Assignment 3: Research Design for Needs Assessment

Requirements

I am grading your ability to apply what you have learned in this class. The flow chart is just ONE component. Do not get stuck at that step in the process of completing the assignment.

Components in the Grade:

- Background and Flow Chart: 30 points
- Discussion of Internal Validity: 30 points
- Discussion of External Validity: 30 points
- Using and explaining how you used the research design literature: 30 points

Your objective for this design is to conduct a needs assessment for professional practice. There are four requirements for the design. Overall, your task is to demonstrate your mastery of the key concepts about research design that we have studied in this class. That means creating a design that will generate confidence in the conclusions you reach (internal validity), the ability to generalize beyond the specific people who participate in the study to a theoretical population (external validity), and your ability to understand and explain why a need develops and persists (explanatory power). You must show that you can apply procedures for sampling and data analysis that will help you achieve these goals of design, including such things as use of comparison groups, logical steps in data analysis, and selection of an appropriate sampling protocol. There are three critical requirements for this assignment. Overall, you are assessed on your ability to incorporate all aspects of design (features of the design, sampling, data analysis, selection of comparison groups, etc.). I am looking for sophistication in the design. Do NOT create a very simple design. However, also do NOT create an unrealistic design that would take years of time, many researchers working on it, or a huge budget to conduct. I want you to address the real constraints that researchers in a professional position face, using what you have learned in this class to create a valid, reliable set of conclusions despite inherent limitations of time and money that we all face.

You will use this design and what you would learn from it as the basis for developing an experimental design in Assignment 4. You may want to consider this as you make design decisions in this assignment.

(1) The study must focus on identifying the needs of two or more specific populations that you propose to address. You must identify and describe the specific populations of interest. Start by describing the critical traits or characteristics of the theoretical populations. Then identify and justify your choice of accessible populations for your study – most probably populations of immediate interest in your work. These steps are critical to developing a sampling strategy and to the nature of the conclusions you can reach.

(2) You must use a cross-sectional design for this assignment. Your design must employ at least two comparison groups, each representing one of the populations you propose to serve.

(3) The needs assessment must be explanatory, not just descriptive, and must be based on theory. This means that you cannot just describe “what people need.” Rather, you have to conduct a study that helps you understand why the need persists in order for professionals to create programs (interventions) that address the root causes of the problem, as explained by an appropriate theoretical framework. I have chosen a broad
theoretical perspective for you to use, commonly called the socio-ecological model developed by Urie Bronfenbrenner. Widely used in youth development, this is a very broad theory that essentially encompasses all of the factors that can affect the development process across the life span. I usually warn students to be very careful about using SEM because it is so broad that it can be useless as an explanatory theory. However, it is useful for purposes of understanding how different factors in an individual’s environment – from the personal traits to broad social policy – can influence a whole range of outcomes. I therefore feel that this is an appropriate framework for your work on Assignment 3.

I provide four journal articles that provide examples of how SEM is used to understand social problems, issues and needs, focusing on youth applications. You can find many other research reports and descriptions of SEM if you feel you need more background. However, I am trying to reduce time and effort for you. I believe these four articles should prepare you for the assignment – remembering that your primary task is to demonstrate your mastery of the key concepts of research design that we have discussed in this class. Do not focus on the topic of the articles. It does not matter if they explored a different topic that the one you want to explore. Theories are not topically specific and I chose these because they are good examples of how to use SEM to inform professional practice. All of these articles are available through the UF library system. I will also place them on course reserves.


This assignment has three components. You will submit two documents, the completed flow chart for constructing designs and one containing the background information and your responses to the discussion questions listed in Part C below.

A. **Background Information** on the problem, issue or need of interest and the context for the research. This does not have to be lengthy, but I need enough information to be able to assess whether your proposed design for a needs assessment will be workable and likely to produce useful results in the specific situation of interest. Spend no more than about one hour on this part of the assignment. **500 words maximum.** Include this in the document entitled “Back_Discuss” described under C below.

