

Initial Results of a Free-text Audience Response System to Enhance Team Learning

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Engaging the modern classroom



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The New York Times
Wednesday, December 10, 2008

Technology

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When Gadgets Get in the Way

By LISA GUERNSEY
Published: August 19, 2004

NOW that computers are a staple in schools around the country, perhaps the machines should come with a warning label for teachers:

"Beware: Students may no longer hear a word you say."

<input checked="" type="checkbox"/> RECOMMEND
<input type="checkbox"/> E-MAIL
<input type="checkbox"/> PRINT
<input type="checkbox"/> SINGLE-PAGE

Background: Team learning

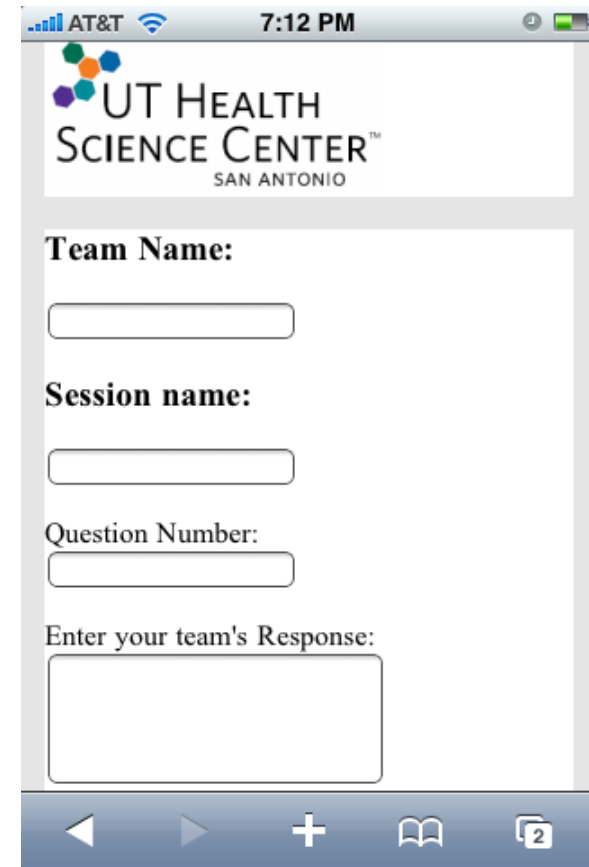
- Four S's of team learning:
 - **S**ame task
 - **S**imultaneous revealing of team responses
 - **S**ignificant problem
 - Making a **S**pecific choice. Allows simultaneous reporting via:
 - Show of hands
 - Clicker-based audience response system

Background: Limitations of 4 S's

- 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

Methods: development

- In response to teaching EBM long distance. we developed an ARS:
 - Internet-based, free text
 - Answers stored in spreadsheets
 - Access:
 - Desktop Internet browser
 - Wireless PDA's and cellphones
 - Windows executable
 - Monitors responses
 - Shows all responses when target # received



Example: forced choice

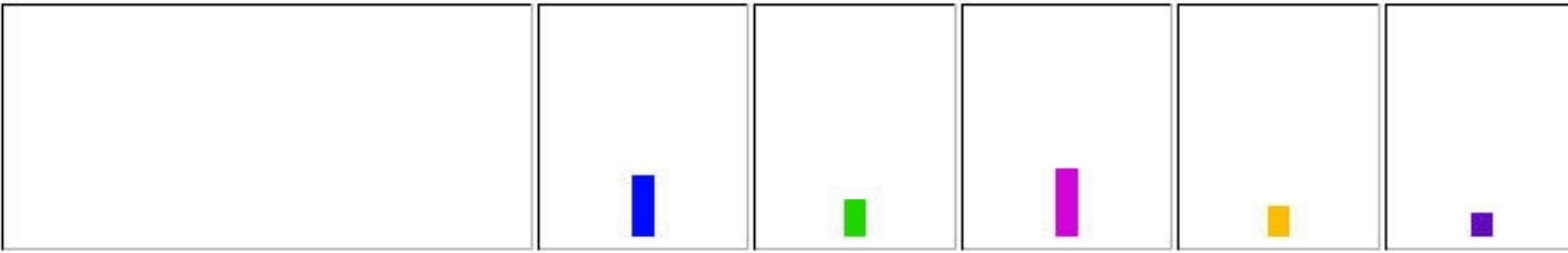
Session name: **MEDICINE RESIDENTS**

Question number: **1**

Check Status

Show Responses

Output List Tabulate

	1	2	3	4	5
					
Total responses: 36	27.8% (n=10)	16.7% (n=6)	30.6% (n=11)	13.9% (n=5)	11.1% (n=4)

