

What this is

The Innovative Instructor is a forum that publishes articles related to teaching excellence at Johns Hopkins

About the CER

The Center for Educational Resources partners with faculty and graduate students to extend instructional impact by connecting innovative teaching strategies and instructional technologies

For information on how to contribute to *The Innovative Instructor* or to access archived articles,

please visit our website

- www.cer.jhu.edu/ii
- or call Cheryl Wagner
- (410) 516-7181

Forum categories

Pedagogy Forum

Hopkins professors share successful strategies for teaching excellence

Technology Forum

Information about emerging technologies, who is using them, and why you should know

Best Practice Forum

"How To" workshops on using technologies and applying innovative instructional methods

In-Class Voting ("Clickers")

Richard Shingles, Lecturer, Biology

What it is

In-class voting systems, also known as "clickers," allow instructors to rapidly collect and analyze student responses to questions posed during class. Clickers can make a class more engaging and encourage students, who often refrain from answering oral questions in class, to contribute to class dialog on questions posed by the instructor. Instructors can also obtain real-time feedback as to how well students understand concepts taught in the class.

Who produced it

The Homewood campus uses the i>Clicker Classroom Response System, and students can use the same "clicker" device in multiple courses. Faculty need a computer to use during class. The Center for Educational Resources (CER) will provide the i>Clicker software and an RF receiver if needed. Students simply purchase an i>Clicker voting unit and register their respective units one time.

Who is using it

In-class voting technologies were first piloted in classes on the Homewood campus in Spring 2003. Since then in-class voting has become ubiquitous in large enrollment classes at Homewood; over 2500 students per semester use the system. Clickers are used in courses such as biology, chemistry, physics, psychological & brain science, history of science and technology, and earth and planetary sciences.



How it can be used

Clickers allow faculty to enliven the classroom quickly and easily. They enable faculty to:

- Give and grade objective pop quizzes on readings or other assignments
- Conduct in-class polls in real time
- Stimulate class discussion by posing subjective questions, using either ad-hoc or previously developed questions
- Manage, record and run reports on all aspects of students' performance using the system
- Take attendance

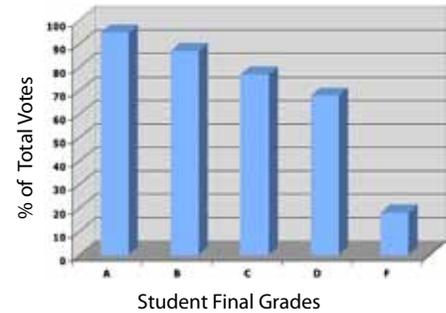
In a typical example, an instructor poses a question, often multiple-choice, to the class. Then students think about the question and submit their responses using handheld wireless transmitters. Responses are beamed to a receiver plugged into the instructor's computer. Software on the computer processes the information quickly and displays a bar chart showing the distribution of student responses. Instructors can then use these responses to decide how to proceed in the class.

i>clicker 2

Instructors vary as to whether or not to use clickers for grading class attendance. Some simply use clicker votes to count as “participation points,” just as they might grade students in discussions. For instructors who would like to monitor attendance over time, clickers can record attendance. In a real-world exercise, *General Biology* tracked student attendance in lectures during the fall semester of 2009 to monitor the impact of the swine flu epidemic, generating a mini public health study as the semester progressed!

Why it matters

Instructors have found that using clickers has dramatically increased attendance in class, enhanced just-in-time teaching capabilities, increased classroom participation and simplified the deployment and grading of quizzes and exams. Data collected over several years in several courses show a direct correlation between clicker participation and final grades. Clickers are generally considered one of the foundations of an active learning.



How to get started

Faculty who are interested in learning more about the in-class voting system should contact Brian Cole (bcole@jhu.edu, 410-516-5418) or drop in to the Center for Educational Resources on Q Level in MSEL.

The i>Clicker system is integrated with Blackboard, the Homewood course management system. Faculty should contact the CER for details on the integration process. Students will also register their i>Clicker units using Blackboard. If instructors choose to use the Blackboard Gradebook, they can upload class votes directly from i>Clicker to Blackboard.

Faculty can borrow a loaner i>Clicker system to try out in a class up to 50 students.

Other thoughts

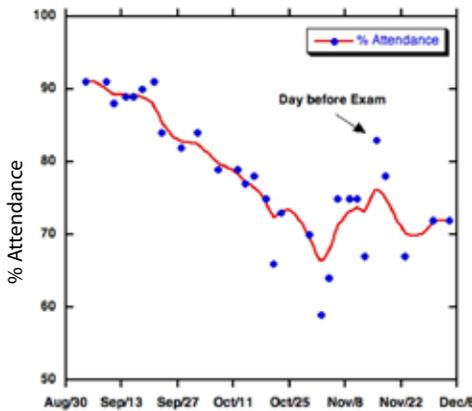
Former students offered their thoughts on the use of clickers in the *General Biology* course:

“It was a good test to see if we understood what was being talked about in the lecture. I found it to be really helpful.”

“[Clickers] helped keep us focused and helped self-assessment regarding immediate comprehension of the material.”

Another quote from Linda Gorman, teaching professor in the Psychology and Brain Sciences department, who has used clickers in a number of courses:

“The clicker system breaks up the monotony of a straight lecture class (no matter how good your lecture!) and is now a welcome addition to all of my lecture courses.”



A semester's attendance during the H1N1 (Swine) flu epidemic

Additional Resources

- Center for Educational Resources
<http://www.cer.jhu.edu/clickers.html>
- i>Clicker
<http://www.iclicker.com/>
- Derek Bruff (2009) *Teaching with Classroom Response Systems*, Jossey-Bass

Author's Background

Richard Shingles,
Lecturer, Biology Department



Dr. Richard Shingles is a Faculty lecturer in Biology and teaches undergraduate and graduate courses at JHU. Dr. Shingles also works as a Senior Instructional Designer and Pedagogy Specialist with the Center for Educational Resources. Instrumental in the redesign of the General Biology course, he supports and counsels faculty, graduate students and developers of science courses. Dr. Shingles has been the director of the TA Training Institute at Johns Hopkins University since October 2006.