Questioning Techniques that Promote Thinking and Learning

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At the end of this session you will be able to:

• Establish an appropriate environment for questioning.
• Distinguish between types of questions and describe types that stimulate higher order thinking
• Utilize specific questioning techniques in various clinical or educational situations
• Develop logical questions that link to your learning objectives
We will consider...

- Rationale for the use of questioning
- The qualities of a good questioning environment
- Use of wait time
- Types of questions
- Links to learning objectives
- Strategies for various situations
“Reading without a question is a waste of time”  

J. Pelley
Personal Exercise 1

• Think of a topic you have recently taught or have recently learned something about.

• Teachers: Write a few questions that you might ask a learner(s) about that topic in any setting (lecture, small group, individual):

• Students: Write a few questions that you need to know about that topic (to guide your reading).
How do they begin?
What is a question?

• “An expression of inquiry that invites or calls for a reply”
• “A point or subject under discussion or consideration”
• For our purposes, may be interrogatory or directive
Why do educators ask questions?

- **Assessment**
  - To determine learner’s knowledge base
    - What they know
    - What they do not know
  - To determine learner’s understanding
    - Logical reasoning
    - Faulty reasoning

- **Teaching**
  - To encourage deeper thinking
  - Identify opportunities for clinical pearls
  - Provide immediate feedback
What is a good questioning environment?

- Set expectations for responses
  - “I don’t know” is okay
  - “Incorrect answers are learning opportunities”
  - Group vs individual?
- Tone should be conversational, not inquisitorial
- Questions should be clear – avoid “read my mind”
- Avoid interrupting learner during answer
- Utilize “face-saving” strategies
- Effective handling of incorrect answers

- Pimping?
“Proper pimping inculcates the intern with a profound and abiding respect for his attending physician while ridding the intern of needless self-esteem. Furthermore, after being pimped, he is drained of the desire to ask new questions – questions that his attending may be unable to answer.”  
(Brancati, JAMA 1989)
What is the Socratic Method?

• The use of questions to stimulate critical thinking
• Utilizes and scrutinizes learner’s existing knowledge and beliefs
• Fosters collaborative and open-minded discussion, although somewhat oppositional and contradictory
The Socratic Method in Healthcare Education

- Ask questions in logical, stepwise fashion to stimulate critical thinking
  - Use baseline medical knowledge to interpret patient information in context of individual personal circumstances.

- Diagnose the learner’s understanding to identify immediate learning needs

- Teach learners clinical pearls and encourage them to self-question
“Open” and “Closed” Questions

• What’s the difference between “closed” and “open” questions?
  – Closed – where/when/who/what is
  – Open – why/how/what do

• When and how might the use of a “closed” question be beneficial?

• When and how might the use of an “open” question be beneficial?
Original Bloom’s Taxonomy

- Evaluation
- Synthesis
- Analysis
- Application
- Comprehension
- Knowledge
Examples of questions

- **Remember**: “What is the definition of autonomy?”
- **Understand**: “Why do you think this is a conflict between beneficence and autonomy?”
- **Apply**: “What are the possible outcomes for the various options for care?”
- **Analyze**: “Why do you think the patient is making this decision?”
- **Evaluate**: “What do you think about the way this case was handled?”
- **Create**: “If you were consulted on this case, what would your recommendations be?”
Examples of questions

- **Remember**: Where is McBurney’s point?
- **Understand**: How does appendicitis lead to peritonitis?
- **Apply**: Do you think this patient could have appendicitis? What else could cause his symptoms?
- **Analyze**: How important are the laboratory values in your thinking?
- **Evaluate**: Why would an ultrasound be better than a CT in this patient with suspected appendicitis?
- **Create**: What is your plan of care for this patient with suspected appendicitis?
Examples of Questions

• **Remember**: What is pre-eclampsia?
• **Understand**: How does pre-eclampsia develop?
• **Apply**: What else could cause protein in the urine?
• **Analyze**: How do laboratory values play a role in your approach to a patient with pre-eclampsia?
• **Evaluate**: Do tocolytics work for pre-eclampsia?
• **Create**: If we expectantly manage her, what else do we need to do?
Return to Personal Exercise 1

