

Psychometric Considerations for Faculty Preparing the Next Generation of Nursing Students

Tracy Riley,¹ Kim Brunnert,² Donna Spivey³
Elsevier Nursing and Health Education ¹Applied Learning Sciences, ²Psychometrics, ³HESI Content Operations



Overview and Objectives

The advent of diverse exam items and partial credit/polytomous scoring with Next Generation NCLEX (NGN) requires a shift in faculty exam construction and exam analysis skills. This presentation can build faculty capacity to develop, edit, and evaluate NGN-type items to support student preparation and NGN readiness.

NGN Item Types

STAND ALONE ITEMS

- Bowtie
- Trend

UNFOLDING CASE STUDIES

NCSBN Clinical Judgment Measurement Model (CJMM)
Six items for each case study – same order each time



ITEM TYPES IN CASE STUDIES

	Highlight (HI)	Drop-Down (DD)	Multiple Response (MR)	Multiple Choice (MC)	Drag and Drop (DND)
	• HI Text • HI Table	• DD Cloze • DD Rationale • DD Table	• MR Select N • MR Select All • MR Grouping • Matrix MR	• Matrix MC	• DND Cloze • DND Rationale
Recognize Cues	Optimal	Optimal	Optimal	Acceptable	Optimal
Analyze Cues	Acceptable	Optimal	Optimal	Optimal	Optimal
Prioritize Hypotheses	Acceptable	Optimal	Optimal	Do Not Use	Optimal
Generate Solutions	Acceptable	Acceptable	Optimal	Optimal	Optimal
Take Actions	Acceptable	Optimal	Optimal	Optimal	Optimal
Evaluate Outcomes	Optimal	Acceptable	Optimal	Optimal	Optimal

Partial Credit Scoring

0/1

- Point earned for correct choice; no point taken off for incorrect choice
- Tends to produce items with difficulty values relatively comparable to more traditional multiple-choice items

PLUS/MINUS

- Points earned for correct choices; points subtracted for incorrect choice
- Tends to produce items more difficult than 0/1 scoring

RATIONALE

- Points earned only if two choices are jointly correct
- Tends to produce items more difficult than 0/1 scoring

Item Statistics

Difficulty

- Mean proportion of points earned
- Mean proportion of students earning full, partial, or zero
- Both partial credit extensions of classical P value

Discrimination

- Item-total correlation
- Partial credit extension of the point-biserial correlation

Evaluating and Modifying Items

1. Refine items based on difficulty and discrimination
2. Evaluate incorrect options
3. Incorporate faculty peer review

Scan for webinar “Do’s & Don’ts–NGN-Type Test Item Writing”

Exam Statistics

- Difficulty
- Decision Consistency

Exam Construction and Administration

SCORED ITEMS

1. Meet content blueprint
2. Balance the number of current and next generation item types
3. Ensure diversity of item types within each group
4. Consider average exam difficulty

PILOT ITEMS

1. Balance the number of current and NGN item types
2. Ensure diversity of item types within each group

The nurse is preparing a plan of care for the client.

Complete the diagram by dragging from the choices area to specify which condition the client is most likely experiencing, two actions the nurse should take to address that condition, and two parameters the nurse should monitor to assess the client's progress.

