Approaches to Effective Preceptor Teaching

Steve Schneid, MHPE

Co-Director, Team-Based Learning (TBL) Program
Director of Assessment, Physician Retraining and Reentry Program Inc.
At the end of the workshop, participants should be able to:

- **LO1**: Describe four major preceptor teaching roles and their associated teaching strategies
- **LO2**: List the five systematic steps of clinical teaching ("microskills") using the "One Minute Preceptor" model, explain their rationale, and provide some examples
- **LO3**: Apply the five steps to your teaching encounters
- **LO4**: Explain why asking questions as opposed to presenting content should be the dominant preceptor teaching activity
- **LO5**: Contrast the following question categories: "low level" versus "high level" cognitive; affective; and closed versus open
- **LO6**: Describe the types of questions that should be avoided
- **LO7**: Describe guidelines for asking questions effectively
- **LO8**: Develop questions that can help students understand common clinical problems.
- **LO9**: Recognize effective and ineffective types and methods of questioning
- **LO10**: Describe the four components to a teaching script
- **LO11**: Develop a teaching script
- **LO12**: Use strategies to promote self-directed learning.
Workshop Outline

I. Preceptor Teaching Roles
II. Systematic Approach to Clinical Teaching
III. Asking Effective Questions
IV. Developing Teaching Scripts
V. Promoting Self-Directed Learning
LO1: Describe four major preceptor teaching roles and their associated teaching strategies
## I. Preceptor Teaching Roles and Strategies

<table>
<thead>
<tr>
<th>Teaching Role</th>
<th>Teaching Strategy</th>
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<tr>
<td>Expert</td>
<td>Conveys information directly to learner</td>
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<tr>
<td>“directing instruction”</td>
<td></td>
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<tr>
<td>Role Model</td>
<td>Articulates thought processes during a real clinical encounter (“think aloud”)</td>
</tr>
<tr>
<td>Coach</td>
<td>Asks the learner to execute a previously modeled skill; asks questions and provides feedback</td>
</tr>
<tr>
<td>Facilitator</td>
<td>Provide opportunities for systematic practice and self-evaluation; asks questions and provides feedback</td>
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</table>
In response to a student who just counseled a patient taking metformin...

Preceptor to student:

“Remember, taking metformin with food minimizes GI side effects. The dosage should be slowly increased 500 mg/day every two weeks.

You should advise patients to avoid taking metformin on an empty stomach and if our patient continues to experience nausea and bloating, you should consider recommending the extended-release tablets versus immediate-release dosage form.”
Which role do you think the preceptor is demonstrating?

A. Expert
B. Role Model
C. Facilitator
D. Coach
**Student:** "I’ve just seen Ms. Smith who was here to fill a prescription for Yasmin. I told her to be careful with her potassium intake, but I couldn’t remember if she should avoid or get extra potassium in her diet. Could you remind me again why this is an issue for this particular oral contraceptive and not others? Can you give me some suggestions about what I should tell the patient next time?"

**Preceptor:** “First, why don’t we start by having you explain how ACEIs, ARBs, and MR antagonists affect plasma potassium and what is the final common mechanism of this effect?”
What role do you think the preceptor is demonstrating?

A. Expert
B. Role-Model
C. Facilitator
D. Coach
#1. When would you, as a clinical preceptor, take the role of an expert to facilitate your students’ learning?  
#2. When is it important for you to take the role of a role-model when teaching in the clinic?  
#3. Which of the teaching roles (expert, role-model, facilitator, coach) do you gravitate towards? Why?  
#4. What do you feel is the most challenging teaching role you face as a clinical preceptor?
Figure 1. The learning pyramid (left), representing various stages of cognitive learning in the context of pharmacy education, and (right) appropriate preceptor roles corresponding to those learning stages. Reprinted with permission from reference 7.

Weitzel KW, Walters EA, Taylor J. Teaching clinical problem solving: A preceptor’s guide 2012; Am J Health Syst Pharm; 69; 1588-1599
LO2: List the five systematic steps of clinical teaching (“microskills”) using the “One Minute Preceptor” model, explain their rationale, and provide some examples.

