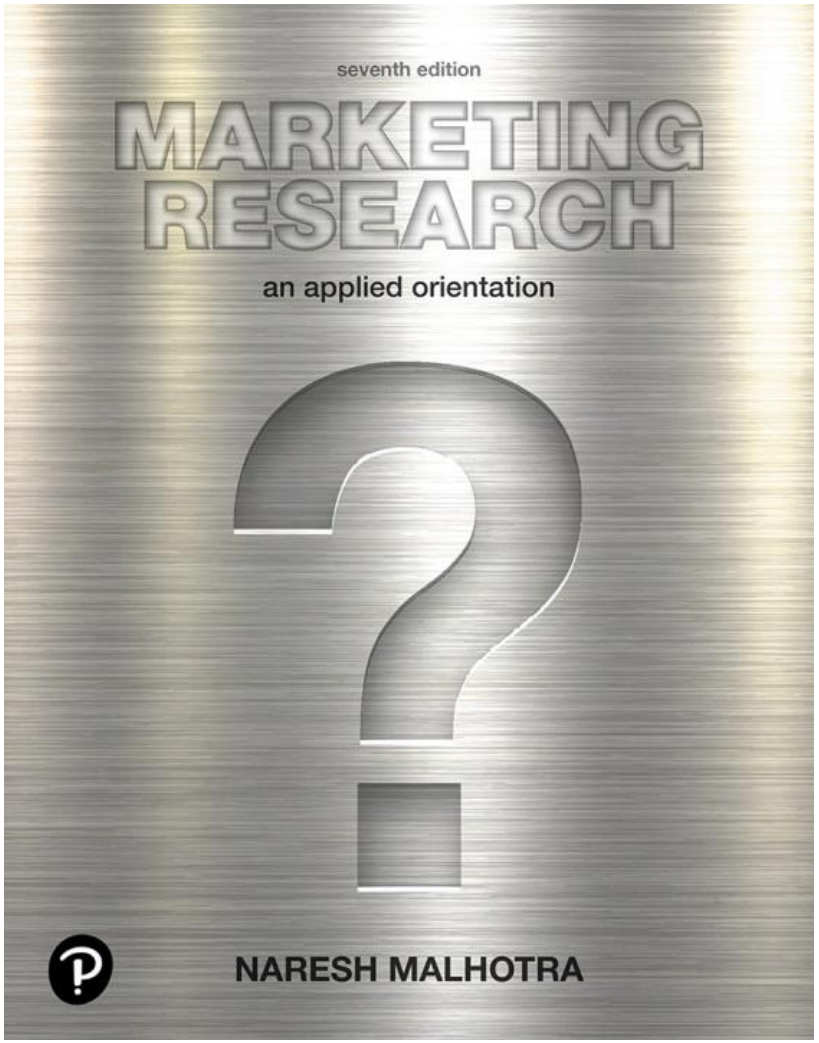
Marketing Research: An Applied Orientation

