

Part 2
How Will We Get There?
Instructional Strategies

**First Class Continuing Pharmacy
(CPE) Education**

**How to Develop and Deliver Quality CPE
Programs**

(Four-part Series)

Part 1: Where Are We Going? Developing Educational Objectives

Part 2: How Will We Get There? Instructional Strategies

Part 3: Are We There Yet? Developing Effective Multiple-Choice Tests

Part 4: Go First Class - Presentation Skills

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“The great aim of education is not knowledge but action.”
--- Herbert Spencer



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Introduction

If you've completed the section, "Where Are We Going? Developing Educational Objectives in Pharmacy Continuing Education," you know the importance of carefully defining "where you want your learners to go" - that is, what you want them to be able to do as a result of participating in your education program. The next question is how you will get them there. How will you enable your learners to achieve the objectives you have defined for them?

To get to the bottom of this, start by thinking about your own personal most effective and powerful learning experiences. Think of a learning experience when you were learning at your best. What teachers had the most significant impact on you? If you are like most people, these questions ***don't*** bring to mind someone who just talked and lectured. They often bring to mind active learning experiences led by teachers who asked thought-provoking questions and assigned challenging projects. Although this takes more effort than passively listening to a lecture, it is usually more meaningful.

Lecture is the most frequently used instructional strategy in continuing pharmacy education (CPE). But is it the most effective? In this section, you'll learn about more active instructional strategies that have been used successfully in CPE programs. You'll learn how to decide when lecture will be most effective and when other strategies may be more effective in helping your learners get where you want them to go.

Objectives

By the end of this section you will be able to:

1. Explain the importance of selecting or developing instructional strategies that most effectively help program participants achieve the educational objectives of the program.
2. Cite sources and justification for using active learning instructional strategies.
3. Describe instructional strategies that are frequently used effectively in continuing pharmacy education.
4. Given an educational objective, select instructional strategies that are most likely to be effective in helping learners achieve the objective.

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Disclosure: Faculty disclosed they have no financial interest in and/or affiliation with any external organizations in relation to this continuing education program.

Continuing Education Information

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Importance of Using an Effective Strategy

Think about this analogy: Imagine you are planning a trip to Hawaii, departing from the U.S. mainland. You know your destination but how will you get there? Which of the following are effective strategies for getting there? (*Choose all that apply.*)

- a. Walk.
- b. Swim.
- c. Drive.
- d. Sail.
- e. Fly.
- f. C then D.

Obviously, you need to rule out options "A," "B," and "C." Walking, swimming, and driving are not effective strategies for getting to Hawaii. You won't get there. "D" will work if you have a lot of time. "E" is an obvious answer. Flying is an effective strategy. "F" is appropriate if you have to drive to an airport first. You can see that you need an appropriate and effective strategy to get where you want to go.

The same idea holds true with strategies to enable your learners to "get where you want them to go" (achieve the objectives). To be successful, you need to use an effective instructional strategy. Let's say you want your learners to arrive at this "destination": "To provide evidence-based recommendations for the use of common antiemetics in the pediatric cancer population."* What strategy will help them learn to do this?

If they listen to a lecture about it, what are the chances that they will be able to do it when they return to their job? How about if they review relevant literature, then make recommendations based on a case, all with expert feedback along the way? Most would agree that the second approach will be more likely to enable them to achieve this objective than passively listening to a lecture.

*From "Applying Evidence-Based Practice to New Antiemetic Guidelines" presented at ASHP's 2007 Summer Meeting by Patrick J. Medina, Pharm.D., BCOP; and Susan Goodin, Pharm.D., FCCP, BCOP.

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Continuing Pharmacy Education Instructional Strategies "Quiz"

Directions: Use "common sense" to complete the following "quiz." Check your answers on the next page.

1. Which of the following is an effective instructional strategy for teaching this objective?

Objective: Define risk level classifications for medications prepared in sterile environments.

