

# Using Clickers to Enhance Student Learning

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**BbWorld'08**

**IDEAS INTO ACTION**

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# Session Agenda

- Definition
- History & background of clicker use at the University of Denver
- Examples – 2 classes
  - Large Chemistry Lecture Course
  - Small Political Science Seminar Course
- What students think about clickers
- Blackboard Integration
- 7 Principles of Good Practice
- Tips & Best Practices

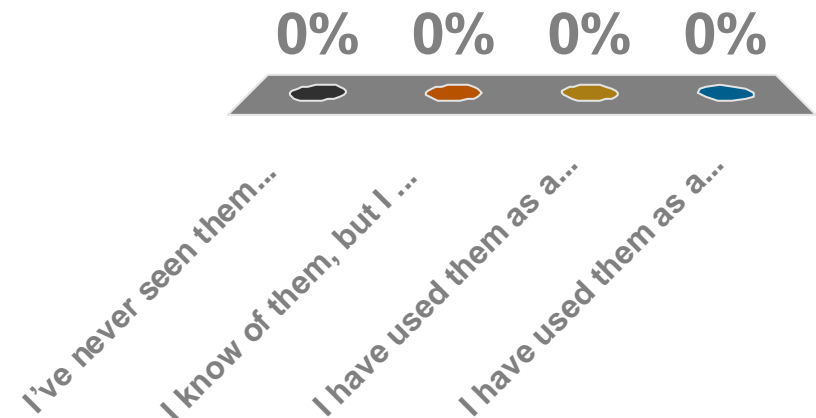
# What's a clicker and how are they used in the classroom?

Student response systems, or clickers, can be used for:

- anonymous polling.
- collecting immediate feedback about student understanding.
- taking attendance.
- administering quizzes.

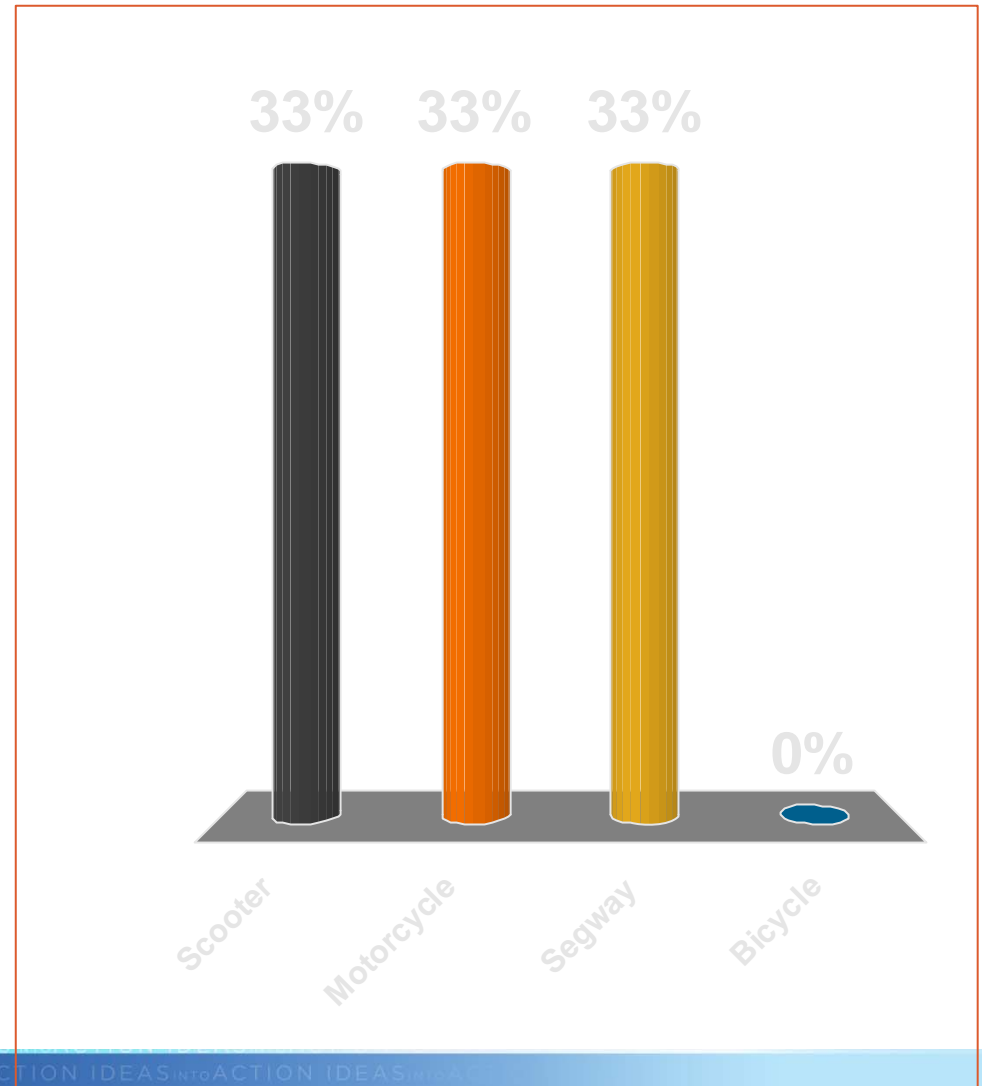
# What is your experience with clickers?

