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Active Learning: 101 strategies to teach
Any Subject
Mel Silberman 1996

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Introducing Active Learning

Over 2400 years ago, Confucius declared:

What I **hear**, I forget.

What I **see**, I remember.

What I **do**, I understand.

These three simple statements speak volumes about the need for active learning.

I have modified and expanded the wisdom of Confucius into what I call the Active Learning Credo.

What I **hear**, I forget.

What I hear and **see**, I remember a little.

What I hear, see, and **ask questions about** or **discuss** with someone else, I begin to understand.

What I hear, see, discuss, and **do**, I acquire knowledge and skill.

What I **teach** to another, I master.

Why do I make these statements?

There are several reasons that most people tend to forget what they hear. One of the most interesting reasons has to do with the rate at which a teacher speaks and the rate at which students listen.

Most teachers speak about 100 to 200 words per minute. But how many of those words do students hear? Well, it depends on how they are listening. If the students are really concentrating, they might be able to listen attentively to about 50 or 100 words per minute, or half of what a teacher is saying. That's because students are thinking a lot while they are listening. It's hard to keep up with a talkative teacher. More likely, the students are not concentrating because, even if the material is interesting, it is hard to concentrate for a sustained period of time. Studies show that students hear (without thinking) at the rate of 400 to 500 words per minute. When listening for a sustained period of time to a teacher who is talking up to four times more slowly, students are likely to get bored, and their minds will wander.

In fact, one study demonstrates that students in lecture-based college classrooms are not attentive about 40 percent of the time (Pollio, 1984). Moreover, while students retain 70 percent in the first ten minutes of a lecture, they retain only 20 percent of the last ten minutes (McKeachie, 1986). No wonder students in a lecture-based introductory psychology course knew only 8 percent more than a control group who had never taken the course at all (Rickard et al., 1988). Imagine what the results would be in a high school or middle school class!

Two well-known figures in the cooperative education movement, David and Roger Johnson, along with Karl Smith, point out several problems with sustained lecturing (Johnson, Johnson, & Smith, 1991):

- Student attention decreases with each passing minute.
- It appeals only to auditory learners.
- It tends to promote lower level learning of factual information.
- It assumes that all students need the same information and at the same pace.
- Students tend not to like it.

Adding visuals to a lesson increases retention from 14 to 38 percent (Pike, 1989). Studies have also shown an improvement of up to 200 percent when vocabulary is taught using visual aids! Moreover, the time required to present a concept is reduced up to 40 percent when visuals are used to augment a verbal presentation. A picture may not be worth a thousand words, but it is three times more effective than words alone.

When teaching has both an auditory and a visual dimension, the message is reinforced by two systems of delivery. Also, some students, as we will discuss later, prefer one mode of delivery over the other. By using both, you have a greater chance of meeting the needs of several types of students. But, **merely hearing something and seeing it is not enough to learn it.**

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How the Brain Works

Our brain does not function the way an audio- or videotape recorder does. Incoming information is continually being questioned. Our brain asks questions like these:

If the seats are fixed, ask students to seat themselves as close to the center as possible. Be assertive about this request; even consider cordoning off sections of the auditorium. Remember: No matter how big the auditorium and how large the audience, you can still pair up students and use active learning activities that involve partners.

Ten Methods to Get Participation at Any Time

Active learning cannot occur without student participation. There are various ways to structure discussion and obtain responses from students at any time during a class. Some are especially suitable when time is limited or participation needs to be coaxed. You might also consider combining these methods—for example, using subdiscussion and then inviting a spokesperson from each group to serve on a panel.

1. **Open discussion:** Ask a question and open it up to the entire group without any further structuring. The straightforward quality of open discussion is appealing. If you are worried that the discussion might be too lengthy, say beforehand, "I'd like to ask four or five students to share..." To encourage students to raise their hands, ask, "How many of you have a response to my question?" Then, call on a student with his or her hand raised.
2. **Response cards:** Pass out index cards and request anonymous answers to your questions. Have the index cards passed around the group or otherwise distributed. Use response cards to save time or to provide anonymity for personally threatening self-disclosures. The need to state your answer concisely on a card is another advantage.
3. **Polling:** Design a short survey that is filled out and tallied on the spot, or poll students verbally. Use polling to obtain data quickly and in a quantifiable form. If you use a written survey, try to feed back the results to students as quickly as possible. If you use a verbal survey, ask for a show of hands or invite students to hold up answer cards.

