Interactive Lectures & Learning

In Great College Teaching, Corbin M. Campbell found that a combination of lecture, discussion, and active learning was most likely to enact deep subject matter knowledge.
Campbell, C. (2023) Great College Teaching: Where It Happens and How to Foster It Everywhere. Harvard Education Press.

Telling is not Teaching
How can you act as a facilitator of learning experiences?

Active Learning

Bonwell and Eison (1991) defined active learning as “anything that involves students in **doing things** and **thinking about the things they are doing**.” Research shows that students retain course material better when they have time to actively process the new information. Current best practices recommend that university faculty include short activities to break up lectures. About every 15 to 20 minutes, provide an opportunity for students to reflect on, practice, or apply new material.

What is active learning? Learning by doing (as opposed to learning by listening)

- Active Learning, Yale
- Getting started with active learning techniques, Cornell
- UAA's activity ideas

Doing Things

Cognitive Complexity - academic work can require students to engage cognitively in six increasingly complex levels: remember, understand, apply, analyze, evaluate, and create (Bloom's taxonomy)

Thinking about the things they are doing

Metacognition - Helping students become aware of what they know and don’t know (thinking about their thinking)

Lecture Break Examples

These examples of lecture breaks below are closely related but have slightly different approaches. ***These strategies are even more important in online courses.***

Instead of asking “Does that make sense?” or “Any questions?”
Which of these might work for you?

Beginning of lecture

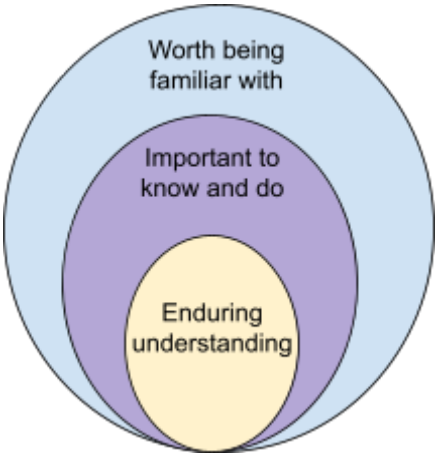
These activities can focus attention and/or access prior knowledge

- Entry Ticket - Ask students…
    - What do you know about this topic? Incorporate information literacy by asking students “how” they know it.
    - What experiences have you had that relate to this topic?
    - What are you most excited to learn about this topic?
    - What questions do you have about the pre (reading/video/etc.) assignment?
- Short quiz or poll - Provide a reading comprehension quiz or poll to identify misunderstandings or misconceptions.
- Prediction - Share an interesting story, current event, demonstration, or simulation related to the new topic then ask students to make a prediction (write it down, share or not).
- Compare and Contrast - Provide specific examples of each **new** concept and ask students to compare and contrast. Make connections between what came before to show where the new topic fits in.
- KWL (Know, Want to Know, Learned) - Together, the class creates a chart with columns for what they already know and want to know about the lecture topic. Come back after the lesson to add what the class learned about the topic.
- Think/pair/share - Ask a question. Provide two minutes for students to think individually. Then a few minutes to talk about it with a partner. Then volunteers share with the whole class. (Sample question: how does the new topic connect?)
- Short write - Examples include mind dump (get “outside” things off their mind before class OR anticipate what you will learn about the new topic), reflection, response to a short essay question.
- Pause procedure (warm calling) - “I am going to ask you a question. I want each of you to think of your answer and be ready to answer if I call on you.” The website https://wheelofnames.com/ allows you to enter the names of all students,

spin the wheel, and randomly select a student's name (or draw students' names from a jar or select names randomly from the class list)

- Story Start - Instructor or assigned student shares a short video, podcast, current event, etc. that bridges lesson content and students' lives followed by a class discussion about the connections between the story, course content, and students' lived experience.

What is the relevance of this diagram for your lecture planning?



Understanding by Design (Wiggins & McTighe)

Middle of lecture

Breaks in the middle of lecture provide opportunities for students to correct one another, increase retention of material, and refocus.

- Retrieval - Pause for a few minutes after every 15 minutes of lecture and ask students to write everything they can remember from that segment of lecture then ask for questions.
- Fresh Person - Ask students to stop and reflect, find a classmate to discuss what they learned so far (or similarly, teach what they just learned to the person next to them). Reflection questions could include:
    - Why does what you are learning matter to you personally or professionally?
    - Why do you need to know or be able to do this? What else do you need to learn or practice to become competent?
- 10:2 - Every 10 minutes pause for a two-minute break during the lecture. Give students 2-3 minutes to review their notes, add in missing information, or provide additional detail (independently or with others). Then ask students if there are any unresolved questions.

