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Clicker Questions: Design and Examples

The first thing to think about when designing clicker questions is what role the questions will play in your lecture or discussion. What are the key concepts or themes that you want to emphasize during the course? Is there a particular way you hope to use the clickers in lecture? Once you get down to the level of individual lectures, what is the goal of each question therein? There are myriad possibilities, and each one may require different kinds of clicker questions.

So how do you get started? Although of course there are many ways to proceed, two main suggestions come up repeatedly. The first is to think about and list the main goals of the course overall as well as the main learning goals for each lecture. Use this list as the starting point for generating questions, keeping in mind your lecture style. The second approach is to start from your lecture notes or slides (if you use PowerPoint or another presentation technology). The goal in this case is to identify places in the lecture that might be good spots for questions. Remember that in general you are advised not to stop your lecture for questions more than once every ten minutes or so.

Different researchers and practitioners give, unsurprisingly, different kinds of advice regarding question design. Ian Beatty, for example, admonishes us to avoid “simple factual questions or those that probe memory rather than understanding” (10). However, in line with the idea of using clickers to “check in” with students to see whether they are on the same page (with each other or with you), questions that test recall or factual knowledge can be both valid and useful. This level of questioning can also be used to inform your lecture or to create discussion. The approach given by Beatty et al. is rigorous and exacting, requiring that every question fulfill an “explicit pedagogic purpose consisting of a content goal, a process goal, and a metacognitive goal” (abstract, 31). This sounds like an ideal approach, but realistically the development of a whole set of such questions is probably very
time-consuming. Other practitioners are content to have each question address a smaller 
goal; here we will introduce several possibilities.

One overall goal for which we are always striving is to motivate students to do the 
assigned reading. Such strategies as written reading responses or quizzes (both announced 
and unannounced) have proven effective in both large and small classes. Particularly in 
larger classes, though, clicker questions offer an efficient alternative to in-class quizzes, 
since time is not lost in handing out or collecting papers. These questions can be used as a 
review of assigned work or to highlight aspects of a reading that should be emphasized or 
remembered, and they can also serve to preview the types of questions that may appear on 
an exam so that students get an idea of how they should be thinking about an issue. 
UCSB’s Indy Hurt occasionally gives such a question to her class and then lets the 
students know that if enough of them (usually 90% in her very large geography classes) get 
it right, they will see that same question on the next exam. Professor of psychology Richard 
Mayer similarly promises students that some of his clicker questions will appear on exams. 
Hurt sometimes uses questions to help students focus on particular sections of their reading 
by telling (or warning) them that she will ask a clicker question about a particular concept 
during the next lecture (see also Woelk 1404).

The strategy of using clicker questions to promote discussion during lecture is 
widespread in the research literature, especially if the question has more than one right 
answer or contains ambiguities that might misdirect students. According to Beatty, 
ambiguity “sensitizes students to the ambiguous point’s implications, trains them to pay 
attention to subtleties in a situation, and motivates a discussion about what aspects of a 
question statement are important and how they matter” (10). Hurt and physics professor 
Roger Freedman both espouse the use of ambiguities or distractors in a question’s answers; 
successfully executed, this results in more than one answer that seems correct on the surface 
or at first glance. They use questions like these as a way to encourage deeper thinking as 
well as discussion in class: when the histogram shows that the class is evenly split between
two or even three responses, you can ask for a volunteer to explain or defend his or her answer. As another option, the students can also spend a few minutes discussing their answers with their neighbors in an attempt to come to a consensus and then vote again; Freedman uses this approach as an explicit adaptation of Frank Lyman’s “think-pair-share” teaching method. Of course, as Freedman points out, even if a consensus is reached, it may not be around the correct response, but such an outcome is still useful as an effective teachable moment. If there is a marked shift in the responses the second time around, you can ask the students to discuss why that occurred. These strategies can force students to think more deeply about why they chose particular responses, opening up avenues to metacognitive growth. Be aware that this type of question is sometimes difficult to create; trying to use too many may distract from your other class preparations. It is also possible and perhaps a bit easier to create other questions that will spark a discussion by focusing on oppositional readings or other ideas that directly challenge students’ preconceptions.