4. **Subgroup discussion:** Break students into subgroups of three or more to share (and record) information. Use subgroup discussion when you have sufficient time to process questions and issues. This is one of the key methods for obtaining everyone's participation.
5. **Learning partners:** Have students work on tasks or discuss key questions with the student seated next to them. Use learning partners when you want to involve everybody but don't have enough time for small-group discussion. A pair is a good group configuration for developing a supportive relationship and/or for working on complex activities that would not lend themselves to large-group configurations.
6. **Whips:** Go around the group and obtain short responses to key questions. Use whips when you want to obtain something quickly from each student. Sentence stems (e.g., "One change I would make in the United States is . . .") are useful in conducting whips. Invite students to "pass" whenever they wish. To avoid repetition, ask each student for a new contribution to the process.
7. **Panels:** Invite a small number of students to present their views in front of the entire class. An informal panel can be created by asking for the views of a designated number of students who remain in their seats. Use panels when time permits to have a focused serious response to your questions. Rotate panelists to increase participation.
8. **Fishbowl:** Ask a portion of the class to form a discussion circle, and have the remaining students form a listening circle around them. Bring new groups into the inner circle to continue the discussion. Use fishbowls to help bring focus to large-group discussions. Though time consuming, this is the best method for combining the virtues of large- and small-group discussion. As a variation on concentric circles, have students remain seated at a table and invite different tables or parts of a table to be the discussants as the others listen.
9. **Games:** Use a fun exercise or a quiz game to elicit students' ideas, knowledge, or skill. TV game shows such as Family Feud or Jeopardy can be used as the basis of a game that elicits participation. Use games to spark energy and involvement. Games are also helpful to make dramatic points that students seldom forget.

10. **Calling on the next speaker:** Ask students to raise their hands when they want to share their views, and request that the present speaker call on the next speaker (rather than the teacher performing this role). Use this technique when you are sure there is a lot of interest in the discussion or activity and you wish to promote student interaction.

Ten Assignments to Give Learning Partners

Although we have just looked at ten ways to obtain student participation, the use of learning partners deserves special notice. One of the most effective and efficient ways to promote active learning is to divide a class into pairs and compose learning partnerships. It's hard to get left out in a pair. It's also hard to hide in one. Learning partnerships can be short or long term. Learning partners can undertake a wide variety of quick tasks or more time-consuming assignments, such as those in the following list.

1. **Discuss** a short written document together.
2. **Interview** each other concerning partner's reactions to an assigned reading, a lecture, a video, or any other educational activity.
3. **Critique** or edit each other's written work.
4. **Question** your partner about an assigned reading.
5. **Recap** a lesson or class session together.
6. **Develop** questions together to ask the teacher.
7. **Analyze** a case problem, exercise, or experiment together.
8. **Test** each other.
9. **Respond** to a question posed by the teacher.
10. **Compare** notes taken in class.

Ten Questions to Obtain Student Expectations

An active learning environment is a place where students' needs, expectations, and concerns influence the teacher's instructional plans. You can vary the questions you ask to find out from students what their goals are. Some may be especially appropriate to your situation. You can obtain answers through the ten methods to obtain participation that were described earlier.

1. What questions about (subject matter of class) do you come with?
2. What information or skills do you want to get from this class?
3. What information or skills don't you need or don't you want?
4. What do you want to take away from this class? Name one thing.
5. What are your hopes for this class? What are your concerns?
6. Do the class objectives match what you need?
7. What knowledge or skills do you feel you *need* to have? Which ones would be nice to have?
8. What are your expectations about this class?
9. Why did you choose this class (if the class is elective)? Why did you come?
10. What have you gotten from previous classes on this topic?

