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Run a Class Like a Game Show: 'Clickers' Keep Students Involved

By DAN CARNEVALE

Grayslake, Ill.

It's every instructor's conundrum. How do you know when the class truly gets what you're teaching, or when you need to try a different approach? Mark Coykendall, a biology instructor at the College of Lake County, doesn't worry about that anymore. When he poses a question to the class, every one of his students' hands spring into the air. The students are holding up translucent blue remote-control devices and pressing buttons to register their answers to multiple-choice questions throughout each class session. The students' responses get tallied by a computer, and within seconds a graphic is displayed on a large pull-down screen showing how many in the class grasped the concept and how many had no clue.

"For years I've always asked, 'Does everybody understand this concept or this point?' and they nod their heads," Mr. Coykendall says. "Now I'll know right away whether or not they really understand."

The technology is simple. Each student in Mr. Coykendall's class is required to spend \$4 on a remote that sports eight buttons. Remote sensors mounted on the classroom walls receive signals from the devices. Computer software controlled by Mr. Coykendall tabulates the students' answers and displays the results.

This is the same approach that has been made famous in the Ask the Audience portion of the TV game show Who

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Wants to Be a Millionaire? Now the technology is creeping into college classrooms, especially for large lecture courses. Hundreds of institutions have already begun using the technology to enhance the classroom experience.

Mr. Coykendall uses the remote controls, often called "clickers," to take attendance and administer quizzes. For reviews for big tests, he even uses the technology to run a game similar to *Jeopardy*.

Students know that many of the questions are graded, he says, so they must pay attention. Since he began using the clickers two years ago, Mr. Coykendall says he has noticed a dramatic decrease in students' nodding off in the back of the room. "It really has kept students on their feet a little bit more."

Only a few questions are usually asked for remote answering during each class session, so there is plenty of time for students to take notes and participate in traditional verbal give and take. But because the questions are tied to their grades for participation, students who forget to bring their remotes get docked a few points on their final class score. "You have got to have your remote," Mr. Coykendall says. "It's like your textbook. It's like your notebook."

The College of Lake County, a two-year institution, received the technology, software, and training from a company called eInstruction, through a partnership with McGraw-Hill. As part of a deal for the college to purchase textbooks, the company provided the system at no cost. The eInstruction company says more than 700 colleges use the technology.

Normally a college would pay \$250 for each electronic receiver that collects the students' responses -- two receivers are generally required per classroom.

So far, Mr. Coykendall and five other instructors in the biological and health-sciences division are the only ones using the technology at the college. The institution awarded Mr. Coykendall and his colleague, Cindy Trombino, an award for innovative use of technology for their adoption of the clickers.

Mr. Coykendall says that the remote technology lends itself to science courses because there are definitive answers to many questions, as opposed to a subject such

as English, which can be more subjective. But some professors who have chosen not to use the devices are just set in their ways, he says.

"I've heard stories about people before us not even wanting a computer on their desks," he says. "It's a situation where they already have enough on their plates and they don't want anything more."

But Denise J. Anastasio, dean of biological and health sciences at the college, says she expects more faculty members to take up the technology as it proves its usefulness. "It has a lot of potential," she says. "We're really at the beginning stages right now."

Mr. Coykendall will often pose several questions to his class each session, usually giving students 30 to 40 seconds per question to answer. On one occasion in his general-biology course for nursing majors, the question read, "What's the chance that two heterozygotes would produce a homozygous dominant genotype?"

Sixty-eight percent of the roughly 30 students got the question right (answer: There's a 25-percent chance). The number of students who selected each of the four possible choices was displayed on the screen -- though the students' identities are not revealed.

Mr. Coykendall, however, sees all the results so he can add the scores to each student's grade. He can also keep track of each student's scores from the entire semester to see who is struggling.

Several of Mr. Coykendall's students say they see the benefit of the remotes.

Stephanie Cooley, a 19-year-old student in Mr. Coykendall's class, says the remotes help her learn and retain the information covered in class. "It keeps me more interested than just writing on a piece of paper," she says. "I'm bad at testing, so this helps me know exactly what type of information will be on the tests."

But other students aren't thrilled with the technology.

Brian Norris, a 24-year-old student in the class, says the remotes don't add much to the classroom experience. "I wasn't happy about it," he says. "It smelled like a distraction."

Lien Huynh, a 28-year-old in the course, says the pressure of having what is essentially a test in every class session can be more than a little stressful. "I have test anxiety," she says. "Sometimes, for many questions, I need more time."

Mr. Coykendall says he has received mostly positive feedback, although a few students gripe about the clickers.

"There's a small fraction that think it's a waste and a pain," he says. By contrast, he says, some students wonder why other instructors don't use the same technology: "They're always wanting quicker and quicker feedback."

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