LO3: Apply the five steps to your teaching encounters.
What is supposed to be the outcome of effective teaching?

- Long-term mastery of the learning objectives

Larson DP, Butler AC, Roediger HL. (2009). Repeated testing improves long-term retention relative to repeated study: a randomised controlled trial. Medical Education; 43: 1174-1181
What is supposed to be the outcome of effective teaching?

- **Long-term mastery** of the learning objectives
  1. Testing (test-enhanced learning)
  2. Spacing
  3. Provide learning guidance (conceptual frameworks)


Testing Slows Forgetting

Roediger, HL, Karpke JD. The power of testing memory: Basic research and implications for educational practice. (2006b). Perspectives on Psychological Practice. 1; 181-210
II. 5 Systematic Steps of Clinical Teaching

Diagnosis of the Learner
Step 1: Ask question back to student
Step 2: Ask student to justify their answer

Teaching
Step 3: Provide positive feedback
Step 4: Correct mistakes (constructive feedback)
Step 5: Teach general rules

Step 1: Ask Question Back

**Cue:** After presenting the facts of a case to you, the learner either stops to wait for your response or asks for your guidance on how to proceed.

**Preceptor:** You ask the learner to state what s/he thinks about the issue presented by the data.

**Rationale:** Asking the learner how they interpret the data is the first step in diagnosing their learning needs. Without adequate information on the learner's knowledge, teaching might be misdirected and unhelpful.

**Examples:**
"What drug do you think is causing this adverse reaction?"  "What do
Step 2: Ask for Justification

**Cue:** When discussing a case, the learner gives their answer to the question and looks to you to either confirm their answer is correct.

**Preceptor:** Before offering your opinion, ask the learner for the evidence that s/he feels supports her/his answer. A corollary approach is to ask what other choices were considered and what evidence supported or refuted those alternatives.

**Rationale:** Asking them to reveal their thought processes allows you both to find out what they know and to identify where there are gaps.

**Examples:**
"What were the major findings that led to your conclusion?"
"What else did you consider? What kept you from another choice?"
Step 3: Provide Positive Feedback

**Cue:** The learner has handled a situation in a “somewhat” effective manner

**Preceptor:** Take the first chance you find to comment on: the specific good work and the effect it had.

**Rationale:** Learner skills that are not well established need to be reinforced.

**Example:** "You are right to think that patient needs to be careful with what kind of food they eat with their Sinemet."
Step 4: Correct Mistakes

**Cue:** The learner's work has demonstrated mistakes (omissions, distortions or misunderstandings).

**Preceptor:** As soon after the mistake as possible, find an appropriate time and place to discuss what was wrong and how to avoid or correct the error in the future.

**Rationale:** Mistakes left unattended have a good chance of being repeated.

**Example:**
"You are right to think that patient needs to be careful with what kind of food they eat with their Sinemet. I find it helpful to think about the mechanism of how L-Dopa crosses the blood-brain barrier to remember that protein-rich meals, not carbs, are what can decrease efficacy.”
General Feedback Suggestions

1. Descriptive NOT Evaluative
2. Specific
3. Honest and Sincere
4. Relevant
5. Timely
6. Desired by Receiver
7. Based on first-hand observations
8. Use “I” instead of “you” statements

Feedback Enhances Learning

Step 5: Teach General Rules

**Cue:** You have determined that you know something about the case which the learner needs or wants to know.

**Preceptor:** Provide general rules, concepts or considerations, and target them to the learner's level of understanding. A generalizable teaching point can be phrased as: "When this happens, do this..."

