

## How to Keep Your Students Thinking

When students engage actively with material, they generally understand it better and remember it longer. Student participation often results in *covering less* material during a semester. Yet it also can mean that students *learn more* information than when the material is simply "covered" because they actively *use* it and have more chances to clear up confusion. Large numbers of students in class do not preclude interaction. The following techniques to open up lectures to student participation have been used in classes of up to 1200 students, as well as with smaller groups.

**Begin the course or the lecture with a question or questions that help you to understand what students are thinking:** "What are some of the differences between clinical medicine and public health?" "What would be a feminist perspective on contraceptive research?" "What are some examples of marginalized populations?"

To introduce new topics and find out students' assumptions, **ask students to jot down answers to some questions on their own and then combine answers in a small group.** Examples from a pre-course survey: "List up to 10 major environmental disasters. Name up to 10 health disorders in which environmental agents are causative; list the 10 etiologic agents. Identify the kinds of data needed to characterize an environmental health hazard."

**When a student asks a question, instead of answering it yourself, ask for an answer from other members of the class.**

**Ask questions throughout the lecture,** so that the lecture becomes more of a conversation. Asking students to raise their hands (for example, "What is the direction of the data: increasing? decreasing?") is easier than asking them to speak. Questions with surprising answers can engage students' interest (for example, "What is the probability that two people in this room have the same birthday?"). Generally, questions are more evocative if you are not looking for one right answer. The most fruitful questions are thought-provoking and, often, counterintuitive.

Pause in the lecture after making a major point. Show students a multiple-choice question based on the material you have been talking about. **Ask students to vote on the right answer, and then to turn to their neighbors to persuade them of the answer within the space of two minutes.** When time is up, ask them to vote a second time. Usually far more students arrive at the correct answer when voting the second time.

Stop the lecture and **ask students to write for one or two minutes in response to a particular question.** Then ask them to discuss their answers with their neighbor. The writing will give everyone a chance to think about and articulate a response, and may enable broader participation.

**Allow time for questions at the end of the lecture.** Ask if students would like to have a point clarified.

**End the lecture with a provocative question.**

**Do a one-minute paper at the end of class.** In this exercise, students write down what they consider (a) the main point of the class and (b) the main question they still have as they leave. Collect and read these unsigned papers. You can use some of these questions to begin the next lecture. This technique encourages students to listen more carefully, to review their notes, and to think about the lecture before running to their next class.

(Derek Bok Center for Teaching and Learning)

**Additional Reading from the CTL Library:**

Barkley, E. F. (2009). *Student engagement techniques : a handbook for college faculty*. San Francisco: Jossey-Bass: 79-93.

Bean, J. C. (2001). *Engaging ideas : the professor's guide to integrating writing, critical thinking, and active learning in the classroom*. San Francisco: Jossey-Bass: 169-181.

Brookfield, S. (2006). *The skillful teacher : on technique, trust, and responsiveness in the classroom*. San Francisco, CA: Jossey-Bass: 133-152.