Ten Suggestions to Improve a Lecture

Lecturing is one of the most time-honored teaching methods, but does it have a place in an active learning environment? Used too often, lecturing will never lead to learning, but there are times when it can be effective. For that to happen, a teacher should build inter-

est first, maximize understanding and retention, involve students during the lecture, and reinforce what has been presented. Here are several options to do just that.

BUILDING INTEREST

1. **Lead-off story or interesting visual:** Provide a relevant anecdote, fictional story, cartoon, or graphic that captures the students' attention to what you are about to teach.
2. **Initial case problem:** Present a problem around which the lecture will be structured.
3. **Test question:** Ask students a question (even if they have little prior knowledge) so they will be motivated to listen to your lecture for the answer.

MAXIMIZING UNDERSTANDING AND RETENTION

4. **Headlines:** Reduce the major points in the lecture to key words that act as verbal subheadings or memory aids.
5. **Examples and analogies:** Provide real-life illustrations of the ideas in the lecture and, if possible, create a comparison between your material and the knowledge and experience students already have.
6. **Visual backup:** Use flip charts, transparencies, brief handouts, and demonstrations that enable students to see as well as hear what you are saying.

INVOLVING STUDENTS DURING THE LECTURE

7. **Spot challenges:** Interrupt the lecture periodically and challenge students to give examples of the concepts presented so far or to answer spot quiz questions.
8. **Illuminating exercises:** Throughout the presentation, intersperse brief activities that illuminate the points you are making.

REINFORCING THE LECTURE

9. **Application problem:** Pose a problem or question for students to solve based on the information given in the lecture.
10. **Student review:** Ask students to review the contents of the lecture with each other, or give them a self-scoring review test.

Ten Strategies to Form Learning Groups

Small-group work is a significant part of active learning. It's important to form groups quickly and efficiently and, at the same time, to vary the composition and sometimes the size of the groups throughout the class. The following options are interesting alternatives to letting students choose their own groups or counting off up to a number you have designated.

1. **Grouping cards:** Determine how many students are in the class and how many different groupings you want throughout the session. For example, in a class of twenty, one activity may call for four groups of five; another for five groups of four; still another for six groups of three with two observers. Code these groups using colored dots (red, blue, green, and yellow for four groups), decorative stickers (five different stickers on a common theme for five groups—for example, lions, monkeys, tigers, giraffes, elephants), and a number (1 through 6 for six groups). Randomly place a number, colored dot, and sticker on a card for each student and include the card in the student's materials. When you are ready to form your groups, identify the code you are using and direct the students to join their group in a designated place. Students will be able to move quickly to their groups, saving time and eliminating confusion. To make the process even more efficient, you may want to post signs indicating group meeting areas.
2. **Puzzles:** Purchase children's jigsaw puzzles or create your own by cutting out pictures from magazines; pasting them on cardboard; and cutting them into the desired shape, size, and number. Select the number of puzzles according to the number of groups you want to create. Separate the puzzles, mix up the pieces, and give each

student a puzzle piece. When you are ready to form your groups, instruct students to locate those with the other pieces needed to complete a puzzle.

3. **Finding famous fictional friends and families:** Create a list of famous fictional family members or friends in groups of three or four (e.g., Peter Pan, Tinker Bell, Captain Hook, Wendy; Alice, Cheshire Cat, Queen of Hearts, Mad Hatter; Superman, Lois Lane, Jimmy Olsen, Clark Kent). Choose the same number of fictional characters as there are students. Write the fictional names on index cards, one on each card, to create a family group of cards. Shuffle the cards and give each student a card with a fictional name. When you are ready to form groups, ask the students to find the other members of their "family." Once the famous group is complete, they can find a spot to congregate.
4. **Name tags:** Use name tags of different shapes and/or colors to designate different groupings.
5. **Birthdays:** Ask students to line up by birthdays, then break into the number of groups you need for a particular activity. In large classes, form groups by birth months. For example, 60 students can be divided into three groups of roughly equal size by composing groups of those born in (1) January, February, March, and April; (2) May, June, July, and August; and (3) September, October, November, and December.
6. **Playing cards:** Use a deck of playing cards to designate groups. For example, use jacks, queens, kings, and aces to create four groups of four, and add additional number cards depending on the number of students. Shuffle the cards and deal one to each student. Then direct students to locate others of their kind to form a group.
7. **Draw numbers:** Determine the number and size of the groups you want to create, put numbers on individual slips of paper, and place them in a box. Students draw a number from the box to indicate the group to which they belong. For example, if you want four groups of four, you would have sixteen slips of paper with four each of the numbers 1 through 4.
8. **Candy flavors:** Give students each a wrapped piece of sugarless hard candy of various flavors to indicate groupings. For example, your four groups might be lemon, butterscotch, cherry, and mint.

