Engaging students with Learning Catalytics

CA Education Foundation Symposium
Vancouver, BC, 6 June 2013

Engaging students with Learning Catalytics

CA Education Foundation Symposium
Vancouver, BC, 6 June 2013

feedback

1 lecture

2 PI

3 PI 2.0

1991
1 lecture
2 PI
3 PI 2.0

1 lecture

2 PI

3 PI 2.0

1 lecture 2 PI 3 PI 2.0

2008

1 lecture

2 PI

3 PI 2.0

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How do I…

- design good questions?
- optimize the discussions?
- manage time?

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Gary King

Brian Lukoff

Eric Mazur

1 lecture

2 PI

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Use intelligent algorithms and data analytics to…

- improve questioning
- manage discussions
- facilitate time management/flow

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a. A 30-year fixed rate
b. A 15-year fixed rate mortgage at
c. A 30-year fixed rate mortgage at 12%
d. A 15-year fixed rate mortgage at 12%

2. The biggest factor that leads American companies to manufacture their products ov
India is:

a. Higher quality of craftsmanship
b. Lower labor costs
c. Decreased transportation costs
d. Effective legal systems

3. Which of the following correctly summarizes the accounting equation for a sole proprietorship?

a. Assets = Liabilities + Owners' equity
b. Liabilities = Assets + Owners' equity
c. Owner's equity = Assets + Liabilities
d. Revenue = Assets – Liabilities

4. In order to present a business plan to a group of potential investors, a businessperson would most likely use which

a. Powerpoint
b. Quickbooks
c. Peoplesoft
d. Excel

5. In order to start an online business, and individual would need all but which of the following:

business model

preciation?

extensible plug-in architecture for question types

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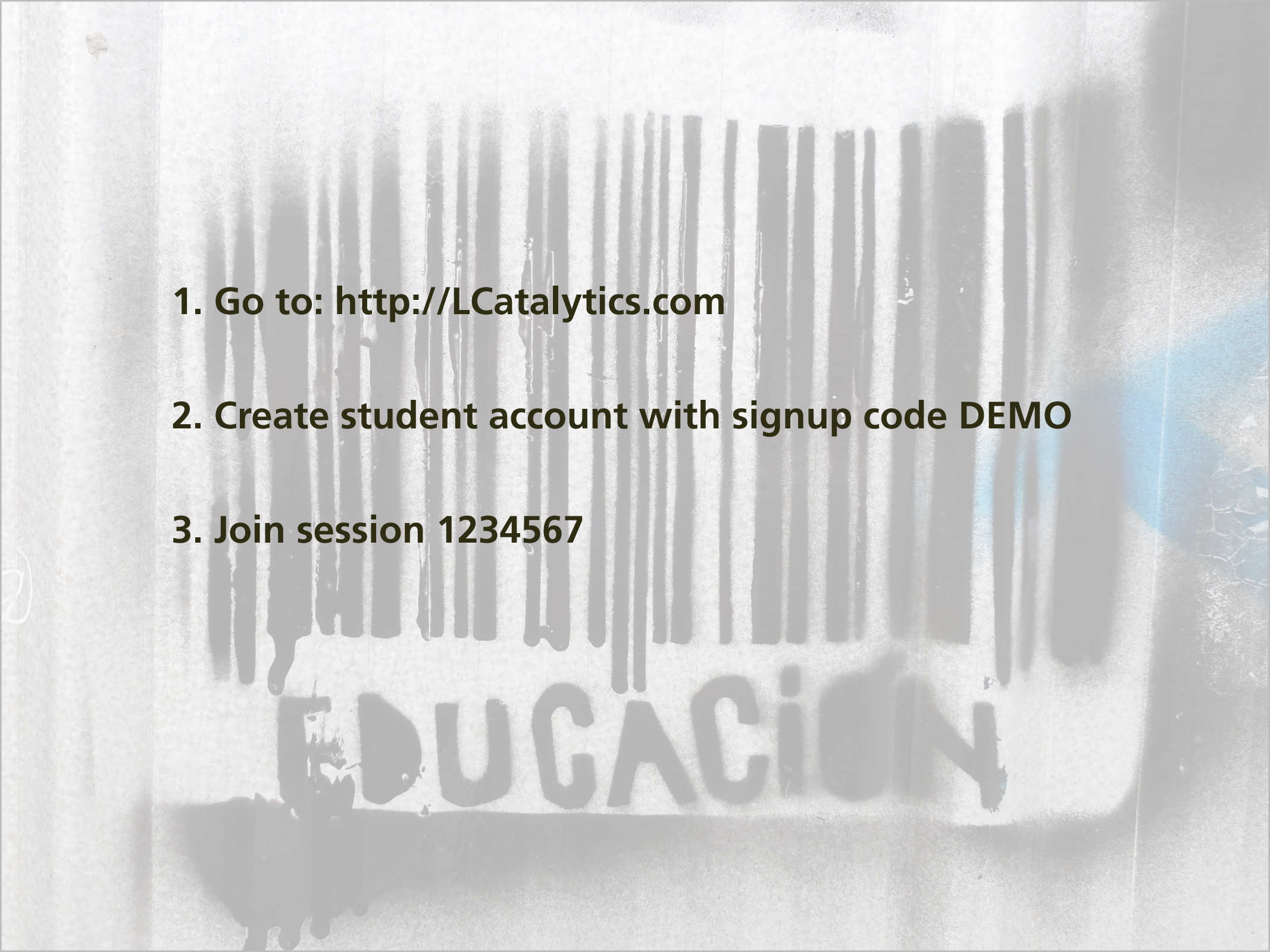
Sample question types:

