Measurement -- assignment of numbers or symbols to properties of objects or phenomena according to rules

Levels of measurement--relate to precision of data and methods of analysis (no longer covered in this chapter; see pp. 479-482)
- nominal -- variable can be divided into mutually exclusive and exhaustive categories
- ordinal -- variable whose attributes can be logically rank ordered along some dimension
- interval -- attributes are rank ordered and have equal distances between adjacent attributes
- ratio -- attributes have qualities above and are based on a true zero point

Goal of measurement -- avoid random and systematic error by developing reliable and valid instruments (must also assure that alternative forms are comparable)

- systematic error -- consistent pattern of effects (e.g. social desirability, acquiescent response set, cultural bias)

- random error -- no consistent pattern of effects but reduces reliability (e.g. use of unclear terms or directions, complex testing situation)

- different kinds of measurement error can occur in 1) written self-reports, 2) interviews, 3) direct behavior observations, and 4) examining available records

Triangulation--deals with systematic error by using several different research methods to collect the same information.

Reliability -- the degree of accuracy or precision the instrument possesses; dependability, stability, consistency, reproducibility repeatability; reduces random error

- types of reliability
  - interobserver reliability or interrater reliability
  - test-retest reliability
  - internal consistency (coefficient of alpha measures this type of reliability)

- methods for establishing reliability
  1. test-retest
  2. alternative form
  3. split half method

- methods to improve reliability
  1. write items in instrument unambiguously
  2. add more items of equal kind and quality
  3. use clear and unambiguous instructions
Validity -- the degree to which an instrument is measuring what it is supposed to measure

face validity--the degree to which an instrument appears to measure what it is supposed to measure

content validity--the representativeness of sampling adequacy of the instrument's content (topics, items)
   1. Does the instrument provide an adequate sample of items (or questions) that represent the concept?
   2. Is the instrument really measuring the concept we assume it is measuring?

criterion-related validity -- based on some external criterion
concurrent validity--the ability of a measuring instrument to accurately predict an individual's current status based on an external criterion

predictive validity--an instrument's ability to predict future performance or status from present performance or status

construct validity--the degree to which an instrument measures a theoretical construct
convergent validity
divergent validity

factor validity—determined by factor analysis

Views on reliability and validity differ among qualitative researchers.