B. Submit the completed Flow Chart for Designs You Construct. Use the title **YourLastName_6800DE_A3_FLOW**. Fill out the flow chart completely with detail. This is
your explanation of what you plan to do. If the flow chart is not complete, I will not be able to understand the detailed features of your design and therefore I will not be able to decide if your responses to the discussion questions demonstrate mastery of key concepts and an ability to apply them critically to your own work. Remember, I only have what you write to make my assessments. I provide some additional guidelines for the flow chart below to supplement those in the template. **Note that the flow chart itself is worth 30 of 150 points for this assignment.** Your responses to the discussions questions in the in the document BACK_DISCUSS and use of the research design literature, account for 120 of the 150 possible points.

1. Objectives. Be complete in the flow chart. Remember to include all three types of objectives – even if one of them is “I am not trying to do this.” In this assignment, explaining your planned contributions to understanding the PIN will be especially important. I will assess your design based on whether it will permit you achieve the objectives you state. Focus on design considerations and how design can contribute to the body of knowledge.

2. Research Question(s). Think about this carefully and make sure that the question is appropriate for your intended use of the results of your needs assessment. Again, focus on understanding – on the how and why questions – NOT the descriptive, “thin” questions that just ask “what do they need.”

3. Theoretical Constructs & Linkages Explored in the Research. I believe this is well explained in the flow chart itself. Here are a few pointers.
   a. List grouping variables based on the comparison populations you have chosen.
   b. Identify the outcome or dependent variable (the state, condition, or need that you are trying to understand and explain so that you can improve professional practice). This might be, for example, substance abuse or academic achievement.
   c. List the specific constructs in the socio-ecological model that you will explore in the needs assessment and list the variables under each construct. Remember, variables are specific to your study, while the constructs are universal to theory. These are the independent or predictor variables that you hypothesize are producing the need you want to address.
   d. List the linkages you will explore – e.g., effect of family environment on the behavioral decisions of youth. State these in terms of constructs, not variables.
   e. State the theoretical or research hypotheses or propositions that you will test with this study. Be very explicit. Again, state these in terms of the constructs – “Teacher factors at the meso-level will buffer the effects of family factors.”
   f. Intervention or Treatment. You are **not using an intervention in this study.** It's a needs assessment. It should be theory-based, but the point is to determine the nature of the intervention that is needed. **Leave this blank.**
   g. Also be **very explicit in describing the design.** “Cross-sectional with two groups” is not sufficient.

4. Sampling. Again, here are a few points of emphasis. I believe the instructions in the flow chart are explicit.
   a. Comparison groups – define them explicitly and use some detail. Justify your choice of comparison groups in terms of your objectives and your research question(s). E.g., why these comparison groups?
b. Mostly in this assignment you need to think about whether you can assign to comparison groups *a priori* or will have to use *post hoc* assignment. Explain the logic.

c. Accessible and theoretical population cannot be the same thing. I want to know specifically why you selected the accessible population and why you think it is representative of the theoretical population.

d. Sampling frame and accessible population are almost certainly not the same thing, but sometimes can be -- if for example you have decided to study all middle-school youth in a five-county area and have a list of every student, including those in private and public schools and home-schooled children. As you can see, seems unlikely you would have such a list.

e. Almost all studies use screening criteria. If there are none, you probably have a poor definition of the theoretical population.

f. Do NOT try to estimate sample size. You don’t have the information you need to do that. DO provide an explanation of how you would determine sample size – the factors you would have to take into account.

g. State the specific name of the type of sample here. If you say “purposive or judgmental,” be very careful to state which type of purposive or judgmental sample. Also make sure the sample type is appropriate for the uses of the cross-sectional design group. Use the cheat sheet about characteristics of design types. This study is most likely going to use a random or “random-like” sampling approach, such as a volunteer sample. It is unlikely that a purposive or judgmental sampling approach is appropriate unless used as part of a two-stage sampling strategy, in which case a purposive sample could well be appropriate.

5. **Data Collection Procedures.** This can be brief.

6. **Variables & Level of Measurement.** Refer to Frey if you are confused about level of measurement.