- direction
- expression
- long answer, short answer, word cloud (fill in text)
- multiple-choice, many-choice
- numerical (enter a number)
- ranking
- region (select point on image)
- sketch

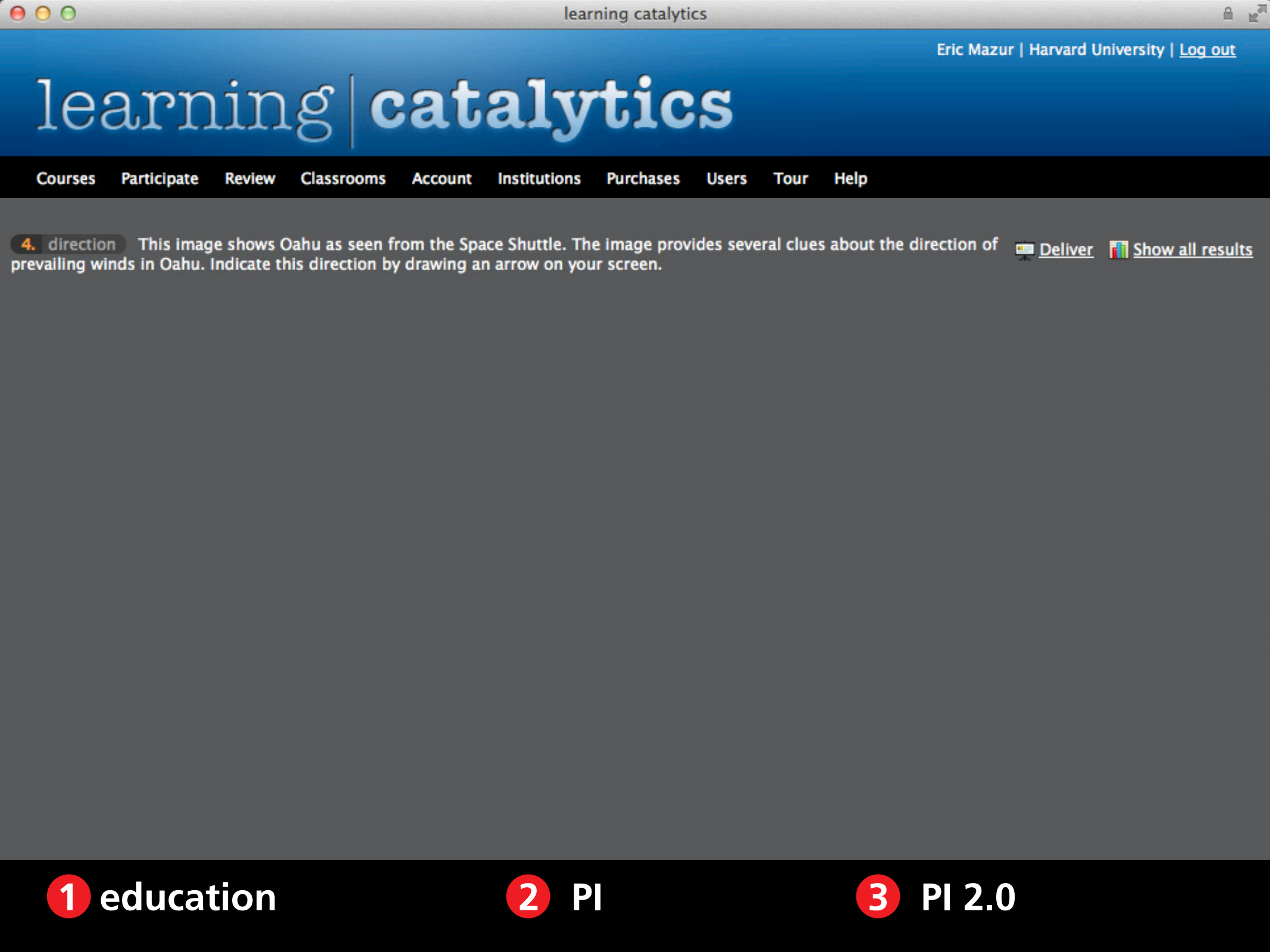


1. Go to: http://LCatalytics.com

2. Create student account with signup code DEMO

3. Join session 1234567

1 lcatalytics.com 2 create student account 3 ID 1234567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4. direction This image shows Oahu as seen from the Space Shuttle. The image provides several clues about the direction of prevailing winds in Oahu. Indicate this direction by drawing an arrow on your screen.
Deliver
Show all results
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4. directi… …tle. The image provides several clues about the direction of prevailing … …n your screen.

Deliver Show all results

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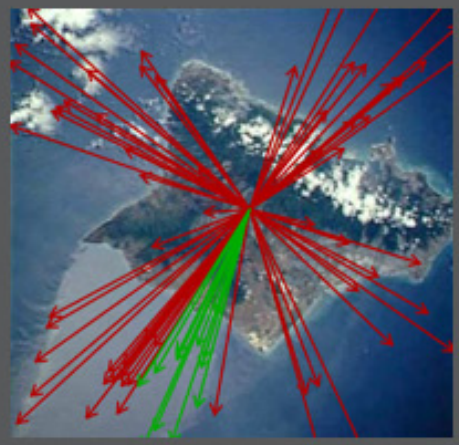
4. directi… prevailing …tle. The image provides several clues about the direction of …n your screen.

Deliver Show all results

Round 1

77 responses, 16% correct



17 get it now

3 still don't get it

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optics i

current session: 766079 | 69 students

Back to all lectures | Stop session | Review results | Seat map | Show floating session ID | Edit | Delete

◀ Jump to ▼ 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 ▶

4. direction Light enters horizontally into the combination of two perpendicular mirrors as shown below.

Deliver | Show all results

Indicate the direction of the incident light after it reflects off of both mirrors.