- a. Lecture.
- b. Case study.
- c. Simulation.
- d. Demonstration.

2. Which of the following is an effective instructional strategy for teaching this objective?

Objective: Demonstrate how to properly manipulate a syringe during sterile product preparation.

- a. Game or quiz.
- b. Discussion.
- c. Scenario.
- d. Hands-on practice.

3. Which of the following is/are effective instructional strategy(ies) for teaching this objective?

Objective: Make appropriate recommendations for the therapy regimen for a specified patient with lung cancer.

- a. Example.
- b. Case study.
- c. Role play.
- d. A and B.

4. Which of the following is an effective instructional strategy for teaching this objective?

Objective: Apply skills necessary for effectively managing a problem employee during a performance appraisal.

- a. Lecture.
- b. Game or quiz.
- c. Role play.
- d. Discussion.

5. Which of the following is an effective instructional strategy for teaching this objective?

Objective: Accurately evaluate the quality of a research study.

- a. Case study.
- b. Scenario.
- c. Role play.
- d. Practice exercise.

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Quiz Answers

1. Which of the following is an effective instructional strategy for teaching this objective:

Objective: Define risk level classifications for medications prepared in sterile environments.

- a. **Lecture.**
- b. Case study.
- c. Simulation.
- d. Demonstration.

2. Which of the following is an effective instructional strategy for teaching this objective?

Objective: Demonstrate how to properly manipulate a syringe during sterile product preparation.

- a. Game or quiz.
- b. Discussion.
- c. Scenario.
- d. **Hands-on practice.**

3. Which of the following is/are effective instructional strategy(ies) for teaching this objective?

Objective: Make appropriate recommendations for the therapy regimen for a specified patient with lung cancer.

- a. Example.
- b. Case study.
- c. Role play.
- d. **A and B.**

4. Which of the following is an effective instructional strategy for teaching this objective?

Objective: Apply skills necessary for effectively managing a problem employee during a performance appraisal.

- a. Lecture.
- b. Game or quiz.
- c. **Role play.**
- d. Discussion.

5. Which of the following is an effective instructional strategy for teaching this objective?

Objective: Accurately evaluate the quality of a research study.

- a. Case study.
- b. Scenario.
- c. Role play.
- d. **Practice exercise.**

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Why It Is Usually Better to Use Active Instructional Strategies

Adult learning is more than the transfer of knowledge... The most powerful, lasting learning goes beyond providing information. It helps learners to organize information in new ways, to see new connections, and to appreciate new possibilities for continued learning. (page 2)

For the most part, adults are pragmatic in their learning. They tend to want to apply their learning to present situations. People are motivated to participate in programs that give them practical answers to the questions or issues they are facing at work. Even more valuable are programs that give them the skills to understand their current situations in new and useful ways. (page 4)

Baden, Clifford. Adult Learning in Associations: Models for Good Practice, American Society of Association Executives, 1998.

You must match what you want pharmacists to learn with the method you use to teach. If you do not, you run the risk of laying unfair learning expectations on your pharmacist-learners. For example, what if you choose to teach your staff to design a medication therapy regimen by giving them a couple of lectures? A lecture only assures the possibility of knowledge-level learning. Where are they to acquire the other stage of learning – practical application ... that is the prerequisite for this work?

Nimmo, Christine M., Ph.D., Senior Editor, Staff Development for Pharmacy Practice, American Society of Health-System Pharmacists, Bethesda, MD, 2000, p. 130.

Active participation by the learner tends to result in higher quality learning than does passive learning.

Shambrook, Kimberly K., Editor, The Association Educator's Toolkit: Your Guide to Developing, Implementing and Evaluating Association Education Programs, American Society of Association Executives, Washington, DC, 1995, page 33.