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
```

Example: free text for differential dx

Team 1: AB's

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

At 15:14:31:

1. Polyarteritis Nodosa 2.
Wegeners 3. Goodpastures 4.
other vasculitis?

Team 2: BK

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

At 15:14:41:

Goodpasture's, Wegener's
granulomatosis, ATN secondary to
toxin exposure, focal segmental
glomerulosclerosis, microscopic
polyangitis, Churg-Strauss
syndrome, polyarteritis nodosa,
lung cancer, TB

Team 3: Team 2

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

At 15:14:37:

Goodpasture's, Wegener's, SLE, PE
in the setting of lower GI cancer,
IgA nephropathy, drug reaction,
Henoch-Schlon _sp? _

Example: free text for finding answers in an online textbook

Session name: FAMILY MEDICINE			
Question number: 4			
Check Status Show Responses Output <input checked="" type="radio"/> List <input type="radio"/> Tabulate			
Team 1: Dr. Welby Response: (new window) At 14:45, responded: No randomized controlled trials have been performed to determine the appropriate duration of antimicrobial therapy in childhood pneumonia At 14:45, responded: No randomized controlled	Team 2: GoodGuys Response: (new window) At 14:45, responded: No randomized controlled trials have been performed to determine the appropriate duration of antimicrobial therapy in childhood pneumonia	Team 3: PEN Response: (new window) At 14:46, responded: No randomized controlled trials have been performed to determine the appropriate duration of antimicrobial therapy in childhood pneumonia. Current practice assigns a duration of therapy depending upon the host,	Team 4: Smartguys Response: (new window) At 14:43, responded: Seven to 10 days should be adequate for routine pathogens causing uncomplicated infection, the course of azithromycin is five days. At 14:46, responded: NO evidence
Team 5: Team 6 Response: (new window) At 14:45, responded: No randomized controlled trials have been performed to determine the appropriate duration of antimicrobial therapy in childhood pneumonia.	Team 6: bob Response: (new window) At 14:45, responded: No studies found.	Team 7: cool girls Response: (new window) At 14:45, responded: no RCT	Team 8: <input type="text"/> Response: (new window)

Example: asking for feedback

(The class was told to answer individually and to delete their team names)

<p>Team 1: CNF</p> <p>Response: (new window):</p> <pre>At 15:36:06: I liked it, presented useful resources I didn't know about and made me think about others I'd forgotten about. I learn best in an informal setting, so that was excellent too. Thanks_</pre>	<p>Team 2: Girls</p> <p>Response: (new window):</p> <pre>At 15:35:21: great_</pre>	<p>Team 3: Team1115</p> <p>Response: (new window):</p> <pre>At 15:37:11: enjoyed the session. very helpful. with we had more time to spend learning how to use all this stuff. very useful. Thanks.</pre>
<p>Team 4: Team3043</p> <p>Response: (new window):</p> <pre>At 15:36:30: I enjoyed the session today. I had not done this before. I especially liked learning the process of the clinical summary and adding extra diagnosis. It was helpful to be taught how to reason through and <u>condence</u> a history with labs to come to a</pre>	<p>Team 5: Team32223</p> <p>Response: (new window):</p> <pre>At 15:36:32: enjoyed it. a few handouts with all the references where we can find this info as a quick reference would be nice as a take home. any advice on <u>Dif Dx</u> is always welcomed.</pre>	<p>Team 6:</p> <p>Response: (new window):</p>

Evaluation: methods

- Uncontrolled study:
 - 198 MS2 students taught in groups of 25. Each group broken into teams of 3-4 learners
 - 94 students in MS3 pediatrics. Class of 25 divided into teams of 5-6 learners
- Outcome: modified Classroom Engagement Survey (CES)
 - Included questions about ARS using same scaling

Evaluation: results

- Outcome: modified Classroom Engagement Survey (CES)
 - 95% to 98% response rate
 - Learner participation 16 (MS2) to 17 (MS3)
 - Learner enjoyment 12 (MS2) to 13 (MS3)
- Role of the ARS
 - Agreed or strongly agreed with:
 - “the ARS software helped facilitate the session.”
 - 80% of MS2 and 85% of MS3

Evaluation

- Controlled study:
 - MS3s on pediatrics
- Outcome: STROBE
 - In process

Conclusions

- The free-text, Internet-based ARS:
 - Well received
 - Can be used in distance learning
 - Can be used for Delphi
- Controlled study is pending
- Limitations (currently):
 - More than 6 teams requires scrolling
 - Thus, max class size of about 30
 - 2-3 sentences per answer to avoid scrolling

Team learning and UT Responder audience response system

<http://utxr.org>

Details at:

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

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