1. I've never seen them before
2. I know of them, but I have never used them
3. I have used them as a student/audience member
4. I have used them as an instructor



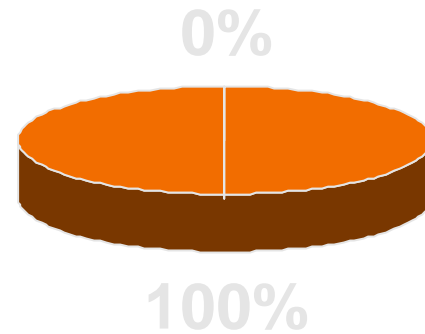
# What was Steve Wozniak riding when he arrived for his keynote address?

1. Scooter
2. Motorcycle
- ★ 3. Segway
4. Bicycle



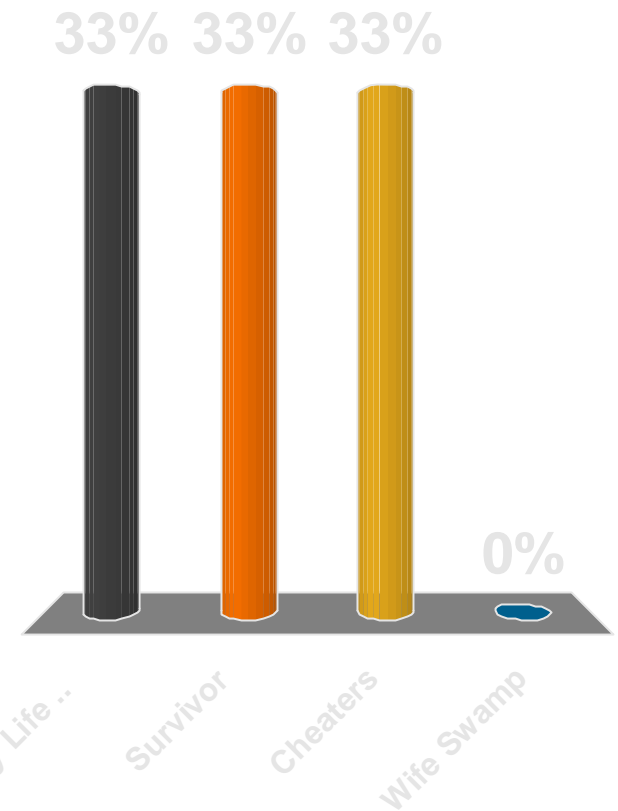
# Steve Wozniak worked for Hewlett Packard designing calculators.

