

Learning that Clicks

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As a teacher, I knew that I did not know which topics my students didn't understand until after an exam, when it was too late to effectively re-teach the information. I also knew that students had many reasons for not telling me when they didn't understand the material. When I would ask if students had questions or if the information was clear, few would respond. It seemed as though they were afraid to look as if they didn't understand in front of their peers. I began using clickers three years ago in an effort to better assess what my students understood before they took an exam.



Student response systems or “clickers” are a handheld remote device that students use to enter their responses to multiple choice or true/false questions. To use the system, questions are displayed using a computer and projector. Each student has a clicker and is able to select an answer. The computer processes the responses and displays each answer choice with the number of students who selected each answer, along with the correct answer. Student responses are anonymous so there is no one looking at a student who selected an incorrect answer. Only the student knows that she/he missed the question. The instructor is able to run a number of reports after the session to determine which questions were missed, how many students missed each question and the overall percentage of correct answers for the session.

Currently, I use the clickers in my COSC 125, Business Microcomputer Applications course. I present the topics in the first class meeting of the week, demonstrating examples and discussing the terminology with students. At the beginning of the second meeting for the week, I use the clickers to review the topics and terminology. This gives the students and me a good sense of where they need more information and assistance. I then use the rest of the class time to go over material that was unclear or misunderstood. In this course, most instructors use standard

chapter quizzes and exams that are created by the publisher. I use the chapter publisher's review material in preparing the questions for these interactive sessions.

One benefit of using the clickers is to know when the instructor has given unclear information. For example, I used the clickers in a lesson and all twelve students gave the same, incorrect answer. I was able to immediately clarify the information. Had I not used the clickers, I would not have known I was unclear, and I would have done a disservice to my students. A benefit for the students is that they are able to see questions that are similar to the ones on the quiz and know if they need additional study time.

In a comparison of the Microcomputer Business Application sections using the same exams, the Word unit scores for the clicker section were higher (36.2 of 50) than my non-clicker section (34.9 of 50). See Table 1 for detailed information. There is a difference in experience level using Office between my clicker and non-clicker sections. My non-clicker section has over 50 percent of the students who had experience using Office prior to the start of the course. In contrast, my non-clicker section has approximately 20 percent with the same experience level prior to the course.

Table 1

Unit	Clicker Average	My non-clicker class Average	Non-Clicker Average	Course Average	Percentage of Unit where clickers were used
Word	36.2	34.9	36.7	36.6	50%
Excel	38.6	40.3	40	39.9	33%
Access	34.0	39.1	34.3	34.1	100%
PowerPoint	36.6	40.0	35.6	35.7	100%
Final Exam	85.5	90.6	77.4	78.3	N/A

Student comments include “I liked using the clickers. I thought it helped a lot I get to see some of the questions and it is more fun than a regular lecture or just doing homework. It’s kind of like a game.” “I think the clickers are a great way to get instant confirmation of comprehension! There are so many classes where you think you're understanding the lectures, but in reality you're completely in the dark.” “At the end of each class doing an anonymous quiz with the clickers is a fun and fast way of recapping the course content and checking my comprehension of the subject.” “I like the fact that the 'clickers' give instant feedback to the question, "What do I need to study? I also like the fact that the 'clickers' incorporate passive and active learning techniques. It allows me to review the course content and then actively discuss the answers with the instructor and classmates.” “I find the clickers to be very helpful with class. The clickers give us a review on our chapters that we are covering during the week.”

I evaluated a number of companies and selected eInstruction for the ease of use, technical support and training and pedagogical support provided by the sales representative. eInstruction has two types of clickers, radio frequency (RF) and Infrared (IR). The infrared system is the easiest to setup and use on a frequent basis and works extremely well in small college classes. It is available in a kit with a receiver and 32 pads. There are also two versions of software, one is a standalone application for presenting questions and team exercises, the other is a PowerPoint plug-in with the questions are interspersed in a presentation. Each version allows questions to be asked of individual students and has team based activities; Challenge Board, a jeopardy style game; and There it is, a team game with points for correct, quick answers.

Clickers provide instructors with student understanding information that they otherwise may not have. The small investment in time and effort to begin using clickers is well worth the results, both in teaching and learning. Students will appreciate the effort when the learning clicks.