Popularizers of active learning give the following average retention rates from various instructional modes:

Lecture	5%
Reading	10%
Audiovisuals	20%
Demonstration	30%
Discussion	50%
Practice by doing	75%
Teaching others	90%

...one study demonstrates that participants in lecture-based college classrooms are inattentive about 40% of the time (Pollio, 1984)...although students retain 70% of what is said in the first ten minutes of a lecture, they only retain 20% in the last ten minutes (McKeachie, 1986). David and Roger Johnson...along with Karl Smith point out several problems with sustained lecturing (Johnson, Johnson, and Smith 1991):

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- Audience attention decreases with each passing minute.
- Sustained lecturing appeals only to auditory learners.
- It tends to promote lower-level learning of factual information.
- It assumes that all learners need the same information and need it at the same pace.
- People tend not to like it.

To alleviate the audio bombardment of lecturing, master trainer Bob Pike recommends that participants should be given a chance every eight minutes to internalize what they have been hearing before it's simply supplanted by the next wave of information.

Silberman, Mel, Ph.D. Active Training: A Handbook of Techniques, Designs, Cases Examples, and Tips, Jossey-Bass Pfeiffer, San Francisco, CA, 1998, pages 2-3.

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Instructional Strategy Examples

Lecture

Description:

Lecture consists of telling an audience about a subject. This strategy is effective when the goal is to simply impart straight-forward information. The goal may be memorization for future recall.

Examples:

Explaining the mechanism of action of a drug
Providing information on new regulations
Summarizing findings from studies

A lecture is often an effective lead-in to another strategy. Information is shared and explained during the lecture. It is then followed by the participants discussing, practicing or applying the information in some way.

Games and Quizzes that Reinforce Recall

Description

Games and quizzes ask questions in a fun and repetitive format which can help learners remember factual information. These can be used after a lecture to reinforce and help learners remember information presented in the lecture.

Examples:

Jeopardy with questions focusing on the topic covered in an educational program.
Self-assessment questions or “quizzes” with multiple-choice or true/false questions relating to the material taught in the session.
Audience response systems frequently utilize quiz and game strategies.

Demonstration

Description:

Some skills can be demonstrated, meaning that you show participants how to do something. Demonstrations usually should be performed more slowly than the skill is performed in real-life, accompanied by explanations, possibly with pauses for more elaboration. Care should be taken that participants can see (consider distance, size, obstacles and angles of observation).

Examples:

Demonstrations can be of physical processes, such as:
Taking a blood pressure
Manipulating materials and medications during sterile product preparation

Demonstrations can also be of more “soft” material, such as how to:
Handle a situation involving a difficult employee
Conduct an interview
Apply a communication skill

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Example with Practice

Description

When using an example with practice, an instructor first presents material needed to learn a skill. An example of how to apply the skill is given. This is followed by another similar example for the learners to complete as a practice exercise. The instructor gives feedback on how the learners did on their practice exercise.

This strategy is demonstrated in the following excerpts from a self-study program. This strategy can also be used in live presentations.

Notes in bold and italic in parentheses inserted into this excerpt highlight aspects of this instructional strategy.

Clinical Skills Program: Monitoring the Pharmacist's Care Plan, Unit 2: Complete Collection of Monitoring Data, *Frye, Carla B., Pharm.D., BCPS, American Society of Health-System Pharmacists, Bethesda, MD, 1994, pages 19-23*

Note: *This is the introduction to the material:*

Unit 2 Complete Collection of Monitoring Data

➤ **Unit Objective**

After you successfully complete this unit, you will be able to determine the completeness of data collection.

➤ **Unit Organization**

This unit begins with a discussion on how to record data on the monitoring worksheet (MW) as you collect them. Then the unit illustrates instances in which the parameter measurements collected are not complete, as specified in the monitoring plan. Finally, the unit discusses why you will encounter missing parameter measurements and what to do when this occurs.

Note: *This is the "lecture," or didactic, section:*

➤ **Using the MW**

You now have an MW to work with that has been customized to the patient care plan (PCP). Your task is to record on the worksheet the information as you collect it.

