Item & Distractor Analysis

A simple process for determining assessment validity

ADVANCED COLLABORATIVE SOLUTIONS

Purpose

- eliminates ambiguous or misleading items in a single test administration
- increases instructors' skills in test construction
- identify specific areas of course content which need greater emphasis or clarity

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Item Difficulty Index

- the percentage of students who answered a test item correctly

p-value: helps determine significance of results

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Item Difficulty Index

- occasionally, everyone knows the answer

p-value: helps determine significance of results

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Item Difficulty Index

An unusual high level of success may be due to:

a)previous teacher

b)knowledge from home; child's background

c)excellent teaching

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Item Difficulty Index

- Low scores mean-
- Motivation level?
- Ability of teacher?
- Construction of the assessment item?

Is it the students fault for "not trying"?

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Item Difficulty Index

$$p = \frac{\text{total who answered correctly}}{\text{total taking the test}}$$

*p is the difficulty index

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Item Difficulty Index

$$p = \frac{\text{22 student get correct answer}}{\text{25 total taking the test}}$$

p value = 0.88

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Item Difficulty Index

- High Difficulty Level at p > .80
- Were students taught well?
- Was the item too easy?

88% of the students were correct

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Item Difficulty Index

Sample Problem:

In a Math test administered by Mr. Reyes, seven students answered word problem #1 correctly. A total of twenty-five students took the test.

What is the difficulty index for word problem #1?

p = 0.28

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Item Difficulty Index

- Low Difficulty level at p<.30
- Students did not understand concept?
- Badly constructed item?
- Poorly taught?

28% of the students were correct

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Item Difficulty Index

- When should we use p value?
- Determine significance of an item
- Determine effective teaching
- Make better inferences

Questions?

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