Improving Test Evaluation in Nursing Programs
Test Construction, Alternate Item Format, and NCLEX Preparation

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Test Construction

- Start with a plan
  - What specific material will the test cover
    - Avoid covering multiple complex areas in one test
    - Test over important information: “Must know vs. Nice to Know”

- What percentage of questions should be dedicated to specific material or topics
  - 50% of questions should not be over 25% of the material

- Focus on the class objectives
  - Tests should not cover material that are not addressed by a class objective
    - Students are savvy enough to figure this out!
Writing Test Questions

- Faculty may wish to write the questions related to “their” material
  - Okay, unless this creates unshakable ownership
- Test bank questions should only be used for ideas
  - These items are not always written well, or address your specific class objectives
- All test questions should be reviewed by multiple faculty members
  - Prevents ambiguity, bias, and misinterpretation
Creating Effective Test Questions

- Present tasks that reflect a typical examinee’s knowledge and skills
  - Appropriate cognitive level for the testing students
- Consists of accurate content and language structure
  - Promotes professionalism of faculty
- Provide examinees with precise, unambiguous questions
  - Does it say what you mean, and mean what you say?
- Align with the learning objectives being measured
  - If it is an objective, it is important; if it is important, it is appropriate test material
Why Objectives Drive the Test

- The test must measure what it claims to measure
  - Use the objective as a guide to write the question
    - What does the objective state as the learning outcome for the student?
  - Use the objective to evaluate the question
    - Does the question clearly address the objective?
  - Consider the objective for content limits
    - Does the question test beyond the parameters of the objective?

Bloom’s Taxonomy is an essential tool for both writing objectives and testing over the objectives appropriately!
Examples of Items Based on Class Objectives

- What are the etiology and/or risk factors for this health problem?
- What are the associated nursing assessment and lab findings for this health problem?
- What nursing care and teaching are associated with the diagnosis studies for this health problem?
- What are the appropriate nursing diagnosis and goals of care for this health problem?
Example: How NOT to Write a Question to the Objective

OBJECTIVE: Provide a low cholesterol diet for a client with atherosclerotic heart disease

The nurse has been performing low cholesterol diet teaching to a client with heart disease. Which food choice has the highest cholesterol content?
1. Two whole eggs
2. One sausage patty
3. Three ounce broiled chicken
4. One tsp mayonnaise

Item goes beyond the objective, asking the student to decide how much cholesterol is in each food choice.
Example: How to Write a Question to the Objective

OBJECTIVE: Provide a low cholesterol diet for a client with atherosclerotic heart disease

The nurse has been performing low cholesterol diet teaching to a client with heart disease. Which food choice indicates that the client needs further teaching?

1. Yogurt with mixed fruits
2. Two egg spinach omelet
3. Whole grain cereal with low fat milk
4. Mixed vegetables in wheat tortilla

Item measures the objective, requiring the student to identify which foods are commonly used for a low cholesterol diet. Answer: 2
Evaluate the Test

- Run the stats and **look at them**
  - Set the program’s standards and measurement tools
- Analyze the performance of each question
  - Was it too easy; too hard?
  - Did the appropriate students get it right or wrong?
- Decide if questions alterations are needed
  - If the question is flawed, fix it now so that the test is ready to go next time
Note of Wisdom

☐ The purpose of a test is to measure the knowledge of the student

☐ The performance of the test does not (hopefully) reflect on the ability of the faculty

☐ After faculty covers all the construction bases and issues, trust the test do its work!
Using Alternate Question Format

- NCLEX does it, and so should you!
  - Multiple-Choice Multiple-Response Questions
  - Fill-in-the-Blank Questions
  - Hot Spot Questions
  - Exhibit Questions
  - Drag & Drop Questions
  - Audio Questions
  - Graphic Questions (in the stem, or as options)
Writing a Multiple-Choice Response

Multiple-Response Question

- Contains more than one correct option as the answer
- The student must be instructed to “Select all that apply”
- The correct answer must contain all the correct options in order for the student to get credit
- Number of options should be a minimum of 5
Example: Multiple-Choice Multiple-Response

The nurse discusses growth and development with the parents of a 7-month-old child. Which expected behaviors should the nurse include? Select all that apply.

1. Grasps small toys
2. Sits alone using hands for support
3. Puts arm through sleeve when being dressed
4. Feeds self with spoon
5. Feeds self crackers

Answer: 1, 2, 5
Fill-in-the-Blank Questions

- Most frequently involve a numeric answer requiring some method of calculation
- In keeping with the NCLEX format, supply the unit of measure for the student with the expectation that they will supply the numeric answer
- Give instructions to round numeric answers to a specified number of decimal places or the nearest whole number
Example: Fill-in-the-Blank Question

The client is prescribed 500 mg acetaminophen (Tylenol) twice daily. How many tablets would the nurse give the client daily if each tablet contains 250 mg? Round the answer to the nearest whole number.

