

How To Develop Multiple Choice, Interactive Questions for ACCP Learning Category I: Lecture-Based Education

I. Purpose: The Adult Attention Span and Learning

- Adults' experiences are a rich resource for learning. Adults learn and retain information more easily if they can relate it to their reservoir of past experiences.
- Research suggests that the average adult attention span for learning and retention is 15 to 20 minutes at a time. Changing the pace of instruction by using interactive questions allows the attention span to reset, while actively engaging the learners in applying previously covered content.
- A key skill in teaching is questioning. It is a fundamental strategy to make lectures interactive. Research by Nasmith and Steinert in 2001 showed that interactive lectures promote active involvement and increased motivation and attention by the learner, which lead to a "higher level" of learning, improved feedback to teacher and student, and increased teacher and student satisfaction.

II. Types of Interactive Questions

- A. **Polling Questions:** used to get to know your learners' backgrounds or what they might be doing in practice related to the material you are presenting.

Example

How often are you calibrating your machine?

1. Daily
2. Weekly
3. Monthly
4. I don't have a machine

- B. **Patient-Case Scenario Questions:** used to describe a real-world clinical case that needs to be solved and requires application of new knowledge taught in the course.

1. Relevant background information about the case is presented to the learner.

Example

Background

- A 40-year-old, overweight man presents with snoring, witnessed apneas, and daytime sleepiness (Epworth sleepiness score = 14)
- Overnight sleep study demonstrates loud snoring with an apnea hypopnea index (AHI) = 32 events per hours

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2. The learners provide their feedback through a multiple choice question or series of questions.

Example

Based on these sleep study results, the best **initial** treatment for this patient should be?

1. CPAP therapy
2. An oral appliance
3. Upper airway surgery
4. Weight loss
5. I'm not sure

3. The expert presenter discusses the correct answers and rationales.

Example

Rationales

- CPAP therapy is indicated for the treatment of mild, moderate, and severe OSA (AHI >30).
- Medical therapies, including weight loss, are not indicated as *primary* therapies for OSA.
- Oral appliances are best for patients with *mild to moderate* disease.
- The role of surgery in patients with severe disease is unclear.

Elnhuus AG, Moss JR, Southcott AM, et al. Redefining success in airway surgery for obstructive sleep apnea: a meta-analysis and synthesis of the evidence. *Sleep*. 2007;30(4):461-467.

III. Formatting Requirements

- Interactive questions should be created in Microsoft PowerPoint on a plain white background.
- Within the slide layout, type the actual question into the title box at the top and the answer choices in the body of the slide. Your answer choices should be numbered (1, 2, 3,) in sequential order.
- If including a reference, list them in AMA format at the bottom of the slide.

IV. References and Resources

Knowles M. *The Adult Learner, The Neglected Species*. Houston, TX: Gulf Publishing Co; 1990.

Gauci SA, Dantas AM, Williams DA, Kemm RE. Promoting student-centered active learning in lectures with a personal response system. *Adv Physiol Educ*. 2007;33:60-71.

Middendorf J, Kalish A. *The "Change-Up in Lectures*. Vol 5. No 2. The National Teaching and Learning Forum Indianapolis, IN; 1996.

Nasmith L, Steinert Y. The evaluation of a workshop to promote interactive lecturing. *Teach Learn Med* 2001;13(1):43-48.

Zemke R, Zemke S. Adult Learning: What Do We Know for Sure? *Training* 1995; June, 31-40.