Seventh Edition

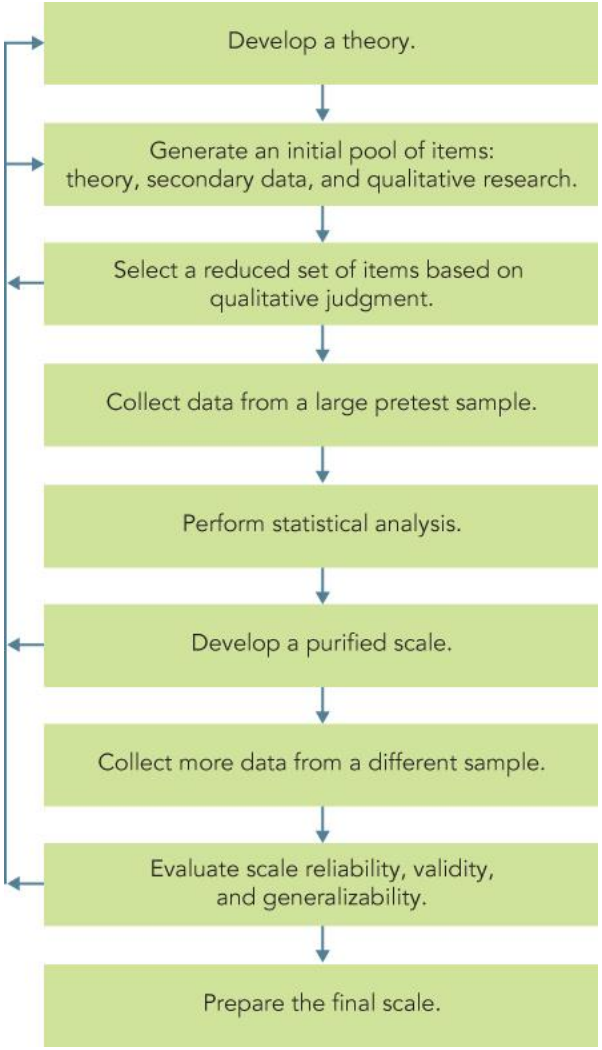


Chapter 9

Measurement and Scaling: Noncomparative Scaling Techniques

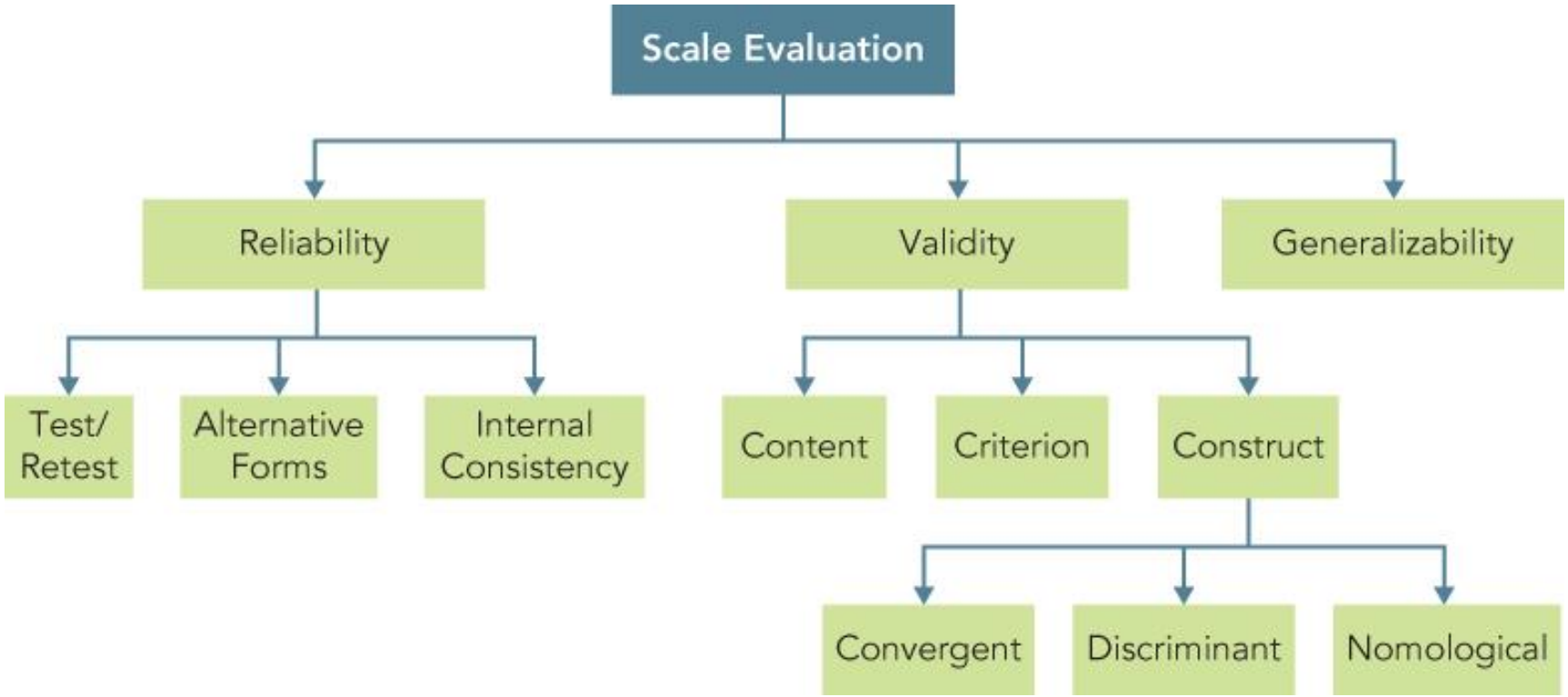
Development of a Multi-Item Scale

Figure 9.4 Development of a Multi-Item Scale



Scale Evaluation

Figure 9.5 Evaluation of a Multi-Item Scale



Measurement Accuracy

The **true score model** provides a framework for understanding the accuracy of measurement.

$$X_O = X_T + X_S + X_R$$

where

X_O = the observed score or measurement

X_T = the true score of the characteristic

X_S = systematic error

X_R = random error

Potential Sources of Error in Measurement

Figure 9.6 Potential Sources of Error in Measurement

1. Other relatively stable characteristics of the individual that influence the test score, such as intelligence, social desirability, and education
2. Short-term or transient personal factors, such as health, emotions, fatigue
3. Situational factors, such as the presence of other people, noise, and distractions
4. Sampling of items included in the scale: addition, deletion, or changes in the scale items
5. Lack of clarity of the scale, including the instructions or the items themselves
6. Mechanical factors, such as poor printing, overcrowding of items in the questionnaire, and poor design
7. Administration of the scale, such as differences among interviewers
8. Analysis factors, such as differences in scoring and statistical analysis

Reliability (1 of 2)

- **Reliability** can be defined as the extent to which measures are free from random error, X_R. If $X_R = 0$, the measure is perfectly reliable.
- In **test-retest reliability**, respondents are administered identical sets of scale items at two different times and the degree of similarity between the two measurements is determined.
- In **alternative-forms reliability**, two equivalent forms of the scale are constructed and the same respondents are measured at two different times, with a different form being used each time.

Reliability (2 of 2)

- **Internal consistency reliability** determines the extent to which different parts of a summated scale are consistent in what they indicate about the characteristic being measured.
- In **split-half reliability**, the items on the scale are divided into two halves and the resulting half scores are correlated.
- The **coefficient alpha**, or Cronbach's alpha, is the average of all possible split-half coefficients resulting from different ways of splitting the scale items. This coefficient varies from 0 to 1, and a value of 0.6 or less generally indicates unsatisfactory internal consistency reliability.