
Information Technology

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Derek Bruff, whose new book on classroom "clickers" talks about teaching dos and don'ts for student-response systems.

Going Beyond Classroom Clickers

By DAVID SHIEH

Clicker technology allows students to respond to questions during class using a wireless, handheld device. Instructors can then immediately view and display the results, often in the form of a poll. Mr. Bruff, an assistant director of Vanderbilt University's Center for Teaching, wrote *Teaching With Classroom Response Systems* (Jossey-Bass, February) after interviewing 50 instructors who have introduced classroom clickers. Some strategies work, he says, while others do not.

Q. Why use classroom clickers? Why not just ask students to raise their hands?

A. Students are hesitant to answer questions independently. Given the opportunity, they'll find out what their neighbors are saying and factor that in to their answers. The clickers allow faculty to ask students to respond to their questions independently of each other. Whereas with hand raising you wouldn't necessarily know after class who raised their hands and who didn't, clickers allow you to include these types of questions in participation grades, providing students some additional incentive to consider the question.

Q. Can you tell me about some of the most popular ways that clickers are being used?

A. A pretty popular approach to using clickers is called peer instruction. Ask a question, have all the students think about it and respond to it individually, and then take a look at the results. If there's a lot of consensus around the question, then it may be time to move on to the next thing. If there's disagreement, then this is a question that the students can probably talk about together in small groups: "OK, now talk about it with your neighbor. Try to come to some consensus. Explain your answer. Justify your reasoning." And then you do a second vote, and you see what's changed during that peer-instruction part.

Q. Clickers can be used to collect information about students as well.

A. I call these student-perspective questions. Sometimes you're asking for demographic information. Sometimes you want their opinion about some issue. These questions serve a few different purposes. One is to provide the instructor with some useful information about who their students are and where they're coming from. That can allow the instructor to know, "Oh, I'm probably going to have to play the devil's advocate on this issue because I don't have many students that feel this way." And when you

show the results of those questions on screen, that also helps students understand there are multiple perspectives on a topic. They might be surprised to find that 30 percent of their peers think in a certain way. It motivates them to re-engage with that question or issue.

Q. What were some surprising uses of clickers?

A. One of the things that is often surprising to faculty is that you don't have to ask questions that just have one right answer. You can ask some high-level critical-thinking questions where students are asked to look at a particular quality of a peer's presentation and say, on a scale from 1-5, how good was this? And then you have a discussion about what it means to have quality work.

Q. What are the biggest barriers to use?

A. By and large it tends to be a faculty-driven decision. It does involve a change in teaching practice, and that takes some work. You have to write good clicker questions, and that takes some time. The technology itself may be off-putting to some as well. They're worried it won't work or that it's hard to use. The technology has come a long way in the last four or five years. I know some faculty have heard bad stories from five years ago and have just written it off.

Q. Where do clickers go from here?

A. A lot of students have some type of device in their pocket. Usually it's a cellphone or a smartphone. We might as well make use of these existing devices. One of the most exciting aspects is that it's going to open up the door for more free-response questions. Most of the current clicker technology does a great job with multiple-choice questions; they don't do as good a job at letting students respond quickly with words, sentences, or phrases. These mobile devices often have better input systems, so you could have the ability to ask a brainstorming question and have all your students submit a response, post that on the board, and lead a discussion. That's pretty exciting.

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