➤ **Completeness of Data Collection**

Now you are in a position to determine how successful you were in getting all of the data you specified in the monitoring plan. A scan of your MW will tell you the answers to the following questions:

- Have all pertinent parameters been identified?
- Are there measurements taken for each parameter'?
- For each parameter, is the number of measurements the same as that specified in the monitoring plan?

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- Was each parameter measurement taken at the time specified in the monitoring plan?

If the answer to any of these questions is no, you have incomplete data collection. There are four basic reasons why your MW might be missing parameter measurements:

- The parameter was never measured.
- The wrong source of data was used.
- The results were not properly recorded.
- Not enough time was allowed for the results to be reported.

Let us examine each of these situations.

Parameter Not Measured

What if you included a monitoring parameter in your PCP that was never ordered? You will not have that monitoring parameter measurement. Even when the laboratory test is ordered, it sometimes does not take place. This can happen if the patient refuses the blood draw, if the order never gets sent to the laboratory, if the phlebotomy team is understaffed and misses the draw time or is late, and so on. When a parameter is not measured, we must either repeat it or make our assessment without it.

Incorrect Source of Data Used

When you design your PCP and MW, you should specify the source needed to find the data for the monitoring parameter measurements.

Improper Recording of Results

Errors in documentation do occur and you need to be suspicious if the parameter measurements do not correlate with your expectations.

Insufficient Time for Results to Be Reported

You may expect the serum levels of gentamicin that you requested to be reported before the next dose is given. However, there is great likelihood that the reporting of these levels may be delayed because of the time required to process the test or because the batching of tests is performed at a specific time of day. Always have a contingency plan in mind!

(Note: Now that the "lecture" is over, an example is given.)

➤ Model Example

Let us look again at the MW for Mr. Carson (Appendix C6). Could any of the causes of missing parameters discussed above apply to his worksheet? Why are some of his vital signs missing? Perhaps the nurse did not have the time to take his vital signs at that hour because the nurse was caring for 10 patients. Perhaps the nurse did not write them on Mr. Carson's chart but wrote them on his roommate's chart or never transcribed them from his or her own notes to the chart. If you did not get Mr. Carson's culture report back, perhaps it was because the culture was never ordered.

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When you review your MW and apply it to your PCP, you have to evaluate the data in these terms. Do you see inconsistencies? Are you missing important data? How will you handle the situation where vital data are missing? The best way to manage these situations is to follow the patient closely and regularly from the start. If important data are missing, your close followup may make it possible to document the needed monitoring parameter measurement at the next possible time.

Note: Now the learner is ready to practice:

➤ **Practice Example**

Now let us look again at Mr. Grant's case. On his MW (AppendixD7), you are missing all of the parameter measurements for intake and output. Why? Were these data measurements not ordered? Could the information have been recorded on another patient's chart or on a bedside chart that you failed to review? How will you find this missing information?

(Note: The learners do the exercise, then read the answers (not included here.)

Case study

Description

The relevant details of a case are presented. Cases can be of real patients with names and other identifying information changed or can be fictional but as real to life as possible to simulate what the learner may encounter on their job.

After facts about the patient are presented, the learners are asked questions about the case based on what skills they are learning. Examples are: What problems is this patient having? What problems need to be addressed most quickly? What actions need to be taken? What are your therapeutic recommendations? What do you need to monitor? How will you monitor it? How should the patient be counseled or educated?

Follow-up data can be given, such as follow-up lab test results. Learners can then interpret the results and make new recommendations based on them.

Case Study Example

CC (chief complaint): Chest discomfort, sweating.

HPI (History of present illness): 45-year-old male who was in his normal state of health until 6 hours ago when he was mowing the lawn. He started to feel chest pressure. He rested, the symptoms went away and he continued to mow the lawn. The symptoms returned and gradually got worse. Finally, his wife drove him to the ER. Time since onset of last episode, 3 hours.

Past medical history: GERD

Social history: Smokes 2 packs a day for 25 years (50 pack years). Occasional alcohol.