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optics i

current session: 766079 | 69 students

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6 7 8 9 10 11 12 13 14 15

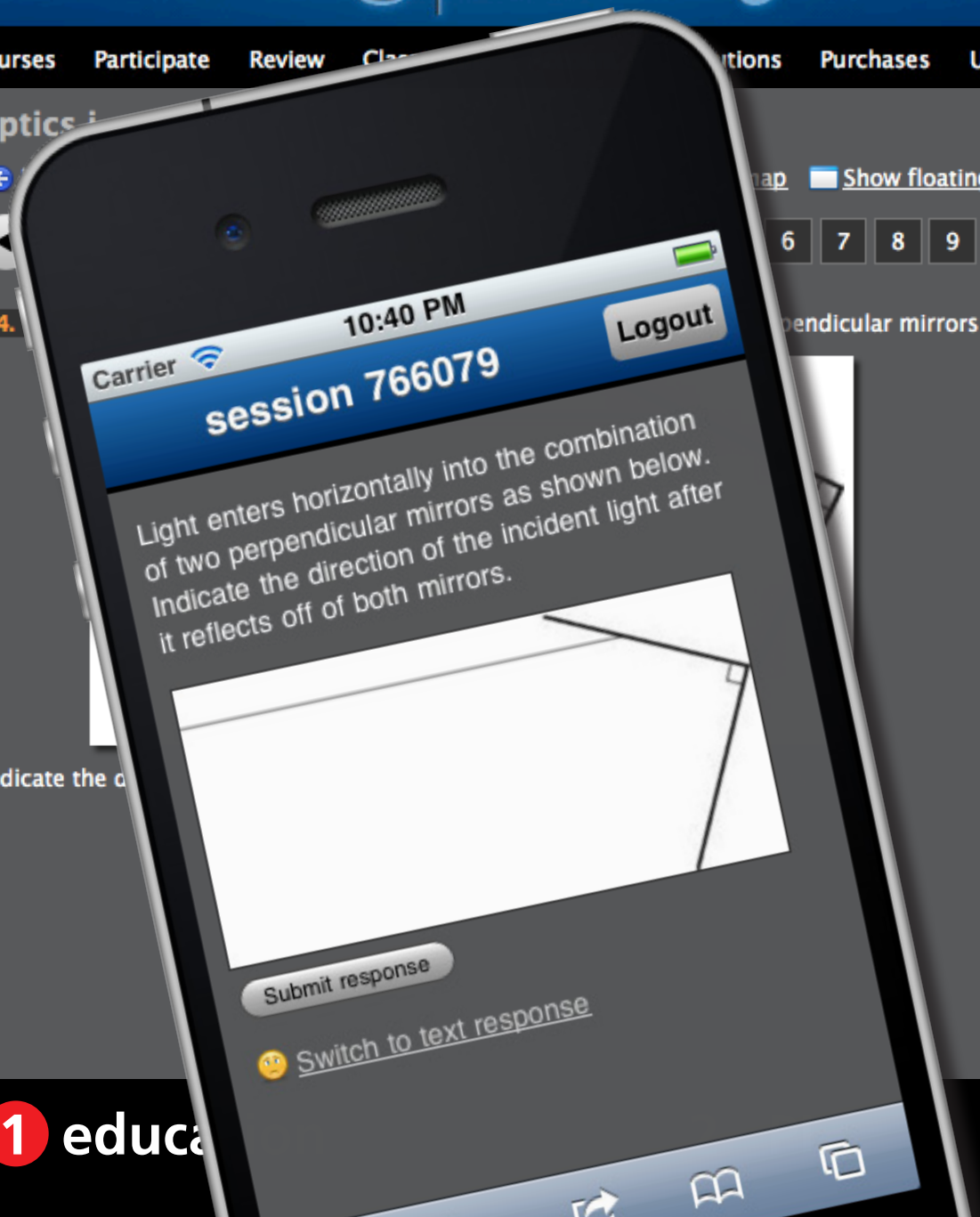
4.

endicular mirrors as shown below.

Deliver Show all results

Indicate the d

feedback & support



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current session: 766079 | 69 students

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6 7 8 9 10 11 12 13 14 15

4. endicular mirrors as shown below.

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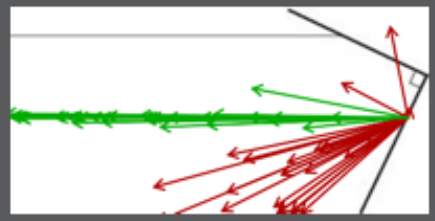
Round 1

