Active Learning Series

PART 6: Applied Examples of Active Learning Strategies

This part synthesizes applications of 20 different active learning strategies. As backwards planning suggests, the situational context and learning objective drive the choice of active learning strategy. In this way, designed learning activities are intentional and strategic. Strategies are arranged alphabetically. Examples from lectures, discussions, and labs are included and organized by instructor descriptions of the context of learning, implementation of the strategy, and the implications for students. Examples provided are written by members of the TAC Fellows program.

Brainstorming

Context - Social Science of Food Systems class with 75 students. The classroom is structured as a lecture hall with stationary seats.
Implementation - I used the slido platform to implement this strategy. I asked students what ideas, concepts, and places they associate with "hunger" to assess their previous knowledge and assumptions about this topic. The slido platform creates a QR code that you can insert into a slide. Students scan the QR code with their phones, which directs them to a website where they can enter their responses. As students enter responses, they start showing up on the slide and forming a word cloud. Words that are more common show up larger than others.
Students - This activity facilitated students' reflections about their previous knowledge on the subject for that day's class. I think students appreciate the opportunity to contribute their ideas to the class in a way that does not require them to speak up in a large group of people, especially for those who are more shy. This short activity helped me quickly assess some of the common themes in relation to students' previous knowledge about the subject and some of the recurring assumptions that they might have about it. Most students in the classroom participated in the activity and were attentive to see what words were showing up on the screen.

~ Sasha Pesci, Associate Instructor and Teaching Assistant

Case Studies

Context - The course was called Sustainability Science, and each week we focused on different frontiers, movements, and policies related to sustainability science. Each week centered on a particular theme, such as water rights, environmental justice, environmental policy, etc.
Implementation - This was a case study based course. Each week, rather than reading about each topic in a textbook, for homework students were presented with a case study to read about and answer questions. The questions were designed to help students think critically about the topic, such as, "Which factors were most responsible for this program's success?" Then in class, discussion focused on these case studies and the lessons that can be learned about sustainability more generally.
Students - Students expressed that they enjoyed the "practical" aspect of this method. It helped students see how sustainability concepts are put into action by practitioners. The fact that case studies came from a variety of different fields and backgrounds helped students feel that at least something was related to the career path they wanted to pursue.

~ Connor Rosenblatt, Teaching Assistant

Context - Biology courses.
Implementation - I used case studies from the National Center For Case Study Teaching In Science to engage studies in examining real-life scenarios. I had students get into groups of 3-4 students to read and discuss the questions that the case study provided. These students would have various roles including recorder, group discussion facilitator, presenter, time keeper, etc. After spending time discussing the case study with their groups, I would then ask each group to share what their group had come up with.
Students - One of the important outcomes of using case studies was to allow students to collaborate with one another and apply class concepts that they had learned. Given that I would try to choose case studies that were relatable or relevant to the students, this allowed them to become more engaged with the science concepts they were learning and supported their critical thinking.

~ Mayra Nuñez Martinez, Teaching Assistant

Context - Social Science of Food Systems class with 75 students. The classroom is structured as a lecture hall with stationary seats. The students were learning about the issues associated with the Green Revolution and technology-based solutions to the problem of malnutrition and hunger.
Implementation - I asked students to get into groups of 2-3 to work on this activity. I provided them with links to a news article and a website that described the work of the Bill and Melinda Gates Foundation. Then, I provided specific questions regarding the work of the foundation (e.g., What issue(s) motivates the work of Bill Gates and the BMGF? What approaches/strategies do they implement to solve these issues?). Following, the students were asked to consider assigned readings for that day to discuss: "(1) Do you consider that the approaches of the BMGF contribute to sustainable solutions? In what ways? (2) Who does the BMGF consider to be the agriculture "experts"? What assumptions do they make? (3) What critiques do you have about their program and approach? Choose a quote from the article that you are particularly critical or skeptical of." I asked them to write notes that summarize their discussion of these questions into a shared google doc. Then some of the groups to shared with the class what they discussed in small groups. This resulted in a larger class discussion about the ways in which the work of the foundation supports models of agriculture that are not sustainable (which is what we had been learning in the class).
Students - The students got to connect ideas that we had been reading and discussing in class with a real-world example. Having in mind the critiques of technology-based solutions that they had read about and learned in previous lectures, they were able to identify how some of the language used by this foundation aligned with those approaches. Working in small groups enabled students who are shy to participate in large group discussions to feel more comfortable to contribute. Learning about a tangible real-world example helped students better understand why what we learn in class matters.