**Rationale:** Instruction is both more memorable and more transferable if it is offered as a general rule, guiding principle or a metaphor.
Example:
“Transporters often can play an important role in how drugs move from one compartment to another. Competition for transporters with dietary products can affect absorption as well as entry into the target organ, reducing efficacy. Let’s draw a quick schematic”
Provide Guidance for Learning

- Helps learner transform the new capability into a code for later recall
- When teaching about processes try to include pictures, figures, charts, mnemonics, video clips, and demonstrations
- Sometimes abstract or schematic representations are more effective
- Example:
  - boxes and arrows to help understand negative feedback loops (e.g., endocrinology)

Small Group Activity #2
Video A

Video provided by Arienne Teherani, UCSF School of Medicine
### Preceptor Rating

**One Minute Preceptor Precepting (Pneumothorax clinical scenario)**

- **OMP:** Ascertain the student’s diagnosis
- **OMP:** Assess student’s underlying clinical reasoning
- **OMP:** Assess student’s fund of knowledge
- **OMP:** Teach the student a few key points for use in future patient care
- **OMP:** Provide positive feedback to reinforce what was done well
- **OMP:** Provide constructive feedback with recommendations for improvement
- **OMP:** Involve student in the decision-making process
- **OMP:** The Efficiency of this teaching encounter
- **OMP:** The overall effectiveness of this teaching encounter
- **OMP:** Overall satisfaction with the teaching encounter

Teherani A et al.  Student perceptions of the one minute preceptor and traditional preceptor models. (2007). Medical Teacher. 29 (4): 323-7
Small Group Activity #2
Video B

Video provided by Arienne Teherani, UCSF School of Medicine
Teherani A et al. Student perceptions of the one minute preceptor and traditional preceptor models. (2007). Medical Teacher. 29 (4): 323-7
LO4: Explain why asking questions as opposed to presenting content should be the dominant preceptor teaching activity
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LO6: Describe the types of questions that should be avoided
LO7: Describe guidelines for asking questions effectively
LO8: Develop questions that can help students understand common clinical problems.
LO9: Recognize effective and ineffective types and methods of questioning
III. Asking Effective Questions

- Teaching is often thought of as the activity of telling students something, or giving them information.

- Asking good questions—not telling—should be the dominant activity of clinical instruction.

- Questioning during Steps 1 and 2 allows the preceptor to:
  - determine learning needs
  - stimulate thinking
  - transfer responsibility for learning to the learner
  - model essential professional behavior
  - enhance long-term retention?
Cognitive Questions Categories

**Low-level questions:**
Recall of facts, concepts, principles, or definitions.
Example: "What is the MOA of lisinopril?"

While this type of question can be useful to help you assess a student's understanding of basic facts, health professions educators often focus too much on lower-level cognitive performance.

**Higher-level questions:**
Analyze, synthesize or evaluate information and to form judgments.
Example: "What would you recommend with regard to LABA use as monotherapy in this patient?"

Such questions enable the preceptor to see how learners use their knowledge to make decisions.
Affective Questions

Helps students **identify their own attitudes and feelings** and conveys the preceptor's attitude that **affective issues are important in clinical work.**

**Examples:**

"How did you react when this patient became sad and tearful?"

"What do you think are the reasons for your anger toward Mr. Smith?"
Questions Categories

Closed questions

• Tend to be narrow in scope, have one correct answer, and often elicit short, concrete responses
• Can be used to prompt students to:

1. **Recall facts**: "What is the relationship between thyroid hormone and TSH?"
2. **Prioritize**: "What is the most important issue for this patient?"
3. **Converge information**: "Why is influenza more common in winter than in summer?"
4. **Challenge their ideas**: "What data support your conclusion?"
Open questions

• Allow a range of possible answers, invite reflection and speculation, and stimulate problem solving.
• Require higher-level cognitive performance and elicit longer answers.
• Expose student's thinking processes and level of expertise.
• Allow students to display what they know and don't know.
• Should be used as often as possible, and in a sequence that helps students build their understanding.
Questions Categories

Open questions Examples

1. **Diagnose**: "What is your interpretation of the elevated CPK?"

2. **Decide**: "What interventions do you suggest?"

3. **Hypothesize**: ”Would you change your therapeutic recommendation if this patient were taking a bile acid sequestrant rather than a statin?"

4. **Challenge**: "What leads you to that conclusion?"

5. **Summarize**: "What are the important issues that emerged today?"
Questions to Avoid

**Leading questions:** Suggests the particular answer the preceptor is looking to have confirmed
"You understand why this drug is inappropriate, don't you?"

"The patient’s sexual dysfunction is obviously from the fluoxetine, wouldn't you agree?"

