

Chapter 7

Methods to Provide Evidence for Reliability and Validity

Study Guide

OBJECTIVES:

You will be able to:

1. Understand the different methods for computing measurement/instrument reliability.
2. Explain the assumptions related to measures of reliability.
3. Compute different statistics to evaluate measurement reliability.
4. Understand the difference between exploratory factor analysis and principal components analysis.
5. Understand the assumptions related to factor analysis.
6. Assess sets of latent constructs.
7. Mathematically derive a smaller number of variables from a larger set of variables.
8. Understand how to use Factor Analysis and Alpha together to make summated scales.

KEY TERMS TO DEFINE AFTER READING THIS CHAPTER:

- Internal consistency reliability
 - Cronbach's Alpha
- Reliability
 - Test-retest
 - Equivalent forms reliability
 - Interrater reliability
- Reliability with nominal data
 - Cohen's Kappa
- Exploratory factor analysis
- Principal components analysis
- Extraction

- Principal axis extraction
- Rotation
- Varimax (orthogonal)
- Kaiser-Meyer-Olkin (KMO)
- Bartlett's Test of Sphericity
- Communalities
- Eigenvalues and variance explained
- Scree plot