https://utah.instructure.com/courses/148446/wiki/active-learning

Active Learning

Active learning is embodied in a learning environment where the teachers and students are actively engaged with the content through discussions, problem-solving, critical thinking, debate or a host of other activities that promote interaction among learners, instructors and the material. Active learning is not represented in the teacher-centered classroom where the teacher is an active transmitter of information and the students are passive recipients.

Engaging students in active learning additionally requires that they be involved in higher order thinking at the levels of *analysis*, *evaluation* and *create* (see, Bloom's Taxonomy). As instructors develop their lesson plans and therein the learning objectives, it is important to consider the situational factors involved, such as the content of the lesson (e.g., theoretical or practical), the learners (e.g., level, age, academic maturity), the context (e.g., classroom or clinical) and the assessments for the lesson (e.g., formative vs. summative; presentation vs. exam). This information will guide the development of learning objectives and help the instructor decide on appropriate verbs to represent the learning activity at various levels - i.e., Analyze: criticize, discern, summarize; Evaluate: debate, prioritize, value; Create: compile, hypothesize, reconstruct).

One of the most comprehensive sites for an overview of Active Learning is that of the University of Minnesota Center for Teaching and Learning (CTL). Instead of re-creating the wheel, we invite you to visit their Active Learning page where you will learn more about: the basic elements of active learning; active learning strategies; addressing student resistance; letting go of control; overcoming the 'cover the content' paradigm; incorporating peer review; and more! The site includes 'dramatization' videos of scenarios highlighted throughout the Active Learning page as well as a rich list of additional resources

What Is Active Learning?

Defining "active learning" is a bit problematic. The term means different thing to different people, while for some the very concept is redundant since it is impossible to learn anything passively. Certainly this is true, but it doesn't get us very far toward understanding active learning and how it can be applied in college classrooms.

We might think of active learning as an approach to instruction in which students engage the material they study through reading, writing, talking, listening, and reflecting. Active learning stands in contrast to "standard" modes of instruction in which teachers do most of the talking and students are passive.

Think of the difference between a jar that's filled and a lamp that's lit. In the former case, liquid is poured into an empty vessel–an apt metaphor for the traditional educational paradigm in which students sit passively in a classroom and absorb the knowledge transmitted by an expert. A growing body of research has made it clear, however, that the overall quality of teaching and learning is improved when students have ample opportunities to clarify, question, apply, and consolidate new knowledge. In this case, instructors create opportunities for students to engage new material, serving as guides to help them understand and apply information. They help "light the lamp" of student learning.

Students and their learning needs are at the center of active learning. There are any number of teaching strategies that can be employed to actively engage students in the learning process,

including group discussions, problem solving, case studies, role plays, journal writing, and structured learning groups. The benefits to using such activities are many. They include improved critical thinking skills, increased retention and transfer of new information, increased motivation, and improved interpersonal skills.

Using active learning does not mean abandoning the lecture format, but it does take class time. Lecturers who use active learning pause frequently during the period–once every fifteen minutes or so–to give students a few minutes to work with the information they're providing. They may ask students to respond to a question, to summarize important concepts in writing, or compare notes with a partner. For some lecture-based classes, using active learning may be a bit more challenging because of class size or room limitations such as fixed seating. Breaking students into groups under these circumstances may not be possible, but other strategies such as individual writing or paired activities are quite possible and lead to good results.

What follows is a description of some of the basic elements of active learning followed by guidelines for using them in your classroom.

Basic Elements of Active Learning

There are four basic activities through which all students learn, and specific active learning strategies use one or more of these elements.

Talking and Listening

When students talk about a topic, whether answering a teacher's question or explaining a point to another student, they organize and reinforce what they've learned. When they listen, we want to ensure that it's meaningful listening, relating what they hear to what they already know. In a lecture class, students need periodic time away from passive listening in order to absorb what they've heard. And they need reasons to listen, reasons perhaps more immediate than a good grade at the end of the semester. Did the teacher ask a question before the lecture segment that was thought-provoking enough to cause the students to search for the answer in the words that followed? Were they told beforehand that they would have to explain the points in the lecture to a fellow student?

Writing

Like talking and active listening, writing provides a means for students to process new information in their own words. It is particularly effective in large classrooms where breaking students into pairs or groups may be prohibitive. It also appeals to individuals who prefer to learn independently.

Reading

Students do a great deal of their learning through reading, but they often receive little instruction in how to read effectively. Active learning exercises such as summary and note checks can help students process what they've read and help them develop the ability to focus on important information.