57 responses, 58% correct



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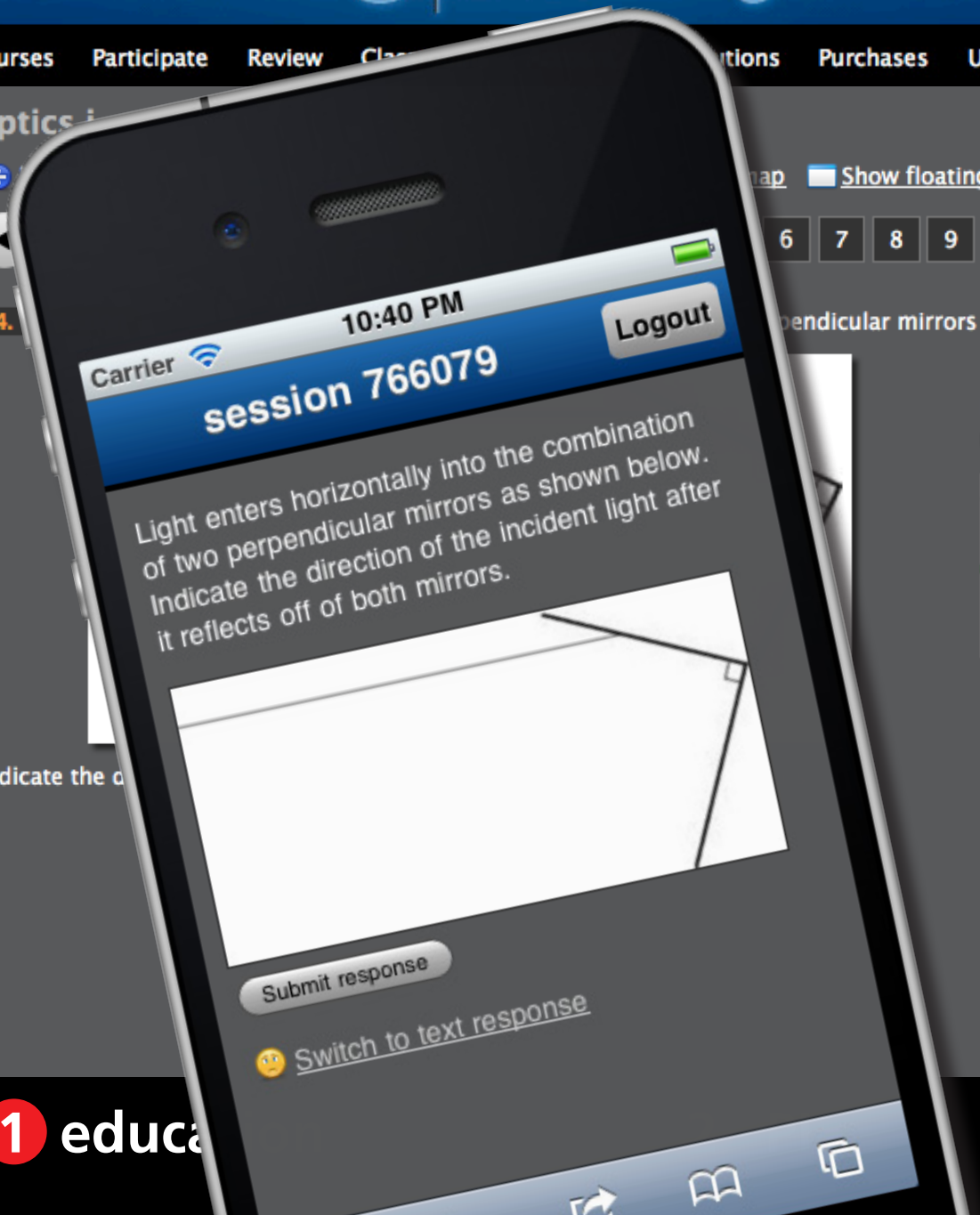
feedback & support



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optics i

current session: 766079 | 69 students

ap Show floating session ID Edit Delete

6 7 8 9 10 11 12 13 14 15

4.

endicular mirrors as shown below.

