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### Learning With 'Clickers' Gets Better After Peer Discussions

College students who use wireless handheld devices called “clickers” to register answers to instructors’ questions during lectures are more likely to give correct responses after discussion with their peers, studies have found. But, researchers wondered, were students improving merely because they copied the answers of fellow students? Or had they actually gained a greater understanding of the material?

The [findings of a new study](#) published in the latest issue of *Science* suggest that improvement after peer discussion reflects real learning. And, surprisingly, students “don’t even need somebody who knows the right answer” in their discussion group in order to do better, says Michelle K. Smith, a research associate in biology at the University of Colorado at Boulder who led the study.

Three hundred and fifty students in a genetics course were first asked to answer a thought-provoking multiple-choice question individually, using a clicker. They were then invited to discuss that question with their neighbors, after which they answered it again. Next, they answered, individually, a second question that required applying the same principles needed to solve the first one.

When students respond to questions using clickers, generally their responses are displayed on a projection screen in the classroom, so instructors can highlight the correct answer. But for this study, the responses to the first question and the right answer were not shown until after students had answered the second question.

On average, the students improved when answering the first question for the second time, from 51 percent correct to 68 percent. But they improved even more when they answered the new, similar question, with 72 percent getting the answer correct. Because the second question was never discussed in peer groups, it could not be answered by copying the response of another student. So the higher rate of success suggests that giving students the opportunity to talk to one another and practice their cognitive skills makes them more prepared to analyze problems, Ms. Smith says.

Although the same peer-discussion method evaluated in the study could be put in place without clickers, students enjoy using the device as long as they’re given challenging questions, Ms. Smith says.

The device is used in college classrooms across the country, especially in large lecture courses in the hard sciences and mathematics, says Jane E. Caldwell, a biology instructor at West Virginia University who has published a [paper](#) in *CBE—Life Sciences Education* reviewing research on clickers. She says the new paper in *Science* “made a great stride in pinning down the cause of improvement in performance,” showing it was not just the result of “persuasion by bright students that happened to be sitting nearby.”—*Ruth Hammond*

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