Reflecting

In the all-too-typical lecture class, the lecturer stops talking at the very end of the period. Students gather up their notes and books and run for their next class. One can almost see the knowledge

evaporating from their brains. They've had no time to reflect, to connect what they've just learned with what they already know, or to use the knowledge they've gained in any way. Allowing students to pause for thought, to use their new knowledge to teach each other, or to answer questions on the day's topics is one of the simplest ways to increase retention.

Categories of Active Learning Strategies

There are four broad categories of learning strategies that one might use in an active learning classroom:

- individual activities
- paired activities
- informal small groups
- cooperative student projects

You choice of these will depend on the size of your class, your physical space, your objectives, the amount of time you have to devote to the activity, and your comfort level with the strategy. Many of the Active Learning Strategies listed in our workshop can be adapted to individuals, pairs, or groups.

Planning an Active Learning Activity

When planning an active learning activity, answering the following questions will help you clarify your goals and structure.

- What are your objectives for the activity?
- Who will be interacting? Will students pair up with someone beside them or someone sitting behind/in front of them? Should they pair up with someone with a different background? Someone they don't know yet?
- When does the activity occur during the class? Beginning? Middle? End? How much time are you willing to spend on it?
- Will students write down their answers/ideas/questions or just discuss them?
- Will students turn in the responses or not? If they are asked to turn them in, should they put their names on them?
- Will you give individuals a minute or so to reflect on the answer before discussing it or will they just jump right into a discussion?
- Will you grade their responses or not?
- How will students share the paired work with the whole class? Will you call on individuals randomly or will you solicit volunteers?
- If students are responding to a question you pose, how are you going to ensure that they leave with confidence in their understanding? (Often, if various student answers are discussed without the instructor explicitly indicating which ones are "right," students become frustrated. Even with a question that has no absolute "right" answer, students want to know what the instructor's stand on the question is.)
- What preparation do you need to use the activity? What preparation do the students need in order to participate fully?

Keys to Success

- Be creative! Invent new strategies and adapt existing ones to your needs.

- Start small and be brief.
- Develop a plan for an active learning activity, try it out, collect feedback, then modify and try it again.
- Start from the first day of class and stick with it. Students will come to expect active learning and perform better.
- Be explicit with students about why you are doing this and what you know about the learning process.
- Request students vary their seating arrangements to increase their chances to work with different people. Have students occasionally pair up with the student behind them, since friends often sit side by side.
- Use questions from in class activities on tests. For example, include a short essay question that was used in a think/pair/share.
- Negotiate a signal for students to stop talking.
- Randomly call on pairs to share.
- Find a colleague or two to plan with (and perhaps teach with) while you're implementing active learning activities.
- Continue learning through workshops, reading, and practice.

Strategies to Promote Active Learning

- **Interactive Lecture** - The interactive lecture that lives up to its name simply involves students in the lecture. In some representations, it reflects the Socratic questioning method where instructors sprinkle questions into the lecture to keep students engaged and assess their understanding of the reading or content throughout the lecture. Downsides with the Socratic approach include the illusion of active learning as a result of high involvement from dominant students only and silence or passivity on behalf of the majority. Some nice supplements to the Socratic-style lecture include activities in this list, such as the One-Minute Paper, Think-Pair-Share and Instant Expert. In addition to the above-mentioned resources from the CTL at the U of Minnesota they have a great resource page devoted to promoting active learning through active lecturing when using PowerPoint.
- Team-Based Learning - Team-Based learning (TBL) goes beyond simple group work to include 4 key elements: teams, accountability, timely feedback and opportunities for critical decision making. See our TBL page for an in-depth discussion on designing and implementing TBL in your course.
- Problem-Based Learning - Problem-Based Learning (PBL) is another approach to learner-centered instruction. The instructor (or tutor in PBL-speak) is a facilitator for the learning process, but the entire execution of the PBL experience is student-led. PBL engages students because the real-world problems are determined by student interest and explored in ways the students suggest. The situations they are dealing with are complicated and target student's analytical, critical thinking and problem-solving skills. See our PBL page for more information on how to design and implement PBL in your course.
- **Case Study Approach** - Using case studies in class provides a robust opportunity to

tie theory to real-world applications through the discussion, analysis and processing of actual cases from a given discipline. The case study approach is flexible and can be adapted for various disciplines and various levels of topic exploration. A case study can be a simple question posed to the class to generate a discussion about how the students would approach a given scenario. It can also be quite extensive, requiring background information and perhaps additional resources in order for the students to effectively dive in and approach the scenario. Similar to PBL, case study methodology relies on realistic examples that are relevant to the course and future applications of the theory.