Deliver Show all results

Round 1

57 responses, 58% correct

Round 2

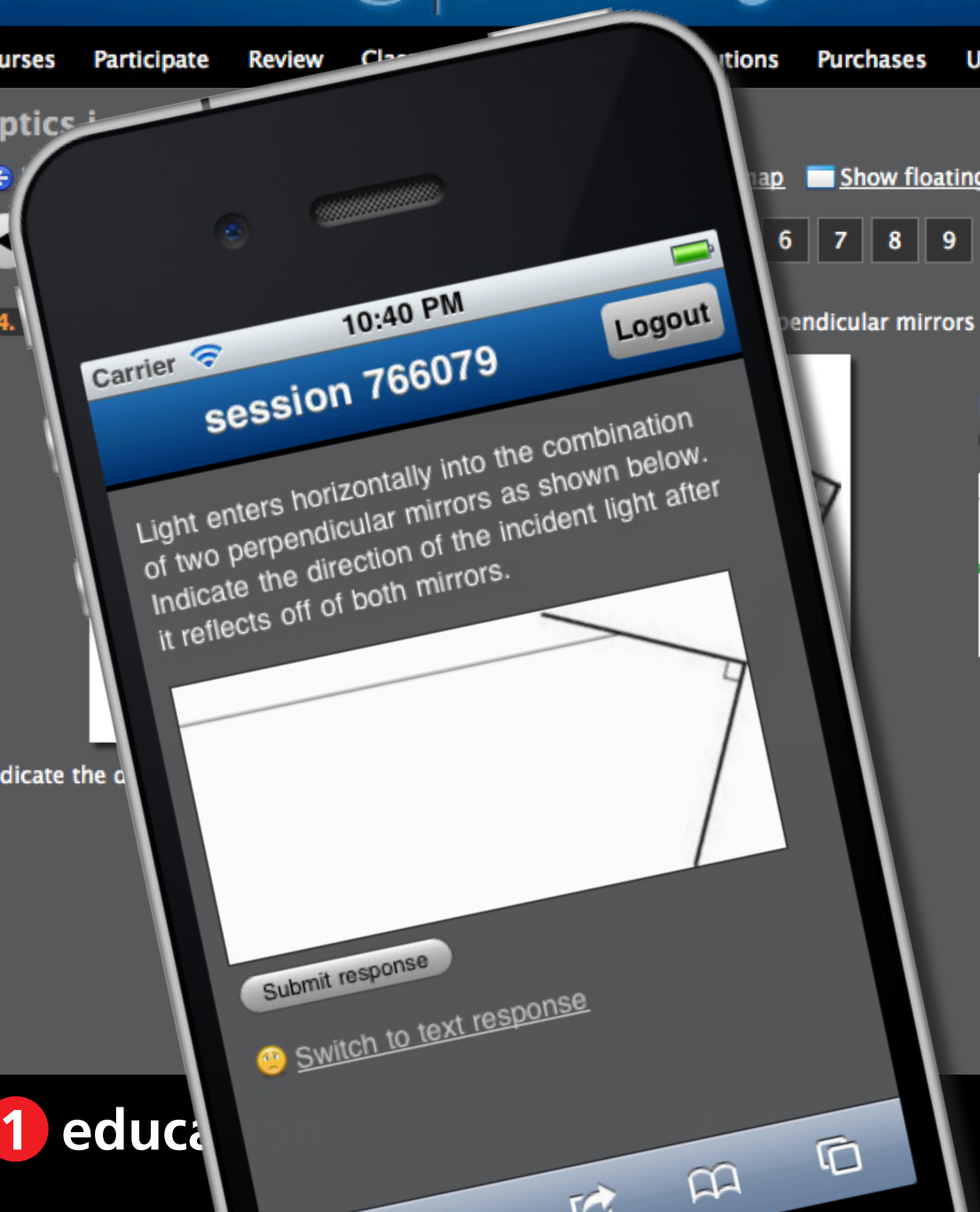
51 responses, 73% correct

8 get it now

0 still don't get it

Indicate the d

feedback & support



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transformations of parabolas

current session: 773885 | 9 students

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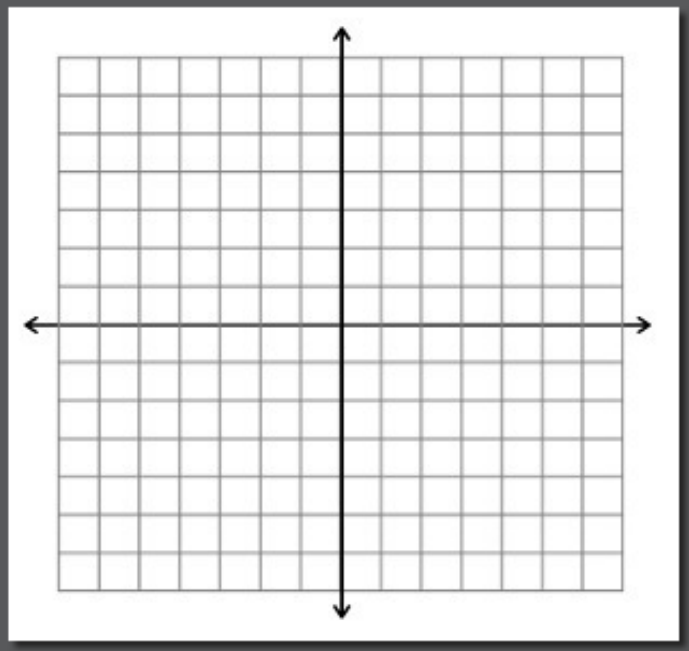
4. sketch Sketch a graph of the function $f(x) = (x-3)^2 + 2$.