9. **Choose like items:** Select toys on a common theme and use them to indicate groups. For example, you might choose transportation and use cars, airplanes, boats, trains. Each student would “draw” a toy from a box and locate others with the same toy to form a group.
10. **Student materials:** You can code student learning materials using colored paper clips, colored handouts, or stickers on folders to predetermine groupings.

Ten Alternatives in Selecting Group Leaders and Filling Other Jobs

*One way to facilitate active learning in small groups is to assign jobs to some of the group members such as **leader, facilitator, time-keeper, recorder, spokesperson, process observer, or materials manager**. Often, you can simply ask for volunteers to assume some of these responsibilities. But sometimes it's fun and efficient to use a creative selection strategy.*

1. **Alphabetical assignment:** Identify the jobs needed and assign them in alphabetical order by first name. In a long-term group, rotate jobs using this order.
2. **Birthday assignment:** Make assignments in chronological order by students' birthdays (in the calendar year). In a long-term group, rotate jobs using this order.
3. **Number lottery:** Ask group members to count off. Place the numbers held by group members in a hat and pick the person for each job.
4. **Color lottery:** Select a color for each assignment. The person who is wearing something with a certain color receives that assignment.
5. **Clothing article:** Assign responsibilities by selecting corresponding articles of clothing, such as *eyeglasses, silver jewelry, a sweater, or brown shoes*.

6. **Voting:** Ask group members to vote on the job recipient. One popular method is to signal members to point to the person for whom they are voting. The person with the most fingers pointing at him or her gets the job.
7. **Random assignment:** Ask each member to calculate and reveal the sum of the last four digits of his or her home phone number (e.g., 9999 equals 36). Then announce a number from 1 to 36. The person in the group whose sum comes closest to that number will be the person assigned to the job.
8. **Pet lovers:** Assign a designated job to the person with the greatest number of pets.
9. **Family size:** Assign a designed job to the person with the most (or fewest) siblings.
10. **Door prize:** Prior to class, place a sticker in such a way as to identify one member per group. Methods include a sticker on a name tag, on a seat or desk, on one of the instructional handouts, and the like. The person receiving the sticker gets the "prize" of a specific group job. To award more than one job, use stickers of different colors.

Ten Tips When Facilitating Discussion

Class discussion plays a vital role in active learning. Hearing a wide variety of views challenges students' thinking. Your role during a group discussion is to facilitate the flow of comments from students. Although it is not necessary to interject after each student speaks, periodically assisting the group with their contributions can be helpful. Here is a ten point facilitation menu to use as you lead group discussions.

1. **Paraphrase** what someone has said so that the student feels understood and the other students can hear a concise summary of what's been said at greater length:

So, what you're saying is that you have to be very careful about the words you use because a particular person might be offended by them.

2. **Check** your understanding against the words of a student or ask a student to clarify what he or she is saying:

Are you saying that this political correctness has gone too far? I'm not sure that I understand exactly what you meant. Could you please run it by us again?

3. **Compliment** an interesting or insightful comment:

That's a good point. I'm glad that you brought that to our attention.

4. **Elaborate** on a student's contribution to the discussion with examples, or suggest a new way to view the problem:

Your comments provide an interesting point from the minority perspective. We could also consider how the majority would view the same situation.

5. **Energize** a discussion by quickening the pace, using humor, or, if necessary, prodding the group for more contributions.

Oh my, we have lots of quiet people in this class! Here's a challenge for you. For the next two minutes, let's see how many words can you think of that are no longer politically acceptable.

6. **Disagree** (gently) with a student's comments to stimulate further discussion.