Occupation: Financial consultant.

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Family history: Father had MI at age of 60. Parents are living.
 Medications: Pt. reports that he takes "stomach medicine"
 Allergies: Penicillin
 Appearance: Obese, 6 feet tall, 120 kg (264 lbs.), diaphoretic male in moderate distress.
 Vital signs: Heart rate: 115, BP: 156/95. T: 37, RR 20.
 Review of Systems:
 HEENT: Unremarkable
 Neurological: Alert and oriented x3
 CV: Tachycardic.
 Chest CTA: SEM (systolic ejection murmur) 2+, no rubs, gallops, no rales or rhonchi or crackles.
 GI: Abdomen: Obese, soft and nontender, normal bowel sounds.
 GU: Deferred.
 Rectal: Guaiac negative.
 Musculoskeletal: Unremarkable.
 Skin: Diaphoretic.
 Labs: Sodium: 140. Potassium: 4.0. Chloride: 105. Glucose: 150. CO2: 24, BUN: 15, Serum creatinine: 1.0, Hemoglobin: 14, Hematocrit: 42, Platelets: 175, INR 1.1. White count: 9. Calcium: 9.5, Magnesium: 2.0, Phosphorus.: 4.0, Albumin: 4.
 Chest Xray: CT ratio less than 50%, no infiltrates, no edema
 ECG: ST segment elevation 2 mm. in leads V2-V4. No Q waves.
 The following tests are pending:
 Serum troponin, CK, MB, ratio, fasting lipid panel (on order)
What are your recommendations?

Interactive Case Study

This is an example of a case study presented in an interactive manner. Read the following excerpt from a transcript from an educational session. Some parts are in bold to indicate that these are points of interactivity built into the program by the speaker. This instructional strategy allows for a high level of active participation by the learners.

Excerpt from transcript of:

"Current Trends in Managing Dyslipidemia in Adults with Diabetes: Management of Diabetic Dyslipidemias in a VA Lipid Clinic"
ASHP Annual Meeting, May 31 – June 4, 1998, Baltimore, Maryland

<p><i>Speaker information at the time of the presentation:</i> Dr. Mark Britton University of Oklahoma College of Pharmacy Director, Ambulatory Care Programs Associate Professor, Pharmacy Practice Vice-chair, Pharmacy Practice Department</p>	<p><i>Current speaker information:</i> Mark L. Britton, PharmD, CDE, BC-ADM Associate Dean for Academic Affairs and Associate Professor College of Pharmacy University of Oklahoma Health Sciences Center</p>
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Here's ... some basic information: (the patient's) height, 5' 9" tall; weight, 198 pounds; and his blood pressure was 120/84. So actually he had pretty good control, and his heart rate was 64. So he was actually beta blocked O.K., at least by sitting there, we didn't run him up and down the hallways which we could've done, but opted not to do on that visit. ... Here's some of the laboratory that was sent to us for this person as part of this work-up. b.u.n. 17, creatinine 1, potassium 4.4, uric acid 43, SGOT 33, CPK 48, and all these numbers are within normal range, glucose 507, cholesterol 374, triglyceride 1755."

Now this is what was sent with the consult from the primary care provider.

Comments about this lab work--what are you thinking at this point, what would you want to know about this laboratory work before you made your next move or foray into evaluation of this person's problem? *Comment from audience: Was he fasting?* That's a real good point, because this person actually was not fasting when these numbers came. The primary care provider wasn't aware of the necessity for being fasting with these numbers. But we have a non-fasting cholesterol 374.

Is that 374 legit or not? It probably is because (?) didn't make any difference. We can look at the 374 as kind of O.K.

What about the triglyceride 1755 non-fasting? Probably not legit in terms of evaluation because she would really like to see a fasting number in evaluation. He's probably has a problem there, but in terms of setting a good baseline before intervention, it probably will help as much as we would like it to.

