**SR 958-32: Research Design and Methodology I**

**(Fall 2024, Subterm A)**

**Assignment #1: Discussion Questions**

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**Assignment #1: Discussion Questions**

Please 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. Describe the differences between quantitative and qualitative research methodologies. When is each methodology most appropriate for researching a particular social problem?
2. Why are quantitative studies considered deductive and qualitative studies usually (though not always) inductive?
3. OGS supports two quantitative research designs: quasi-experimental and correlational, and basic qualitative research designs. Compose a summary of these three designs and how/when they are most appropriate.
4. Dissertations consist of five chapters: Introduction, Literature Review, Research Design and Methodology, Data Analysis, and Findings and Recommendations. Briefly explain the purpose of each chapter.
5. Describe the differences between quantitative and qualitative research methodologies. When is each methodology most appropriate for researching a particular social problem?

Quantitative methodology is analyzing the primary form of statistical data used in socio-economic and human research studies. Qualitative methodology is descriptive and presented in words representing journal observations and records. Quantitative research comprises two main statistical methods: Quasi and Correlational statistics (OGS.edu & Reichard, 2024). A quasi-analytic experiment involves comparing two groups of variables of people or populations you could measure, and many kinds of experiments are run using quantitative methods. Quantitative research uses numbers and statistics, while qualitative research uses words, descriptions, and narratives. Quantitative research aims to answer "how much" or "how many" questions, while qualitative research seeks to understand "why" or "how" something occurs. Quantitative research commonly uses surveys, questionnaires, and experiments, while qualitative research employs interviews, focus groups, and participant observation. Quantitative data is analyzed using statistical methods, whereas qualitative data is analyzed through thematic analysis, content analysis, or coding to identify patterns and themes.

2) Why are quantitative studies considered deductive and qualitative studies usually (though

not always) inductive?

Quantitative studies are “Deductive, or a priori analysis generally means applying theory to the data to test the theory. It is a kind of “top-down” approach to data analysis. Qualitative analysis often means applying predetermined codes to the data (Bingham, 2021). Quantitative study analysis is deductive; it is logical in its empirical framework. It is inferential and experimental, and the data organization utilizes mathematical or statistical formulas or derivatives to align its goals and answers to questions posed in areas such as population demographics, income disparities, school admissions, and enrollment targeting. Data should be organized into categories such as data type, periods, and participants that align with research questions. In quantitatively deductive statistics, the attributes include data organization in categories that align with the research questions. Qualitative study analysis is descriptive and narrative, using the bottom-up approach to deriving first-hand or basic data and information from close observations, surveys, and journal reports. Conversely, qualitative data are categorized and analyzed inductively, making meaning from the data rather than proving a hypothesis, which is the focus of a quantitative, deductive framework.

While quantitative research is generally considered deductive, quantitative researchers often use a small amount of inductive reasoning to find meaning in data that holds surprises.

In the qualitative study approach, the Inductive is used to describe reasoning that involves using specific observations, such as observed patterns, to make a general conclusion. This method is sometimes called induction. Induction starts with a set of premises, based mainly on experience or experimental evidence. It uses those premises to generalize a conclusion. In quantitative study analysis, deductive reasoning is a logical approach that progresses from general ideas to specific conclusions. It often contrasts with inductive reasoning, where you start with specific observations and form general conclusions. Deductive reasoning is also called deductive logic or top-down reasoning.

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| **Table 2.1** |
| * Table 2.1 is culled from Scribbr. * It portrays the sequence of the Quantitative Deductive Reasoning approach. * It is logical, hypothetical, inferential, and deductive. | |

3) OGS supports two quantitative research designs: quasi-experimental and correlational, and basic qualitative research designs. Compose a summary of these three designs and how/when they are most appropriate.

Quasi-experimental research is a design that closely resembles experimental research but is different. This term, “resembling,” occupies a unique position in the spectrum of research methodologies, between observational studies and true experiments. This middle ground offers a blend of both worlds, addressing some limitations of purely observational studies while navigating the constraints often accompanying actual experiments (Frost, J. (2024).

Quasi-experimental research is most appropriate in field settings where random assignment is difficult or impossible. However, an independent variable gets manipulated to see the cause-and-effect of the dependent variable. They are often performed to evaluate the effectiveness of a treatment—perhaps a type of psychotherapy or an educational intervention. The most common quasi-experimental designs are: i) Nonequivalent groups design: This design uses a pretest and posttest for participants to gauge cause and effect. ii) Regression discontinuity design assigns participants to a particular treatment using the propensity score of a pretreatment variable. iii) In Interrupted time series design, researchers track participants for a lengthy period, both pre-intervention and post-intervention (MasterClass, 2022).

