

## Learning Assessment Exercises

Listed below is a small sample of different learning assessment techniques categorized by Bloom's Taxonomy labeled according to knowledge, skills, or attitudes attributes. Any of these techniques may be used in live or home study activities, small or large audiences. Remember that there are two components to learning assessment:

1. the learning exercise itself and
2. the feedback given to the participant.

### Assessing recall and understanding (KNOWLEDGE)

- A. *Memory Matrix*: is a 2-dimensional diagram, divided into rows and columns, to organize information and illustrate relationships. Row and column headings are given, but cells within are left empty.

This learning strategy assesses the ability to recall content and display skill in organizing information. The activity may be used after videotapes, monograph, talk, etc.

Sample Memory Matrix for Differentiating Type 1 and 2 Diabetes

| Characteristic | Type 1 | Type 2 |
|----------------|--------|--------|
| Age of onset   |        |        |
| Weight         |        |        |
| Use of insulin |        |        |

- B. *The Minute Paper*: is a quick and simple way to collect written feedback on participant learning. After a videotape or certain part of a presentation, for 1-2 minutes, ask the question(s): "What was the most important thing you learned during this presentation?" and/or "What important question remains unanswered?" The participant will write on a piece of paper the answers. The responses may be collected so the speaker can identify the extent of the participants' learning or they may be exchanged with other people among the group and these participants would read each others answers.
- C. *The Muddiest Point*: is the most highly efficient strategy to find what participants find least clear or most confusing about a particular lesson or topic. Faculty use it as feedback and to guide their talks. This strategy may be done at the beginning or end of the topic, close of a discussion or in the middle.

Example: In the beginning of the topic, the faculty asks:

"Many of you heard about the different treatment options for Helicobacter pylori for peptic ulcer disease. What question would you still like answered regarding the treatment options?"

- D. *Background Knowledge Probe*: are short, simple questionnaires for use at the beginning of a presentation. Example: pre-test.

### Assessing skill in analysis and critical thinking (SKILL)

- A. *Defining a Features Matrix*: categorizes concepts according to the presence (+) or absence (-) of important defining features. This activity allows participants to quickly distinguish similar concepts.

Sample Feature Matrix

| Symptoms/Signs      | Systolic CHF | Diastolic CHF |
|---------------------|--------------|---------------|
| Shortness of breath |              |               |
| Cough               |              |               |
| Peripheral edema    |              |               |
| Dyspnea on exertion |              |               |
| Orthopnea           |              |               |

- B. Pro and Con Grid: is an analysis of the pros and cons, costs and benefits, or advantages and disadvantages of a topic. This learning strategy forces participants to search for two sides to the issue in question.

Sample Pro and Con Grid:

A mother brings her 5-year-old son, TJ, into the clinic. You recognize TJ because he has been in the clinic at least two times in the past 3 months for otitis media. The mother says he is running a fever and keeps tugging on his left ear, most likely another bout of otitis media. As you look at his profile he has a penicillin allergy in which he experienced a rash. The clinic's pharmacy carries the following products. While the physician is verifying the diagnosis, which agent do you believe would be best for TJ?

| Treatment                     | Pro | Con |
|-------------------------------|-----|-----|
| Ampicillin                    |     |     |
| Trimethoprim-sulfamethoxazole |     |     |
| Azithromycin                  |     |     |

### **Assessing skill in problem solving (SKILL)**

Problem Recognition Tasks: involves presenting to the participants a few examples of common problem types. The participants are to recognize and identify the particular type of problem each example presents. Sample:

Marge Simpson presents to the counter of the pharmacy with a prescription for erythromycin. She says, "I need this fast. My nose does not stop running and I have this cough,..aachooo.., and I keep sneezing. I went to the doctor and he gave me this...FILL IT NOW!!! This is all Homer's fault!!" You, as the pharmacist, ask, "Have you taken anything for your symptoms?" She denies anything and thinks the erythromycin "...will fix everything!!!" On her profile she's on the following medications: Theo-Dur® 400 mg bid, Albuterol MDI 2 puffs prn, and metoprolol 25 mg bid started 2 weeks ago.

Identify and assess Mrs. Simpson's problems.

### **Assessing skill in application and performance (SKILL)**

- A. Directed Paraphrasing: the participant translates information into terms they will understand. This strategy assesses the learners' ability to summarize and restate important information and concepts in their own words so they may be able to explain to others.

Sample: In one or two sentences, explain how the mechanism of action of furosemide relates to the pathophysiology of congestive heart failure.

- B. Application Cards: is a technique used after participants have heard an important principle, theory, or procedure. The instructor then, hands out an index card and asks the participants to write down at least one possible, real-world application for what they have just learned.

This strategy allows faculty to know how well the participants understand the possible applications of what they have learned. For the participants, it prompts them to quickly relate the newly learned concepts with their prior knowledge.

Sample: In what type of patient would you use the combination of insulin and glipizide?

### **Assessing performance (PRACTICE)**

- A. Standardized Patients: are trained actors who portray patients during an interview and physical examination with a student in training. As part of pharmacy/medical education, schools now often use standardized patients to depict realistic patient interactions and presentations of disease. These standardized patients discuss their symptoms with the student. The student in turn conducts a patient interview and then may perform a task to solve the problem.
- B. Objective Structured Clinical Examination (OSCE): is a type of examination often used in medicine to test skills such as communication, clinical examination, medical procedures, prescribing and interpretation of results. It has also been used to assess clinical skills performance in non medical prescribers. It normally consists of several short (5-10 minute) stations and each is examined on a one-to-one basis with either real or simulated patients (actors). It is considered to be an improvement over traditional examination methods because the stations can be standardized enabling fairer peer comparison and complex procedures can be assessed without endangering patients health.

### **Assessing Participants' Awareness of Their Attitudes and Values (ATTITUDE)**

- A. Opinion Polls: is a strategy to indicate agreement or disagreement with a particular statement. It provides anonymity for the participants and it allows the faculty to understand the level of their audience. This assessment technique may be used in the beginning, middle or end of a topic.  
Sample:
  - ? What percentage of patients want to quit smoking?
  - ? What percentage of patients use the nicotine patch? nicotine gum?
  - ? How many people conduct a smoking cessation program?
- B. Double-Entry Journals: The first half of the journal notes ideas, assertions, and arguments that the participants find most meaningful/controversial. The second half in the journal explains the personal significance of the item noted and responds to that item.
- C. Self-Confidence Surveys: consist of a few simple questions aimed at getting a rough measure of the students' self-confidence in relation to a specific skill or ability.  
Example: How confident do you feel in monitoring the drug therapy for a patient with congestive heart failure?

Information adapted by: Angelo TA and Cross KP. Classroom Assessment Techniques, A Handbook for College Teachers. (2<sup>nd</sup> ed.) San Francisco: Jossey-Bass, 1993.

This document is provided by ACPE as samples towards meeting the requirements of the CPE Standards. The items may need modification and should be altered as necessary to meet the specific needs of each provider.

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