• What are you asking the learner to do?
  – Remember a fact?
  – Understand or describe something?
  – Apply knowledge to solve a problem?
  – Analyze information to solve a problem?
  – Evaluate an idea or opinion?
  – Create a plan or solution?
Linking Learning Objectives with Questions
Linking Objectives with Questions

- **Objective:** Define the 4 major principles of medical ethics
- **Question:** What major ethical principles are under consideration here? (Remember, Understand)

- **Objective:** Understand the role of unconscious bias in medical decision making
- **Question:** What do you think is the motivation behind this patient’s decision? (Analyze)
Linking Objectives with Questions

• **Objective**: Know the mechanism of pain sensation in a patient with appendicitis

• **Question**: What nerve root is primarily involved in the pain of appendicitis? *(Remember)*

• **Question**: How does the pain pathway work in a patient with appendicitis? *(Understand)*

• **Objective**: Know the management of a patient with appendicitis

• **Question**: What is your plan of care? *(Create)*
Personal Exercise 2

• Choose a set of learning objectives that fits well with your area of teaching or need for learning. Plan a logically sequenced set of questions that will stimulate higher order thinking and are linked to the learning objective. Note which of Bloom’s taxonomy domains best represent the questions.
Perform a complete and accurate physical examination on a child

- **Remember:** What are the 4 components of a lung exam?
- **Understand:** What is the mechanism of increased vocal fremitus in a child with pneumonia?
- **Apply:** At what point during the physical examination would you attempt a lung exam?
- **Analyze:** How do your physical examination findings relate to the CXR findings?
Plan the laboratory evaluation for an infant who presents with pallor

• **Remember:** What is the most common cause of microcytic anemia in children?

• **Understand:** Why is the Mentzer index usually elevated in children with iron-deficiency anemia?

• **Analyze:** How do the metabolic panel results relate to this child’s anemia?

• **Evaluate/Create:** Order a laboratory evaluation on this child with pallor and justify your expenditures to the insurance company.
Strategies for Various Situations

• Large group lectures

• Small group sessions

• Individual discussions
Large group lectures

• Plan questions ahead
  – Link to lecture objectives
  – Logical sequence
    • Remember → understand → apply
  – Ask questions at beginning and then again at end to assess understanding

• Targeted questioning with follow-up targets

• Use of audience response systems

• Consider video recording your lecture
Small group sessions

• Link to learning objectives
  – Use facilitator guide when available
• Elicit prior knowledge/experiences to diagnose the learners – avoid assumptions
• Group vs individual?
• Encourage other students’ comments on answers
• Involve everyone
  – E.g. get commitments – “who wants a CBC?” Ask for justification
Individual discussions

• General questioning strategies apply
  – Conversational
  – Clear questions, logically sequenced

• 2 specific strategies
  – One-minute preceptor
  – Chart stimulated recall
One Minute Preceptor

- Get a commitment
  - What do you think is going on here?
  - What do you see on the x-ray?
- Probe for evidence
  - Why do you think that?
  - Was there anything else you considered?
- Teach general rules
- Reinforce things done well
- Correct mistakes
Chart  Stimulated Recall

• Uses written documentation to assess thinking and stimulate dialogue

• Open-ended questions
  – What was the most important history you obtained here and why?
  – What physical examination findings were elicited and were they documented in your note?
  – What was your primary diagnosis after talking with the patient?
  – What was your priority in determining a plan?
Encouraging students to self-question

• Beginning of teaching session:
  – “Write down questions that arise during our discussion”

• Middle of teaching session:
  – “Write down 3 questions that you need to answer to take care of this patient.”

• End of teaching session:
  – “What did you need but didn’t know to help you most with this situation?”
  – “What learning objectives do you need to read more about?”
What types of questions are these?

- What is a question?
- Why do educators ask questions?
- What is a good questioning environment?
- What’s the difference between a “closed” and an “open” question?
- When and how might the use of a “closed” question be beneficial?
- Plan a set of questions that link...
Take home points...

• Pay attention to your questioning style
• Balance factual and thought-provoking
• Plan potential questions ahead of time
• Use logical sequencing
• Link questions to learning objectives
• Form good self-questioning habits
A few reading materials


A few reading materials

