Unit 5
Quantitative Methods: Non-Experimental Approa

INTRODUCTION

Non-Experimental Research Designs

Non-experimental research designs include all quantitative research that does not involve random assignment of participants, control groups, or multiple measures. The non-experimental category is a catch-all for these other quantitative designs, and includes correlational, developmental, survey, and observational research designs. Since the researcher does not do anything to affect any sort of change in the study participants in these designs, and instead simply measures or describes them as they are, these types of studies are sometimes referred to as *descriptive*. You might note that your Leedy and Ormrod text has a chapter titled "Descriptive Research"; it could just as accurately be titled "Non-Experimental Research."

The aim of non-experimental studies is to improve understanding of a phenomenon either by describing it in succinct quantitative terms or by describing its underlying factors. Research questions typically direct the line of inquiry. The goal is not to establish a cause-and-effect relationship; rather, the goal is to use statistics, such as descriptive statistics, correlation, and multiple regression, or data-reduction procedures, such as cluster analysis, factor analysis, and multidimensional scaling, to better understand a phenomenon or relationship. Causation cannot be inferred. Non-experimental research covers a wide variety of applications.

Correlational studies are a type of non-experimental design that involve the examination of existing relationships or differences among variables. Some authors, such as Cozby (1993) use the term *ex-post facto research* to describe correlational research. However, Leedy and Ormrod (2013) do not; they treat *ex-post facto research* as an approach alongside the experimental and quasi-experimental approaches (p. 242–243). *Cross-sectional* and *longitudinal designs* are a subset of descriptive research. These designs permit the study of developmental phenomenon (Leedy & Ormrod, 2013). In *observational studies*, researchers seek to describe a specific behavior or pattern of behaviors through systematic, objective observational measures. To support the objectivity of the observations, the researcher needs to establish reliability among different observers or raters as well as the validity of the observational measure.

Researchers frequently use surveys or questionnaires to conduct descriptive research. Survey research is a specific kind of non-experimental design in which the purpose is to describe certain characteristics of groups or population (Leedy & Ormrod, 2013). The U.S. census is an example of very large scale survey research. Some researchers refer to any research using a survey or questionnaire as *survey research*. In this course, we will use it in a way that is consistent with Leedy and Ormrod's definition. However, the use of survey research and questionnaires is not isolated to non-experimental studies.

Cozby, P. C. (1993). *Methods in behavioral research* (5th ed.). Mountain View, CA: Mayfield.

Leedy, P. D., & Ormrod, J. E. (2013). *Practical research: Planning and design* (10th ed.). Upper Saddle River, NJ: Pearson.

OBJECTIVES

To successfully complete this learning unit, you will be expected to:

1. Describe variables in a non-experimental research study.

2. Discuss instruments in a non-experimental research study.
3. Identify statistical tests in a non-experimental research study.

[u05s1] Unit 5 Study 1

STUDIES

Readings

Read the introduction to this unit, Quantitative Methods: Non-Experimental Approach. The introduction describes the defining characteristics of non-experimental research.

Use your Leedy and Ormrod text to complete the following:

- Read Chapter 6, "Descriptive Research," pages 136–177. This chapter covers basic non-experimental designs, as well as basic directions for conducting non-experimental research.

On Trochim's Research Methods Knowledge Base Web site, read the following Web pages to learn more about the use of surveys and questionnaires. Further explanations about the differences in correlations and causal relationships are found on the Types of Relationships page. The last four Web pages address issues of construct validity and reliability.

- Types of Relationships.
- Construct Validity.
- Threats to Construct Validity.
- Reliability.
- Types of Reliability.

Library Search

Use the Resource Library to locate an article from the academic literature that utilizes non-experimental quantitative methods. Make sure the article fits Leedy and Ormrod's description of non-experimental research. The Finding Articles by Type: Non-Experimental Research guide will show you some techniques for searching for non-experimental articles in the library databases.

Record the persistent link for the article found within the library databases. The persistent link is different from the URL in the browser window. Use this guide to learn where to locate your articles' persistent links: Persistent Links and DOIs.

Read the article in preparation for this unit's discussions.

Use Finding Articles for Your Discussion Post to learn how to locate articles within the library databases. This guide will walk you through the basic steps of accessing the library databases and creating a search strategy to find articles.

PSY Learners Additional Required Reading

In addition to the other required study activities for this unit, PSY learners are also required to compete the following:

- Read Widaman's 2000 article, "Developmental Psychology: Research Methods," in the *Encyclopedia of Psychology, Vol. 3*, pages 18–24 . This reading covers developmental research, with attention to design, measurement issues, and statistical methods.

Optional Program-Specific Content

Some programs have opted to provide program-specific content designed to help you better understand how the subject matter in this study is incorporated into your particular field of study. Check below to see if your program has any suggested readings for you.

COUN Learners

- Steinberg, D. M. (2004). Chapter 19: Quantitative data analysis: Making sense of descriptive statistics. In *Social Work Student's Research Handbook* (pp. 125–138). New York, NY: Haworth Press. This chapter looks at what descriptive statistics actually are and how they are used.

[u05d1] Unit 5 Discussion 1 »

QUANTITATIVE: NON-EXPERIMENTAL APPROACH

Resources

Discussion Participation Scoring Guide.

APA Style and Format.

Resource Library.

Persistent Links and DOIs.

For the non-experimental, quantitative research article you selected in this unit's studies, in the Library Search section, answer the following:

- Describe the constructs and variables under investigation.
- Describe the instrument or instruments used in the research. Include a discussion of the concepts of construct validity and reliability.
- Identify the statistical tests used to analyze the data and discuss the implications of the results with regard to interpretation of non-experimental data.
- Evaluate the scientific merit of the selected design. Did a correlational design allow the researchers to answer the research question or questions? How might you have designed this study differently?
- Post the persistent link for the article in your response. Refer to the Persistent Links and DOIs guide, linked in Resources, to learn how to locate this information in the library databases.
- Cite all sources in APA style and provide an APA-formatted reference list at the end of your post.