

## Using Audience Response Systems in the Classroom Effectively

**Dr. Mark Taylor**

www.taylorprograms.com

mark@taylorprograms.com

### Why use an Audience Response System?

- ✿ Technology is only worth using in the classroom when it addresses a specific instructional deficit
- ✿ Are there instructional issues, especially with large classes?

### Issues with Large Classes

- ✿ Necessary on most campuses
- ✿ Cost effective delivery of credits
- ✿ Can be less than optimal learning environment
- ✿ Contribute to all forms of teaching that are bad
- ✿ Allow for ineffective learner behaviors.

### Issues with Large Classes

- ✿ Difficult to
  - Monitor attendance
  - Monitor preparation for class, especially “in-time” during instruction
  - Maintain attention/ engagement
  - Monitor on-going learning
    - Understanding or content
  - Get students active/ fight passivity “spectatorism”
  - Meaningfully move students “up” out of knowledge/ content level learning
    - To application, utility, “use”
    - To analysis, synthesis
    - To value/ affective level/ caring / evaluation
    - To deep, applicable, lasting learning
- ✿ What if there were a system to combat these problems and help reach these desired learning outcomes?

### The Audience Response System

- ✿ Student response units
  - smart phone software
- ✿ Receiver unit
- ✿ Questions embedded into PowerPoint or stand alone program
- ✿ Reporting program software for individual and group responses
- ✿ Ask questions and they respond.

### Issues with learning outcomes

- ✿ Colleges are having outcomes in learning, work readiness and other issues.

Many students who do earn degrees have not actually mastered the reading, writing and thinking skills we expect of college graduates. Over the past decade, literacy among college graduates has actually declined.

Spellings Commission on the Future of Higher Education

August 9, 2006

***Graduates are underachieving*** in learning to communicate, critical thinking and problem solving, character development/ “moral reasoning”, citizenship, appreciation of diversity, ability to understand and participate in a global society, development of “broader interests” (lifelong learning) and in preparation for career.     Derek Bok   *Our Underachieving Colleges*

*“Most colleges are seriously out of step with the real world in getting students ready to become workers in the postcollege world.”* TIME January 24, 2005

Workplace Issues   “a pandemic of workplace unreadiness as today’s graduates are unable to think long term, handle details or delay gratification”

“Ready or not, here life comes” Mel Levine 2005

Why use an Audience Response System?

- ✱ Different students
- ✱ Different (digital) world
- ✱ Different outcomes
- ✱ Different needs
- ✱ Different futures
- ✱ Different tools.

Clickers and the Digital Learner

- ✱ Students are usually leaving a digitally rich environment to come to class
- ✱ With clickers students don’t have to power down/check out of digital     world to come to class
- ✱ Integrates with other technology platforms- they can use their own device
- ✱ Contributes to academic credibility; they see us as tech savvy
- ✱ Monitors real time learning
- ✱ Offers instant feedback
- ✱ Makes class a more attractive place to be
- ✱ Makes class a place they need to be.

Clickers to Increase Learning

- ✱ Every student “works” on every “question”
- ✱ Improves ability to encourage, ensure and monitor meaningful out of class preparation
- ✱ Fits perfectly in transition from the teaching model to the learning model
- ✱ More processing/ critical thinking/ problem solving less content regurgitation.

### Clickers to Increase Engagement

- ✱ Research proven
- ✱ Every student responds to every item
- ✱ Students can see class responses so are not alone in rightness or wrongness
- ✱ Establishes a true community of learners.

### Clickers to Increase Activity

- ✱ Increasing activity increases learning  
Question/ "Talk to your neighbor"/ Re-question
- ✱ Activity improves whatever learning outcomes you want:  
Knowledge/ content  
Skills/ utility  
Caring/ value/ affect
- ✱ Peer instruction- Eric Mazur
- ✱ Who are they more likely to believe than you?
- ✱ Activity improves course completion and retention  
Interaction helps develop relationships, which lead to academic and social integration, which contributes to student persistence retention

### Questions

- ✱ Anonymous responders or identified responders
- ✱ Planned or "on the fly"
- ✱ Formative or summative
- ✱ Embeds Assessment into Learning

### From only assessing for grades to assessing for grades and assessing for learning

- ✱ Clickers for data gathering  
about your specific class  
comparing classes and methods  
school improvement initiatives  
response to intervention program
- ✱ Clickers for formative assessment  
How is the class learning from assigned material?  
Instant feedback- right now
- ✱ Merge teaching and assessment

### Clickers for summative/ graded assessments

- ✱ Assess students being prepared for class
- ✱ High stakes grading ?
- ✱ Max points for right answer/ some points for responding
- ✱ 15% of their grade

less and it does not matter  
more and they get stressed.

#### Questions

- ✿ Find out who prepared for class
  - Accountability
- ✿ Find out where you are starting
  - Understanding / misunderstandings
- ✿ Find out who understands on an ongoing basis - Pacing
- ✿ Identify common ongoing misunderstandings - Clarifying
- ✿ Start student discussion - initiate peer instruction

#### Question / Response Types

- ✿ Yes/ no
- ✿ True/ false
- ✿ Likert scale / Opinion Gathering
- ✿ Priority ranking
- ✿ Numeric response
- ✿ Fill in the Blank
- ✿ Essay response
- ✿ Moment to Moment
- ✿ Self Paced Testing

#### Best Questions

- ✿ Not so hard everyone misses
- ✿ Not so easy everyone gets right
- ✿ Have a right answer
- ✿ Have a wrong answer that is common misconception
- ✿ Peer instruction/ discussion can lead to convergence on correct answer.

#### Effectiveness is limited only by creativity

- ✿ New ways to solve old problems
  - Preparation, attention, engagement, activity, monitor understanding
- ✿ New possibilities to solve new problems
  - Games/ contests
  - Individual and group responses
  - Peer Instruction/Assessment
  - Monitor changes in understanding in real time.

#### The Dark Side- ARS Concerns

- ✿ Cost
  - Compared to text book?

Not an issue if used regularly in class

- ✿ Tech concerns
  - Improves what you are trying to do instructionally anyway
- ✿ Increases attendance
  - May increase attendance by disruptive students, who would have skipped
  - Management techniques can keep them in line
- ✿ Cheating
  - New strategies may be required, as have been of any new cheating strategy
- ✿ Increases activity
  - Maybe see as disruptive by faculty used to “quiet” students
- ✿ Reduces time for lecture
  - More than offset by increases in preparation for class, efficiency of in-class, activity, engagement...

#### Benefits of Clickers

##### Instructor

- ✿ Improves class attendance and student participation
- ✿ Identifies students' comprehension of content
- ✿ Triggers class discussion with student responses
- ✿ Tracks student progress

##### Students

- ✿ Popular with “clicker generation” (cell phones, TV remote, digital cameras, MP3 player, games, laptop, PDA...)
- ✿ Engages students in active learning
- ✿ Provides students with immediate feedback of understanding of content

#### Learning vs. Learned

*In times of change, the **learner** will inherit the earth while the **learned** are beautifully equipped for a world that no longer exists.” Eric Hoffer*

Questions/ Comments/ Resources?

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