

Multiple Choice Item Format & Item Analysis

Parts of a Multiple Choice Question/Item

- Items: The entire multiple choice item
- Stem: The beginning of the item i.e the question
- Options: The number of possible choices to choose from
- Key: The correct option
- Distractors: The incorrect options

Item Analysis: Procedures that check that a test is working well

- Item Facility (I.F.)
 - An index of how an individual item was for the people who took it
 - An I.F. of 0.0 = everyone got it incorrect
 - An I.F. of 1.0 = everyone got it correct
- Item Discrimination
 - What would you think about a test item that all your *best* students answered incorrectly?
 - Shows how top scores and lower scores performed on each item

Writing Multiple Choice Items -

5 Recommendations (JD Brown)

1. Avoid giving unintentional clues
 - i.e: The man was attacked by **an** _____
2. Make all distractors equally plausible
 - i.e: The man was attacked by _____ (tiger, lion, **butterfly**, dog)
3. Avoid redundancy in the wording of options
 - i.e: We needed to ____ (go home, **going/went/goed home**)
4. Avoid distractors "*none of the above*," "*both A & B*"
 - Watch for spelling errors
 - Items should be equal in length (See Bailey, 212)
 - Avoid negation in the stem unless assessing negation
5. Sequence items in the order in which reading/writing appears in the text

Multiple Choice questions are associated with Discrete-point but not always discrete-point in nature

- Discrete-point multiple choice questions: may lack context, and require world knowledge
- Integrated multiple choice questions: A text/passage precedes the multiple choice questions

Keyable: a potential answer

When writing MC questions try and figure out **what you are trying to measure**

4 Procedures to Validate how well a MC is working

1. **Distractor analysis:** A tally of who choose which options for each item. They represent all test takers data, rather than dividing the data into high and low scores.
 - A good distractor is one that a student would choose
2. **Response frequency distribution:** A chart that separates "high" scores and "low" scores from a set of data
3. **Item statistics:**

- IF: The number of students who got an answer correct / (divided) by the number of total students

4. **Item discriminability**

- To see the top scores and the low scores
- To see if a particular item separate the “high” scores from the “low” scores
- .25 - 1 is an indication of the relationship on that item with the scores as a whole. It is like a correlation

Flannagan Shortcut

1. Score the tests
2. Rank order the tests in a stack from highest total score to lowest total score
3. Identify the top 27.5% and the bottom 27.5 %. Set aside the middle group of tests
 - If you can't get 27.5%, get as close as you can
4. For each item, make a chart showing the # of high scores who got it right and the # of low scorers who got it right