Clicker questions can be used to provide feedback to the instructor (the anonymity function can prove particularly valuable here). You can find out how much confidence they have in their understanding or abilities (how well do you know the MLA style? how confident are you in your understanding of postcolonial criticism?), or ask what material is giving students the most trouble, identifying the “muddiest point” in the material (see Mosteller; Martin). Such feedback can be helpful as you plan subsequent lectures, and it can also help you think about future versions of the course. This type of feedback can also be a key component in a strategy of “contingent teaching” (Draper and Brown 92), in which you alter your lecture on the fly in reaction to how well or poorly the students seem to comprehend the material (this approach is also call “just in time” or “agile teaching”). You can have the students provide a brief evaluation of the course (is the pace of lecture too fast? are there too many clicker questions?) at any point during the quarter as well, rather than waiting until after grades have been posted to find out how things went. Questions can also provide feedback to the students: sample exam questions or other review questions can
let students know objectively where their weak spots are.

In addition to the classroom-related goals discussed above, you can also consider the cognitive or metacognitive goal(s) of the question you’re designing. One widespread method for addressing this concern and finding guidance is to consult the *Taxonomy of Educational Objectives*, popularly known as Bloom’s Taxonomy. In brief, this is a hierarchy of cognitive domains (factual knowledge, comprehension, application, analysis, synthesis, and evaluation), each of which represents a different level of cognitive activity. Thinking about these different levels can help in designing clicker questions. Identification of terms, plot points, or characters would fall into the lowest level of recall and factual knowledge; identifying the perspective a critical writer takes in a particular passage would be a higher-level problem of analysis or synthesis. (Useful web links regarding the Taxonomy and multiple-choice questions are located at the end of this document.)

Bloom’s Taxonomy is a mainstay in pedagogical research, but many revisions, rewritings, and complete replacements have been proposed since its appearance in 1956. Anderson and Krathwohl, for example, oversaw a modest but significant revision in 2001 (Krathwohl was one of the original contributors to Bloom’s volume). On the other hand, Beatty et al. in their 2006 article ignore the taxonomy altogether in favor of their twelve “habits of mind.” No system or hierarchy is particularly correct, but any of them can provide the direction needed to design quality clicker questions.

Moving away from actual assessment, there is another way to use clicker questions: polling. There are several reasons to ask questions that can have no right answers. Demographic polling may help break the ice in large lectures; asking students where they are from, what their standing in school is (freshman, sophomore, etc.), or what age group they belong to might help them feel less isolated in the large-class setting. Anonymous polling can also be used in conjunction with sensitive questions that might serve, for instance, to introduce a topic or author.

It’s important to remember that the i>clicker software can do more than just collect
and display responses to questions. Questions can be made anonymous; that is, the responses are collected and tabulated, but are not associated with individual student IDs. This function might be useful if you are interested in polling the students for demographic or sensitive information (what age group are you in? how have you been affected by violent crime?). The results from two questions can also be displayed side-by-side for comparison, which would be, for example, an effective way to compare pre- and post-discussion results on a single question. If you find yourself inspired in the middle of lecture, it is also easy to create an on-the-fly question right then and there.

Finally, there are a couple of things to be careful of in your clicker preparations. Ken Masters of the University of Cape Town cautions us to “Watch out for cultural bias” in our question design; this may be a more appropriate caveat in more “objective,” science-based classes, but is still something to keep in mind in our culture-based and culturally sensitive humanities courses. We are also warned not to rely on the clicker technology to get the job of teaching done. It cannot be stressed enough that the technology is merely a tool that can facilitate good teaching; its use alone does not achieve or guarantee good teaching. Finally, it is important to remember, if you commit to using clickers in your classroom, that you are no longer simply delivering a lecture; instead, think of it as an interactive lecture—this can help you make the most of the technology.
Clicker question examples (correct answers are indicated in **bold** where appropriate):

1. What type of figurative language appears in the following poem?

   “Women Are Not Roses”

   Women have no
   only continual
   flows.