- 1. True
- 2. False



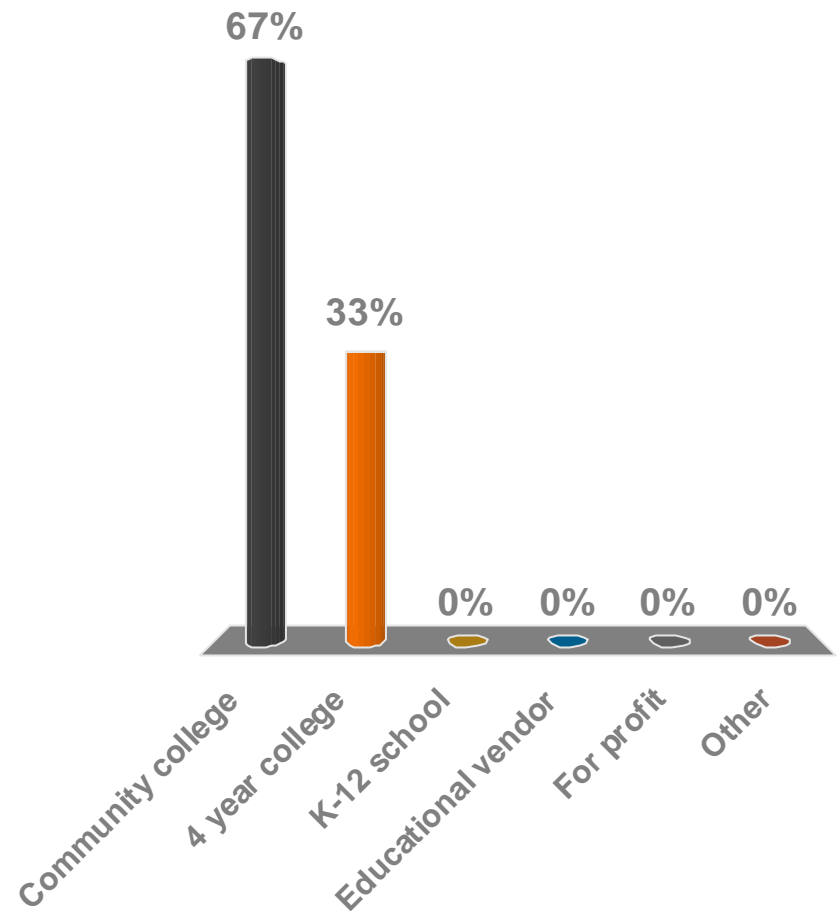
# Which reality TV show did Steve Wozniak recently appear on?

- ➔ 1. Kathy Griffin: My Life on the D-List
- 2. Survivor
- 3. Cheaters
- 4. Wife Swamp



# What type of organization are you affiliated with?

1. Community college
2. 4 year college
3. K-12 school
4. Educational vendor
5. For profit
6. Other







# History of Clicker Usage at DU

- Early adopters began using clickers in 2005
- Standardized in Summer 2007
  - TurningPoint
- Faculty led clicker workshops
- 1051 DU students purchased clickers

# Who is using clickers?

- Small & large classes
- Library staff
- Academic Advising
- Center for Teaching & Learning
- Faculty Senate

# Large Lecture - Chemistry

- Take attendance
- Multiple choice questions based on lecture
  - designing good questions is of critical importance
  - not so hard that students get frustrated and can not get a correct answer
  - not so easy that little thought is required

# Chemistry

- about 10% of grade based on clicker questions
- 3 points per class
  - 1 point for attendance
  - 1 point for each correct answer
- 4 or 5 unexcused absences

# Positive Benefits

- increased attendance
- active participation by students
- “just in time” teaching
- about 90% of students rated clickers as useful or very useful in General Chemistry class
- 25% of students wanted more clicker questions
- promotes cooperative learning
  - students were allowed to discuss questions before responding

# Clicker Usage in Smaller Classrooms

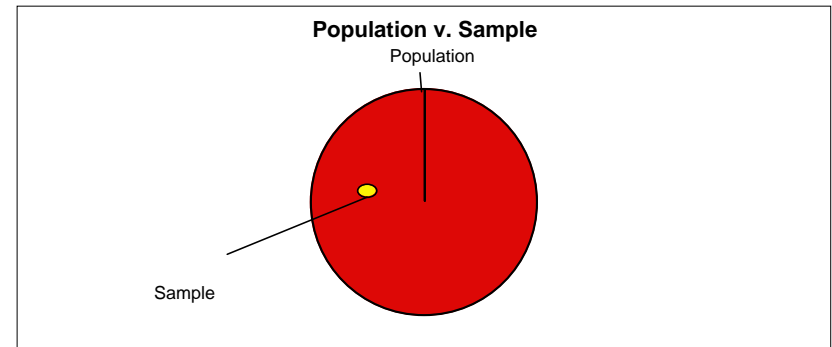
## American Public Opinion Course

Lecture 2 – How Do We Measure Opinions, Beliefs, and Attitudes?