Stop delivery | Deliver again | Assign groups | Show all results



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transformations of parabolas

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Jump to ▼ 1 2 3 4

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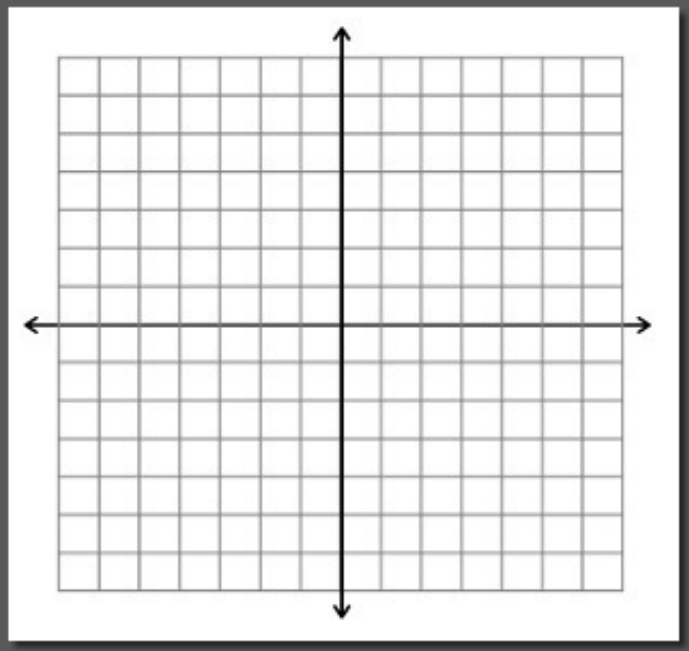
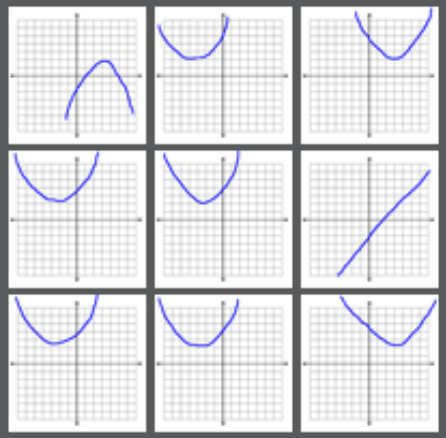


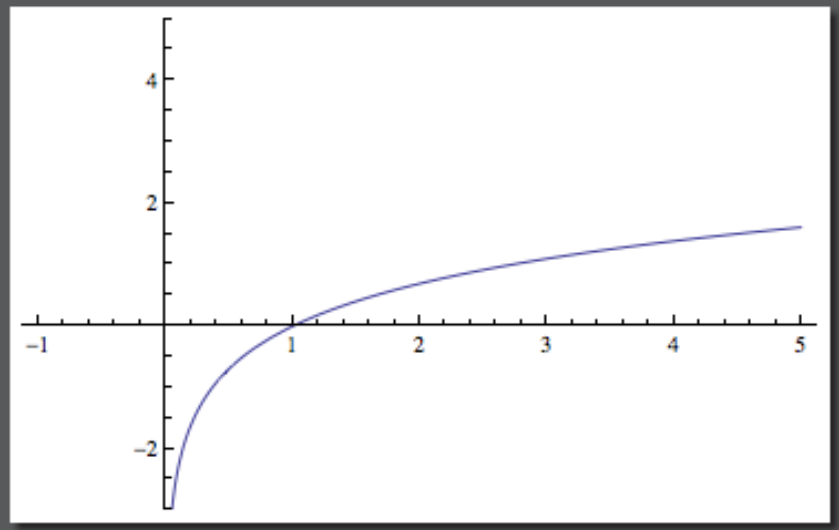
Round 1

9 responses



1 education 2 PI 3 PI 2.0

This is a graph of $f(x) = \ln x$. Sketch a graph of the derivative $f'(x)$.



