Using Clickers to Increase Information Literacy Outcomes in the Classroom

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Introduction

- What are clickers?
- Active learning and student engagement
- Technical considerations
- Who are our students and what is ENG 1060?
- Experimental design
- Data analysis
- Results
- Discussion
- Conclusion
- For further reading (we will provide a separate bib)

What are Clickers?

- All the same
  - Audience Response Systems
  - Classroom Response Systems
  - Clickers
  - Personal Response Systems
  - Student Response Systems

What are Clickers?

- Clickers – "Commonly referred to as CRS (classroom response systems), these innovative, interactive tools have become increasingly popular on university campuses in the last five years. Many different CRS products are available, but the concept underlying all of them is the same: students use hand-held clickers, similar to a t.v. remote control, to respond to multiple choice or polling questions that the instructor posts as part of his or her daily lecture. The responses are gathered by a central receiver, tallied, and immediately projected back for all to see"

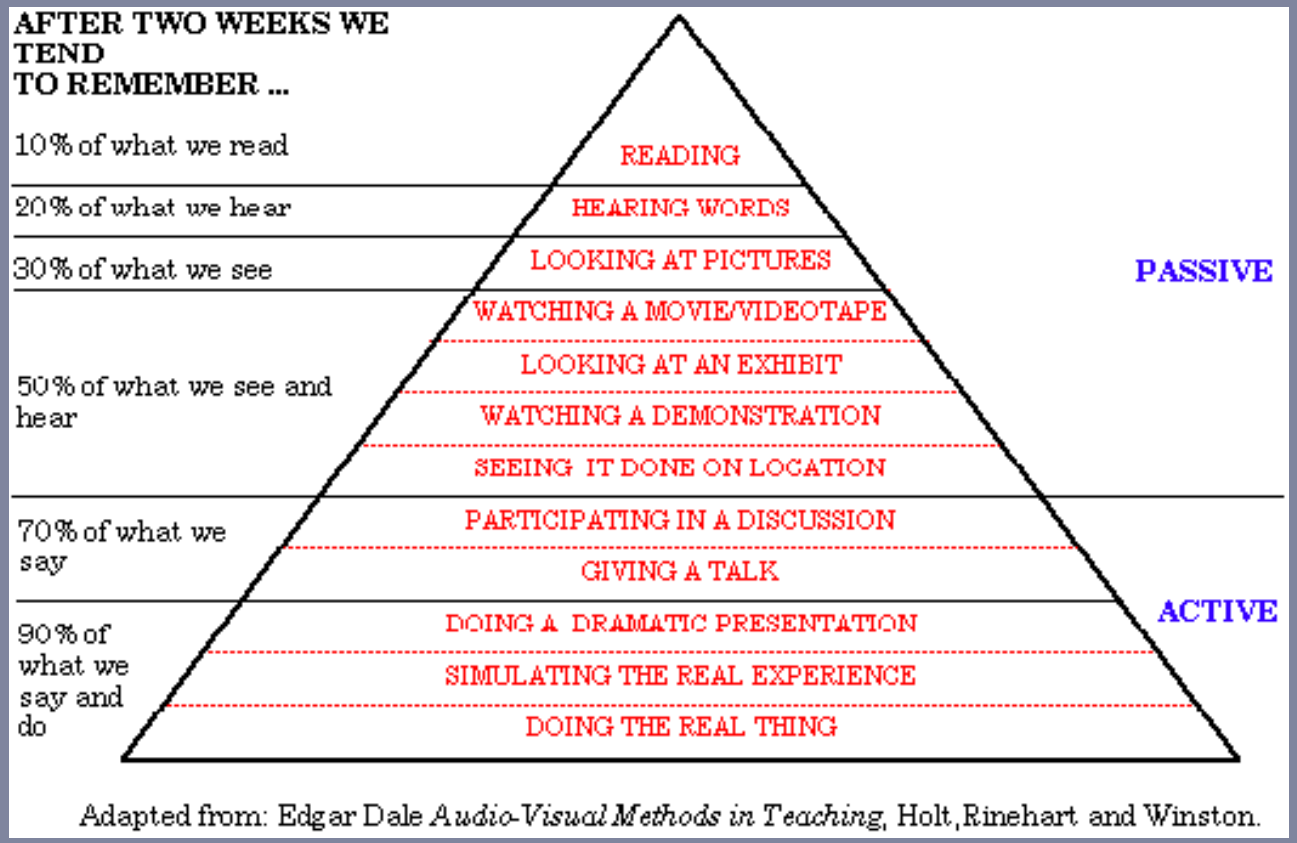
https://wikis.uit.tufts.edu/confluence/display/UITKnowledgebase/Clickers+-+Classroom+Response+System+(CRS)

