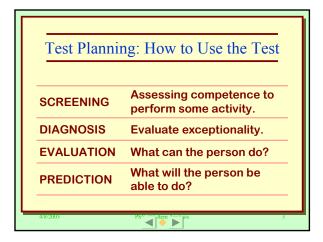
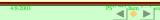
Advanced Tests and Measurement Test Design and Item Analysis PSY 721 Item Analysis 1





What Capacity to Assess? Ability Opinion Achievement Affect Personality Attitude Skill



Cognitive Testing: Response Types

- Recognition
- Recall
- Constructed response
- Selection

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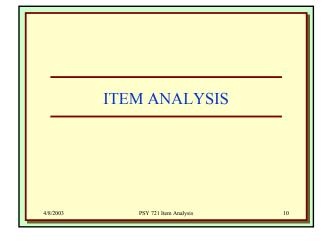
Scoring: Correction for Guessing $SCORE = RIGHTS - \frac{WRONGS}{k-1}$ 482003

Affective Testing • Projective • Behavioral • Theoretical

Issues: 1	Response Sets
Social Desirability	Answering in a socially acceptable fashion rather than how you really feel.
Agreement Bias	Tendency to agree with item
Positive or Negative Response Bias	Favorable or unfavorable response set.
Checking Bias	Marking items even when unsure or unclear as to the answer.

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Scoring: Errors • Halo Effect • Leniency Error • Severity Error



What Is It?

A group of statistics used to assess whether a test item is doing a good job of measuring the same thing that is measured by other test items.

Ideal

Everyone who knows the item gets it right/correct, and people who don't know the item will have responses equally distributed across the wrong answers.

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Example Which of the following has been a professor in the Psychology Department at California University of Pennsylvania? A. Max Gonano B. Dee Stalvey C. Theresa Polensky D. Randy Bookshar E. Dorothy Switzer

Goal of Item Analysis

Improve the test by...

- 1. Identifying the good items.
- 2. Identify the items that need to be revised or discarded.
- 3. Identify what people do and do not know.

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Types

- 1. Distractor Analysis
- 2. Item Difficulty Analysis
- 3. Item Discrimination Analysis
 - A. D
 - **B. PHI Coefficient**
 - C. Item-total correlation
 - D. Inter-item correlations
- 4. Item Characteristic Curves

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Distractor Analysis

- 1. Want wrong answers to be equally distributed across distractors.
- 2. Popular distractors.
- 3. Unpopular distractors.

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Item Difficulty

 $p = \frac{Number\ correctly\ answering\ the\ item}{Number\ taking\ the\ test}$

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Question? • When would you want a test with a high p value? • When would you want a test with a low p value?

Item Discrimination

The extent to which an item differentiates people on the behavior that the test is designed to assess.

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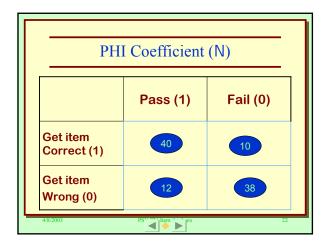
Discrimination Index (D).

- 1. Divide the sample into a TOP group and BOTTOM group.
- 2. Compute Discrimination Index (D).

$$D = p_{Top\ Group} - p_{Bottom\ Group}$$

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Item – Total Correlation

Correlation between each item and the total test score.

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Item Characteristic Curve

A graphic representation of the probability of choosing a correct answer to an item as a function of the level of the attribute being measured.

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