- *Additional Resources:* Penn State University has compiled a nice set of wiki pages that highlight the design and implementation of case studies and provide examples by discipline. Also, a very exciting new page has been launched by the National Center for Case Study Teaching in Science. This page is a collection of over 400 peer-reviewed cases for use in science teaching from countless fields ranging from Aerospace Engineering and Aquaculture to Dental Medicine and Toxicology! They also provide up-to-date information about trainings and workshops on case study use for science teaching. Please explore their site if you teach in the sciences.

- Jigsaw - Jigsaw puts more responsibility for teaching and learning in the hands of the students. This is an approach that has numerous potential applications. We have created a separate page to elaborate on this strategy, so click here to visit that page for more information.

- **Instant Expert** - Like Jigsaw, Instant Expert encourages students to take responsibility for both the teaching and learning of the content. Unlike Jigsaw, phase 2 of the Instant Expert activity involves some level of presentation or teaching to the entire group. Instant Expert works in any class with at least five students. If you are implementing this strategy in a large class, you might choose to have only 2-3 groups present per meeting or implement a poster session so that all groups can present in the same class period. The overall implementation of the activity will vary depending on whether you choose to do it as a one-shot in-class activity (e.g., within the time frame of a 50-80 minute class) or as an in-class/outside-class blended activity (e.g., student groups or pairs prepare for their presentation by becoming 'experts' on their topic by next class, next week, the end of the semester, etc.). In either case, however, student pairs or groups are assigned a topic to become an expert on and are given guidelines and a rubric for how to present their material to their peers (i.e., presentation using PowerPoint, poster session, performance, role-play, etc.). Here are the steps to follow when having students divide one single text among groups:
    1. Divide students into groups (expert teams).
    2. Give each group a section of text that they are responsible for 'becoming the expert' on.
    3. In groups (or pairs), students read the information, take notes and synthesize the information so they can present back clearly to the class.
    4. Students might be asked to draw an outline on chart paper or on the board.
    5. Then they teach the information (as the 'experts' on this section) to the whole class using their outline or other visuals.
    6. By the end of the activity, the class has covered the entire text.
    7. Accountability: One caveat of successful peer teaching is that the students

are held accountable not only for the information they are presenting, but also that which their peers are presenting. This ensures that they remain engaged when their peers are presenting. Ideas for accountability are listed on our page of the same name; but in brief, you can have them complete a grid, set of questions or other type of handout while listening to peers. You can also implement an assessment (e.g., quiz, exam, summary paper) on the respective topics.

- **Collaborative Learning (Group Work)** - Collaborative Learning is similar in its aim to that of the more general Active Learning. Collaborative Learning, for our purposes will specifically denote group work. A nice overview of Collaborative Learning is that written by Barbara Gross Davis in her quintessential text Tools for Teaching. You can view that chapter online and learn more about designing, organizing and evaluating group work as well as how to address student and faculty resistance to the use of groups in the classroom.

- **Role-Play or Simulation** - This approach to promote active learning can be useful in promoting 'real-world' applications of theory in the absence of clinical or practicum opportunities. In addition, role-play offers three significant advantages for learning: 1) it promotes student interest in the topic; 2) it involves the students in the creation and negotiation of meaning, and; 3) it increases empathy as they see issues from multiple perspectives (Jarvis, Odell & Troiano, 2002). The four stages for implementation of role-play or simulation in a class are: preparation and explanation of the topic by the instructor, student preparation for involvement in activity, the actual role-play activity, and the discussion or debriefing on the role-play (process, information, shifted perspectives, etc.) (Cherif, Verma & Summervill, 1998).
    - *Example applications*: students assume role of personalities in history to play out events; students assume role of patient and provider in healthcare settings; students role play individuals on several sides of a hot topic, such as community, corporation, laborers in controversy over use of public lands; students role-play everyday situations in an ESL class to develop language skills (e.g., restaurant scenes, shopping transactions, using public transportation); simulation of diplomatic summits in a Political Science course, such as a mock G8 summit.
    - *Considerations*: In this article by Jan Woodhouse, you can read about various considerations for implementing role-play, including a definition, advantages and disadvantages of the approach and strategies for implementation.