~ Sasha Pesci, Associate Instructor and Teaching Assistant

Context - A large senior level course in Community Nutrition. The class would usually have more than 100 students and over the course of the quarter, the students would work in small groups of 4-6 students to develop a community.
Implementation - I led two class sessions for the students on Epidemiology and Community Surveillance. As part of those sessions, I asked students to join informal groups to work on a case study. The groups were presented with a scenario regarding a public health phenomenon that their agency wants to monitor, and that they needed to develop an indicator measure that their agency could passively surveil. The group was tasked with identifying how they would gather that information and in reflecting on the strengths and shortcomings of approaches that they identified.
Students - My students enjoyed this activity and it integrated very well into the specific lesson and course objectives. The groups had the opportunity to engage in creative problem-solving and also reflect on the opportunities and limitations of large scale data collection for public health problems.

~ Gwen Chodur, Teaching Assistant

Collaborative Problem-Solving

Context - Anatomy and Physiology class. Each pair of students is given a particular condition relating to neuroscience (example: epilepsy), and they need to create an animation highlighting the particular neural pathways. The task is two-fold (learning new technology as well as understanding the condition, itself). It was a semester-long project, scaffolded within the course.
Implementation - Group time was structured into the course every week. Groups were assigned tasks/rubrics, as well as time to work together through "think-pair-shares" as well as tech time to learn new technology.
Students - Students really enjoyed this project because as we delved into neuroscience, their projects morphed and became more sophisticated over time (as they learned more). It was something that they could actively witness through their own learning. It also provided opportunities for students to learn from one another over the course of the semester.

~ Nina Fontana, Post-doctoral Scholar

Context - Black Images in Popular Culture class. This was the last class of the semester, and I wanted to design an activity that would help students tie together many of the themes of the course.
Implementation - I presented students with a prompt: What is Black representation in film like in 50 years? I organized them into groups and then encouraged them to come up with an answer to the question together. They needed to support their answer with evidence from the course materials. They wrote their collective answer down on index cards. After several minutes, I collected the index cards, read them aloud (without identifying which group was which), and then facilitated a discussion about their answers.
Students - Students clearly pulled from course readings and lectures in order to talk about trends in Black representation. This exercise and the discussion that followed served as a kind of review for the final. Students reported feeling more prepared.

~ Jasmine Wade, Associate Instructor and Teaching Assistant

Debate

Context - Education and Chicanx Studies class.
Implementation - I am very strategic about implementing this activity. I chose topics that are important and relevant to the class, but not a topic that is extremely sensitive. I explain what a debate is and remind folks of our community norms. I then ask students to choose their side of the argument, and I swap them – meaning I have them argue for the opposite side instead of their own beliefs. I give them time to prep in their groups and then host the debate. It is a really fun activity!
Students - It prompts students to really think through an issue and work together to flesh out an argument they don't necessarily believe in. Students have also shared that this activity brings them greater clarity and grounds to strengthen their own arguments, while some have even shared that it slightly shifts their perspective on the issue.

~ Alicia Bencomo Garcia, Associate Instructor and Teaching Assistant

Context – Linguistics class. This activity is graded and was conducted before the midterms. The purpose of the debate is to extend their learning of the topic and to develop mastery through collaboration (teaching or reviewing with each other).
Implementation - Students were divided into groups and provided with a side to argue. They have to find ways to defend their topic, which would only be possible if the subject is mastered. Before students were sent to their groups to discuss, I emphasized the effect of teaching each other towards personal learning and mastery.
Students - Primarily active students were able to engage actively and had a positive review of the activity. In contrast, passive students, particularly those who rarely attended the class were not as

enthusiastic about the activity because it is not something they can simply accomplish before a particular due date or quiz date. The positives of the activity significantly outweigh the issues that a couple of non-participative students had.

