Lehman Flips for Clickers

Rena Quinlan
CUNY Lehman College, rena.quinlan@lehman.cuny.edu

Alyson Vogel
CUNY Lehman College, alyson.vogel@lehman.cuny.edu

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BRONX edTech SHOWCASE

Bronx Community College
Lehman Flips: Clickers for a Flipped Classroom in a Biological Sciences Lecture Hall

Lehman College

Rena Quinlan Doctoral Lecturer, Biological Sciences
Alyson Vogel Associate Director, Office of Online Education
A ‘clicker’ or personal response system, student response system, or audience response system) is a set of hardware and software tools that provide immediate feedback to student understanding.

- A teacher poses a multiple-choice question to his or her students via computer and overhead projector.
- Each student submits an answer to the question using a handheld transmitter (a radio frequency “clicker”).
- Software on the teacher’s computer collects the students’ answers and produces a bar chart showing how many students chose each of the answer choices.
- The teacher makes “on the fly” instructional choices in response by, for example, leading students in a discussion of the merits of each answer choice or asking students to discuss the question in small groups.
Clickers vs. Other Types of Responses

• Everyone participates, not just the outgoing and vocal students

• It makes it harder for students to simply vote with the majority because they don’t see one another’s answers

• Our ‘low tech’ version uses index cards that responders have to hold up ;}
What Types of Questions...?

• Clicker ‘wars’ work in teams of 2 or 3- peer teaching
• Surveys- Assessing student awareness; survey and ask personal or controversial questions since the responses can be rendered anonymous and students can feel they’re in a safe space to offer honest answers
• Quantitative Reasoning questions, Critical thinking questions
• Recall questions... Did students ‘get it’? Mid class rewards attentiveness, keeps students on their toes: Good responses, move on; poor responses: group exercise, group discussion- try to ‘convince’ your partner that your answer is correct!
• Quizzes to begin class in the first 5 minutes to assess whether students are reading for class!
• Hypothesis for experiments- predict outcomes
• Policy studies class/vs/ published studies- to study bias
• Students can vote on a particular current events topic or hot button issue
• Rate the class- no need to wait till end of semester evaluations- trends, methodologies
• Responses on a bar graph are real time, immediate and gratifying (for some!)
• High stakes, (weekly grades)
• low stakes (participation credits)
WHAT ARE CONCEPTESTS?
The instructor presents one or more questions during class involving key concepts, along with several possible answers. Students in the class indicate by, for example, a show of hands or a clicker unit, which answer they think is correct.

If most of the class has not identified the correct answer, students are given a short time in lecture to try to persuade their neighbor(s) that their answer is correct. The question is asked a second time by the instructor to gauge class mastery.
<table>
<thead>
<tr>
<th><strong>Purpose of Assessment:</strong></th>
<th>To estimate class learning in real time.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Instructor Preparation Time:</strong></td>
<td>Some time is needed to create ConcepTests. For some disciplines, hundreds of sample questions exist on websites as a time-saving resource.</td>
</tr>
<tr>
<td><strong>Preparing Your Students:</strong></td>
<td>Students require minimal training though sustained use in class helps students become comfortable with the method.</td>
</tr>
<tr>
<td><strong>Class Time:</strong></td>
<td>ConcepTests typically last from less than a minute to several minutes.</td>
</tr>
<tr>
<td><strong>Disciplines:</strong></td>
<td>Appropriate for all.</td>
</tr>
<tr>
<td><strong>Class Size:</strong></td>
<td>Best with classes of at least a dozen students. Successfully used in large lecture classes.</td>
</tr>
<tr>
<td><strong>Special Classroom/Technical Requirements:</strong></td>
<td>None. The method can be used in conjunction with worksheets, lecture demonstrations, and computer animations and filmclips.</td>
</tr>
<tr>
<td><strong>Individual or Group Involvement:</strong></td>
<td>Small group of 2 or 3 students.</td>
</tr>
<tr>
<td><strong>Analyzing Results:</strong></td>
<td>Minimal.</td>
</tr>
<tr>
<td><strong>Other Things to Consider:</strong></td>
<td>It is more difficult to predict how much material will be covered in a lecture. It may take a sustained effort for an instructor and class to become comfortable and work effectively with ConcepTests.</td>
</tr>
</tbody>
</table>

1) Imagine a species of bird in which females prefer to mate with brightly colored males. However, males with bright backs are more often preyed upon by hawks. Assuming that a wide variety of genetic variation exists in the species, which do you think is the most likely evolutionary outcome?

a) Males will be selected to be brightly colored.
b) Females will be selected to choose drab males.
c) Males will be selected to have bright chests and dull backs.
d) Females will not mate.
e) The species will go extinct because the hawks catch all the males
2) Imagine that you have discovered a new lizard that lives in a foggy desert in southwestern South America. As fog rolls in, this lizard stands on its head and lets water condense on its back and roll in grooves to its mouth. Considering the similar behavior of the Namibian beetle (from Namibia, Africa) in the figure below, this trait is an example of which of the following?

a) convergent evolution
b) inheritance of acquired traits
c) homology
3) According to the figure, the most energy-efficient locomotion method for a 1-kg animal with the relevant adaptations is

A. swimming.
B. flying.
C. running.
Next Steps - Repeat Research in Fall 2014

- Try Other Technologies
  - Guide on the Side ([http://code.library.arizona.edu](http://code.library.arizona.edu)) for online tutorials
  - Video Annotating software ([Vialogues](https://vialogues.com))
  - Clickers or Online Quizzes ([Poll Everywhere](http://www.polleverywhere.com)) for Quick Assessment
Questions?

- Contact Us
  - Alyson.vogel@lehman.cuny.edu
  - Rena.quinlan@lehman.cuny.edu

- Library Research Guide on Flipped classrooms
  - http://libguides.lehman.edu/flipped
- CUNY Hybrid Initiative faculty training website
  - http://CUNY.is/hybrid