Sampling

# Key Terms and Concepts

- Sample
  - “people chosen to represent the entire population” p. 98
  - In most surveys, we want to generalize from our sample to a larger population.
  - $N$  = number of people who completed the survey



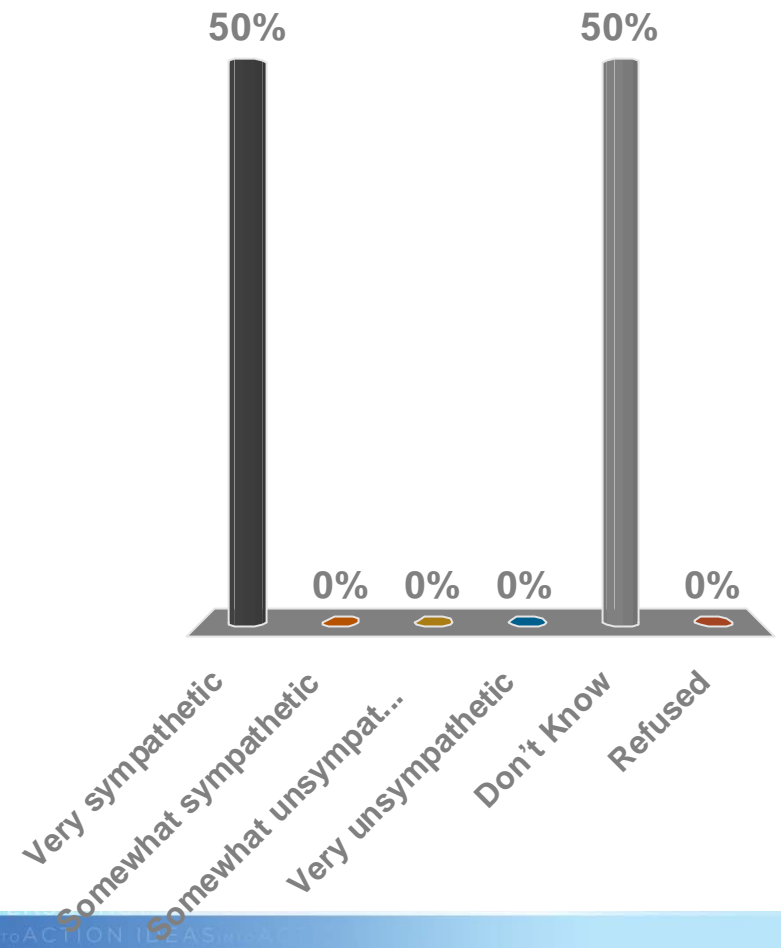


# Current Issues in Sampling

- Census
- Cell Phones
- Caller ID
- Sophisticated Respondents
- Apathy

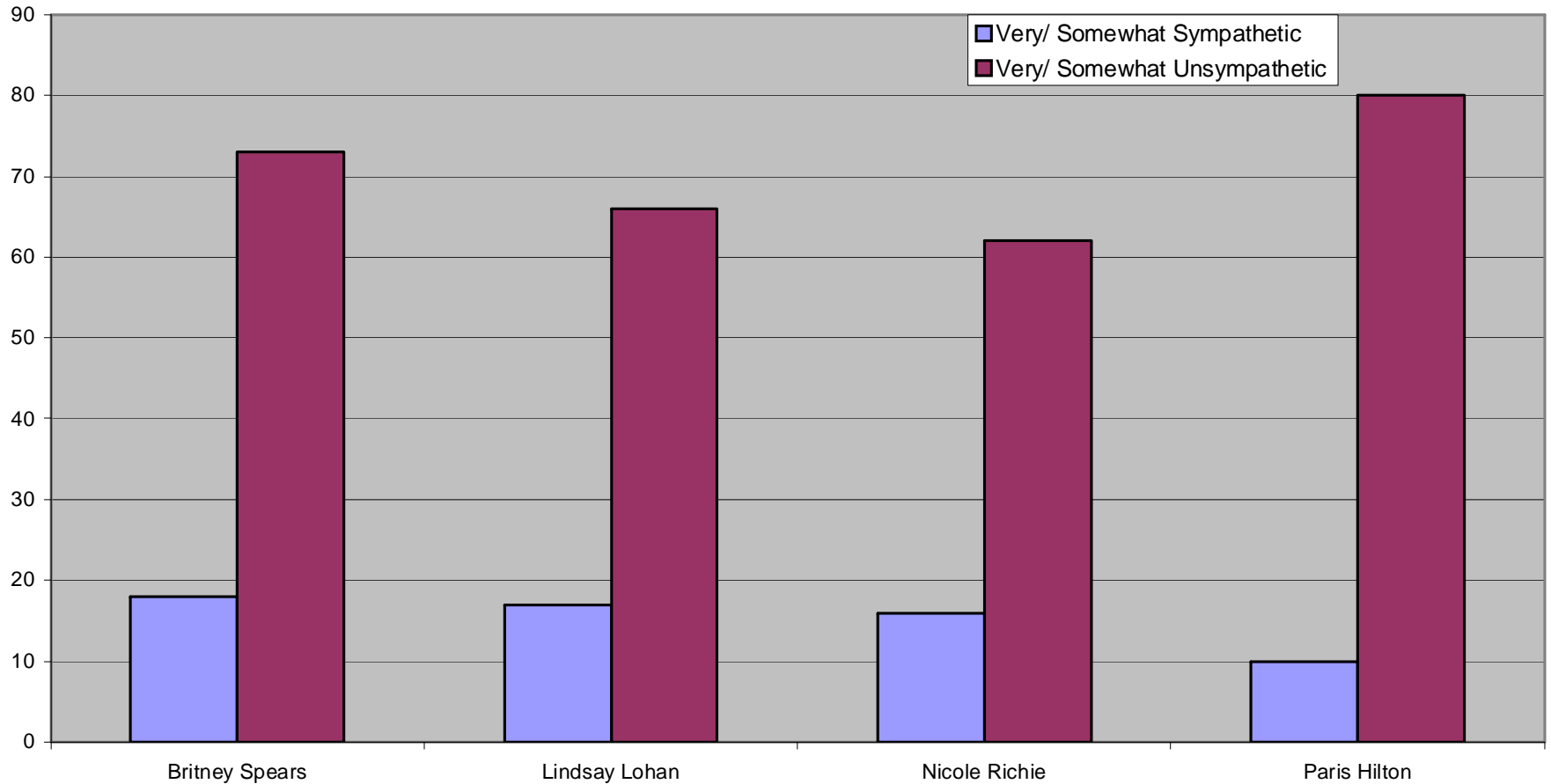
# Lindsay Lohan

1. Very sympathetic
