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White Paper

Response Strategies for Next-Generation NCLEX® Item Types

RESPONSE STRATEGIES FOR NEXT-GENERATION NCLEX® ITEM TYPES

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WHY NEW ITEM TYPES?

The National Council of State Boards of Nursing (NCSBN) has spent over a decade researching new ways to measure nursing clinical judgment. This has led to the addition of unfolding case studies, new item types, and new partial-credit scoring on the Next-Generation NCLEX (NGN) exam. These item types and scoring methods are new to students. To avoid having immeasurable error from the novel item types and scoring, and to increase accuracy and confidence in scores, it is important to give students basic coaching and test-taking tips.

This report presents the three NGN item scoring types. Within each scoring type, there are multiple item types with tips for how students may want to approach answering these items. As an educator, it may be beneficial to coach your students on these strategies. Of note are the tips for Plus/Minus items, which are more nuanced due to the nature of the scoring algorithm.

This paper does not include examples of each item type. Readers can find examples of NGN item types at the NCSBN's NGN resources website (https://www.ncsbn.org/ngn-resources.htm).

0/1 SCORED ITEMS

This is the simplest of the three scoring types. Students earn points for correct answers, and there is nothing subtracted for incorrect answers. The structure of these items gives clear direction about the number of correct answers.

Multiple-Choice Single Answer

- Read the entire item and every single answer option…completely!
- Eliminate answer options that are clearly wrong
- Pick the best choice from the remaining options

Multiple-Choice Single Answer items are familiar and a good place to start for context. There is one best answer out of a series of choices. If a student is unsure about the answer, the student should eliminate incorrect options and pick the best answer from those remaining. As with any item, students should read the item carefully and completely. Item writers can craft incorrect answers to make sense when using some (but not all) of the information from the question.

Multiple-Response Select N

- Use the strategies from Multiple-Choice Single Answer
- Make sure that the number of choices answered is the right number

The difference between this and Multiple-Choice Single Answer is that students are on the lookout for more than one answer. The question always states the number of correct answers.

Drop-Down Cloze / Drop-Down Table

- Read the first sentence or table row without looking at the choices for the blank(s)
- If an answer comes to mind, look for that answer in the drop-down choices
- If that answer is not a choice, use the Multiple-Choice Single Answer strategy
- Move on to the next sentence or table row

Students can treat every drop-down as an independent Multiple-Choice Single Answer question. Remind students to take one sentence or one table row at a time.

Drag-and-Drop Cloze

- Use the Drop-Down Cloze answer strategy
- While reading, be on the lookout for whether the answer order matters
- Incorrect answers that are eliminated for one answer slot may be correct answers for other slots (so don't mentally eliminate incorrect answer options for the overall item)
- Look over the entire item before moving on to see if the sentences make sense together

The challenge of this item type is that there are numerous possible configurations. There are items where there will be only one bank of answer choices for dragging and dropping. Some items may have multiple banks of answer choices. This item type may allow only certain answers to be used for certain slots. If multiple answers are required from a single answer bank, the order of those answers may matter or may not. Remind students to pay attention to the item structure. Answer choices from an answer bank that are eliminated for one slot may be reasonable answers for other slots.

Matrix Multiple-Choice

- Every row is like a Multiple-Choice Single Answer question with radio buttons
- Apply the same strategies as Multiple-Choice Single Answer for every row

There is one correct answer per row, so students should respond like a series of Multiple-Choice Single Answer items.

Bowtie

- Do not be intimidated!
- Students should take their time in reading the case and answering
- Apply strategies from Multiple-Response Select N and Multiple-Choice Single Answer

Bowtie items can seem overwhelming at first. This item type is a Multiple-Choice Single Answer sandwich with Select N as the bread. The best thing for students to do is to break it down into individual parts. There are three sub-items all relating to a unique case, so this item type may take a long time to answer. Elsevier's data shows that Bowtie items can take twice as long or longer compared to other NGN item types. Students should take their time, read the case, and answer the item components one at a time.

RATIONALE SCORED ITEMS

Rationale scoring adds an additional level of complexity. These items have answers that are linked together. A student must have multiple answers correct jointly to receive credit. For example, "The nurse should do A because of B."

This is a dyad rationale item in which a student must have both the correct action (A) and the correct indication (B) to receive credit.

In another example, "The nurse should do A and B because of C." This is a triad rationale item in which a student must answer C correctly to have a chance at any credit at all. If C is correct, then a student would receive half credit for answering either A or B correctly and full credit for answering both A and B correctly.

Drop-Down Rationale and Drag-and-Drop Rationale

- Read the text of the entire item without looking at the answer choices for the blanks
- Pick the answer slot that seems like it is the easiest to answer
- After answering for one blank, move to the other part of the item to see if an answer is a conceptual match to the first answer you gave
- If there is no good match, try re-answering the item starting with the other part first
- Look over the entire item to see if the answers make sense together

An important difference between Rationale and Cloze items is that it may be beneficial for a student to read through the entire Rationale item and answer what the student views as the easiest portion of the item first. With that answer in hand, the student could move to the other part of the item to see if there is an answer that matches (e.g., an action that matches an already-selected indication). If there is no conceptual match for the first answer, then advise students to answer the other portion of the item first.