7. **Statistical Data Analysis.** This needs detail. Do not make general statements like “I will use t-tests.” This is your data analysis plan or strategy. Your data analysis strategy should be appropriate for the design. Focus on showing me that you understand the connections between design choices and analysis process.
   a. You probably will have statistical hypotheses for this study.
   b. State the formal or statistical hypotheses for the study if you have any. Remember that one-tailed hypotheses are superior to two-tailed hypotheses. Hypotheses deal with variables, not constructs (that’s the difference between a statistical or formal hypothesis and a general or theoretical hypothesis). Use Frey and the document about the logic of statistical data analysis. Every statistical hypothesis requires an appropriate test.

8. **Qualitative Analyses.** If you plan to use qualitative data analysis, explain the specific techniques you will use in some detail. Provide a robust explanation that demonstrates that you understand the connections between design choices and analysis process.

C. The final component is a critical examination and discussion of the decisions you made in which you analyze the strengths and weaknesses of your design from the perspectives of external validity, internal validity, and explanatory power. **Note that the responses to these questions, including extensive use of the research design literature accounts for 120 of 150 possible points for this assignment.**
should **NOT** REPEAT what is in the flow chart in your response to the questions below. I will assess your answers to these questions by looking at what you have in the flow chart and then considering the points you make in these discussion questions. Critically consider and assess your design and protocol as a whole, including the design choices (like a repeated measures design or multiple comparison groups for a cross-sectional), sampling decisions, and how you plan to analyze the data in a way that contributes to developing valid conclusions to address the need you identified.

**Do not change things in the flow chart at this point.** That’s not the idea. The flow chart is worth 30 points. You’ve made the plan. You’ve thought about each individual decision. Now it’s time to say “If I were a reader, would I find all this convincing, reasonable, justified? This is your chance to take a look at what you have done and answer those questions – to the degree possible by thinking like a reader of the research report, not the person doing the research. You need to assess your decisions, making extensive use of the research design literature. This includes extensive references. The materials you consult should be specific to your design and your decision-making process. I do not want to see a “laundry list” of references. The grading rubric says, “use, cite and reference.” Use means explain how the material helped you make decisions. What were you trying to decide? What literature did you consult to make your specific decisions? I am not interested in generalities about design. Your task is to apply what you have learned in this course to create a design that will allow you and others to have great confidence in your conclusions (internal validity), extend your conclusions to the theoretical population of interest (external validity) and make valuable contributions to practice (explanatory power). The instructions below provide guidance about what you need to think about and how to justify and explain your decisions. I have tried to focus on the key decision points in the process of design. Don’t tell me **what you decided here** – you have that in the flow chart. You may need to explain **why you made the choices you made.** I am really looking for your ability to critically assess your own work. Identifying weaknesses is fine – that’s part of the process of critical thinking. Pointing out alternatives that you considered and rejected is fine – in fact, your explanation of which of several alternatives you chose makes a good answer.

**Internal Validity**

1. What are the greatest strengths of your design and protocol with regard to internal validity? Put another way, what aspects of your design and protocol would reassure a reader that your conclusions are justified or, in Gorard’s terms, that your claims are warranted? Refer to the specific threats to internal validity. If you have forgotten about those, consult the document “Goals of Research Design”. Consider each of them carefully as you answer this question. Be specific in your responses. However, do not just “check off threats on the list.” Think about which of these threats you think you “really did a good job of eliminating.” If you’ve been thoughtful, there should be few serious threats. Do not limit your thinking about internal validity to this list – in fact I hesitate to give you a “list” because people start thinking that internal validity boils down to “checking off threats.” Do not just repeat broad generalities about the kinds of strengths your design has in general. Show me that you can think about internal validity in a comprehensive way and made decisions that will help you be confident in the conclusions you reach.

2. What are the greatest weaknesses of your design with regard to internal validity? There is no “perfect” design. Don’t be afraid to state the weaknesses. There are realities of the conditions in which we work that place real restrictions on what we can do. For example, I
rarely have enough funds to get the sample I would really like to get. So – what are the parts of your study that are weaker? What did you do to minimize the weaknesses?

**External Validity**

3. Identify the key strengths of your study with regard to external validity. Consider both statistical and theoretical generalization. Be specific. Do not just include generalities about the cross-sectional designs in general. Refer to what you plan to do. Consult the specific threats to external validity provided in the “Goals of Research Design”. As in the case of internal validity, do not treat this as a definitive “check list.” Generalization is more complex than any checklist can capture. What are the particularly strong features of your design, sampling, protocol, use of comparison groups, etc. that would increase the generalizability of your conclusions?