2. Somewhat sympathetic
3. Somewhat unsympathetic
4. Very unsympathetic
5. Don't Know
6. Refused





Thinking about some of the young celebrities in Hollywood today, based on what you know and have seen in the news, do you feel very sympathetic, somewhat sympathetic, somewhat unsympathetic, or very unsympathetic toward?

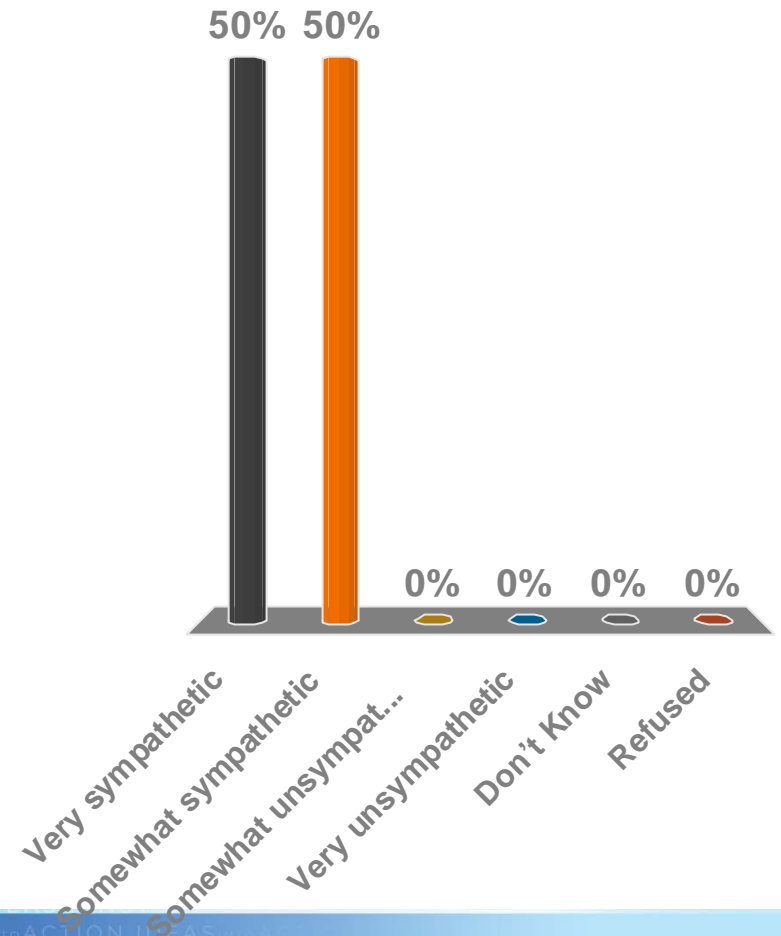


USA Today/Gallup Poll. June 1-3, 2007. N=1,007 adults nationwide. MoE  $\pm$  3.

