Vera Tabakova, Ph.D.
Department of Economics

In my large Principles of Microeconomics classes, clickers help me keep students engaged in the following ways:

1. **Check understanding of new topic:** I use the "Peer instruction" technique created by Eric Mazur to make lectures more interactive. I present a question (usually analytical or quantitative), students spend some time on their own thinking about the solution, they compare and discuss answers with another student and then use the clicker to vote on their final choice.

2. **Find out student opinions on controversial topics:** These types of questions do not have right or wrong answers; they explore student perceptions on topics like minimum wage, outsourcing, pollution or taxes, and serve as a starting point of a class discussion.

Although I do not use clickers to take attendance, students are rewarded for being in class by earning 3 points for a correct answer and two points for an incorrect one. As an additional incentive to find the right answer, the whole class answers a question correctly, that question is included in the next exam.

After several years of using clickers in the classroom, I can say with certainty that students really like them and look forward to the clicker sessions each class.

Grant Gardner, Ph.D.
Department of Biology

In my large undergraduate biology classrooms I utilize the clicker technology for multiple pedagogical functions. First, from a purely pragmatic sense it helps me to take attendance in large classes where other methods are either too time-consuming or impractical. I do not base student grades on attendance, but use clicker attendance for class. I can also say with certainty that students really like them and look forward to the clicker sessions each class.

Second, I use it as a means to assess student preparation for class. I use a reverse lecture technique in which students are expected to read course material and view a pre-recorded course lectures prior to class attendance, so that we can spend class time engaging in active learning exercises.

I begin class with approximately five graded clicker questions based on the material from the previous evening which not only holds students accountable for the material but also as a form of formative assessment.

Clicker questions at the beginning of class and sprinkled throughout allow me to assess student understanding and misconceptions.

Finally, clicker are also a source for increasing engagement in students along with other group active learning work.

**References**


April 3, 2013

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**College STAR Clicker Learning Community**

**Enabling Student Centered Learning**

**Clickers**, also known as classroom response systems, “are instructional technologies that allow instructors to rapidly collect and analyze student responses to questions during class.” (Bruff, 2009).

**Background**

Clickers are often cited as a technological tool to improve student learning and engagement. Yet studies note that the use of Clickers in the classroom varies greatly among faculty and between disciplines with many not adopting or discontinuing use. Furthermore, faculty using the technology are concerned that it is not being used efficiently to enhance student learning. In light of these concerns, we have developed the following guiding questions for our Clicker learning community:

- Why do some instructors not want to adopt or choose to discontinue use of clickers?
- Do the instructors need to change their teaching style to adopt clicker in classrooms?
- How are clickers implemented across the disciplines using different pedagogical strategies?
- How can disciplines learn from each other to obtain maximum benefit for student learning from this technology?

**Benefits of Clicker use for students**

- Represents information in multiple formats and media.
- Provides a complementary instructional strategy to other forms of instruction.
- Provides multiple pathways for student actions and expression.
- Provides means for immediate feedback.
- Enables students with disabilities to participate to have a voice in the classroom discourse.
- Helps to prevent boredom or fatigue.

**Implication of Clickers on Teaching**

- Transforms the learning experience from an instructor centered to learner centered approach.
- Provides means for formative assessment, immediate bidirectional feedback, summative assessment, anonymous polling.
- Provides multiple ways to engage and maintain student attention, interest and motivation.
- Enables efficient means for managing large classes for attendance and posting of assessments and attendance information.

**Drawbacks or Barriers to Clicker Use for Faculty**

- Additional preparation time.
- Technology discomfort or phobia.
- Technology failures in the classroom.
- Training and technical support.
- Students forgetting clickers or not having funds to purchase.

**Learning Community Timeline**

Fall 2012: Developed research questions, obtained IRB approval.

Spring 2013: Administer survey, collect & analyze data.

Summer 2013: Prepare for and publish results.

**Evaluation Methods - Survey of Faculty**

- **Background:**
  - This data helps me to identify struggling students who may need extra help and I can also show the at-risk students their performance data easily after each lecture (season) to closely monitor their development.

- **Sample:**
  - 50 students
  - 68.3% Male, 31.7% Female
  - 57.6% Full-time, 42.4% Part-time
  - 80.7% Clicked & responded correctly, 19.3% Clicked incorrectly

- **Session Data:**
  - 90% response rate
  - 80% correct answers
  - 20% incorrect answers

- **Implication:**
  - Provides formative assessment, immediate bidirectional feedback, anonymous polling.
  - Provides multiple ways to engage and maintain student attention, interest and motivation.
  - Enables efficient means for managing large classes for attendance and posting of assessments and attendance information.

Karen A. Mulcahy, Ph.D.
Department of Geography

In my 95 seat introductory Geography class, Peoples, Places, and Environments, clickers have proven their usefulness in multiple ways.

The clickers initially appealed to me as a practical means for recording attendance in my large classes. The attendance is not directory recorded as such but is derived from the student using the clickers for class. I can also show the at-risk students their performance data easily after each lecture (season) to closely monitor their development.

Subodh Dutta, Ph.D.
Department of Chemistry

I enjoy finding new ways to engage my 250 student class for better results. By using clickers in a class, I can gather tons of extremely helpful data to monitor student progress and identify at-risk students who need extra help to succeed in my class. I tell my students that I not only teach, but help them to learn the material, and without student feedback it is difficult to know whether they are grasping concepts or not.

The clicker is an excellent pedagogical tool to engage students, monitor their progress in real-time, and improve student performance in large classes by providing immediate feedback.

I start each lecture with a couple of questions pertaining to the concepts covered in the previous lecture, and with a question from the materials just covered in class.

In addition, conceptual questions are presented at regular intervals using instructor remote while walking around the class to keep student engaged and to know whether they are understanding the concepts or not.

After my lecture I review the student polling data to find each student’s performance in class by generating an easy to read chart.

**References**