I can see where you are coming from, but I'm not sure that what you are describing is always the case. Has anyone else had an experience that is different than Jim's?

7. **Mediate** differences of opinion between students, and relieve any tensions that may be brewing.

I think that Susan and Mary are not really disagreeing with each other but are just bringing out two different sides of this issue.

8. **Pull together** ideas, showing their relationship to each other.

As you can see from Dan's and Jean's comments, the words we use can offend people. Both of them have given us an example of how they feel excluded by gender-bound words.

9. **Change** the group process by altering the method for obtaining participation or moving the group to a stage of evaluating ideas that have been placed before the group.

Let's break into smaller groups and see if you can come up with some criteria for establishing gender-sensitive word usage.

10. **Summarize** (and record, if desired) the major views of the group.

I have noted three major ideas that have come from the group's discussion as to when words are harmful: (1) They exclude some people. (2) They insult some people. (3) They are determined only by the majority culture.

Ten Steps When Facilitating Experiential Activities

Experiential activities really help to make learning active. Such activities typically involve role playing, games, simulations, visualization, and problem-solving tasks. It's often far better for students to experience something rather than hear it talked about. When facilitating experiential activities, here are ten steps to consider.

1. **Explain your objectives.** Students like to know what is going to happen and why.
2. **Sell the benefits.** Explain why you were doing the activity and share how the activity connects with the other activities before it.
3. **Speak slowly when giving directions.** You might also provide visual backup. Make sure the instructions are understandable.
4. **Demonstrate the activity if the directions are complicated.** Let the students see it in action before they do it.
5. **Divide students into subgroups before giving further directions.** If you don't, students may forget the instructions while the groups are being formed.
6. **Inform students how much time they have.** State the time allotted for the entire activity, and then announce periodically how much time remains.
7. **Keep the activity moving.** Don't slow things down by endlessly recording student contributions on flip charts or blackboards, and don't let a discussion drag on too long.
8. **Challenge the students.** There is more energy when activities create a moderate level of tension. If tasks are a snap, students will get lethargic.

9. **Always discuss the activity.** When an activity has concluded, invite students to “process” the feelings that the activity elicited and share the insights and learnings it contained.
10. **Carefully structure the first processing experiences.** Guide the discussion and ask only a few questions. If students are in subgroups, ask them to take a brief turn sharing their responses.

Ten Options for Role Playing

Role playing is an especially useful experiential learning method. It can be used to spark a discussion, to reenact an event, to practice skills, or to experience how certain phenomena feel. To be successful when conducting role playing, however, it helps to know different ways to set it up (scripting) and lead it (formatting).

SCRIPTING

1. **Free form:** Students can be given a general scenario and asked to fill in the details themselves.
2. **Prescribed:** Students can be given well-prepared instructions that state the facts about the roles they are portraying and how they are to behave.
3. **Semiprescribed:** Students can be given extensive background information about the situation and the characters to be portrayed, but not told how to handle the situation.
4. **Replay life:** Students can portray themselves in an actual situation they have faced.
5. **Dramatic reading:** Students can be given a previously prepared script to act out.

FORMATTING

6. **Simultaneous:** All students can be formed into pairs for a two-person drama, trios for a three-person drama, and so on, and can simultaneously undertake their role plays.

7. **Stage front:** One or more students can role-play in front of the group and the rest of the group can serve as feedback observers.
8. **Rotational:** Actors in front of the group can be rotated, usually by interrupting the role play in progress and substituting for one or more of the actors.
9. **Different actors:** More than one actor can be recruited to role-play the same situation in its entirety. This allows the group to observe more than one style.
10. **Repeated:** The role play can be practiced a second time.

Ten Time Savers When Active Learning Takes Time

Whatever methods you use, active learning takes time. Therefore, it is crucial that no time is wasted. Many teachers, however, lose control of time by allowing a number of time wasters to occur. Here are things you can do to save time.

