

Designing a Study: Critical Evaluation and Measurement

Overview

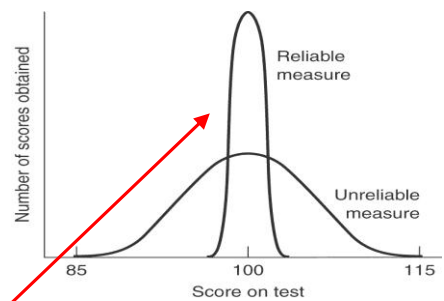
- Reliability
- Validity
- Demand Characteristics
- Measurement Scales

Reliability

- **Reliability:** the degree to which the same event or measure produces the same result each time it is measured.

Any Measure = True Score + Random Error

Reliability of Measures



Less error

Reliability of Measures

- Methods of assessing reliability
 1. Test-retest reliability
 2. Internal consistency reliability
 - Split-half reliability
 - Cronbach's alpha
 3. Interrater reliability

Remember...

- A *reliable* test is not necessarily *valid!*

Threats to Internal Validity

- Selection/Volunteer bias
- Regression towards the mean
- Repeated testing
- Attrition/Mortality

Construct Validity

- Construct validity- Is the measure that is used actually measuring the construct it is intended to measure?

Indicators of Construct Validity

- Face Validity: it looks good.
- Concurrent Validity: it matches current behavior
- Predictive Validity: it predicts future behavior
- Convergent Validity: it matches other measures
- Discriminant Validity: it doesn't match different measures

Demand Characteristics

- extraneous cues that guide a participant's behavior
- **reactivity**: A measure is **reactive** if awareness of being measured changes an individual's behavior
- **social desirability**: participants may behave in ways they think are more 'acceptable'

How can we **reduce** demand characteristics?

- unobtrusive measures
 - e.g. one-way mirrors, hidden cameras, prisms in periscopes under the bathroom stall door...
- deception
 - a cover story to disguise the true purpose
- distractor or filler tasks
 - keeps attention away from purpose

Variables and Measurement Scales

- Nominal/Categorical Scales
- Ordinal Scales
- Interval Scales
- Ratio Scales