**Questions that humiliate or put students on the spot:**
“Wow, how did you pass therapeutics not knowing that ACEIs and ARBs can increase plasma K+?”"
Guidelines for Asking Questions Effectively

1. **Allow sufficient "wait time."**
   Wait at least 3 seconds (1) after asking the question and (2) after the student stops speaking.

2. **Ask one question at a time**
   A barrage of questions is confusing.

3. **Ask questions that will help the learner take better care of patients**
   Think about the questions you pose to yourself as you care for your patients.

4. **Maintain a noncommittal stance**
   Avoid unintentionally conveying your desired or expected response, which can reduce intellectual risk-taking.
Small Group Activity #3

- One of you will play the role of an **average student**
  Remember that students make mistakes and modify your responses accordingly! Don’t offer correct answers too freely, or the preceptor will be left with nothing to do.

- One of you will play the role of **preceptor**
  Use as many of the microskills as you can - try for at least the first two (getting a commitment and probing for evidence). Remember that these skills are counter-intuitive and may not be part of your regular teaching style. Thus, you will need to be purposefully aware of the microskills as you practice them.

- Three or more of you will **observe** the preceptor
  Take brief notes on the dialogue, cues and responses. What microskills are being used? What suggestions can you make for improvement?
Student Case Presentation to Preceptor:

B.K. presented to the outpatient clinic with an annoying productive cough after five weeks of lisinopril therapy. He does report an improvement in symptoms. His examination reveals no evidence of wheezing, with only a few crackles, his neck veins are only minimally elevated over normal, his ankle edema is 1+, and his weight is stable. All lab values are normal.
Activity Logistics

1. Choose roles.
2. Role play for about 5 minutes
3. Begin with the “learner” presenting the case to the preceptor
4. The "preceptor" should then try to use the five steps of the One Minute Preceptor model to assess, instruct and provide feedback.
4. After completing the simulation activity, allow the "preceptor" to critique the role play first, then the "learner," then the “observers”.
One-Minute Preceptor (OMP)

**Diagnosis of the Learner**
- Step 1: Ask question back to student
- Step 2: Ask student to justify their answer

**Teaching**
- Step 3: Provide positive feedback
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Effective Questioning Self-Evaluation

- Set aside consistent time to do this exercise.
- Complete it as soon as possible after a teaching encounter with a student.
- Using the checklist as a guide, reflect on how you used questioning.
Effective Questioning: Self-Evaluation

(Adapted from Westberg J, Jason H. Collaborative clinical education: the foundation of effective health care. New York: Springer-Verlag, 1993.)

Print out this page. Set aside ten minutes to do this exercise. Complete it as soon as possible after a teaching encounter with a student. Using the checklist below as a guide, reflect on how you used questioning. Rate yourself on the scale of 1 = needs improvement to 5 = excellent.

1. Whenever possible, I asked questions rather than gave information.  
   1  2  3  4  5

2. I asked mostly open-ended questions.  
   1  2  3  4  5

3. I avoided leading questions.  
   1  2  3  4  5

4. I asked one question at a time.  
   1  2  3  4  5

5. I waited at least three seconds after stating a question to allow the student to formulate a response.  
   1  2  3  4  5

6. I waited at least three seconds after the student's response to allow the student to elaborate.  
   1  2  3  4  5

7. I avoided questions that would put the student on the spot.  
   1  2  3  4  5

8. I asked questions that would help the student explore his or her attitudes or feelings.  
   1  2  3  4  5

9. I modeled the questions that would help the student explore his or her attitudes or feelings.  
   1  2  3  4  5

10. I avoided assertions masquerading as questions.  
    1  2  3  4  5

11. I remained noncommittal to avoid unintentionally conveying the response I wanted.  
    1  2  3  4  5

12. I emphasized higher-level questions that asked the student to analyze, synthesize, evaluate, and form judgments.  
    1  2  3  4  5

13. When questioning the student in the presence of a patient, I was sensitive to the patient's needs.  
    1  2  3  4  5

14. I asked questions in a sequence to build to greater levels of understanding.  
    1  2  3  4  5
Are there aspects of the way you question students that you would like to improve? Record below your personal goals for improving the use of questioning.