# Student Feedback Fall 2007

# Britney Spears

1. Very sympathetic
2. Somewhat sympathetic
3. Somewhat unsympathetic
4. Very unsympathetic
5. Don't Know
6. Refused



# Survey Results

- The use of the clicker encouraged me to attend lectures.
  - NATS 1201
    - Agree or Strongly Agree 94%
    - Disagree or Strongly Disagree 6%
  - Tech 21
    - Agree or Strongly Agree 98%
    - Disagree or Strongly Disagree 2%

# Survey Results

- The use of clickers improved my ability to learn the material.
  - NATS 1201
    - Agree or Strongly Agree 76%
    - Disagree or Strongly Disagree 24%
  - Tech 21
    - Agree or Strongly Agree 88%
    - Disagree or Strongly Disagree 12%



# Student Feedback

- Do you wish you used clickers in more classes? (BIO 1010)
  - Yes 76% No 24%
- I wish the professors in my other classes would use the clicker.
  - Tech 21
    - Agree or Strongly Agree 72%
    - Disagree or Strongly Disagree 28%
  - NATS 1201
    - Agree or Strongly Agree 26%
    - Disagree or Strongly Disagree 74%

# Student Feedback – BIOL 1010

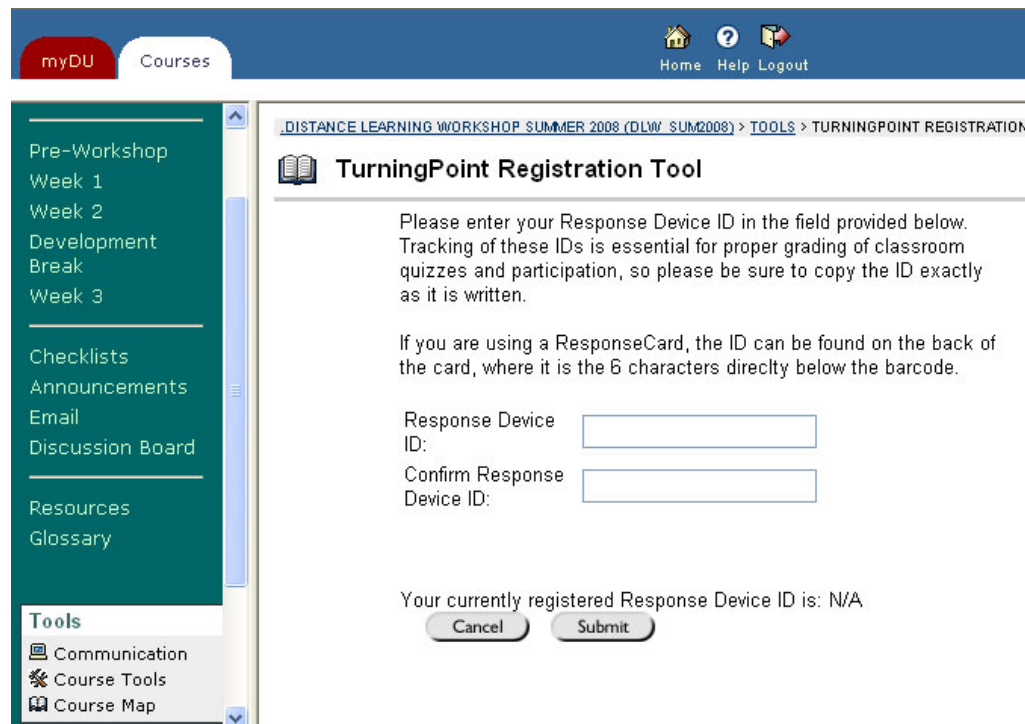
- Do you enjoy using clickers during lecture?
  - Yes 94%
  - No 6%
  
- Do clickers support your learning?
  - Yes 67%
  - Maybe a little 29%
  - Not very much 3%
  - Not at all 1%

# Instructor Testimonials

- “I believe that active engagement in class is very important to student learning. Clickers promote this because they encourage attendance and the students must pay attention to answer the questions.”
  - Joseph Hornback, Professor of Chemistry & Biochemistry
- “I have also found that the quality of class discussions increases when students first express their opinion through clickers.”
  - Tom Knecht, Assistant Professor of Political Science

