

Practices to avoid when implementing active learning

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CWSEI¹, EOS-SEI² and others have written about how to implement active learning in our classrooms. We have also noticed some practices by well-meaning instructors that usually should be avoided. Most of the following are generally applicable to all types of active learning, and some clicker-specific ideas are included last.

	Don'ts	Comments
1	Don't use active learning without giving students insight into why you are teaching this way	It's important that students feel that the active learning techniques you are using are to their benefit. Some instructors will explain to their students why they are teaching this way (e.g., that research shows that people learn much more when they are actively engaged...), and others will engage students in discussion about their experience in a particular activity. If you don't address this, students may conclude that you are using less effective techniques or that you are experimenting on them; this can cause resentment and low engagement. It is also good to briefly remind students of the benefits periodically during the term.
2	Don't immediately tell the students the answer and/or explanation	It is usually best to let the students discuss, and then have them share their reasoning with the class.
3	Don't leave activities unresolved	It is important for the students to hear your expert perspective and reasoning. The activity has prepared them to learn from your explanation. Even if you think all the important aspects have come out in the class discussion and/or a large fraction of the students have the correct answer, it is important for you to do a clear and explicit follow-up.
4	Don't forget to make students accountable	Some approaches to building in accountability are: Have the students turn something in (such as a worksheet with all the group members' names on it), use some clicker questions at key points and/or to follow-up on the activity, have random (or all) groups present their results, etc. Ensure that clickers are tied to student IDs.
5	Do not run activities that have no clearly targeted course learning goal.	Activities take time, and therefore should be targeted to important learning goals.
6	Don't overlook motivation	People are much more willing to expend effort if they are intrinsically motivated to do so. It is good to set an activity in a motivating context (e.g. a context that is interesting and relevant to the students).
7a	Don't stay in one location of the room during group discussions	By circulating around the room, you can get a better sense of student thinking about the topic (particularly their difficulties and/or misconceptions), and also encourage them to engage in the activity.
7b	Don't spend too much time with one student or group during an activity	Instructors can easily lose track of time when talking with students. This has 2 detrimental effects: you don't get the benefits of circulating around the room (7a), and many students may become disengaged.
8a	Don't give too many instructions at once and/or make an activity overly complicated	While it is good to make an activity cognitively challenging, introducing too many complications at once adds cognitive load and will confuse and distract students from concentrating on the main goals.
8b	Don't make the activity too easy	Trivial clicker questions or activities that have students blindly following steps or repeating memorized facts are a waste of time. Make activities sufficiently challenging so that most students need to discuss and use reasoning to complete them. Consider adding "bonus" questions or problems to keep the high achieving students engaged.
9	Don't expect things to go perfectly the first time you run an activity	If you are running an activity that is new to you, or with a significantly different group of students, it often will not go as planned. Be flexible and modify the activity as needed for the next time. If possible, it is very helpful to test activities in advance with a small group of students and/or discuss it with teaching assistants and other instructors.

10	Don't bite off more than you can chew	Don't try to do more new things in the course than you have time and resources to prepare. You can end up feeling overwhelmed and discouraged. Also, students are usually quite tolerant of an activity that does not go perfectly (#9), but far less tolerant when instructor is obviously disorganized and poorly prepared.
11	Don't forget to clearly indicate the start of an activity	Students will often wait for a signal before starting an activity. Instructors can be expecting the students to start discussing in groups, without realizing the students are waiting for a "Go" signal.
12	Don't lock into a rigid timeline	It's important to be flexible. It is hard to predict the time needed for an activity. Cutting off an activity too soon will leave students frustrated, and going too long will bore students and waste time. Don't use a timer for clicker activities; instead rely on your judgment. See #13.
13	Don't wait for every student or group to finish	Apply the "75% rule" for clicker votes. If 75% of the students have clicked in, announce that you will be closing to vote soon (e.g. in 10 seconds). For any group activity, you can get a sense of students' progress as you circulate. In longer activities, it is good to have check points where you bring the class into sync.
14	Don't attach high stakes to activities	Accountability is necessary, but assigning a large amount of marks for correctness causes students to seek the "right" answer without worrying about why it is right. Instructors typically give participation points for students who did the activity. If you give marks for correctness, keep this at a low level.
15	Don't embarrass individuals	Be careful in how you react to student statements, particularly if they say something wrong. When calling on individuals, it often is more comfortable for them if you ask them for their <i>group's</i> reasoning.
16	Don't get stuck using only one strategy	In order to achieve different types of goals, use a variety of types of activities; if you use clickers, use a variety of question types. Design activities to elicit student reasoning.
17	Don't make comments in advance about the difficulty of activity	Saying things like "I think everyone knows this" or "This should be an easy one" – you are just making them feel stupid if they don't think it's easy. Also, if you think it is very easy, why use class time on it?
18	Don't rely too much on comments by individual students, or solely on student self-reports about their learning	When there are a few outspoken students, it is very easy to jump to the conclusion that their views are representative of the entire class, but that's often not the case. Use surveys of the entire class or more extensive sampling. Also, student self-reports of what and how they are learning are often inaccurate. Although you should not ignore self-reports, before acting on them you should confirm with other evidence.
19	Don't be afraid of a silent moment	Students need time to think after being asked a challenging question.
Clicker-specific Don'ts		
20	Don't leave out the peer discussion	Using clickers is not good in itself, it is <i>how</i> you use them that matters. Peer discussion has been shown to increase student learning, particularly for reasonably challenging conceptual questions.
21	Don't show the first vote histogram if you plan to have the students vote twice	In Peer Instruction, students first vote individually and then discuss the question in small groups and vote again. Showing the histogram after the first vote biases the students toward the answer that got the most votes. You can always give a verbal characterization, such as "the vote is split between several options".
22	Don't stop the voting without warning	Students will rush to put in an answer if they think you might cut off the vote without warning.
23	Don't go into 'police-mode' to deal with individual students.	Talk with individual students if you see that they are clearly off-task or have multiple clickers (doing the voting for students who are absent), but don't make it a big focus. It needlessly distracts the rest of the class.
24	Don't limit yourself to questions with only one right answer	Some of the best peer discussion and whole-class discussions are around questions with more than one defensible answer. For example, you could ask "which is the best answer" or "which is the most efficient method". In the follow-up discussion, you could ask students what would have to change about the situation to make a particular answer the "best".

¹ CWSEI: <http://www.cwsei.ubc.ca/resources/index.html> EOS-SEI: <http://www.eos.ubc.ca/research/cwsei/>

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