Instrument/Scale Development

OVERVIEW

Instrument/scale development is the systematic process of creating and testing questionnaire, survey, or rating scale items and response options. Scales are sets of questions that collectively are expected to measure theoretical constructs. The term “instrument” may also be used to refer to a question set, or the term can refer to a collection of question sets (e.g., a battery of four scales that measure aspects of classroom engagement). Scale development should include both qualitative and quantitative procedures. Qualitative procedures that are important components of scale development include a review of literature about a construct, expert review of preliminary items, and cognitive testing of items with members of the target population for the scale. Scale development may also start with existing items in a secondary dataset. Such items may not have been originally designed to measure a construct of interest, but combining them may be theoretically justified. Quantitative steps include descriptive univariate and bivariate statistical analyses, exploratory factor analyses (EFA), confirmatory factor analyses (CFA), and invariance tests. Item response theory (IRT) and Rasch methods are also commonly used methods of quantitative scale development. The goal of scale development is a quantitative measure of a theoretical construct that can be used in research and/or practice.

ARTICLES AND CHAPTERS

Description of Method


This book chapter describes a mixed-methods scale development process that includes cognitive interviewing of children.


The authors provide a thorough review of guidelines for writing multiple-choice items.


The authors describe best practices for developing an instrument in counseling psychology.
Applications


The article describes the design of a psychometrically sound instrument to measure adolescents’ attitudes and self-perceptions.


The authors describe the creation of an instrument to measure teachers’ attitudes and the methods used to examine the validity of the instrument.

TEXTS


This book of standards is the product of an authoritative, interdisciplinary collaboration. Many previous editions exist; each edition represents the latest thinking about validity and high-quality instrument development. The standards stress that validity refers to the interpretations and uses of assessment scores, not the scale itself. In addition to information about the standards, the book contains extensive information about the process of scale development.


This book provides a user-friendly description of traditional (primarily quantitative) scale development procedures. It includes guidelines for item-writing, factor analysis, and construct validity and reliability tests. This edition includes a chapter on item response theory.


A thorough guide for developing and validating test items. The book includes a discussion of the role of validity in item development and current best practices regarding test development.


This book provides step-by-step instructions for developing an instrument. Includes the defining, measuring, and scaling of affective constructs and provides a thorough treatment of validity and
reliability. Includes details about EFA, CFA, latent class analysis, IRT, construct invariance and major steps in the development process.


A useful resource for educational researchers and students. The book provides detailed basic information on items, scales, and measurement characteristics. The book also includes discussion of the types of scores that can be calculated from raw scale scores and how they differ (e.g., stanines).

SELECTED INTERNET RESOURCES TO GET YOU STARTED

**Developing a Survey Instrument** *(New Jersey Agricultural Experiment Station, Rutgers)*

This website provides resources on developing a survey instrument. Has guidelines for program evaluation using survey instrument.

- [Link](#)