Research Design and Methology II

David D. Reedy

Omega Graduate School

1/25/2025

Professor

Sean Taladay, Ed.D.

Assignment #1 – Core Essential Elements Answer the following questions in short answer format and be prepared to discuss them with your classmates in the virtual residency or the discussion forum. 1. What is the difference between quasi-experimental and correlational designs? Which design has an independent variable and a dependent variable? Which design uses two continuous variables? 2. How might your selected instrument, such as a validated psychometric survey, help determine which quantitative design to use for a dissertation? Why are Likert-style surveys typically based on variables at the ordinal or interval scale? 3. What are scales and subscales used on survey instruments? Do all surveys have subscales? Why or why not? 4. Describe construct validity and internal reliability of quantitative survey instruments. Why is it best practice to use a validated survey instead of a researcher-created survey in dissertation research? 5. Why is an interview protocol or a questionnaire used in basic qualitative studies? How can a researcher ensure their qualitative instruments align with their research questions?

1. What is the difference between quasi-experimental and correlational designs? Which

design has an independent variable and a dependent variable? Which design uses two

continuous variables?

A quasi-experimental design is similar to a true experiment in that it seeks to establish a degree of causality. As such this design will have at least one independent variable impacting the dependent variable. (Frost, 2020, p. 196) This design will examine the cause-and-effect relationship between variables with the manipulation of the independent variable, but without random assignment. (pp. 197-198) A correlational design does not manipulate an independent variable but rather explores the relationship by measuring two or more continuous variables that occur naturally as they occur. The relationships are not manipulated, simply observed. The strength of the relationship is expressed as a correlation. (pp. 95-97)

2. How might your selected instrument, such as a validated psychometric survey, help

determine which quantitative design to use for a dissertation? Why are Likert-style surveys typically based on variables at the ordinal or interval scale?

Since all the steps in the research design are connected to understanding and/or testing a potential solution to a problem, a selected instrument must be appropriate for the problem being examined and the type of data associated with the problem. With quantitative data the instrument best suited to this data will then drive the type of quantitative design that is used. The nature of the data collected by the instrument (categorical, ordinal, or continuous) dictates the statistical analyses and design that can be utilized. For instance, if that data allows an instrument to be used that can measure the manipulation of an independent variable to examine an outcome, a quasi-experimental method would be best. If the problem and population generates data that cannot be manipulated then instruments based on observation must be used and a correlational design is best. (Reichard, 2023) Selection of a validated psychometric survey presents a reliable and valid tool but must align with the data available. (What is Psychometrics?, 2019, para. 7) One such instrument, the Likert-style survey, measures responses to a question on how much the respondent agrees or disagrees on a scale. (Grønmo, 2019, p. 245) As such the variables will be ordinal or potentially interval as they deal with measurements on a scale.

3. What are scales and subscales used on survey instruments? Do all surveys have

subscales? Why or why not?

A survey instrument is concerned with capturing data that may differ in degree and as such the data associated with the observed variables is measured at the ordinal, interval or ratio level. The scale thus provides the scope of the range of responses and allows for understanding not only the range of the response, but the frequency of the responses within the range. (Grønmo, 2019, pp. 244-245) The scale may capture a range of possible responses across a continuum such as strongly agree to strongly disagree using a continuous scale or it may capture data that is categorical such as yes or no or ranking items in levels of importance. (Cresswell and Cresswell, 2022, p. 216) I would assess that certain types of data could be broken down into more specific scales, or subscales. For example, if I had a survey question measuring how content pastors were in their parishes from very content to very discontent, that I could utilize a subscale to capture what factors fed into the answer, such as financial compensation, work hours, appreciation and so forth. But I would think it would depend on the nature of the problem being addressed as to how many rabbits one would chase with subscales, so not all surveys would necessarily require one to deal with the problem being addressed.

4. Describe construct validity and internal reliability of quantitative survey instruments. Why is it best practice to use a validated survey instead of a researcher-created survey in dissertation research?

Construct validity assesses how well a survey measures the issue, problem or concept it is intended to measure. If the survey has construct validity it accurately measures what it is intended to measure. (Sooleen, 2023, para 6) (Cresswell and Cresswell, p.164) Internal validity would demonstrate the specific instrument accurately measures whether the changes in the dependent variable were caused by the independent variable and would do so again consistently if tested on a new sample. (para 4) It would make sense that if an existing validated and reliable instrument exists that can capture and evaluate data pertaining to the research problem it would be best practice to use it given it would have a history or track record and thus would increase the credibility of one’s particular study.

5. Why is an interview protocol or a questionnaire used in basic qualitative studies? How

can a researcher ensure their qualitative instruments align with their research questions?

In qualitative studies, the purpose is to explore, understand, or interpret experiences, behaviors, or phenomena in depth. (Cresswell and Cresswell, p. 5) An interview protocol or questionnaire is important to provide a consistent structured, but not overly structured framework for engaging participants in the study. This will balance an open-ended approach necessarily for allowing the participants to provide the information and not be overly led in a particular direction with the need to remain focused on a specific problem or issue. An interview protocol or questionnaire will help maintain consistency across interviews and other data collection methods while also encouraging participants to share their personal insights and perspectives. (Cresswell & Cresswell, p. 199) (Rukwaru, 2015, pp. 142-146) As such it will be important for the researcher to develop questions that are specific enough to align with the study’s objectives, while also being open enough to not be leading or constraining the participants providing information. In addition the research can check to see if other researchers have employed similar methods regarding similar projects to help provide additional qualitative validity to the survey interview protocol or questionnaire. (Cresswell and Cresswell, p. 274, 337)

WORKS CITED

Creswell, J. W., & Creswell, J. D. (2022). *Research design: Qualitative, Quantitative, and mixed methods approaches*. SAGE Publications.

Frost, J. (2020). *Introduction to statistics: An Intuitive guide for analyzing data and unlocking discoveries*. Statistics by Jim Publishing.

Grønmo, S. (2019). *Social Research methods*. SAGE Publications. <https://ereader.perlego.com/1/book/3013316/11?page_number=27>

Reichard, J. (Director). (2023, July 7). *OGS PhD/DPhil Prospectus tutorial* [Video recording]. <https://www.youtube.com/watch?v=dOHOalP8pho>

Rukwaru, M. (2015). *Social research methods. A complete guide*. Eureka Publishers. <https://www.everand.com/book/353098652/Social-Research-Methods-A-Complete-Guide>

Sooleen, A. (2023, June 16). The significance of validity and reliability in quantitative research. *Sago*. <https://sago.com/en/resources/blog/the-significance-of-validity-and-reliability-in-quantitative-research/>

*What is psychometrics?* (2019, November 29). Psychometric Society. <https://www.psychometricsociety.org/what-psychometrics>