~ Peter Torres, Associate Instructor and Teaching Assistant

Demonstration

Context - Introductory Biology class. Short demos introducing the lesson can be particularly impactful since it is a sensory experience for students. An example is a bubble cell activity highlighting the biochemistry of the cell membrane, which can lead to a little lab activity.
Implementation - Prep work is needed before the activity to show students. Students complete homework that addresses the components and behavior of the cell membrane. Guided questions are shown along with the demo to prompt students into a discussion. Students then have the opportunity to work together to create their own cell membrane.
Students - It's a concrete example of what a cell membrane looks like. It takes the microscopic structure of the cell and scales it up to the naked eye, providing students with the ability to grasp the nature of the cell membrane. Also, it's tactile and fun. Students work together to see what can pass through, etc.

~ Nina Fontana, Post-doctoral Scholar

Discussion Leaders

Context - Chicanx Studies class.
Implementation - Assign student groups to different weeks of the term. The week they are assigned, they are responsible for creating discussion questions, posting them on canvas, and leading the discussion on the questions. I am able to intervene to correct misconceptions or to reinforce learning.
Students - It is a good activity that gets students to engage deeply with the material for their assigned week.

~ Alicia Bencomo Garcia, Associate Instructor and Teaching Assistant

Discussion

Context - In my Composition and Intro to Literature class, I use this discussion method most class days as a way of building routine, introducing a course text or topic, and giving my students structured time to direct their own learning process.
Implementation - After breaking students into groups of 5, I ask each group to invent one discussion question. On our first day of class, we cover the difference between open-ended and closed-ended questions and what makes a good discussion question. After inventing a question, each group writes their question on the board/types it into a shared document projected on the screen. I read out the questions and make sure everyone understands them. Then, students return to their groups and discuss one discussion question (that is not their own) and come up with a response to share with the class. After 7 or so minutes, I regroup the class as a whole, and we begin talking about all of the discussion questions. This ensures that all students have something to say about at least two of our class discussion questions (the one they invented and the one they answered), which helps conversation move smoothly. More critically, though, it allows the students to direct the flow of the discussion and practice — with structure and clear expectations — how to have a successful discussion anchored in their own ideas.
Students - This strategy is foundational to my current pedagogy and has been very successful in encouraging as many students as possible to contribute to class discussion. I have received feedback

from students that the conversation can come to a standstill, especially during midterms or at the end of the quarter, so I'm considering altering it a bit next time. This might include a bank of phrases that they can use when crafting a discussion question, or a bank of phrases that they can use to begin a comment when participating in discussion. This would lower the barrier to entry to join an ongoing discussion and would also create a concrete resource that students could return to in future classes.

~ Liz Giardina, Associate Instructor and Teaching Assistant

Context - I facilitated a lesson in an undergrad Educational Psychology remote course that asked students to apply an ecological model to identify barriers and challenges that may impact the learning and development of undocumented students.
Implementation - In this lesson, students engaged in both small and large group discussions. Since this was remote, I had students break out into various breakout groups and use Padlet to record their responses in small groups. These groups were formed based on the various levels of Bronfenbrenner's Ecological Model. The following questions were posed to guide students' discussions:

- Please identify barriers/challenges that may impact the learning and development of undocumented students according to the article, personal experience, or documentary.
- Students were asked to discuss in their groups for 15 minutes and then use the last 5 minutes to interact with other groups' posts on Padlet (i.e., liking, commenting, etc.).
- Groups were then brought back to the main room and students engaged in a whole-group discussion.

