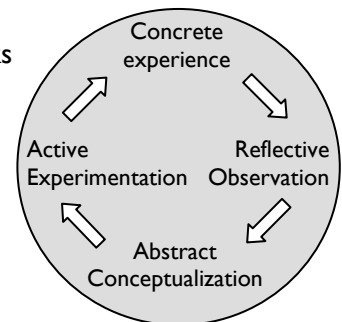


Lecture Busters: Keeping Students Engaged

Educational research is clear: the traditional teacher-centered lecture format is not highly effective with regards to student learning outcomes. We learn best in interactive, student-centered environments that are not based solely on a model of the instructor as a transmitter of knowledge (Bransford, Brown & Cocking, 1999.)

In a study by Stuart and Rutherford (1978), medical students' concentration during a traditional, teacher-centered lecture was assessed using a questionnaire. Results, based on 12 lectures and 1353 questionnaires indicated that concentration rose sharply in the first ten to fifteen minutes of a lecture, but then fell off sharply for the rest of the hour. Rickard, Rogers, Ellis & Beidleman (1988) measured retention of content from a lecture-based college psychology course four months after the course ended. Students who took the course knew about 8% more than a control group that had never taken the course. McKeachie, Pintrich, Lin, Smith & Sharma (1986) conducted an extensive review of research literature on learning in the college classroom, and found that in studies measuring information retention after a course, transfer of knowledge in new situations, problem solving, thinking, attitude change and motivation, discussion was always more effective than lecture.

Taken together, these studies (and many others) suggest lecture, particularly in chunks longer than fifteen minutes, is not a very effective instructional strategy. Instead, a better strategy is to break lectures into short segments punctuated with varied, alternate activities that help the instructor gauge the students' progress and require students to actively engage the content, each other and/or the instructor. This approach also fits well with Kolb's (1984) experiential learning (simple model at right) by providing opportunities for reflection, connection with existing knowledge and experimentation.



CATs

One of our tasks as instructors is to be aware of student learning and adjust our instruction accordingly. "Are students learning?" is a different question from "Am I covering the material?" Keep these questions separate! Classroom assessment techniques (CATs) are short in-class activities that not only that can provide students with an activity to reinforce (and break up) a lecture, but also provide you with a snapshot of student progress (examples below adapted from Angelo & Cross, 1993).

Think – Pair – Share

The instructor states an open-ended question, individual students spent a minute or two to writing a response, students then turn to a partner to discuss their responses, and the instructor reconvenes the class and calls on individual students to share the pair's responses. This process allows students to develop a response that is first thought out and then tested on a few peers before being presented to the rest of the class and instructor, which can greatly facilitate participation, especially for risk-averse students. Additionally, calling on individual students in the final step of this activity models that all students are individually accountable, even in large classes.

One minute papers

At the end of class or just before a break, the instructor poses one of these questions:

- What are the two most important points from today's session?
- What was the muddiest point from today's session?
- What would make the material clearer for you?

Students are given 2 minutes to write brief responses which are turned in anonymously as they leave. The instructor addresses student responses either during the next class or online.

Other questions & activities

- Student generated test questions: Ask students to create a question based on materials presented in class today/this week. Optionally, include one or two of these questions on the next test.
- Sketch: Ask students to quickly sketch and label a flow chart or provide the next step in a procedure
- Instructor mistake: Present a drawing or statement and ask, "What is wrong with what I just wrote?"
- Pro-con grid: Ask students to make a quick list of pros and cons on a particular topic.

PRS & Alternatives

Personal response systems (student transmitters & an instructor receiver) are used during class to poll students or give a short quiz; immediate results can be projected on a screen in class and used as a discussion starter, for peer instruction (Mazur, 1997) or as an informal quiz. The PRS can be a very efficient way to provide alternate, interactive activities in large classes. Many of the types of activities that can be done with the systems can also be accomplished in smaller classes by more traditional methods, such as class discussions or informal show of hands or paper-based polling and quizzing. The PRS (and analog alternatives), like CATs, provides both formative assessment and an alternate “lecture busting” activity.

Resources

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Duke University Center for Instructional Technology.

Hugh Crumley crumley@duke.edu