1. **Start on time.** This act sends a message to latecomers that you're serious. If all of the students are not yet in the room, you can begin the class with a discussion or filler activity for which complete attendance is not necessary.
2. **Give clear instructions.** Don't start an activity when students are confused about what to do. If the directions are complicated, put them in writing.
3. **Prepare visual information ahead of time.** Don't write lecture points on flip charts or the blackboard while students watch. Have points prerecorded. Also, decide if recording student input is really necessary. If so, don't record all the words coming from class discussion. Use "headlines" to capture what students are saying.
4. **Move distribution of handouts quickly.** Put handouts in prepared stapled packets; distribute packets to key areas of the classroom so that several people can help with their distribution.
5. **Expedite subgroup reporting.** Ask subgroups to list their ideas on flip chart paper and post their lists on the walls of the classroom

so that all groups' work can be viewed and discussed at the same time. Or, going from group to group, have each one report only one item at a time so that everyone can listen for possible overlap. Subgroups should not repeat what has already been said.

6. **Don't let discussions drag on.** Express the need to move on, but, during a subsequent discussion, be sure to call on those who were cut off. Or begin a discussion by stating a time limit and suggesting how many contributions time will permit.
7. **Swiftly obtain volunteers.** Don't wait endlessly for volunteers to emerge. Recruit volunteers before class starts or restarts after a break; consistently call on individual students when there are no immediate volunteers.
8. **Be prepared for tired or lethargic groups.** Provide a list of ideas, questions, or even answers, and ask students to select ones they agree with; frequently, your list will trigger thoughts and issues from students.
9. **Quicken the pace of activities from time to time.** Often, putting students under time pressure energizes them and makes them more productive.
10. **Get the class's prompt attention.** Use a variety of cues or attention-getting devices to inform the class that you are ready to reconvene them after small-group activity.

Ten Interventions When Students Get Out of Hand

Using active learning techniques tends to minimize the classroom management problems that often plague teachers who rely too heavily on lecture and full-group discussion. If difficulties such as monopolizing, distracting, and withdrawing behaviors still occur, here are some interventions you can use. Some work well with individual students; others work with the entire class.

1. **Signal nonverbally.** Make eye contact with students or move closer to them when they hold private conversations, start to fall asleep,

or hide from participation. Press your fingers together (unobtrusively) to signal wordy student to finish what they are saying. Make a "T" sign with your fingers to stop unwanted behavior.

2. **Listen actively.** When students monopolize discussion, go off on a tangent, or argue with you, interject with a summary of their views and then ask others to speak. Or you can acknowledge the value of their viewpoints or invite them to discuss their views with you during a break.
3. **Get your ducks in a row.** When the same students always speak up in class while others hold back, pose a question or problem and then ask how many people have a response to it. You should see new hands go up. Call on one of them. The same technique might work when trying to obtain volunteers for role playing.
4. **Invoke participation rules.** From time to time, tell students that you would like to use rules such as these:
 - No laughing during role playing.
 - Only students who have not spoken as yet can participate.
 - Build on each other's ideas.
 - Speak for yourself, not for others.
5. **Use good-natured humor.** One way to deflect difficult behavior is to use humor with students. Be careful, however, not be sarcastic or patronizing. Gently protest the harassment (e.g., "Enough, enough for one day!"). Humorously, put yourself down instead of the students (e.g., "I guess I deserved this.")
6. **Connect on a personal level.** Whether the problem students are hostile or withdrawn, make a point of getting to know them during breaks. It's unlikely that students will continue to give you a hard time or remain distant if you've taken an interest in them.
7. **Change the method of participation.** Sometimes you can control the damage done by difficult students by inserting new formats such as using pairs or small groups rather than full-class activities.
8. **Ignore mildly negative behaviors.** Pay little or no attention to behaviors that are small nuisances. Carry on with the class and see if they go away.

9. **Discuss very negative behaviors in private.** You must call a stop to behaviors you find detrimental to learning. Firmly request, in private, a change in behavior of those students who are disruptive. If the entire class is involved, stop the lesson and explain clearly what you need from students to conduct the class effectively.
10. **Don't take personally the difficulties you encounter.** Remember that many problem behaviors have nothing to do with you. They are due to personal fears and needs or displaced anger toward someone else. See if you can pick up cues when this is the case and ask whether students can put aside the conditions affecting their positive involvement in the class.

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