

Active Learning for Large Lectures

What general strategies will help us to facilitate active learning?

Prepare and practice. Many successful teachers will tell you that it takes longer to prepare an interactive lecture than a traditional one because of the need to pare down the material and to choose your methodology carefully.

Be clear in your objectives and cut down your material. Remember that less can be more; consider your three most important 'points' and build your lecture around them. When worried about not 'covering' everything, provide readings and handouts to supplement the material. Always ensure that your methods match your objectives.

Prepare students for their role in active learning. Accustomed to being passive, students must learn to become active participants in the process of learning. Setting expectations and outlining how class will be conducted can prepare your students for taking an active role in the process of learning.

Remain flexible and do not overdo it. Many teachers, once introduced to the concept of interactive lecturing, want to immediately apply their newly acquired skills. Remember to focus on one new technique at a time. Finally, be prepared to abandon your prepared agenda for plan B!

Low Preparation/High Impact Active Learning Techniques

The techniques below are simple ways that require little preparation to break up a lecture and enable students to demonstrate understanding or engage reflectively with the content being presented.

Pause for Questions. Pause for at least 10 seconds to give students a chance to reflect and formulate a thought or follow-up question. Ask "What questions do you have?" rather than "Are there any questions?" If no student responds, consider asking students to talk to a neighbor for a minute and then ask if any questions came up during the discussion. You may also use the one-minute paper or think-pair-share options outlined below.

Pause for Processing. After a block of lecture content, give the students an opportunity to process and reflect on what they have learned, as well as tidy up their notes. This sort of pause can go as long as a minute or two. You may also ask students to compare their notes with a neighbor's notes and share any discrepancies that they find.

Think-pair-share. Pose a question to students that they consider individually for a minute or two and then discuss with a neighbor before you begin calling on pairs to share their thoughts. This is a great way to motivate students and promote higher-level thinking. A think-pair-share can take as little as 3 minutes or can be longer, depending on the question or task.

One-minute paper. This can be done at the beginning, middle, or end of your session. You can ask each student to write their response to any of a number of different questions, e.g., What is one thing that is still unclear from the last class session? What do you think was the main point of the last class? What are three takeaways from the last lecture? What are you still unclear about after our study session today? Then, you

can ask students to trade responses and together look for themes on the spot, or you can collect them to look for themes and address them at your next lecture. Note that should you collect minute papers in large lectures, you need not read all of them. Reviewing a sampling will help you identify points of confusion or content that interested students.

Muddiest Point. This is a specific form of the One-minute Paper with a simple prompt: What was the muddiest point today? Students identify their gaps in learning, allowing you to address them in the next lecture.

Classroom polling. Use Poll Everywhere to create informal polls that gauge student understanding or allow students to share their stance on a question. In this way, all students get an opportunity to answer without being in the spotlight. For a low-tech (but less anonymous) alternative, use show of hands or have students stand for various options. Online, use the Zoom polling option to gauge student understanding.

Comprehensive factors list. Students recall and list as many relevant factors that they can that are related to a specific topic that they have encountered through a reading assignment, lecture, illustration, or other course experience. This is a good exercise to do at the start of a lecture to connect students with prior knowledge or assigned pre-class materials. A comprehensive factors list can be an individual or small group activity, or the whole class can collaborate using the board or a tool like Padlet (see below).

Lecture wrapper. At the beginning of the lecture or class session, ask students to record what they think are the three most important points of the lecture while they take their usual notes. At the end of the lecture or class session, leave time to call upon students to share their three most important points and compare with those you would identify as critical.

Support a Statement. The instructor provides students with a provocative statement and prompts them to locate details, examples, or data in their lecture notes to support the statement. Students then discuss with a neighbor or in small groups, sharing their response to the original statement.

Pass the Answer. Students write the answer to a prompt on an index card. They then swap answers with a nearby colleague. Turn and repeat swapping with someone else. Then swap one more time with someone else nearby. The instructor then calls on students to read the answer they are holding. This makes it easier for students to speak out in a large lecture hall, because they are offering someone else's answer rather than their own.

More Preparation/High Impact Active Learning Techniques

The techniques below require a little more preparation and class time to implement and can be used to engage students in higher order thinking and collaborative learning during class sessions.

