory power
2. Internal validity
3. External validity
4. Conclude with a discussion of no more than 500 words that summarizes “lessons learned” about designing experiments.

**Assessment Criteria for Assignment 4**

|  |  |  |
| --- | --- | --- |
| **Assessment Criteria** | **Possible Points** | **Your Points** |
| Followed instructions, including full APA citations and referencesUsed your own words in responding to the questions | 50 |  |
| The design chosen is appropriate for the research questionTheoretical population is well-described and appropriate for the research questionIf needed, design includes comparison groupsThe objectives draw on the strengths of the design chosenSampling approach is based on appropriate sampling logic for the design chosen and incorporates procedures to assure the quality of the sample The chosen analytic techniques are appropriate for the design selected and can result in high internal validityWhether quantitative or qualitative, analytic procedures are appropriate for analyzing the data that result from the studyPlanned generalization is appropriate for the research question and can generate differences between the specific results that the study will generate and the broader contributions to the body of knowledge that the researcher will be able to make (the conclusions)Explained whether generalization will be theoretical or statistical and identified the specific strengths of the study with regard to statistical and/or theoretical generalization  | 75 |  |
| Consulted, cited and referenced extensiverequired and additional materials about all components in the design and all decisions made Demonstrates a good understanding of the logic of the design – the “fit” between the planned protocol and the planned conclusions and additions to the body of knowledgeUsed and referenced the literature and other materials about internal and external validity and explanatory power | 75 |  |
| **Total Possible Points** | **200** |  |