What about that glucose -- 507 non-fasting, what does this raise in your mind. Tell me the questions you want to ask, and I'll tell you what the answers were. Non-compliance, with what? The problem list, and show you what we had as problems for this person. His identified problems walking in the door were hypertension and ischemic heart disease. There was no diabetes mentioned; this person was not called diabetic coming in the door. So with this information, non-fasting, you have a 507 non-fasting glucose.

What questions would you like to ask and what else would you want to know?
Question from Audience: What did he eat?

Scenario

Description

A scenario describes a situation requiring the skill(s) being taught in an educational program. The participants discuss what they think should be done in the situation. An expert gives feedback to participants.

Scenario Example

(From Summer Meeting 2003 session: "Assess for Success: Giving effective feedback and conducting successful performance appraisals". Speaker: Jane Henry, Director of

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Pharmacy, Saint Francis Hospital)

Dan is a staff pharmacist. He has been working at the facility for ten years. You are a new director supervising Dan. You receive written complaints from two different nurses, both of which state that Dan was rude to nurses. One used the term that he was condescending and stated that "everybody knows he is a problem but nobody ever does anything."

You pull his employee record for review. You find numerous informal notes from previous directors describing similar problems with Dan which date as far back to one month after he was hired. You find no documentation in his performance reviews that indicates the problem was discussed with him. Likewise you find no official counseling documents dealing with the problem.

You realize you need to do something.
What do you do?
What are you going to say?
What course of action will you take?

Upon being confronted about this behavior, Dan says, "Maybe I should go work in retail where they will pay me a competitive wage." How do you respond?

The Real Outcome

Director asked Dan to meet with her and the inpatient supervisor in the latter's office (office less visible to rest of staff). Privately arranged time for privacy. When he came to the office, director stated that we have problem we need to discuss regarding some complaints received from nurses. Stated that nurses felt that Dan had been rude and condescending. In an effort to be fair to Dan, the director has reviewed his file to see if there had been previous accounts of rude behavior. She told Dan she found several but could not find any indication that the problem had ever been discussed with him. Dan was surprised and defensive. Director told him that future rude behavior to nurses would not be tolerated and stated that the consequence would be progressive discipline up to and including discharge. She also stated that she felt that it was important for him to understand that since he wasn't made aware of the problem in the past, this would be considered a first verbal counseling. He was told that he was in control and he could change this and that he would need to in order to continue his tenure at this facility.

Dan was very angry and said, "Maybe I should go work in retail where they will pay me a competitive wage." Although tempted to take him up on this offer, the director responded, "You certainly have that option but we would hope that you would make these changes and continue to be a successful member of our team."

Two days later Dan came to the director's office and asked to speak to her. He said he had been giving the matter some thought and was confused about why the nurses would think he was rude. He also indicated that he thought we were supposed to be condescending, which he had defined as being below someone else or humble. The definition of condescending was discussed and clarified. He said he did not intend to be rude but the director emphasized the "perception is reality". They discussed how he needed to examine what had happened in the two incidents discussed to determine what may have elicited that response from the nurses.

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Six weeks later, kudos were given to the supervisor about Dan's behavior. This was passed on to Dan in person by the director, one-on-one for privacy.

What are other examples of challenges you have faced in giving constructive feedback to staff or colleagues regarding weaknesses in performance?

Role play

For the previous scenario (re: Dan), ask learners to play the roles of Dan and the pharmacy director to practice ways to communicate with Dan effectively. In the scenario exercise, learners discuss how best ways to handle the situation. In a role play they would actually practice the skills by taking on the pharmacy director role.

Simulation

Description

In a simulation, real-life situations are replicated as closely as possible for practice purposes. To create a simulation, ask yourself, "What do the participants need to do on the job? How closely can I create this situation within this education program so they can practice?"

Examples

A simulation can be of a physical process, such as:

Example 1: Simulate cleaning up a hazardous drug spill

A simulation can be for a cognitive skill, such as:

Example 2:

Exercise

Identify ways to limit the following list of objectives to seven or less.

