

Free-text Audience Response System to Enhance Team Learning

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Audience Response Systems

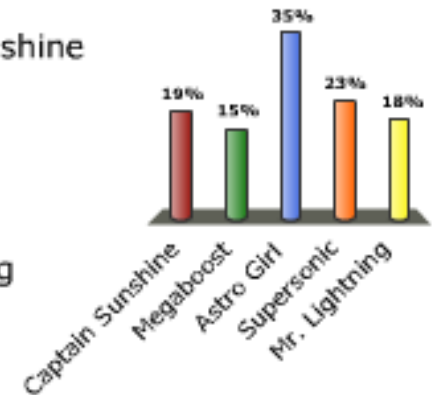


Who is your favorite superhero?

- A. Captain Sunshine
- B. Megaboost
- C. Astro Girl
- D. Supersonic
- E. Mr. Lightning

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Images from Turning Technologies website

Background: Limitations of clickers

- Many are available
 - <http://www.audience-response-solution.com/vendors-2>
- Forced choice responses
 - Limit complexity of the answer
 - Require the instructor to plan the question in advance
- Clickers and show of hands require all learners must be in same room

Background: Limitations of clickers

- Admittedly newer commercial systems reduce these problems
 - Use cell phones rather than clickers
 - Some ability to accept free text
- Even newer systems have difficulty with
 - Ability to create questions and determine correct responses on the fly
 - Ability to accept unanticipated responses to free text

Background: our ARS

- Details at <http://utxr.org/about>
- Developed while teaching a class split between San Antonio and Harlingen (Rio Grande Valley) in 2006
 - Even with team learning, terrible engagement of remote classroom
 - Local classroom bored waiting on remote site
- First used ARS 3/2006

Background

- Received local grants
 - 7/2007 UTHSCSA Scholarship of Teaching Grant (Badgett)
 - 9/2007 UT Academy of Health Science Education Small Grant (Medellin)

Example: free text for Rx writing

Team 1: Awesome

Response: [\(new window\)](#):

At 10:54:39:
Case #2 Cleocin Pediatric 75mg/5ml (100ml) 200 ml
q6hr x 10 days for cellulitis
Shake soution well before use Can be taken with
or without meals

Team 2: Red Mayonnaise Animo

Response: [\(new window\)](#):

At 10:44:39:
1-12-2009 Patient, Lily 12y, 76kg,
Clindamycin 75mg/5ml oral suspension.
Take 5ml once every 6 hours for 7 days.

Signature/Name Refill 1

Team 3: Team Pantalones Sexy

Response: [\(new window\)](#):

At 10:43:29:
Clindamycin oral solution 75mg/5ml
Please take 40 ml by mouth three times a day for
a total of 7 days for cellulitis
Total: 900 ml

Team 4: scut monkeys

Response: [\(new window\)](#):

At 10:41:46:
1.12.2008 Clindamycin: 1000 ml liquid - 75 MG/5
ML, take 25 ml QID for 10 days
Signiture: Dr. monkey Refill: 0

<http://utxr.org>

Demonstration

- Usually, the first question creates familiarity with the system :
 - Create team names (encourage creativity)
 - Identify team members' first names

Demonstration

- So, work with your neighbors
 1. Log into <http://utxr.org>
 2. Create your team name
 3. Session name is “TBL” (case does not matter)
 4. Question number is 1
 5. For your response, enter your first names

Demonstration

- Jupiter is further from the Sun than Saturn.

True or false

Demonstration

- What is your team's Walt Disney movie?



Barriers to TBL with distance learning

- What top 3 barriers have you encountered or do you anticipate using TBL with distance learning?

Teaching evidence-based medicine

Teaching EBM

- Example question types:
 - Information retrieval and appraisal:
 - Regarding the initial article on the rofecoxib (Celebrex) controversy (Bombardier NEJM, 2000). How many of the 13 authors have a conflict of interest?
 - What does Wikipedia say about bad posture as a cause of Tension headache? What study does Wikipedia cite?

Teaching EBM

- Use PICO to compare studies
 - Patients/problem/population
 - Intervention (a test or treatment)
 - Comparison
 - Outcome
- What is different about the ‘P’ in these two articles that conflict about the safety of the drug salmeterol?
 - NEJM, 2007
 - PMID: 17314337
 - Annals of Internal Medicine, 2006
 - PMID: 16754916

Teaching EBM

- Example question types:
 - Calculation:
 - On the Titanic,
 - 17% of males survived
 - 67% of females survived
 - What is the relative risk of survival for a male as compared to a female?

Teaching general pediatrics

Pediatrics

- About 210 students per year
- 25-30 students per block
- Meet for didactic sessions once weekly for 3 hours.
- Didactic sessions unpopular with students, minimally engaged.

How to increase engagement?

- Audience Response Systems
 - Logistics of getting clickers
 - Rigid structure of class, since PowerPoint driven
 - Emphasized individual work, rather than team work
 - Too anonymizing for teams, limited peer learning

Challenges with TBL

- Tried classroom whiteboards – disruptive
- Tried team whiteboards – difficult for teams to see
- Tried forced choice – too limiting

Internet access

- We want students to use the most current evidence in making choices – they need internet access to find current evidence-based articles
- Teaching in a computer lab has limitations
 - Fixed desk structure difficult for team dynamics
 - Limited availability

Distance teams

- One team at a distance site – videoconferenced to main site
- How to engage them?
- How to see their answers and have them see other team answers?

Mobile Cart



Laptops



Using UT-Responder

- G-RAT
- Teams enter answers into UT Responder
- Able to compare answers from local and distance teams
- Engages distance team
- Teams accountable for their answers

- Sample team activities:
 - Write a prescription
 - Patient cases
 - Differential diagnoses
 - Evidence-based medicine
- Spontaneous questions easy to administer

My observations

- Initially students cluster around computer to see screen, but once they figure out what the technology does, they relax into more natural team posture and allow one student to be scribe.



- Able to engage students in peer teaching
- Adaptable to multiple classroom layouts – lecture halls vs. desks vs. movable tables



- More efficient than classroom whiteboards
- Distance teams remain engaged
- Very little surfing – when they do, it means that my assignment was not sufficiently challenging.

Outcome

- Didactic sessions very popular with students
- Very few requests for absence during didactics
- Increased standardized test results

Opportunities using free text

Opportunities using free text and team names

- Encouraging a team with the correct response to explain their response to a team that is struggling
- “To elicit and discuss diverse points of view when there is no correct answer (e.g. ethics)”
- Formal Delphi
- To provide immediate, anonymous feedback on the value of the learning session
- http://library.cpmc.columbia.edu/cere/web/facultyDev/ARS_handout_2004_tipsheet.pdf

The future

Imagine if all teacher use TBL & ARSs
when appropriate.

Will these techniques lose their
effect when not a novelty?

- How can we avoid loosing effect?

Lastly...

- Describe an innovative application of ARS with Team-based learning.

Team learning and UT Responder audience response system

<http://utxr.org>

Details at:

<http://medinformatics.uthscsa.edu/ars-public/>

Email badgett@uthscsa.edu for access

Disclosure: UTHSCSA is applying for a patent for planned enhancements to the UT Responder