Correlation refers to the statistical relationship between the two entities. It measures the extent to which two variables are linearly related. For example, the height and weight of a person are related, and taller people tend to be heavier than shorter people. In statistics, correlation or dependence is any statistical relationship between two random variables or bivariate data, whether causal or not. Correlation may indicate any association, the degree to which a pair of variables are linearly related. A correlation coefficient always takes on a value between -1 and 1 where:

* -1 indicates a perfectly negative linear correlation between two variables
* 0 indicates no linear correlation between two variables
* 1 indicates a perfectly positive linear correlation between two variables.

Using correlational statistics to quantify the linear relationship between two variables is most appropriate, as neither represents a response or “outcome” variable (Bobbit, 2021).

Qualitative research design is a research methodology that focuses on exploring and understanding complex phenomena and the meanings attributed to them by individuals or groups. It is commonly used in social sciences, psychology, anthropology, and other fields where subjective experiences and interpretations are of interest. It is concerned with capturing the richness and depth of human experiences, beliefs, attitudes, and behaviors. It aims to go beyond simple descriptive and statistical analysis and uncover insights that quantitative research may not be able to capture.

It is most appropriate to use qualitative research design to gather data through interviews, observations, focus groups, and analysis of documents or artifacts. These methods allow researchers to collect detailed, descriptive information about participants’ perspectives, experiences, and contexts (Jain, 2023)

4) Dissertations consist of five chapters: Introduction, Literature Review, Research Design and Methodology, Data Analysis, and Findings and Recommendations. Briefly explain the purpose of each chapter.

The Introduction is usually chapter one of the Dissertation. It addresses what needs to be investigated and why it is worth investigating. It further states the aims and objectives and poses the research question(s). Other areas include determining the scope of the study and what to cover. Moreover, it states how the dissertation will be structured, outlining the core chapters.

Literature Reviews refers to Chapter 2 of the Dissertation. Upon setting a clear direction with the introduction chapter, the next step is the literature review. This section analyzes existing research (typically academic journal articles and high-quality industry publications) to understand the following questions: What does the literature say about the topic you are investigating? Is the literature lacking or well-established? Is it divided or in disagreement? How does your research fit into the bigger picture? How does your research contribute to something original? How does the methodology of previous studies help you develop your own? Depending on the nature of your study, you may also present a conceptual framework towards the end of your literature review, which you will then test in your actual research (Jansen, 2019)

Chapter 3 of the Dissertation presents research design and methodology. It sheds light on existing key theories, models, and frameworks, demonstrating one’s research. This chapter addresses some crucial questions: How will the research be executed, and what is the anticipated research design? Moreover, why have you chosen to do things this way? How do you justify your design? This analysis phase is meant to demonstrate one's skills or knowledge in research methodology.

Data Analysis is chapter 4 of the Dissertation. It is designed to analyze all the collected data and the methodologies utilized, whether quasi-experimental, qualitative, quantitative, or various methodologies. In most cases, the raw or natural data analyzed are clearly shown. In a quantitative and qualitative study analysis, descriptive statistics and inferential and demographic data analysis are necessary to demonstrate the study's integrity.

Findings and Recommendations are written in Chapter 5 of the Dissertation, and this chapter presents the results and the concluding part, which includes the recommendations. The Findings are descriptive and interpretive of the methodologies, data, and possible outcomes. What you discuss here will depend mainly on the chosen methodology. For example, one might discuss the relationships between variables if one has gone the quantitative route. If you have gone the qualitative route, you might discuss key themes and the meanings thereof. The finding shows that the results of the research questions aligned with the existing research or were at odds. In some cases, the Findings and recommendations include concluding aspects of the dissertation. Here, there is the attempt at the original research questions in Chapter 1). Clearly state what one’s conclusions are in terms of the research questions. As you mentioned in the previous chapter, this might feel repetitive. However, bringing the discussion full circle and explicitly stating the derived or glaring answer(s) to the research question(s) is important. Next, you typically discuss the implications of the findings and what they mean for the real world (or academia). Given the new insight, what should now be done differently? Lastly, you should discuss the limitations of the research, what this means for future research, and the shortcomings of the overall research.

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