- **Reacting to the Past** - An exciting instructional approach similar to role-play is a 'game' approach to learning. This synopsis is from the Reacting to the Past Website: *Reacting to the Past (RTTP) consists of elaborate games, set in the past, in which students are assigned roles informed by classic texts in the history of ideas. Class sessions are run entirely by students; instructors advise and guide students and grade their oral and written work. It seeks to draw students into the past, promote engagement with big ideas, and improve intellectual and academic skills.* In one game, students assume the roles of Palestinians and Israelis and interact within the realm of Palestine prior to 1948. You can see this unfold in this video of the actual classroom footage and student interviews about the experience. Click here for more information about this remarkable approach to teaching and learning! Here at the University of Utah, Dr. Ann Engar teaches Reacting to the Past courses in both

Honors and the LEAP program. One 'game' was entitled: "Confucianism and the Succession Crisis of the Wanli Emperor" and upon observation, one is amazed to see how the students run the class sessions with limited involvement of the instructor beyond initial set-up and minor facilitation. Dr. Engar notes, however, there is a lot of out-of-class, one-on-one instruction and advising that takes place out of class to ensure the game runs effectively. She is, in a way, like the wizard behind the curtain. Instructor/Facilitator trainings are provided and information can be found at the above link. In July 2012, The Chronicle of Higher Education published an article about a History class implementing RTTP to play a game entitled "Charles Darwin, the Copley Medal, and the Rise of Naturalism, 1862-64". Read more about this experience here, including insights from both students and facilitating faculty.

- **Structured Academic Controversies (Debates)** - This strategy for student engagement can be used in a class of any size. The time frame will vary depending on the complexity of the controversy and time available for the activity. It could even span multiple lessons with time devoted to researching topics, planning arguments and then engaging in the debate. The purpose of debate includes helping students to develop critical thinking skills, build argument structure, broaden perspectives and participation, and/or explore topics in depth. You can read more about structuring debates in this PDF that provides background information on structured academic controversies, suggested topics and sample lesson plans.
- **Poster Sessions** - The use of poster sessions is more often equated with presentations at conferences. However, in the classroom, poster sessions can provide a creative and efficient means by which students can share their projects or present information from the course. Classroom poster sessions can be carried out in a number of ways. Here are three possibilities.
    - *Showcase Final Projects* - End of semester projects can be shared through one large poster session involving all students (individually or in groups). To promote accountability of 'reviewers/viewers' you might wish to create a reflection or response activity or incorporate peer assessment into the final grade.
    - *Stagger Group Projects* - Some course content lends itself well to staggered group projects. Early in the semester, groups can sign up for (or be assigned) to particular topics (i.e., articles, chapters in the text, themes of a given week, etc.). As each group's topic is reached on the course schedule, that group of students can present their information on a set of posters, each headed by a different group member. Others in the class will circulate and visit each poster, completing some task related to the content to ensure engagement with the material (e.g., completing a table, rubric, set of questions). Assessing individual and group contributions to this poster session can be done with a rubric that targets the cohesiveness of the posters within the larger topic, the extent to which each member can give an 'elevator speech' on their subtopic and the extent to which each member can speak to the larger topic.
    - *Instant Expert Presentations* - Instant Expert, described above, requires students to work together and become quick experts on a given topic. In addition to presentations outlined above for Instant Expert, groups could present their information in a poster session. Again, to address accountability, students might be asked to complete a table or set of

questions addressing each of the topics represented in the Instant Expert poster session.

- **Panel Discussions** - Similar to panel discussions at professional conferences, a classroom-based panel discussion would require 3-5 prepared students to serve as the 'experts' on a given topic. Each would take X minutes to introduce their contribution on the topic, followed by another X minutes for the panel to take questions related to the topic. The objective is to share the task of knowledge sharing and creation with the students, letting them take responsibility for the learning of their peers, rather than the instructor. The instructor can sit as a silent observer or as a moderation of the session. One example of how this might unfold is the following scenario. Selected panelists (students) in a Psychology class are assigned the topic of Schizophrenia. Each has been given an article related to certain aspects of this disorder (e.g., environmental contributing factors, genetic contributing factors, institutionalization and alternative therapies). After presenting a summary on each article, infused with the presenters' 'positions' on their specific topics, the 'audience' can challenge assumptions, ask questions and pose alternative ideas. Accountability for this activity can either be a requirement to participate, completion of a handout on each topic area discussed, a summary paper following the discussion or submission of possible exam questions based on the panel discussion.
- **One-Minute Paper** - The One-Minute paper is a quick technique that can be used in a number of ways in the class to promote active learning. As the name would imply, this technique requires students to write for one minute on a given topic or prompt. It is what you do with this information that can lead to active learning. Here are some ideas for using the One-Minute Paper to actively engage your learners:
    - *Burning Questions* - Either at the beginning or end of class, have students take one minute to write burning questions they have related to the readings, lecture, activity, film, etc. Then, you can have them turn to a partner and attempt to answer each others' questions. Next, bring them together as a class and see what questions are still unanswered or not answered to a student's satisfaction.
    - *Summarizing Key Points* - At the end of the lesson, you can have students take one minute to jot a summary of highlights from the lesson. Ask them to reflect on a particular question (e.g., What are the 4 elements of TBL? What learning objectives did we meet today? What steps are involved in polymerase chain reaction (PCR)?) or simply write freely about the session. Again, you can have them turn to a partner or form a small group to share their summaries.
    - *Student Course Feedback* - Many institutions have online course feedback options for the mid- and end of semester, but instructors can create more opportunities to collect student input. The one minute paper on 'things going well and things you'd like to change in this course' can provide a quick, informal check-in for teachers and students to make sure teacher and learner expectations are aligned and being met.
    - *Participation, Attendance & Learning* - Each of the above One-Minute Paper strategies can be used as a means of gauging student learning and engagement. You can have them write on a 3x5 note card and collect them for attendance. You can also use the information to help you evaluate your