A Note on Dyad vs. Triad Items

- For dyads, answer one part of the question and then look for a conceptual match for the other slot
- For triads, identify which answer slot is different from the other two
    - An incorrect answer in this slot means zero credit for the whole item
    - Take extra care when answering this slot

As noted above, some Rationale items may have two answer slots (dyad) or three item slots (triad). Triad items are more likely to be Drag-and-Drop, as triad Drop-Down Rationale items are generally more difficult to write. For dyad Rationale items, it is important to make sure that there is a conceptual match between the first and second answers. For triads, there will always be two answers that are the same type of thing (e.g., two actions) and one answer that is different (e.g., one indication). Students should find the answer slot that is different. If the different answer slot is incorrect, the student will automatically score 0 credit on the item.

PLUS/MINUS SCORED ITEMS

Items with this scoring type have two important characteristics to keep in mind. First, the item structures do not tell students the number of correct answers. Second, students are penalized points for incorrect answers. These two aspects of Plus/Minus items have a profound impact on item response strategies. The following strategies are based on an upcoming research article that presents psychometric evidence for the strategies below; the article is currently in review.

Plus/Minus: The Number of Correct Answers

- All answer options correct is extremely improbable
- Only one correct answer is relatively improbable and makes for a difficult item

Because the number of correct answers is unknown, it is good to spend some time talking with your students about the number of possible correct answers. Below are some of Elsevier staff's thoughts on the number of correct answers in Plus/Minus items. These are not backed by data, as the NCSBN does not share the distribution of the number of correct answers for their Plus/Minus items for reasons of exam security (and rightfully so).

First, there will not be many Plus/Minus items with all options as correct answers. An item with no incorrect answers will have several obviously correct choices, thereby making the item too easy. Having all correct answers also takes the "minus" out of Plus/Minus scoring; there are no opportunities for students to be penalized for incorrect answers.

Second, only one correct answer is also relatively improbable for some Plus/Minus item types, like the Highlight and Select-All-That-Apply items. Items with many options but only one correct answer tend to be quite difficult. There is only one opportunity to mark correctly and earn credit, but there are numerous distractors. This gives more chances to lose the one and only point available. Only one correct answer, however, seems more probable than no incorrect answers.

Things change with Multiple-Response Grouping and Matrix Multiple-Response items. For Multiple-Response Grouping items, each grouping has only three or four options. Because there are fewer options, having only one correct answer is expected in many cases. A single column in any given Matrix Multiple-Response item may also have only one correct answer.

Multiple-Response Select-All-That-Apply, Highlight in Text, and Highlight in Table

- Students need to mark all options known to be correct (no matter how many)
- Students who confidently know two or more correct answers should not guess beyond the known correct answers
- If students have eliminated two or more incorrect options but know no answers, they should mark many answers
- Students who have eliminated one or fewer incorrect options and know one or fewer correct answers should mark an odd number of responses:
    - Three responses for five- and six-option scenarios
    - Three or five responses for seven- and eight-option scenarios
    - Five responses for nine- and ten-option scenarios

Eliminating incorrect answer options is extremely important for Plus/Minus items. It narrows the possibilities of the number of correct choices. There will also be fewer possibilities for having points taken away by marking incorrect answers. It can also eliminate "automatic zero" scenarios, wherein students automatically earn zero points due to selecting too many options (e.g., picking six options when there are only three correct answers always yields 0 credit).

When a student knows for sure that multiple answers are correct, it generally does not pay off to do further guessing. Each additional option picked is a risk of being penalized for an incorrect answer. The best strategy is for students to lock in the points that they know for sure.

The strategy changes substantially when students have not eliminated many incorrect options and are guessing. The best strategy is to guess an odd number of answer choices. While the mathematics are beyond this paper's scope, these item types favor odd numbers of choices when guessing.

Multiple-Response Grouping

- When a student knows one or more correct answers, mark only the known answers
- When a student eliminates incorrect answers but is guessing beyond that, guess one answer
- Individual groupings are more likely than other Plus/Minus items to have only one correct answer

Multiple-Response Grouping items are a series of Select-All-That-Apply items with three or four options. Each grouping is scored independently, then combined for a total score. Because groupings have fewer options, having only one correct answer in a grouping is more probable. When guessing, it is good to eliminate incorrect answers and guess only one answer. A student that knows one or more correct answers in a grouping should only select those known answers.

Matrix Multiple-Response

- Matrix Multiple-Response items have check boxes (not radio buttons)
- Each column has at least one correct answer
- Students should first answer the item down the columns, then read again by rows
- Use the general strategies by column from Multiple-Response Select-All-That-Apply
- Columns may have only one correct answer or could have nearly all correct answers

Matrix Multiple-Response items have a grid format like Matrix Multiple-Choice. Due to the items' similar look, it is important for students to consider the format of the response area. Matrix items with check boxes (not round radio buttons) are Matrix Multiple-Response items. Matrix Multiple-Response items are a series of Select-All-That-Apply items listed down the columns.

This item type may have some unexpected answer patterns. There may be big differences in the number of correct answers in each column of an item (e.g., one column has four out of five correct, while another column has only one correct). Some rows may have more than one correct response (or no correct responses in rare cases). Encourage your students to check the boxes about which they are very sure and try to eliminate incorrect parts of the matrix.

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