Objectives for a program on "Educational Guidelines":

1. Explain the importance of developing objectives in accordance with educational guidelines.
2. List key criteria of effective educational objectives.
3. Identify common errors in educational objectives.
4. Effectively revise objectives containing errors.
5. Explain the importance of effective educational assessment.
6. Explain how to determine what to include in a test.
7. Distinguish effective and ineffective multiple-choice test questions.
8. Identify common flaws in multiple-choice questions.
9. Identify corrections for common flaws in multiple-choice questions

Possible Answers

- Divide into two sections: One on objectives and a second on assessment.
- Combine 1 and 5: Explain the importance of developing objectives and assessment in accordance with educational guidelines.

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- Objective #3 could be considered part of #2, and #8 a part of #9. Objectives 3 and 8 could be deleted.

This exercise is a simulation because it simulates what a learner needs to do on the job. In this case, the learner is learning how to apply a guideline for effective objective writing. The guideline is to keep a list of objectives to a total of seven or less. If the learner is confronted with a list of more than seven objectives, this exercise is giving practice on how to reduce the number of objectives effectively.

The best education programs determine what participants need to do on their job and simulate it as closely as possible in the program, first preparing the participant to successfully complete the simulation, then giving them the opportunity to try their new skills in a simulation and giving constructive feedback.

Application Exercises

Description

In an application exercise, participants are asked to think about how they will apply what they have learned in their setting. They can be asked to develop a preliminary plan to implement on their job, to list challenges and obstacles they may face and strategies for overcoming the obstacles. Participants may do this type of exercise independently, such as by filling out a worksheet designed beforehand for this purpose or they can be asked to discuss it with the person next to them or with a small group. An advantage to working with others is that they can brainstorm together about strategies for meeting the challenges listed.

Example

For a session on how to implement an informatics project, an application exercise might be to identify or define an informatics project for their setting, develop a preliminary plan to implement the project, list challenges and obstacles they may face in attempting to implement it and/or strategies for overcoming the obstacles.

Practice Exercises

A practice exercise is a broad category of instructional strategy in which you provide an opportunity for the learners to practice a skill that you have defined in your objectives that you want them to learn. It is frequently preceded by a short lecture in which needed information is given. It is also a good idea to illustrate with an example before asking participants to practice. The participants then try the skill for themselves in a practice exercise. The opportunity to practice with feedback from fellow learners, as well as you, the expert, is a valuable experience and increases the likelihood that the skill will be applied back on the job.

There have been a few examples of practice exercises in this section. The section entitled "Example with Practice" demonstrates a practice exercise. Exercise 2 under "Simulation" is a type of practice exercise. On the next page, you will complete a practice exercise in which you practice selecting appropriate instructional strategies for a given educational objective, which is an objective of this program (Objective #4).

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Practice Exercise

Directions: Identify and justify instructional strategies for teaching each of the following objectives.

1. **Objective:** Identify the four sources of drug information.

Instructional strategies:

Justification:

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2. **Objective:** Recommend a drug therapy plan for achieving desired pharmacotherapeutic goals for a given patient.

Instructional strategies:

Justification:

3. **Objective:** Demonstrate proper procedures to clean up a hazardous drug spill.

Instructional strategies:

Justification:

4. **Objective:** Appraise the literature review in an evaluative study for thoroughness and accuracy of interpretation.

Instructional strategies:

Justification:

5. **Objective:** Accurately interpret laboratory test results for patients with asthma.

Instructional strategies:

Justification:

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Instructional Strategies in Continuing Pharmacy Education

Practice Exercise: Possible Answers

Directions: Identify and justify instructional strategies for teaching each of the following objectives.

1. **Objective:** Identify the four sources of drug information

Instructional strategies: Lecture

Justification: This is information that involves simple recall.

2. **Objective:** Recommend a drug therapy plan for achieving desired pharmacotherapeutic goals for a given patient.