   Though rivers flow
   women are not
   rivers.

   Women are not
   roses
   they are not oceans
   or stars.

   i would like to tell
   her this but
   i think she
   already knows.
— Ana Castillo (Women Are Not Roses)

2. What school of criticism does this statement represent?
“A poem is what the reader lives through under the guidance of the text and experiences as relevant to the text.”

a) New Criticism b) New Historicism c) Psychoanalytic Criticism d) Reader-Response Criticism e) Deconstructive Criticism

(Quotation taken from “Towards a Transactional Theory of Reading,” Louise Rosenblatt, 1969.)

3. What is the subject of the verb “leaps” in the following passage?

...and in some spongy log

Whence headlong leaps the oozy emerald frog.

And a black pupil in the green scum shows.

Her the inhabiter of divers places

Surmising at all doors, I push them all.

a) pupil b) log c) frog d) headlong e) Her

(Quotation from “Still will I harvest beauty where it grows,” Edna St. Vincent Millay.)

4. Gatsby got his wealth through...

a) the railroad industry b) bootlegging c) a family inheritance d) politics

5. What do you think about the government’s access to and use of surveillance technologies?

a) I think the government should have access to many forms of surveillance in order to
protect our society.
b) I think the government should have access to some surveillance technologies—people who are not breaking the law have nothing to hide.
c) I think our right to privacy is very important; the government should be held to strict rules on the use of surveillance.
d) I think privacy outweighs the government’s concerns, and the government should not be trusted with surveillance technologies at all.

6. Which of these Nobel laureates deserved the prize most?
   a) William Faulkner   b) Gabriel Garcia Marquez   c) John Steinbeck
d) Toni Morrison   e) Ernest Hemingway

7. How confident are you in your ability to analyze poetry?
   a) very confident
   b) somewhat confident
   c) marginally confident
d) not at all confident

8. Read the following passage:

   Save that from yonder ivy-mantled tower
   The moping owl does to the moon complain
   Of such as, wandering near her secret bower,
   Molest her ancient solitary reign.

Fill in the blanks in this statement: While a new critic might see the “moping owl” as an example of the ________________, a ________________ critic might instead be more concerned with the ways that the owl reflects the speaker’s own sense of melancholy.
a) patriarchy, new historicist

b) interpretive community, psychoanalytic

c) oedipus complex, reader response

d) interpretive community, feminist

e) pathetic fallacy, psychoanalytic

9. Which of the following characters from *The Tempest* might a postcolonial critic be most interested in?
   a) Miranda   b) Sebastian   c) Trinculo   d) Caliban   e) Antonio

10. Rate the tone of “Montage of a Dream Deferred” and be prepared to explain your answer:
   a) very positive   b) somewhat positive   c) neutral (neither positive nor negative)
   d) somewhat negative   e) very negative

10. Which of the following best states the New Critics’ stance?
   a) The text is a mirror that can reveal information about the society that produced it.
   b) The way we respond to a text allows us to learn more about ourselves.
   c) Our aim is to dive into the text in order to expose its internal inconsistencies.
   d) **We are mainly interested in focusing on the text itself as an aesthetic artifact.**
   e) The text gives us insights into the author’s thoughts and motivations.
Some links to help using Bloom’s Taxonomy with multiple-choice questions

Multiple Choice Questions and Bloom’s Taxonomy.


Bloom’s Taxonomy of the Cognitive Domain.


Works Consulted


Freedman, Roger. Personal interview. 28 July 2009.
Hurt, Indy. Personal interview. 29 July 2009.
Mayer, Richard E. Personal interview. 23 July 2009.


