Active Learning Strategies for Student Engagement

"Active learning engages students in the process of learning through activities and/or discussion in class, as opposed to passively listening to an expert" (Freeman et al., 2014). It takes many forms and has many benefits, including helping students to build upon or refine their previous learning, to apply new skills and knowledge before they can forget it, to connect what they're learning to their own lived experiences or future professions, to retain what they learn, and to transfer that knowledge across course modules and the curriculum.

The following is a collection of active learning strategies that we find to be particularly useful, productive, and relatively easy to implement. Many can be applied in small or large classes, handwritten or digital, used in person or online, or assigned as homework to encourage students to prepare for class. Some can be applied without much preparation, while others require time for development prior to implementation. Many can serve as classroom assessment techniques (CATs) of how well students attain or retain knowledge from lectures or pre-class prep work, and can help identify topics that students find particularly challenging. While we recommend offering participation credit for the activities, whether or not to grade the results of each activity is up to you.

For instructors and teaching assistants who are new to teaching, we recommend starting with one or two strategies that require minimal preparation, adding more as your comfort level increases.

Strategies that Require Minimal Preparation

One-Minute Paper

Ask students to reflect on a course topic or lecture content and to write or type their thoughts about it for one minute. Alternatively, you can ask them to respond a question about a course topic or lecture content.

Admit/Exit Slips

Both admit and exit slips are variations of the one-minute paper. These strategies are particularly useful in gauging how well students are either prepared to learn new information or how well they've learned something before attempting a summative assessment (e.g., project, presentation, essay, exam), so you can intervene before it's too late.

Admit slips serve as comprehension checks on pre-class work (e.g., readings, videos, worksheets, lab work) that students complete before class. For instance, ask students to prepare 1 – 3 questions or comments about the prep work either on a slip of paper or posted to an online discussion. Collect and review their admit slips, leaving yourself enough time to incorporate their contents into a class session. Provide private, individual feedback as necessary.

Exit slips serve a similar function at the end of a lecture or course module. Here are a few examples.

- "What was the most important thing you learned today?" (a.k.a. big idea)
- "What did you find most confusing or unclear?" (a.k.a. muddiest point)
- "What question do you have about _____?" (a.k.a. burning question)
- "What did you find most challenging about _____?"

Reading Surveys

Ask students to complete their reading assignments using SQ3R (survey, question, read, recall, review) or PQR3 (preview, question, read, recite, review) as a guide. Collect their efforts as admit slips at the beginning of class or as homework.

Opening Question

Opening your lecture with a question to help students activate prior knowledge (Lovett et al., 2023) upon which to build new knowledge. Post the question on a PowerPoint slide or whiteboard as students enter the classroom. Give them some time to think and prepare their answers before asking them to share their thoughts with the class.

Focused Listing

Assess students' prior learning by posting a topic on a PowerPoint slide or whiteboard and ask them to create a list of terms or ideas related to it. Then, ask students to share what they wrote, perhaps adding their contributions to the slide or whiteboard. Topics might relate to the day's assigned reading, to a previous day's lecture material, or to the subject of the current session.

Journal Free Write

1 – 3 times per class, provide time for students to free write regarding lecture content. At the beginning of class, this allows them to engage with the topic in preparation for the lecture. At the middle or end of class, it allows them time to reflect on a topic before moving on to the next. You may want to post the topic with directions to write whatever comes to mind, or you could post some guiding questions.

Think/Pair/Share

Have the students *think* by reflecting on lecture content or a related question. Then, have them *pair* with a partner and *share* their ideas, perhaps formulating a new, combined idea. Finally, randomly call on pairs to share key points of their discussion with the class. Debrief for summarization and clarification.

Give One/Get One a.k.a. Note Check

A variation on Think/Pair/Share in which students first write or type their own notes and then exchange them with a partner to refine their own answers.

Note Thread

A longer, multi-step variation of Give One/Get One in which individual students listen, read, watch, or do something in class and then build upon each other's thoughts in preparation for a general class discussion.

- Step one: Each student writes or types an important concept or a question and passes it to another student.
- Step two: Student 2 reads what they're given and either adds another concept, answers the question, asks a new question, or adds a comment before passing it on to a third student.
- Step 3: Student 3 repeats that process and adds a summary.
- Step 4: Ask random groups to share their summaries and debrief.

These steps can be expanded to suit class size, perhaps repeated across a row of seats, or digitized in a collaborative document.

Round Robin

In groups of 3 – 5, individual students respond quickly to a problem or question, going around the circle sharing their ideas or answers. Randomly call on the groups to share key points of their discussions with the class. Debrief for summarization and clarification.

Strategies that Require Some Preparation

Small Group Study Sessions

Prior to the start of the semester or before a major assignment, divide students into groups of 5 – 6 students. (Allow each student at least one opportunity to change groups, no questions asked.) Prepare study guides, worksheets, or guided notes/questions on course topics for the groups. Periodically in class, have students gather into their groups to compare their notes on what has been covered so far, asking them to compile and a list of key points, definitions, and/or questions for future reference. Visit each group to ensure they're working on the assigned task and to answer questions. Encouraging students to meet with their groups outside of class adds an additional benefit to this strategy.

Variation: Have the groups post their entries to a collaborative document and edit their entries throughout the semester to generate a set of Class Notes that are open to everyone in the class.

Gallery Walk

This strategy involves physical movement around the classroom. Before attempting, ensure that all of your students are entirely mobile and that the classroom has sufficient space for them to move around as well as for the gallery itself. If accessibility is a concern, post the gallery online.

