

Sixteen Suggestions for Teaching with Classroom Response Systems

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Why Use Clickers?

Instructors teach with classroom response systems for a variety of reasons. Some of the benefits of clickers, such as the ability to collect student feedback rapidly, are difficult to achieve in large courses without classroom response systems. Other benefits, such as the ability for students to respond anonymously to questions, are relevant regardless of the number of students in a course. This conclusion discusses reasons to teach with clickers, highlighting the unique capabilities of these response systems to enable classroom experiences that are difficult to achieve without clickers and to enhance other teaching methods that can be use with or without clickers.

Final Suggestions

The sixteen suggestions that follow for teaching with classroom response systems are drawn from the previous chapters. They are intended to help instructors with or without experience teaching with clickers make more intentional choices when using clickers--choices that help them teach more effectively and lead to enhanced student learning.

1. Consider the following questions when drafting clicker questions:

- * What student learning goals do I have for the question?
- * What do I hope to learn about my students by asking this question?
- * What will my students learn about each other when they see the results of this question?
- * How might this question be used to engage students with course content in small-group or classwide discussions or by creating a time for telling?
- * What distribution of responses do I expect from my students?
- * What might I do if the actual distribution turns out very differently?

2. Look for answer choices for potential clicker questions in student responses to open-ended questions, ones asked on assignments in previous courses, on homework questions, or during class. This can lead to answer choices that better match common student misconceptions and perspectives.

3. Use a variety of types of clicker questions. Some courses lend themselves to particular types of questions, of course, but experimenting with different kinds of questions (application questions, critical thinking questions, student perspective questions, monitoring questions) can help instructors use clickers in ways that engage students and meet course learning goals.

4. Experiment with asking on-the-fly clicker questions--ones that are not planned before class. Many classroom response systems make asking such questions possible. Often a classwide discussion leads to spontaneous clicker questions; other times rhetorical questions can be turned into productive clicker questions. Either way, asking such questions is one avenue for practicing agile teaching.
5. Use clickers for purposes other than quizzes and taking attendance. Although clickers can make these activities more time efficient, students often prefer to see them used in ways that are more directly connected to their learning. Reviewing the results of a quiz immediately after administering it is one way to do so. Using clickers to engage students in small-group and classwide discussions and to offer students frequent feedback on their learning is also effective.
6. Use clickers in smaller courses, particularly those that focus on sensitive or controversial topics. The anonymity that classroom response systems provide students can be important in helping them answer questions about tough topics honestly.
7. Have students respond to clicker questions several times throughout a class session. Although questions at the beginning and end of class sessions can serve particular and useful functions, questions asked every ten to fifteen minutes can help focus students' attention throughout the class.
8. For some questions, have students think of their answers before showing them the answer choices. Since generating an answer is often more challenging, this can help make clicker questions more challenging. Also, hearing from students who generate answers not listed can help you learn about your students.
9. Have students respond to a clicker question individually before discussing the question in small groups. This leverages a classroom response system's ability to allow all students a chance to think about a question independently of their peers.
10. Be strategic about showing students the results of a clicker question. If most students choose the same answer to a question with correct and incorrect answers, showing students such results might lead them to assume that the popular answer is the correct one and thus decrease their interest in discussing the question further. If students are split among more than one answer choice, however, showing students such results can help generate small-group and classwide discussion.
11. For similar reasons, choose carefully when to indicate to students the correct answer to a clicker question. Once some students know the correct answer, they are likely to be less interested in further discussion of it, perhaps incorrectly assuming that knowing the answer means they understand the topic fully.
12. When reviewing a clicker question with students, spend at least some time on each of the answer choices--right and wrong ones. Students often appreciate hearing their instructor's perspective on the answer choices they selected, even when they know those choices are incorrect.

13. When reviewing a clicker question with students, have them share their reasons for their answers. Not only does this shift students' focus away from getting questions right or wrong and toward thinking critically, but it also provides useful insights into students' thinking.

14. When students find a question difficult, have them reengage with it through small-group or classwide discussion and then revote. Giving students multiple opportunities to answer a question while providing them with feedback mechanisms along the way can help them make sense of course material.

15. Immediately after class, take a few notes about how particular clicker questions played out during class. A little reflection right after class can help in refining and improving clicker questions over time.

16. Find other instructors who teach with classroom response systems and share experiences. Too often teaching is a private act, one instructors do not discuss with their colleagues. However, such discussions are often very useful in helping instructors teach more effectively and more enjoyably.

To read Derek Bruff's blog on teaching with clickers or to get his book, **Teaching with Audience Response Systems** go to: <http://derekbruff.com/teachingwithcrs/>