Students - Since students were able to discuss in smaller groups, this allowed students who may not have felt comfortable speaking up in the larger group an opportunity to contribute their thoughts and experiences. I had also prompted students to pick a spokesperson for their group to share their thoughts to the larger group before they came back, which helped conversation to flow smoothly. Having the larger group discussion allowed students from other groups to hear various perspectives and experiences, which I think positively contributed to their understanding of the topic and engagement with the material. I was able to capture students' feedback through an anonymous survey on the lesson as a whole, which affirms the importance of using active learning strategies. Students' feedback included the following about the lesson:

- "I thought that the lesson was really fun and engaging. As someone who did not know that much about undocumented students before the lesson, I felt the lesson was really enriching and welcoming."
- "I think asking the students' input was nice + the website where the group can write their own response and see others was helpful and accessible."
- "I think the lesson went very well! There were a lot of interactions among my peers and the lesson brought up a lot of important points we should address for the future."

~ Mayra Nuñez Martinez, Teaching Assistant

Context - Senior level course that is limited to students within Nutritional Science or Clinical Nutrition majors. The goals of the course are to develop students' skills in critical thinking about the scientific literature. The class is almost exclusively presentations and group discussion.
Implementation - For the first several weeks in class, I model how to facilitate discussions and the types of questions that I ask myself when reading a journal article. Then, the students sign up in groups and lead discussions with their classmates.
Students - Students have reported really enjoying this course and that the skills we have developed have increased their feelings of self-efficacy in locating relevant literature, critically reading scientific papers, and analyzing the implications of research findings.

~ Gwen Chodur, Teaching Assistant

Exit Card

Context - Introduction to Critical Gender Studies class. My students learned about intersectionality in lecture, and I was reinforcing and expanding on that concept in the discussion sections.
Implementation - With about 3 minutes left in class, I gave students index cards and instructed them to describe intersectionality on the index card and include their names.
Students - This was an important formative assessment as it let me know common misconceptions about the concept amongst my students. I addressed these misconceptions in the next class.

~ Jasmine Wade, Associate Instructor and Teaching Assistant

Experiential Learning

Context - In an Environmental Education course, we were learning about environmental interpretation. There was the lecture and discussion component of the unit, where students were taught the basics about what interpretation is, how to do it, and the theory behind it.
Implementation - In addition to learning about interpretation, I had each student in the class prepare and present a 2-3 minute interpretation talk. Students were asked to apply all the principles they learned in lecture to give a talk on any environmental topic of interest.
Students - Students said this activity was the highlight of the course. Many expressed confidence in their ability to do environmental interpretation after their presentations. The classroom environment was supportive and friendly, which made students feel comfortable to experiment with different means of engagement in their talks.

~ Connor Rosenblatt, Teaching Assistant

Gallery Walk

Context – Graduate seminar on Critical Race Theory through the School of Education. My colleague and I facilitated the weekly discusion on Microagressions and Transformational Resistance.
Implementation - We had students engage in a gallery walk during our facilitated discussion. Since we were discussing microaggressions and transformational resistance, we had students take about 10 minutes to draw something that represented their experience and knowledge about microaggressions. We also had them think about ways in which they had resisted or seen others resist these microaggressions. After 10 minutes, we had students put the drawings on their desks or on the whiteboard for others to see. We spent about 5 minutes walking around the room to observe what others had drawn. We then asked individuals to share if they were comfortable and engaged the class in a whole-group discussion. Materials used: big poster white paper, markers, sticky notes.
Students - Students were able to engage in conversation with one another as they were describing each of their drawings. We were able to learn new things from one another and validate each other's experiences with microaggressions. This activity opened up the opportunity for students to be vulnerable with one another and share their personal experiences. This also built community within our class as we were able to learn more about each other's experiences with microaggressions and ways in which we have resisted.

~ Mayra Nuñez Martinez, Teaching Assistant

Group Exam/Quiz

Context - Online Linguistics (social science/humanities) course where students are tested in problem-solving. ¾ of every quiz was individual, while ¼ was completed in groups. The group quiz is designed to be completed as a group, where collaboration is crucial to timely completion. Though time is a factor used in this group work, accessibility issues were curbed by grouping students who need extra

time together, allowing them added time to finish the exam. Students who would like to keep their special assistance request confidential to others who are also seeking accommodations are given an individual exam (though encouraged to check whether group settings would be something they'd enjoy).

