



The i>clicker Top 10: Tips from Our Inventors

Selected teaching tips from Dr. Mats Selen and Dr. Timothy Stelzer, i>clicker inventors and physics professors at the University of Illinois-Urbana Champaign

1. **Define and share with students *why* you've adopted clickers in your course.** If you haven't taught with clickers before, there is a great and growing body of research available that outlines best practices <link to the top links we identified on the lit review page>. Most notably, the research supports clickers as a tool to engage students within the lecture and to provide in-class formative assessment.
2. **Use the clickers consistently, beginning with your first lecture.** With infrequent or irregular use, students may resent having to purchase the devices and will forget to bring them to class. Although the optimal number of questions varies with your class, topic, and pedagogical goals, posing 3–5 questions in an hour is a reasonable guideline.
3. **Choose a grading scheme that is both consistent with your objectives and easy to manage.** At the University of Illinois:
 - a. We don't assign too many points for clicker questions. Even 5% of the final course grade is enough to motivate students to participate without causing too much stress in class.
 - b. We assign points for both participation (which improves attendance) and for getting the correct answer (which encourages students to take the questions more seriously).
 - c. We drop the 3 lowest clicker scores, so students aren't penalized for missing a few classes or forgetting their clickers a few times. It also minimizes our having to deal with student excuses, extra e-mails, missing grades, administering "loaners," etc.
4. **Generate a collection of clicker questions that are right for *your* students and *your* classroom environment.** It may take some time to build a set of questions that really facilitate learning. Your clicker questions can touch on all of a day's concepts and form the backbone of your lecture. A few broad suggestions:
 - a. Try to include "higher-level" clicker questions that promote thought and discussion, while limiting the number of basic "recall" questions.
 - b. Good clicker questions generally have more than 1 viable answer, often target misconceptions, and, most important, make students think!
5. **Don't be reluctant to ask "on-the-fly" questions as they occur to you or to your students.** Students appreciate spontaneity (perhaps because it lets them know you're attuned to their specific needs).
6. **If you haven't already done so, experiment with peer instruction (where you pair students together to discuss a question before answering it).**
 - a. Be sure to allow sufficient time, especially for the more difficult problems. The discussion itself can be a key part of your students' learning process, and they can

become frustrated if they don't have enough time to think about the question and their answer.

- b. Also, as students engage in these discussions, walk around the room and listen to (or even join) the dialogue. This is a great way to learn how and what your students are thinking, and how you should proceed with the particular topic.
7. Use the LCD screen on the base to monitor student progress, and provide feedback and extra time if students aren't getting the right answers.
8. Keep registration somewhat flexible (within reason): you don't need to require all students to register the first week of class (or even before the add/drop deadline). A slightly more relaxed registration approach will ultimately save you time (e.g., fewer student e-mails/excuses about problems registering their clickers).
9. Keep your gradebook up to date. This encourages students to get their clickers registered quickly, provides an ongoing formative assessment of their understanding of course material, and assures them they're getting the appropriate credit for their participation. It also allows you to contact students who aren't getting credit so the issue can be resolved early on in the term.
10. Experiment and have fun! Each instructor and classroom is unique, so find the style that works for you. As long as you've shared your goals with the class, most students will adopt your enthusiasm and forgive any bumps that occur along the way.