Active Learning

- The benefits of active learning are widely acclaimed in higher education. According to Guthrie and Carlin, modern students are primarily active learners, and lecture courses may be increasingly out of touch with how students engage their world. Chickering and Gamson, early proponents of active learning, designated "encourage active learning" as one of seven principles of good practice in higher education.

http://www.educause.edu/EDUCAUSE+Quarterly/EDUCAUSEQuarterlyMagazineVolum/ClickersintheClassroomAnActive/157458

Active Learning



Student Engagement

- Two major assumptions:
  - Clickers provide a mechanism for students to participate anonymously.
  - Clickers integrate a "game approach" that may engage students more than traditional class discussion.

http://www.educause.edu/EDUCAUSE+Quarterly/EDUCAUSEQuarterlyMagazineVolum/ClickersintheClassroomAnActive/157458

Student Engagement

Clickers in the Classroom

- Clickers in the information literacy classroom
- Clicker best practices

Technical Considerations

- Choice of clickers
  - What features are you looking for?
  - Notebook Software
- Storage and maintenance
  - Batteries
  - Security
- Software upgrades, USB ports, etc.
  - We had some connection woes

SMART Response Clicker

Who are our students?

- UNCP demographics
  - 6,433 students (Spring 2010)
    Undergraduate: 5,699
    Graduate: 734
  - Total minority enrollment is 58 percent
  - 40 % non-traditional students
  - Mostly commuter students
  - Class size – 20 on average

English 1060

- Second of two-course composition sequence
- Argument-based assignments
- Spring 2010
  - 45 sections with a total enrollment of 870 students
  - The library provided instruction to 29 unique sections with a total of 459 students attending the sessions
- Typical interaction with ENG 1060 sections
- Special instructional programs

Research Questions

Two main questions to be answered:

1. Does the use of clickers increase student engagement?

2. Can the use of clickers increase information literacy learning outcomes?

Research Questions(cont.)

Clickers = Engagement

Almost all previous studies in support

Research Questions (cont.)

Clickers ≠ increased outcomes

- Dill (2008) – first-year students (N=46)
- Martyn (2007) – Intro. Computer science (N=68)

Research Questions (cont.)

Why is evidence for learning inconclusive?

- Technology alone does not increase learning
- Shift in pedagogy + technology = success (West, 2005)
- Research is lacking (most measure affective learning)

Experimental Design

- Aimed to determine increase in learning outcomes for ENG 1060 students
- 7 classes using clickers vs. 8 using traditional lecture
- Learning outcomes gauged by pre/post
- Affective learning measured by Likert

Learning Objectives

ACRL Information Literacy Standards:

-1.2.b, 1.2.d
-2.1.d, 2.2.b, 2.2.d, 2.4.c, 2.5
-3.7, 3.7.a, 3.7.b, 3.7.c

Which essentially means…

Learning Objectives (cont.)

We wanted our students to be able to:

1. Create effective search strategies
2. Use basic database functions
3. Properly identify citations
4. Revise searches (narrow, broaden)
5. Manage extracted information

Instructional Design

1. Paper-based pre-test
2. Question relating to background/experience
3. Keywords, Boolean Operators, Truncation
4. Organization of academic information (choose databases)
5. Question relating to item 3/discuss
6. Database search demonstration (10 min.)
7. Question relating to item 6/discuss
8. Scholarly vs. Popular
9. Parts of a citation
10. Question relating to item 8/discuss
11. Managing citations
12. Paper-based post-test

Clicker Questions

1. Did you come to the Library (this room) for instruction in your Freshman Seminar courses?

A. Yes
B. No
C. Did not take Freshman Seminar

2. Adding the word "AND" in between two keywords will:

A. Increase the number of results (broaden)
B. Decrease the number of results (narrow)
C. Neither

3. Which of the following is a characteristic of a scholarly article?

A. Written for the average reader
B. Written by an expert
C. Generally very brief (no longer than two pages)
D. Written by a reporter or journalist

4. If the full text of an article is not available:

A. You should search the Internet
B. You should use BraveCat
C. Try to get it by using JournalFinder
D. Pick a new topic

Assessment Questions

1. If you have trouble finding articles in a database you should **first**:

A. Try the Internet
B. Change your keywords
C. Try a different database
D. Use Wikipedia T – 85,79 C – 85,92

2. An article **citation** usually includes which of the following information?

A. Your account information
B. The library call number for that particular article
C. The author, title, and date
D. A list of better sources T – 93,98 C – 94,96

Assessment Questions (cont.)