_______ tablets

Answer: 4
Hot Spot Questions

- Involves the student selecting an appropriate spot, which correctly answers the question
- May require technical support if your facility uses computerized testing
- Can be adapted to pencil and paper testing with some creativity
  - Test would include the graphic (may be separate from other questions)
  - Student will mark their answer
  - Answer is graded using a transparent answer guide with faculty determined parameters
Example: Hot Spot Question

Where will the nurse palpate to assess a client’s dorsalis pedis pulse? Mark an “x” on the appropriate location.
Drag & Drop Questions

- Also referred to as Sequence Questions

- Student required to place the steps of a process into the correct order

- Can actually “drag and drop” steps during NCLEX or on a computer; numeric order is used for pencil paper exams

- Steps do not need to be all inclusive; however, should have a clear order from beginning to end
  - Avoid debatable steps such as: check orders, wash hands, explain to client, gather equipment
Example: Drag & Drop Question

A client is to have a Foley catheter inserted. In what order will the nurse perform the steps of the procedure? Place the options in the correct order from beginning to end. All options must be used.

1. Place sterile sheet beneath client buttocks
2. Open catheter package using sterile technique
3. Insert tip of catheter into urinary meatus
4. Place collection bag below bladder level
5. Isolate and cleanse urinary meatus
6. Test catheter balloon

Answer: 216534
Audio Questions

- Students will listen to an audio recording and then be asked to answer an applicable question.
- Often involved either heart or lung sounds.
- Easiest way to incorporate this format into your class tests: do any audio question first; ask the entire class to listen to the audio stimulus and answer the question.
Actions for Improved NCLEX Preparation

- Map your program curriculum to the NCLEX test plan
  - NCLEX has determined what your graduates need to know in order to be a safe entry-level practitioner. Why would you NOT teach to the test?
  - Update your curriculum every three years as the NCLEX standards are updated in order to remain current.
  - Provides one measure of ongoing Criteria that may help with accreditation
  - Performance of your program is strengthened by increasing your NCLEX pass rate
Ban the Practice of Grade Inflation

- Inflating grades nullifies the ability of faculty to determine if learning has occurred.
- Inflating grades provides students with a false sense of knowledge.
- Inflating grades creates a deflated rate of NCLEX passage.
- Grade inflation increases the possibility of an incompetent nurse entering my profession!
How to Eliminate the Need for Grade Inflation

- Build better tests
  - Analyze, review and change tests as needed
- Write good, strong test questions
  - Focus on the objectives
  - Be clear and concise
  - Avoid implausible options; every option should be a consideration
  - Practice peer review for clarity, bias, and ambiguity
Sometime It is Necessary to Throw Out a Question

- When faculty find a flaw in the question after the test
  - Answer is keyed wrong or there are two right answers
  - Information is proven wrong via an appropriate resource
    - Inform the students of information change; change all sources of invalid information

- Adjustments are made before the grades are issued
  - Refigure the grade on the remaining valid questions
  - Give points to everyone on the invalid questions
Create & Share Strong Rationales

☐ Consider the rationales for your test questions as teaching moments
  - Share with your students so that they can learn why some answers are wrong and others are right
  - Make rationales clear and specific
  - Listen to your student’s rationales. Try to hear and understand their thinking. You may find a correctable flaw in either the student’s perception or in the construction of the question
Write Questions & Tests to the Appropriate Cognitive Level

- 90% of questions on NCLEX are written at the Application and Analysis cognitive levels
- It is critical to introduce students to different levels of questions systematically during the nursing program
- Remember the difference between Application and Analysis
  - It involves a difference in thought processes; not the inclusion of certain words!
<table>
<thead>
<tr>
<th>Application</th>
<th>vs.</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involves application of knowledge related to situations.</td>
<td></td>
<td>Analysis breaks information into parts, detects relationship of those parts and the way they are organized</td>
</tr>
<tr>
<td>Used to perform a task, solve a problem, or obtain a particular result</td>
<td></td>
<td>Used to dissect and analyze information and distinguish between critical and non-critical care</td>
</tr>
<tr>
<td>Simulates a “real world” situation in nursing</td>
<td></td>
<td>Two or more pieces of data are gathered and interpreted before deciding a course of action</td>
</tr>
<tr>
<td>Can be written to various levels of difficulty</td>
<td></td>
<td>Tends to be a more difficult level of question</td>
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My Tribute to You

- We are the gate-keepers of the nursing profession
  - Don’t lose site of who you are, what you do, or why you do it
    - One nurse will leave the bedside, only to send many as replacement; those who can DO teach!
  - Remember that we have an obligation to society
    - One day, you or a loved one will place your care and needs into the hands of a nurse who was once someone’s student – maybe yours.
- Stay Focused, Keep Learning, Teach Well!
Questions or Comments?

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