Padlet. Use an application such as Padlet, Jamboard or Miro to solicit questions, ideas, answers to questions, etc. from students. In large classes, consider segmenting the group so that only a subset of the class initially responds (for example, everyone wearing a blue shirt) and others up-vote, add ideas or comment after the initial round of submissions. This can be used to collect questions or ideas from activities such as Pause for Questions, Think-Pair-Share or Muddiest Point.

Role play. Involve students in activities where they assume different roles and play out scenarios that you or they have created. Consider asking a subset of students to roleplay while the class observes. Observers should be given specific guidelines as to what to watch for. Note that *Reacting to the Past* role-playing scenarios may scale up to include an entire large lecture class.

Interpreted lecture. Ask individual students or small groups to provide a short summary of your professor's lecture in varying increments (every 15-20 minutes). This works best if you inform students ahead of time that you will be calling on them for this purpose so that they will be prepared for the next study session. You may need to call on other students to fill in any gaps, or fill in the gaps yourself.

Two-stage quiz. Have students complete a quiz or solve a problem individually. Then, ask students to

compare their answers with other students in small groups, come to a consensus on their answer(s)/solution(s) and commit to a final answer using Poll Everywhere, IF/AT scratch sheets, index cards, etc. This activity works best if group responses can be reviewed during the class period.

Games. Use online applications such as Kahoot! to gamify content review in class. You might also try a *Who Wants to be a Millionaire*-style game where students have opportunities to vote or help “contestants” identify the correct answer.

Case studies. Provide students with a case study or problem. Break students into groups of 3-5. Students work through the problem and present a proposed solution to the class. Note: students can be working on the same problem, or each team can receive one of a handful of alternative cases.

Worksheets. Worksheets could be used to ask students to break down a process (for example, “What is the first question you might ask patients who present with...”), to solve a series of related problems, to quickly gauge understanding of concepts presented during lecture, to provide practice for the kinds of questions that might appear on board exams, etc.

Debates. In class, form small groups and ask them to spend 10-15 minutes critically assessing different stances on an issue. Each group identifies one individual who will participate in the debate. These individuals then form two debate teams and each team is assigned a stance. Ask debaters to debate the issue based on evidence, to clearly state points, to logically organize their argument, and to be persuasive. Those not on a team are given a rubric to complete for each side and act as the judges.

Create a study guide. In pairs or groups, have students review their notes and create their own study guide. Review with the class as a whole.

Create possible exam questions. In pairs or groups, have students draft questions that might appear on their exams. If your discipline has certification exams, review question types with students and encourage them to design exam questions that reflect those examples.

Snowball. Step 1: Have students work in pairs for a few minutes to discuss a response to some prompt that you’ve given them. Step 2: Direct each pair to sit with another pair and now share amongst the four of you. Step 3: Repeat to form a group of 8. Step 4: Repeat until you have your whole class as one group discussing the issue.

Graphic Organizers. Ask students to take concepts that are expressed in one format and restate the same information in another way. For example, ask students to turn raw data into a graph, or to make a flowchart based on a textual description of a process. Events in a narration can be transformed into a timeline. Tools such as Visio or Miro can be used to facilitate this activity.

Lecture Organizer. Also called Advance Organizers or Guided Notes, here you provide partial notes or an outline of the lecture with gaps for students to fill in, questions for them to answer or blank spaces for key concepts. Have students compare with neighbors or report answers periodically throughout the lecture.

Rotating Stations. Four to six white boards or poster-sized sticky notes are arranged around the room. Each has a different prompt at the top. Students circulate around the room, reading responses and adding their own.

Adapted from

- *Interactive Lecture Techniques* | <http://serc.carleton.edu/>
- Barkley, Elizabeth F., and Claire H. Major. *Learning Assessment Techniques : A Handbook for College Faculty*, John Wiley & Sons, Incorporated, 2016. ProQuest Ebook Central, <http://ebookcentral.proquest.com/lib/templeuniv-ebooks/detail.action?docID=4205832>.
- Patricia Cross Academy, <https://kpcrossacademy.org/techniques/>