Implementation - Students were put in groups via Zoom breakout rooms. The quiz was accomplished through Google Jamboards, which allows me to track each group member's contributions in real-time. However, I have to keep in mind that some groups may have members calling things out instead of actively engaging in jamboards. Groupings are announced so students can review and teach each other, strategize, and inform me ahead of time if a team member cannot be reached. Students were given time in class to strategize, prepare, and review the concepts collectively. Transparency is essential to accomplishing this task as well. Thus, students were reminded that teaching each other is an excellent way to learn and gain confidence in the topic before sending them to group learning sessions. Students were also encouraged to reach out to me if any group issues arose, noting confidentiality.

Students - Student feedback was positive, noting the curbing of anxiety as the primary benefit of such a format. Students who preferred individual exams were receptive to the group quizzes, noting its smaller share of the quiz score and the opportunity to learn by teaching as a good compromise. Students responded positively to realizing that their groupmates do not know everything as it addressed imposter syndrome issues. Students were also asked to list the topics that everyone in the group found challenging so that I could review them before the test. This was not as time-consuming as I handled some logistics that I would otherwise finish outside of class time while students were meeting with their groups. Keeping the same group was not an issue as everyone had different groupings for other activities. In fact, the consistency of working with the same individuals throughout the quarter helped foster team spirit, alleviating the concerns some students had about having non-participative members at the beginning of the quarter. Students noted feeling the need to step up to avoid disappointing their teams, which helped curb their personal issues with procrastination and lack of accountability.

~ Peter Torres, Associate Instructor and Teaching Assistant

Group Work

Context - A discussion section of 25 students for an Intro to Gender Studies course. The students were learning about the concept of "reproductive justice" that week.

Implementation - I split the class into small groups of 3-4 students each. I selected a list of organizations or collectives working toward reproductive justice. Each team was assigned one of those organizations. I asked them to first assign roles in their teams (recorder, reporter, timekeeper, designer). In teams, they had to research the organization they were assigned. I provided guidance for the specific pieces of information they had to find about that organization/group, including their mission, vision, and strategies, and how they define reproductive justice. Each team had to design a slide including this information and a visual (art, photos, campaign poster) that represented the work of the organization. After they all finished, each team presented their findings to the class.

Students - The goal of using this strategy was for students to learn about the concept of reproductive justice directly from activists and advocates who are working towards it, while developing inquiry, presentation, and teamwork skills. All students in the class were engaged and participated in this activity. I think that because they assigned roles amongst themselves, all students felt like they had an important role to play in their team, which contributed to them feeling more engaged and more likely to contribute. In the end, all students got to learn from their peers a little bit about many different organizations. I think that diversifying who is presenting ideas in the class also helped keep students attentive during the activity (as opposed to having just me explaining the work of multiple organizations and how they relate to reproductive justice for 50 minutes). In the end, we had a large

group discussion where the students reflected on how reproductive justice is defined in many different ways and that different organizations have varied visions/missions and implement diverse strategies to reach their goals.

~ Sasha Pesci, Associate Instructor and Teaching Assistant

Context - Upper-division online Biology summer course.
Implementation - At some point during the class, I send the students into breakout rooms with 3-4 students per room to work on problems collaboratively together.
Students - Students get a chance to test their understanding of the content during class and practice exam-level questions. Students reported that they liked getting a chance to know their peers better and that the problem solving was a nice mental break from lecturing.

~ Hannah Nelson, Associate Instructor and Teaching Assistant

Jigsaw

Context - Ornithology Labs where students had to learn basic characteristics and traits of every bird family in the world. Each week, students were responsible for learning a handful of families at a time.
Implementation - Rather than having each student study every single bird family prior to lab, I would split students into groups and have them each focus in on just one bird family, which they would become experts on. Then during lab, I would create new groups comprised of students who spent the past week studying a different bird family, and they would teach each other.
Students - Based on feedback, the students really liked it. They found it helpful that each week, rather than have to do a detailed reading on each bird family, they only did that for one family, and then could study notes about the other families created by other students.