- Peer instruction - Provide quiz questions via poll, clickers, etc., then students discuss with a classmate/breakout group and can change their answers.
- Lecture notes “worksheet” or graphic organizer - Students fill in during lecture.
- Note Share - Students work in small groups to share individual notes and ask each other questions to fill in gaps.
- Collaborative note-taking - Students work together as a class or smaller groups to take notes at the same time and in the same place (e.g., Google Docs). You can identify roles to focus some students on participating in the class discussion and others to focus more on capturing notes.
- Recall Share - Tell students not to take notes and then lecture for 10-15 minutes. Pause for 2-3 minutes and allow students to write down a summary of what was presented. Ask students to compare summaries in groups of 2 or 3 so they can correct mistakes and flesh out their summaries. You can provide a summary of what you covered or an outline of the content so students can compare their notes with yours.
- Compare/contrast - Provide several similar examples of your topic that differ in one important way and ask students to compare and contrast. It’s easier to think about the effects of something if you can compare it to other similar things.
- Elaborate - Ask students to make a list or graphic organizer to elaborate on a topic (e.g., list as many examples as you can think of, pros/cons).
- Application think/pair/share - Ask students to solve a problem, tell a story, support a statement, find and correct an error, reorder steps, or predict an outcome, then pair up and discuss with a partner, and ask for volunteers to share with the class.

How might lecture breaks work asynchronously?

Ideas for Engaging Students in Your Asynchronous Online Course

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End of Lecture

Closing Pauses capture learning (Metacognition)

- Exit Ticket - Ask students to respond to a few questions that
  - require them to synthesize lecture content
  - apply what was learned in the lesson
  - identify clearest and muddiest points
- Lecture wrapper - Students write a one-minute summary in writing or via diagram to make connections to life/experiences, other courses, etc.
- Practice quizzes - Students take a quiz individually, then discuss within a small group

- Summary - Ask students to summarize the lecture topic by
    - making a video/telling a story
    - drawing a visual representation - diagram, concept map, mind map, flow chart, illustration
    - explain the concept to (a child) in simple terms - The Feynman Technique
- One Word at the Door - Ask students to provide you with one word or concept learned from class (online it can be via chat).
- Exam Question Challenge - Students review content by creating, revising, and/or answering exam questions.

Application

- Real world group decision - Students participate in a “maker” challenge (hands-on creativity) or case study activity followed by sharing with the rest of the class to discover different approaches/conclusions.
- Analysis - Students work in small groups to analyze an artifact and identify what (content), how (form) and why (function).

Tips

- Get to know your current group of students by giving them pre-assessments and surveys. Anticipate student questions (what will they struggle most with?) to help you determine the order and organization of content/activities
- Avoid feeling like you have to “cover” all the material equally. Use the SLOs to prioritize (Understanding by Design):
    a. Big ideas and enduring understandings
    b. Important to know and do
    c. Worth being familiar with
- Find additional ways to illustrate tough/new concepts (visuals, diagrams, demonstrations, scenarios, stories). Include a combination of written text, visuals, and multimedia content with your lecture (Universal Design for Learning); review the PEN principles for ideas
- If you're teaching real-time, prepare an agenda. You will not necessarily follow it exactly but it may help you avoid spending too much time in one area and give you something to move to if what you are doing isn’t working. If you “overplan” you can read the crowd and choose the most appropriate topic/activity.
- **Zoom polling/quizzing** can be used in face-to-face and hybrid classes. When you launch a Zoom poll or quiz, click the “Get QR code” button then share your screen with those in the classroom who are not logged into the Zoom meeting. Once the students scan the QR code, it asks them to enter their email address at the top and shows the polling questions. (To submit their answers, they have to enter their email at the top.)

- Talk to your **librarian** about finding a variety of relevant and recent resources (including videos) representing different points of view

Lecture Break Resources

- Rice, Gail. Hitting Pause: 65 Lecture Breaks to Refresh and Reinforce Learning 1st Edition; Video: Hitting Pause: Practical Ways to Incorporate Reflective Learning Experiences in Teaching and Book Notes
- Sickler, Angela Zanardelli. Classroom Cognition: The Science of Learning in Lecture, Faculty Focus
- Activity database, Harvard: Derek Bok Center for Teaching and Learning

Other Learning Activities

- The Blank Sheet Method: From Passive Reading to Active Learning: activity designed to learn from reading
- Team-based learning: evidence based collaborative learning teaching strategy designed around units of instruction that are taught in a three-step cycle: preparation, in-class readiness assurance testing, and application-focused exercise
- Flipped learning: typical lecture and homework elements are reversed; class time is repurposed for students to ask about lecture content, test their skills in applying knowledge, and interact with one another in hands-on activities (or 'Tipped' Classroom)
- Community Engaged Learning and other experiential learning
- The Socratic Method: Fostering Critical Thinking > AI Conversation Blackboard Ultra
- What Are Evidence-Based Teaching Practices (EBT) and How Do They Support Equity in Higher Ed? - Every Learner Everywhere
- **Other** - discussion, case study, simulation/role play, assign student groups to present topics, etc.

Review

How Learning Works: Seven Research-Based Principles for Smart Teaching
Ambrose, Bridges, DiPietro, Lovett, Norman

1. Students' prior knowledge can help or hinder learning.
2. How students organize knowledge influences how they learn and apply what they know.
3. Students' motivation determines, directs, and sustains what they do to learn.

4. To develop mastery, students must acquire component skills, practice integrating them, and know when to apply what they have learned.
5. Goal-directed practice coupled with targeted feedback enhances the quality of students' learning.
6. Students' current level of development interacts with the social, emotional, and intellectual climate of the course to impact learning.
7. To become self-directed learners, students must learn to monitor and adjust their approaches to learning.