Instructional strategies: Case study

Justification: Simulates what the learner will have to do on the job.

3. **Objective:** Demonstrate proper procedures to clean up a hazardous drug spill

Instructional strategies: Demonstration, simulation

Justification: Simulates what the learner will have to do on the job.

4. **Objective:** Appraise the literature review in an evaluative study for thoroughness and accuracy of interpretation.

Instructional strategies: Example, practice exercise in which literature is reviewed

Justification: Simulates what the learner will have to do on the job.

5. **Objective:** Accurately interpret laboratory test results for patients with asthma.

Instructional strategies: Case study or scenario presenting lab results for an asthma patient

Justification: Simulates what the learner will have to do on the job.

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Quick Tips for Successful Active Learning Sessions

1. **Set an active tone early in your program.** If you wait too long into a session to introduce an active learning strategy, the learners have already shifted into a passive mode. The longer they are in a passive mode, the harder it will be to successfully engage them in an active learning strategy.

- o Ideas for quick, early active learner involvement:
 - Polling: Get to know your learners by asking about who is in the audience.
 - Examples: “By a show of hands, how many clinical specialists are in the audience?”
 - How many directors?
 - How many from small/rural hospitals?
 - How many from the west coast?
 - How many have implemented an informatics program before?
 - How many have some experience with medication reconciliation?”

Choose factors about the audience that are relevant to your topic and poll so that you and your learners can see who is there.

2. **It is not necessary to announce that you are going to use an active learning strategy.** It is better to engage the learners' interest and help them feel comfortable. Learners who are interested and comfortable easily engage in active learning and you need only transition into your active learning activities by clearly explaining the directions. If you announce that you will be using active learning strategies before the learners are engaged and comfortable, you may unintentionally make them tense, which may, in turn, reduce the chances of success of your activity.

3. **Discover learner concerns.** Why are your learners there? What do they want from your program? Where do they fall on the continuum of expertise in relation to your material? These are questions that can be explored at the beginning of a session and/or at various times during it.

Here are some ideas for getting this information during your session:

- o Start your session by polling for information about what level of experience your learners have with your topic area. (“How many have no experience with this? How many have a little experience?” “How many have a lot of experience?”)
- o At the beginning of the session, ask participants to list their challenges regarding your topic. This can be a solitary activity with learners each writing their own list or it can be done in pairs (“Talk to the person next to you.”) or in small groups (“In your small groups, come up with a list of challenges you are facing in implementing medication safety standards in your emergency department”). Have a few participants share what they have come up with.

A Personal Example:

I was teaching a workshop on presentation skills. I had objectives about how to have attention-getting presentation openings and conclusions, how to keep audience interest, etc. As participants arrived, I went around to talk with each of them and asked them why they decided to take the workshop. As we talked, I learned that most

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were nervous about giving presentations. I hadn't planned anything about how to deal with nervousness. However, this seemed to be a major need in the audience. In response to this, I added a 5-minute, extemporaneous section on how to manage nervousness when presenting. The participants had the opportunity to practice applying the tips in an exercise in which they made short presentations and got feedback.

If I had not found ways to look for learner input on their needs, I would have left a major need unmet. After this experience, I added a section on managing nervousness for future offerings of the workshop.

Ideally, education programs are dialogues rather than monologues. Although you do most of the talking, you add to the quality of your session when you find ways to get information from the learners periodically throughout your session. Through polling, asking questions, presenting scenarios, cases and other practice or application exercises, you will be better able to target your expertise to your audience needs.

4. **Avoid "empty activity."** In the quest to incorporate active learning strategies, some instructors resort to activity for its own sake. Active learning strategies will only be effective and worthwhile if they are carefully designed to help learners achieve the defined objectives. Make sure your activities support learners in achieving the objectives.

Summary

After you have developed important, relevant objectives for your learners to acquire, it is critical to select or develop instructional strategies that will enable them to achieve them. Select from the examples included in this section or discover or create your own!

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