Variation 1: Post images, graphs, or charts relevant to course content on the classroom walls and generate questions about them for students to answer. Have students visit each item and prepare individual answers, then gather into small groups to compare answers. Ask the small groups to report out their findings and follow with a class discussion.

Variation 2: Post blank, poster-sized post-it notes or sheets of paper to the walls of the classroom. Divide students into small groups and provide them with smaller post-it notes, markers, and sticky dots in various colors. Post a prompt or add it to the posters. Have the students respond to the prompt using the smaller post-its, perhaps arranging them into categories. Then, have the groups visit each poster and indicate commonalities or vote for their top choice of answers using the sticky dots. Visit each poster yourself to arrive at key points for a lecture or class discussion.

Variation 3: Have students draw an image, diagram, concept map, workflow, or decision-tree, whichever suits your course content. Then, have them visit each other's work and leave a question or comment about what they see, perhaps suggesting revisions or noting important ideas. Visit each poster yourself to arrive at key points for a lecture or class discussion.

Jigsaw

Select a topic or case that can be broken down into component parts (e. g., Charles Dickens). Form groups of 4 – 5 students, assigning each group to research a portion of the topic (e.g., biography, novels, themes). Designate only one member of each group as the group leader. Each group researches their individual topics and generates initial findings. Their leaders then meet with each

other and share their groups' findings. The leaders return to their original groups and report on the other groups' findings. Each group then then prepares their own report on the topic, incorporating the other groups' contributions. Each group then presents their report, from which you and they form a full analysis.

Variation 1: Prepare materials on the portions of the topic or case, assigning one portion per group.

Variation 2: Design a case for the students to resolve, assigning roles to groups based on the tasks associated with the case. For example, the class represents members of a community that wants a playground built nearby, for which they will need to prepare a project plan for the local governing body. That plan must include a budget, an architect's rendering, permits, etc.

Fishbowl

Select a suitable sub-set of your class size (perhaps 5 – 8 students) and have them form a circle, facing inward to form the fishbowl. Arrange the rest of the class around them, so everyone can see and hear the speakers in the fishbowl. Inside the fishbowl, facilitate a discussion on a particular course topic. Those in the fishbowl must take turns speaking, without interrupting each other, until everyone has spoken at least once. Continue with another question. Those outside the fishbowl should listen closely, paying attention to the discussion, observing the interactions within the fishbowl, and taking notes. After sufficiently covering the topic, end the discussion, and invite the observers to report on what they heard and observed. Debrief by summarizing the results of the entire activity. This technique is particularly fruitful in courses where how we say something can be just as or more enlightening than what we actually say.

Caucus/Four Corners

Ask students to align themselves with 2 – 4 contrary positions (e.g., best type of pet - cat, dog, rodent, fish; climate change – absolutely happening, likely happening, could be happening, not happening). Designate an area of the classroom for each position and direct students to stand or sit in their corresponding spots, forming caucuses. Ask caucuses to generate arguments for their positions and to deliver them in the order of your choosing. You may choose to facilitate the debate or not. Likely, you'll need to intervene or refocus the debate to remain on topic or to align with course objectives. Invite students to switch caucuses as the arguments are presented, indicating their shifts in opinion. The largest caucus at the end of the exercise is declared the "winner." This technique is especially valuable in courses whose learning objectives include persuasion, argumentation, or debate.

Student-Generated Test Questions

Well in advance of an exam, have students each submit 1 – 3 test questions and answers (i.e., test items) about a course topic. Review the submissions and select 3 – 5 items to include on the upcoming exam. This strategy helps you assess students' preparedness for an exam in time to correct misconceptions or reteach challenging topics. It also gives students an opportunity to have some say in how they are tested.

Lower-stakes and Technology-enhanced Strategies

When we ask questions in class, students sometimes just don't respond, either because they don't

know the answer, don't understand the question, or don't want to speak in public. The following strategies allow you to gauge student learning while lessening their and your own anxieties around in-class interactions. First, generate a set of questions or problems, perhaps as a comprehension or prior learning check. Then use one of the following options to prompt and display real-time, anonymous responses.

Hold it Up

Distribute copies of the [Lecture Discussion Facilitation Template](#) and ask students to hold up the corresponding symbol that matches the correct answer or solution. Scan the room to gauge comprehension and redirect as necessary. Alternatively, this can be done with colored paper or note cards with A, B, C, and D printed on the cards. It can also be accomplished using [Western Washington University's ABCD Cards apps](#).

Thumbs Up/Down/Sideways

Students indicate their confidence or comfort with a topic by raising, leveling, or lowering their thumbs above their heads or in front of their chests (e. g., 👍👉👎) or by displaying 1 – 4 fingers, each of which corresponds to a particular answer.

Online Polling Software

Conduct engaging, low-stakes quizzes with an online polling platform like [Top Hat](#), which is supported by Penn State and integrates with Canvas. Other platforms like [Poll Everywhere](#), [Kahoot](#), or [Mentimeter](#) are available for free with a limited number of respondents or for a fee. Check the university's [Reviewed Courseware List](#) before selecting a platform.

References

Barkley, E. F., & Major, C. H. (2020). *Student engagement techniques: A handbook for college faculty*. John Wiley & Sons, Incorporated.

Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences of the United States of America*, *111*(23), 8410–8415. https://doi.org/10.1073/pnas.1319030111

Lovett, M. C., Bridges, M. W., DiPietro, M., Ambrose, S. A., & Norman, M. K. (2023). *How learning works : Eight research-based principles for smart teaching*. John Wiley & Sons, Incorporated.