

Using Clickers (iClicker) Effectively in Large Lectures By Diane O'Dowd and Adrienne Williams Updated November 18, 2008

Philosophy of Clicker Use

1. We recommend using them to:
 - a. encourage problem-solving in class. Inclusion of more than one right answer on some (not all) problems can also help foster discussion.
 - b. encourage interaction between students, and between students and faculty. Often we allow students to discuss an answer before voting. We sometimes allow them to vote a second time when there is disagreement about the answer, and provide feedback about the logic needed to solve the problem.
 - c. address common misconceptions. Helps students place upcoming material in proper context.
 - d. assess what students know before we teach a subject or what they have learned after we have covered a topic. This helps us teach more effectively.
2. We do NOT recommend using them to take attendance as a way of forcing students to come to class. This breeds discontent and implies we don't think lecture is valuable on its own.

Incentives to Encourage Clicker Use

1. Students get participation credit for each day based on clicking in on at least one question (out of 2-4 that are spread throughout lecture). Therefore they can leave after first question if they want (not many do) and still get credit.
2. Students only need to click in 75% of lectures to get full credit. No dealing with "I forgot my clicker today!" issues.
3. Clickers are worth 5 pts out of about 200 total. Could still get an A without it (theoretically)
 - a. 1 pt for registering and clicking by 3-4th class period. This reduces problems with students waiting to register. It also gives students practice using online gradebook early in the quarter
 - b. 2 pts for first half of class. If they mess up early they have a chance to fix in 2nd half
 - c. 2 pts for second half. If they feel it does not help them they lose only a small number of points for not using the clicker (or coming to class)

Implementation Strategy

1. Information on class web page posted before class begins
 - a. Students are told that clickers are required for the class, and they get a discount coupon with the book.
 - b. Clicker registration information is posted on the home page of the class website
 - d. "Remember you need to purchase, register and use your iclicker by Friday 10/3 for 1 point."
2. First lecture: Discuss how and WHY we use clickers
 - a. We emphasize they are not an attendance device



- b. We want encourage them to learn to solve problems while learning, be engaged and provide feedback to us that improves our teaching
 - c. No points associated with correct answer.
 - d. No need to tell us if a clicker is forgotten, since they only need to click in most days for full credit.
3. Timing clicker questions
 - a. Average 2-4 questions/ 50 minute lecture
 - b. 1 opener question before class starts signals start of class
 - c. A clicker question after each 15 minutes of lecture revitalizes students
 - d. 1 question near end

Creating Clicker Questions:

1. Use old exam questions. Allows students to gauge likely performance on an exam.
2. Use “exposure” questions. Before beginning a topic that students think they understand, create a question that will expose their misconceptions. In meiosis, for example, students don’t realize they don’t understand the importance of the differences between Prophase I and Prophase II.
3. Use questions to test comprehension at the end of a lecture segment. If students do not understand, you can explain the material differently right away.
4. Create survey questions. Find out how well some aspect of your teaching technique is working by ASKING the students to give feedback.

Maximize Effective Use of Clickers for Each Class

Each class is likely to be different in their needs and tailoring your use to a specific class based on their input has in our experience made the students more willing to participate. Ask the class questions about use of clickers, what they find helpful and what you might change to increase usefulness. Ask during office hours, using an online survey, or a clicker poll. We have developed strategy over the past 3 years that most students rate highly but we still change things based on yearly input. For example last year students asked for us to indicate the level of difficulty of each clicker question (recognition, integration, or application) and when we have used an old exam question to indicate that as well. This helps them realize that the questions give them practice working on problems that are directly relevant to material that they will be expected to know on exams.

Have fun, take risks, and you will be amazed at what you learn from the students using this tool.