~ Connor Rosenblatt, Teaching Assistant

Context - Black Women in America, an online upper division course. When we did the Jigsaw, students watched the film *Daughters of the Dus*t ahead of time.
Implementation - Students read and discussed an article about the film in their home groups. Then, they moved into expert groups and worked to craft a response that required information from each of the articles they read in their home groups.
Students - Students came away from the activity with a better understanding of the film and its connections to other course materials.

~ Jasmine Wade, Associate Instructor and Teaching Assistant

Minute Paper

Context - Introductory courses of any kind.
Implementation - End of class assessments with questions like: What did you perceive to be the major purpose or objective of today's class? I will ask this question in particularly densely packed labs that have multiple objectives to see what the consensus is among students. I use this information to highlight and reinforce missed objectives during the following class.
Students - I think this is actually a tough question and there are other similar questions I use as well. However, I like this one because it provides students with a little bit of space to think about one-main-takeaway in a densely-packed lesson.

~ Nina Fontana, Post-doctoral Scholar

Peer Review

Context - Education and Chicanx Studies classes.
Implementation - I let students know well in advance (on the syllabus, as well) that on a specific day, we will dedicate our class time to a peer review session. It is typically one or two weeks before a major assignment is due to give students enough time to revise. I pass out a rubric (virtual or a hard copy) and ask students to assess their peers based on the rubric that I will be using to grade the final version of their paper.
Students - I have noticed that when I host these sessions in my class, final products are a lot stronger than when I do not – which also means less time spent on grading. Part of it, I'm sure, has to do with the fact that this forces students to work on the assignment well in advance and not last minute.

~ Alicia Bencomo Garcia, Associate Instructor and Teaching Assistant

Context - Compositional class that focused on writing, literary analysis, and developing a writing process.
Implementation - In an *in-person class*, I split 25 students into groups of 3 or so. I have everyone freewrite for 5 minutes about what they think the strengths and weaknesses of their paper drafts are. Then I ask them to exchange with one person and read their draft for 10-15 minutes. They then answer, in written form, several questions about the draft that I've provided and that align with our lesson and course learning outcomes. I then ask them to talk to their partners for 10 minutes, sharing what they wrote about during their freewrite and what they wrote in their feedback. They are expected to leave their partner with one concrete revision task to complete before their next draft is due. We then repeat this task two or three times with different partners, depending on how much time we have in class. In the *asynchronous remote class*, I assign students two partners. I ask them to write a cover letter about their draft's strengths and weaknesses, and to share their cover letter with their partners. When giving feedback, they're expected to address any concerns/questions their partner mentions in the cover letter. I provide questions and prompts for each student to complete when reading and giving feedback to their partner. They then repeat this process with their second partner.
Students - This strategy is definitely less effective in the asynchronous remote class, as a large portion of the pedagogical value and peer support derives from the ad hoc conversations students can have with each other about their drafts, which is impossible in the asynchronous class. However, I have received feedback from students in both the in-person and remote classes who felt the guiding questions and cover letters were helpful in focusing their feedback.

~ Liz Giardina, Associate Instructor and Teaching Assistant

Poll Questions

Context - Upper-division online Biology summer course.
Implementation - I break up with lectures with several anonymous Zoom poll questions. This helps me check for understanding and helps students to focus better on the lecture time. In person, students can also respond to poll questions through such platforms as iClickers, Poll Everywhere, Socrative, and Mentimeter.
Students - Students get a chance to test their understanding of the content during class and practice exam-level questions.

~ Hannah Nelson, Associate Instructor and Teaching Assistant

Role-Play

Context - In-class role-playing activity in a Linguistics course. The topic is how independent languages are created from Pidgins and Creoles.
Implementation - Students were asked to act out a scene where they were shipwrecked on an island, and none of them spoke the same language. Student volunteers were tasked to gather a group of other students to complete tasks such as finding clean drinking water or raiding the ship and island for supplies. Note that none of the non-volunteering students knew the tasks and that volunteers had to solicit their participation to accomplish them. (Just like how it would be in an actual shipwreck situation). The goal is for students to create a communicative system or a language by naming things, tasks, events, and actions, among many others.
Students - Student feedback was primarily positive and that they learned the difference between Creole and Pidgins (language creation). Students also had positive feedback when the activity was revisited later in the course to discuss inequalities involved in language rights (e.g., who gets to create a language, who do people listen to and follow in these types of tasks, etc.).

