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 refer to a question set as well, or it can refer to a collection of question sets (e.g., four scales that measure aspects of classroom engagement). Scale development may start with qualitative exploration of an unstudied construct or with the combining of items in an existing dataset what were not originally designed to measure a construct of interest. Often the goal of scale development is a quantitative measure of a theoretical construct that can be used in research and/or practice. Qualitative procedures that are important components of scale development include literature review of a construct, expert review of preliminary items, and cognitive testing of items with members of the target population of the scale. 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 quantitative scale development methods.

ARTICLES AND CHAPTERS

Description of Method


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


Provides a thorough review of guidelines for writing multiple choice items.


Recommends best practices for developing an instrument in counseling psychology.

Applications

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


Describes the creation of an instrument to measure teachers’ attitudes and the methods they used to examine the validity of the instrument.

TEXTS


This book is the product of an authoritative, interdisciplinary collaboration. Many previous editions exist; each edition represents the latest thinking and methods about validity and high-quality instrument development. The stated purpose of the book is: “provide criteria for the development and evaluation of test and testing practices and to provide guidelines for assessing the validity of interpretations of test scores the intended test uses” (p. 1). The book stresses that validity refers to the interpretations and uses of assessment scores. In addition to the standards themselves, 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. The latest edition includes a chapter on item response theory.


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.

- The e-book is available through the OSU library at [link](#).


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).