4. Identify the key weaknesses of your study with regard to external validity. Consider both statistical and theoretical generalization. State the limitations – no social science study creates conclusions that are “universally generalizable to everyone in the world.” Usually, in fact, the theoretical population is rather narrow. Considerations of whether you want to generalize theoretically or statistically will come into play, as will your planned contributions to say empirical evidence versus theoretical development. Be specific.

**Explanatory Power**

5. Discuss the contributions to explanatory power of your planned research. Remember that explanatory power rests on the degree to which the researcher can explain the phenomenon under study in a complete and robust way. What kinds of evidence you have that will add to what we understand about the how and why this need exists and persists? What are the implications of your design for improving practice?

<table>
<thead>
<tr>
<th>Assessment Criteria</th>
<th>Possible Points</th>
<th>Your Points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Logic of the Design – Flow Chart</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design choices are appropriate for a needs assessment that is used to inform practice</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>States robust research hypotheses that move beyond simple “single factor” explanations to incorporate a range of factors that contribute to understanding the phenomenon of interest and informing practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identifies theoretical constructs and linkages to serve as the basis for comparison groups and selection of grouping, independent and outcome variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific features of the design demonstrate a logical connection between the objectives, research question, and plans for generalization</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Internal Validity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provided a comprehensive discussion of how your decisions regarding research objectives and questions affect the strengths and weaknesses of the study with regard to internal validity, including for example the selection of constructs and linkages that you would examine</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Explained why you think these basic decisions improved or weakened your ability to understand and explain how the need(s) of interest</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
developed and why they persist
Identified features of the sampling plan that would enhance and/or 
threaten internal validity of your conclusions
Identified features of the planned data analysis that make it appropriate 
for the design, for your research question and planned analyses, and 
that would enhance the internal validity of your conclusions
Avoided generalizations about internal validity that are true of cross-
sectional designs as a group and was able to apply key concepts 
about internal validity to your specific research design decisions

<table>
<thead>
<tr>
<th>External Validity</th>
</tr>
</thead>
</table>
| Provided a thorough discussion of how overall design decisions like 
  incorporating multiple comparison groups could affect the strengths 
  and weaknesses of the study with regard to external validity |
| Assessed and explained how your decisions could affect external validity 
  in terms of the specific objectives, research question and theoretical 
  hypotheses of the study – avoided generalizations |
| Discussed specific threats and the specific decisions made to reduce 
  those threats to the degree possible |
| Demonstrated understanding of the drawbacks and advantages of 
  different sampling approaches in terms of your ability to generalize 
  conclusions about the causes of the needs you seek to address |
| Justified decisions about theoretical and statistical generalization you 
  propose and criticized and justified sampling decisions in terms of 
  their effect on your ability to make those generalizations |

<table>
<thead>
<tr>
<th>Explanatory Power</th>
</tr>
</thead>
</table>
| Explained how the decisions made about research design affect your 
  ability to understand and explain the origin and persistence of the 
  needs you want to address |
| Identified the major strengths and weaknesses of the design with regard 
  to explanatory power, especially ability to draw explanatory rather 
  than descriptive conclusions |
| Identified design features (including sampling) used to increase your 
  ability to put your theoretical and statistical (formal) hypotheses to the 
  toughest possible test |
| Identified design features, including sampling, that increased your 
  potential to eliminate alternative explanations other than those you 
  propose (your theoretical model) that would explain the phenomenon 
  of interest |

<table>
<thead>
<tr>
<th>Use of Research Design Literature</th>
</tr>
</thead>
</table>
| Consulted, used, cited and referenced extensive required and additional 
  materials about all aspects of research design, including (1) 
  development of the research question, (2) the role of theory in 
  scientific research, (3) sampling & data analysis, and (4) internal and 
  external validity about the specific design selected |
| Consulted, cited and use extensive research design literature about the 
  specific design employed |

<table>
<thead>
<tr>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
</tr>
</tbody>
</table>