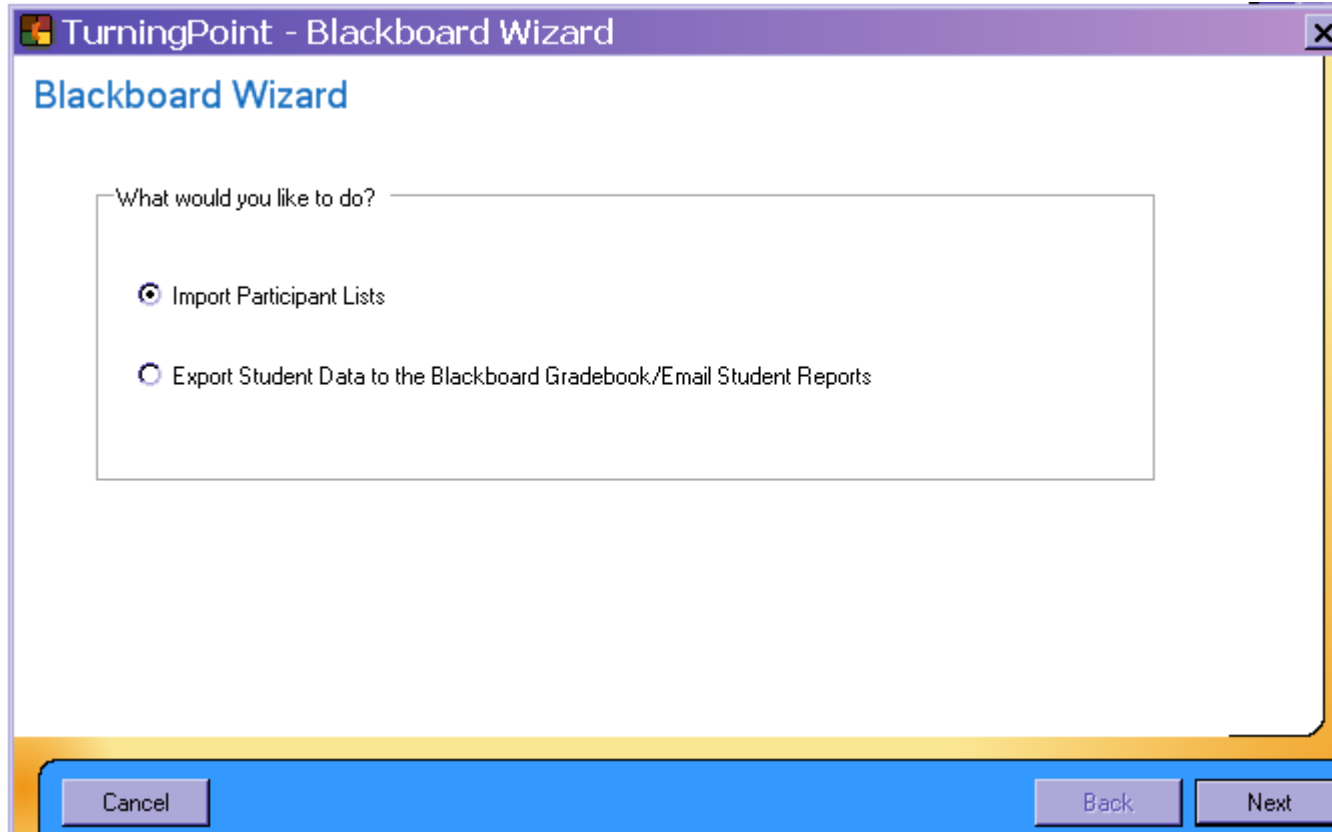
# Integration with Blackboard

- TurningPoint Building Blocks (2)
  - Registration & web services building blocks
    - Students self-register their clickers from the **Course Tools** area of your Blackboard course