3. **Relevance** ranking in library databases allows you to do which of the following:

A. Sort the articles by importance
B. Sort the articles by date published
C. Sort the articles by length
D. All of the above T – 26,50 C – 32,70

4. **True or False –** Multiple databases on different subjects can be searched at the same time.

A. True
B. False
C. It depends T – 63,85 C – 51,76

Assessment Questions (cont.)

5. The purpose of **Journal Finder** is:

A. To locate a book in the library
B. To locate an article when the full text is not available
C. To locate a credible website on your topic
D. None of the above T – 50,84 C – 55,94

6. Once you find an article that you would like to use, you may:

A. Locate a shorter version
B. Pay for it from your account
C. Try to find it on the Internet
D. E-mail, save, or put it in a folder T – 90,96 C – 86,96

Assessment Questions (cont.)

7. The research paper topic you are given is **"Do teen magazines contribute to eating disorders among teenagers?"** If you were searching a database for articles on this topic, which of the following keyword combinations would be the best search strategy?

A. magazines and eating disorders
B. teenagers and magazines and eating disorders
C. eating disorders and teenagers
D. teenagers and weight loss T – 75,90 C – 69,88

8. A **journal article** is more likely to have been written by:

A. A reporter
B. A professor
C. A military officer
D. A stock broker T – 54,59 C – 43,71

Assessment Questions (cont.)

9. The **summary** of a journal article is also known as:

A. A citation
B. A reference
C. An abstract
D. None of the above T – 62,82 C – 57,87

10. You are interested in purchasing a hybrid automobile from a foreign manufacturer. You searched for *Honda* and got 17 hits. Which of the following searches would help you retrieve **more** than 17 hits?

A. Honda OR Toyota
B. Honda AND Toyota T – 35,58 C – 32,68

Pre-test/Post-test Results

Test Results	Traditional (117)	Clicker (117)
Pre-test Score	63.33 mean	**67.26** mean
Post-test Score	77.94 mean	**85.89** mean
Differential	14.61 mean	**18.63** mean
Overall		**4.02** mean

Affective Learning Questions

How much did you enjoy today's session?

Not at all Not really Just okay I enjoyed it I enjoyed it a lot

Did you prefer using clickers over traditional classroom lecture?

Did not prefer at all Did not prefer About the same I Did prefer I Did highly prefer

How engaged did you feel during today's session?

Not engaged at all Not engaged Somewhat engaged Engaged Really engaged

Have you used clickers in a classroom at UNCP before? _____ Which class(es)? _____

Please list any general thoughts you have about using clickers in today's session:

Affective Learning Results

Test Results	Traditional (117)	Clicker (117)
How much did you enjoy today's session?	3.62 mean	3.79 mean
How engaged did you feel during today's session?	3.68 mean	3.82 mean
Did you prefer using clickers over traditional classroom lecture?		4.15 mean
Have you used clickers in class at UNCP before?		Y = 37, N = 80
1 = Not at all		5 = Very much so

Faculty Feedback Survey

Lacking diligence – only three responses

1. Was this your first experience with clickers in the classroom? 2Y, 1N
2. Do you feel that the clickers may have contributed to the overall effectiveness of the session? 3Y
3. Do you feel that your students were more engaged because of the clickers? 2Y, 1 – "Only when they worked"
4. Do you think you would use clickers in your ENG 1060 classroom if they were available to you? 2Y, 1N
5. Why or why not? N – Reliability, 2Y – engagement/interactivity

Faculty Feedback Survey (cont.)

6. What are your general impressions of clickers in the use of information literacy instruction?

"They are a good idea, when they work. The problem is that when they fail, they do more harm than good."

"They were useful for focusing students' attention on coming to a conclusion rather than just noodling around, but for questions that were too "obvious" I think they felt more like an extra hoop to jump through. But they're clearly useful to collect demographic data too (like how many got FRS library instruction)."

"They add a dimension of student participation to the presentations, which can greatly increase the value of the tutorial sessions."

Faculty Feedback Survey (cont.)

7. What are your feelings in general about technology in the classroom?

"Technology is good when it's a tool, rather than a distraction. When the technology works, it can be a real benefit, as long as it does not become an end in itself."

"It engages students, who generally like gadgets. But even the slightest technical mishap can make them more harmful than helpful, as they disrupt the flow of the class. The technology has to be really seamlessly integrated and ironclad/bugproof."

"Any technology or technique that makes the student feel like a participant in the learning process rather than a passive recipient is a positive. If a specific innovation can accomplish that, without making the students confused, then it should be explored and / or utilized."

Conclusion

- Future study would probably be useful
  - Are individual librarians a factor?
  - Are the individual English composition instructors a factor?
  - Is a class "character" a factor?
- Other possible uses for clickers?
- What ways are you using clickers?

For Further Reading

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Any Questions?

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