~ Peter Torres, Associate Instructor and Teaching Assistant

Scavenger Hunt

Context - I implemented this strategy in an Introduction to Literature class. The particular lesson plan was focused on developing "genre awareness" (Kerry Dirk, "Navigating Genres" 2010). "Genre awareness" is the plastic ability to recognize genres in a variety of contexts based on their tendency to use particular conventions. Students later had the opportunity to apply this skill in their argument-driven close-reading papers.
Implementation - We do the scavenger hunt after a short lecture about the Dirk reading and a class-wide discussion about genres in our course texts and in everyday life. In the *in-person classroom*, I have students break into groups of 5 or so. I then give the class a list of types of genres to find around the building we're in (e.g., a genre in action, a new genre, an old genre, etc). The groups must take a picture of the genre they find (e.g., it might be an exit sign, or a flyer, etc) as evidence. The first group to return with all the genres gets to choose the music we listen to during our freewrite at the beginning of next class. In the *synchronous remote class*, I break students into breakout rooms and have them find genres in their individual homes. So if one person has a new genre in their house and another person has an old genre in their house, their group has found both genres. They can either take a picture or show me on screen the evidence of their genre.
Students - I've received a lot of positive feedback from students about this strategy, particularly in the in-person classroom. My students always leave my course with a good understanding of genre, as shown in their summative exams and argumentative papers, and I think this is largely due to this hands-on activity that helps them see genres all around them in daily life.

~ Liz Giardina, Associate Instructor and Teaching Assistant

Self-Assessments

Context - Senior level course that is limited to students within Nutritional Science or Clinical Nutrition majors. The goals of the course are to develop students' skills in critical thinking about the scientific literature. The class is almost exclusively presentations and group discussion.
Implementation - During our first class session, I lead my students in a reflection about their confidence in their technical skills in using PubMed to find relevant literature, identifying limitations in research studies, and contextualizing findings from one paper in the broader literature on a topic. At the end of the quarter, they submit a reflection essay discussing how their skills have evolved over the course of the quarter and how they intend to continue to develop their skills as they move forward in their careers.

Students - I give points for completion of the reflection and I have found that this allows students to be honest about how their skills have improved and where they may still have room for development. In general, students have come to recognize that this class does not impart comprehensive content expertise, but does provide the skills and foundational knowledge needed for them to be able to answer their own questions.

~ Gwen Chodur, Teaching Assistant

Think-Pair-Share

Context - Lower-division in-person Biology lab course.
Implementation - Students are assigned questions to complete before the lab. I grade the questions and identify which ones students are struggling with the most. At the beginning of the lab we review those questions together. I project the question on the screen, ask the students to reflect on how they answered it, then have them turn to their partner and discuss their answer, before having a couple people share out in front of the whole class.
Students - Any misconceptions the students have about the topic are addressed before the lab begins.

~ Hannah Nelson, Associate Instructor and Teaching Assistant

Acknowledgements

Teaching Assistant Consultant Fellows developed this resource. Contributions were made by: Alicia Bencomo Garcia (PhD Candidate, Education); Connor Rosenblatt (PhD Student, Environmental Science & Policy); Peter Torres (PhD Candidate, Linguistics); Sasha Pesci (PhD Candidate, Geography); Nina Fontana (Post-doctoral Scholar, Ecology); Liz Giardina (PhD Candidate, English); Mayra Nuñez Martinez (PhD Student, Education); Gwen Chodur (PhD Candidate, Nutritional Biology); Jasmine Wade (PhD Candidate, Cultural Studies); and Hannah Nelson (PhD Candidate, Population Biology).

Citation

Center for Educational Effectiveness [CEE]. (2021). Active Learning Series. *Just-in-Time Teaching Resources.* Retrieved from https://cee.ucdavis.edu/JITT