instructional style - Are you being clear with your lesson (lectures)? Was there a key concept that the majority of the students didn't get? Are some people not taking this seriously? Did they have a different notion of what this course was going to be about? Who came to class today?

- **Think-Pair-Share** - This is one of the most versatile and quick strategies for promoting active learning and student engagement. Each of the three steps are equally important and serve a purpose, so if you want a successful TPS activity, make sure to include all steps. Often times, Think-Pair-Share is a quick way of having students gather their thoughts individually, pair with a student to discuss ideas/solutions and then share as a whole class. It can be implemented in 10 minutes total or can take an entire class period - you determine the timing.
    - *Think* - Pose a question, problem or scenario to your students. Ask them to take X minutes to sit individually with the information. You might have them simply think or reflect for a couple of minutes. You might ask them to jot some ideas or solve a problem on paper. The timing you allocate should be appropriate for the task - enough to process but not so much that they go off task or become disengaged.
    - *Pair* - Next, have them turn to a partner to discuss their ideas or solutions. Again, you can structure this step as appropriate for the task. Perhaps they only discuss, or write their ideas onto a shared worksheet or transfer a problem solution to a piece of paper to be collected and scored as a pair.
    - *Share* - As a whole class, revisit the original question, problem or scenario. Discuss ideas from the various pairs. If they are solving a problem, perhaps some students will write their solutions on the board. If it is a case study, groups might debate the conflicting approaches to resolution or treatment. They might discuss how their views shifted once they discussed with a partner. The options for group processing are endless, but the key is to provide this synthesis opportunity for all to hear and share the ideas that evolved from their original, individual thoughts.
- **Find Someone Who...** - This is a nice activity to get students out of their seats to meet others in the course. On a handout entitled *Find Someone Who* ..., you will have a list of around 20 or so phrases to complete the sentence. For example, *Find Someone Who ...* has traveled to France; has worked for the US government; has worked in a clinical setting; has had managerial experience; speaks multiple languages; likes taking online courses, rock climbs, etc. You can craft these statements to target students' personalities and interests or you can address the course content and students' background experiences related to the discipline. For each line, they should get a signature from someone who can respond 'yes'. Tell them they can only sign one time on each page so they are encouraged to meet as many people as there are line items (and likely more!).
- **Happy Hour** - Similar to *Find Someone Who...*, *Happy Hour* gets students up and talking to one another. Prior to class, prepare strips of paper - each with one question or discussion prompt - to distribute to your students. Then give students 10-15 minutes for the activity. The objective is for each student to approach another student and ask the question on his or her strip. After each student asks and responds to their respective questions, they should swap papers and find another student to ask. They'll continue to walk around and interact with as many people as they can until time is up. As with *Find Someone Who...* you can have the prompts be

fun or content specific - depending on your objective for the activity. Either way, this will break the ice on day one and give them a chance to make connections.
*Adaptation: Ask the students to tear a strip of paper and write their own questions within a theme you set (e.g., about course expectations, about general life experiences and interests). This saves you having to cut and distribute the papers. They will still pass their question on to another student so they will be exposed to many questions and ideas generated by their peers.

- *Example applications*: vocabulary review in an ESL class; case studies from postpartum complications lesson for midwifery program; test review questions prior to exam in history class (or most others); brainstorming session in teaching methods class; etc.