1. 

2. 

3. 

4. 

5. 

6.
Effective Questioning: Example

**Student's presentation:** "I have a 57-year-old man with a history of schizophrenia and hypertension. He is taking olanzapine and HCTZ. His plasma glucose and lipids are abnormal. This is something we see with diuretic drugs so we should probably switch to a different antihypertensive.

**Preceptor question:** “No, this is obviously from the olanzapine, wouldn't you agree?”

Is there anything wrong with this question?
Rephrase the ineffective question below: _
Effective Questioning: Example

The question, “No, this is obviously from the olanzapine, wouldn't you agree?” is ineffective because the preceptor is telling, not asking. The student is told the correct answer, but doesn't learn why it is the correct answer.

Also, the preceptor does not learn anything about the student's reasoning regarding this patient.

A more effective question would be:
“In our patients taking second-generation antipsychotics, list some important monitoring parameters and their rationale”
Break #2
LO10: Describe the four components to a teaching script

LO11: Develop a teaching script
IV. Developing Teaching Scripts

- A teaching *script* is an example of one tool some preceptors use to organize their knowledge about certain teaching topics.

- Made up of 4 major parts
IV. Developing Teaching Scripts

1. **Goal:**
   Statement of the preceptor's teaching goals for a particular case.

2. **Teaching Points:**
   A short list of the most relevant issues for a particular drug’s indication, AEs, drug-drug interaction, therapeutic approach to a disease state, etc...

3. **Teaching Strategy:**
   The preferred method of teaching a particular case.

4. **Common Learner Problems:**
   Statements of the problems students generally encounter in a case.
Teaching Script Example

**Goal:** Recall the drugs that can be used to slow the progression of systolic heart failure

**Teaching Points:**
Cardiac remodeling and drug targets
Clinical studies

**Teaching Strategy:** Interactive chalk talk using Socratic method

**Common learner problems:** Students forget MR antagonists and include digoxin
LO12: Use strategies to promote self-directed learning.
V. Promoting Self-Directed Learning

Definition: Students assume responsibility for their own learning

Includes:

• Self-assessment of their learning needs
• Development of personal learning plans
• Self-assessment of the level of their knowledge, skills, attitudes, values, and their achievement of desired competencies and outcomes
Self-Directed Learning in ACPE

**Standard No. 11:** The college or school, throughout the curriculum and in all program pathways, must use and integrate teaching and learning methods that…and enabling students to transition from dependent to active, **self-directed, lifelong learners.**

**Standard No. 12:** Professional pharmacist competencies that must be achieved by graduates through the professional degree program curriculum…. outcome statements must incorporate the development of the skills necessary to become **self-directed lifelong learners.**

**Guideline 17.3**
Admissions criteria, policies, and procedures should take into account ….that support the student's potential to become a **self-directed lifelong learner.**
Activities to Promote Self-Directed Learning

• Model the attitudes and habits of life-long learning, e.g., talk to students about current problems in your own practice and demonstrate the methods you use to solve them.

• Ask students to prepare written learning plans or contracts, specifying learning objectives, resources and strategies, evidence of accomplishment, and criteria for evaluation.

• Assign projects that require students to set their own
• Identify and organize available learning resources to help students choose appropriately from the vast array of potential sources of information.
• Emphasize and demonstrate critical appraisal of the literature.
• Encourage peer teaching when you have more than one student at a time.
• Establish learning networks or study groups, e.g., journal clubs, and encourage students to attend with you.
• Meet with students individually to provide guidance and feedback.
• Ask students to assess their own performance.
Strategies for Continuous Teaching Development?
### Effect of Faculty Development Workshops

Table 2. Ratings of 57 Residents by 120 Interns and Medical Students at the University of Michigan Comparing Pre- and Postintervention Ratings in Intervention and Control Groups

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<thead>
<tr>
<th>Domain</th>
<th>Item</th>
<th>Control group</th>
<th>Intervention group</th>
<th>Mean Difference in Change Between Groups</th>
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<td>Pre</td>
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* Significant at P < .05 using t tests for mean change in teaching ratings.

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Contact me if you have any questions

sschneid@ucsd.edu