The screenshot displays the Blackboard user interface. At the top, there is a navigation bar with 'myDU' and 'Courses' tabs, and icons for Home, Help, and Logout. The left sidebar contains a menu with items like 'Pre-Workshop', 'Week 1', 'Week 2', 'Development', 'Break', 'Week 3', 'Checklists', 'Announcements', 'Email', 'Discussion Board', 'Resources', and 'Glossary'. Below the sidebar is a 'Tools' section with icons for 'Communication', 'Course Tools', and 'Course Map'. The main content area shows the breadcrumb path: 'DISTANCE LEARNING WORKSHOP SUMMER 2008 (DLW/ SUM2008) > TOOLS > TURNINGPOINT REGISTRATION'. The title is 'TurningPoint Registration Tool'. The text reads: 'Please enter your Response Device ID in the field provided below. Tracking of these IDs is essential for proper grading of classroom quizzes and participation, so please be sure to copy the ID exactly as it is written.' Below this, it says: 'If you are using a ResponseCard, the ID can be found on the back of the card, where it is the 6 characters directly below the barcode.' There are two input fields: 'Response Device ID:' and 'Confirm Response Device ID:'. At the bottom, it states 'Your currently registered Response Device ID is: N/A' and has 'Cancel' and 'Submit' buttons.

# Blackboard Wizard can be used to:



# Clicker Reports

Turning Reports - Blackboard Basics

Sessions Reports

Please select the report(s) to generate

Reports by Category

- Results by Question Reports
- Demographic Reports
- Participant Results Reports*
- Results by Participant Reports
- Participant Lists
- Standards Reports
- Comparative Scoring Reports
- Team Scoring Reports*
- Percentile Reports*
- Other Reports

Categories in italics have options

Change numeric responses to alphabetic responses (1 = A, 2 = B, etc)

Microsoft Excel - TurnReports.xls

Description and Report Sample

[Report Description](#)

Exit Generate Report

# Clickers & the Seven Principles of Good Practice

1. Encourages contact between faculty & students
2. Develops reciprocity & cooperation among students
3. Encourages active learning

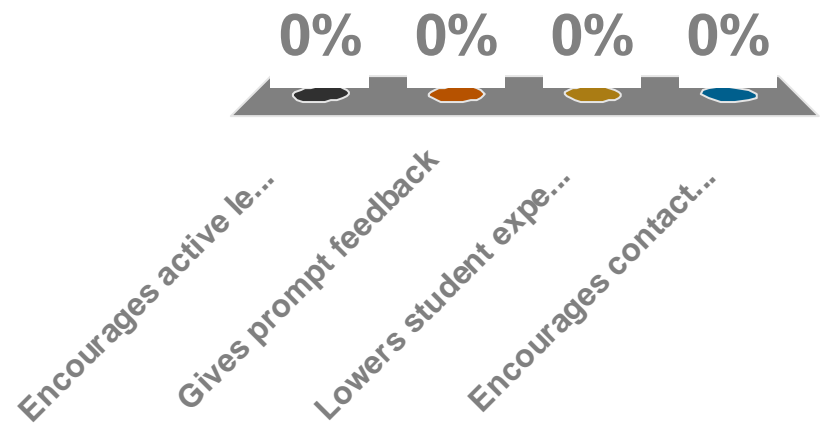
# Seven Principles of Good Practice continued...

4. Gives prompt feedback
5. Emphasizes time on task
6. Communicates high expectations
7. Respects diverse talents & ways of learning



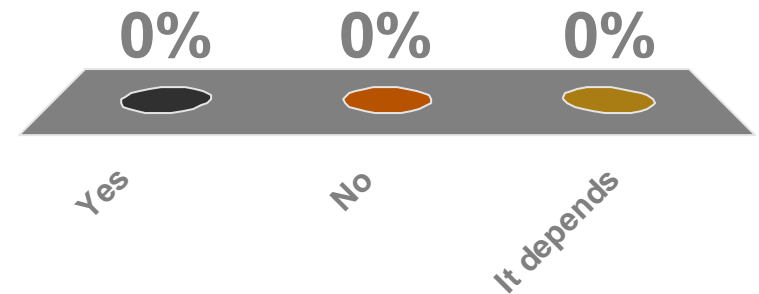
# Which of the following is NOT one of the Seven Principles of Good Practice?

1. Encourages active learning
2. Gives prompt feedback
3. Lowers student expectations
4. Encourages contact between students and faculty



# Do clickers enhance student learning?

1. Yes
2. No
3. It depends



# Clicker Tips & Best Practices

- Determine why you are using clickers and keep this purpose in mind as you design your questions
  - Be aware that it takes time to develop good questions
  - Allow time for discussion between questions
  - Discuss potential cheating issues with your students
- Excerpt from CTL Autumn 2007 Newsletter – Adapted from: J.E. Caldwell, “Clickers in the Large Classroom: Current Research and Best-Practice Tips,” *CBE\_Life Sciences Education*, Vol. 6, Spring 2007

# Using Clickers to Enhance Student Learning

Questions...

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