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This is a graph of $f(x)$ =

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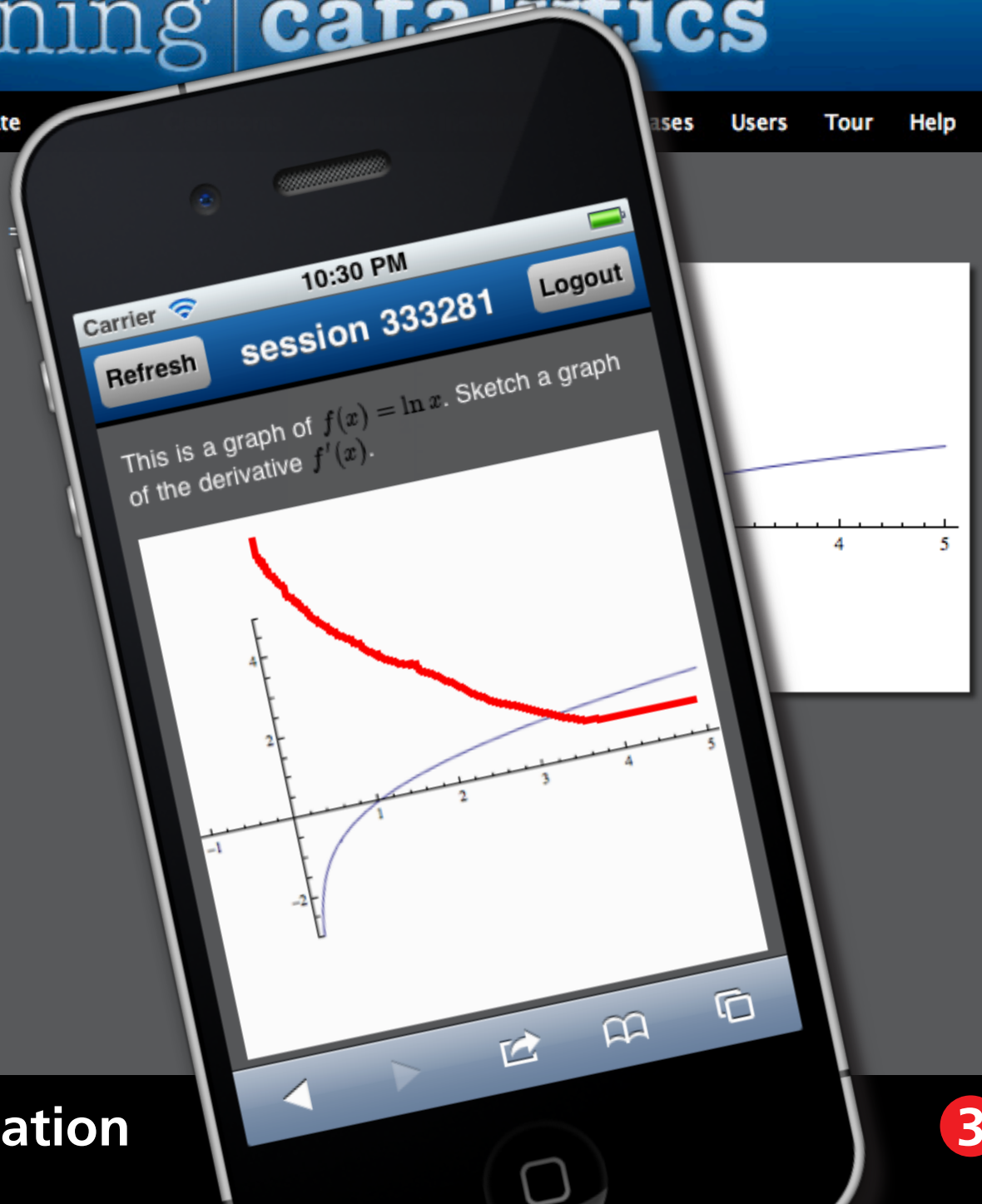
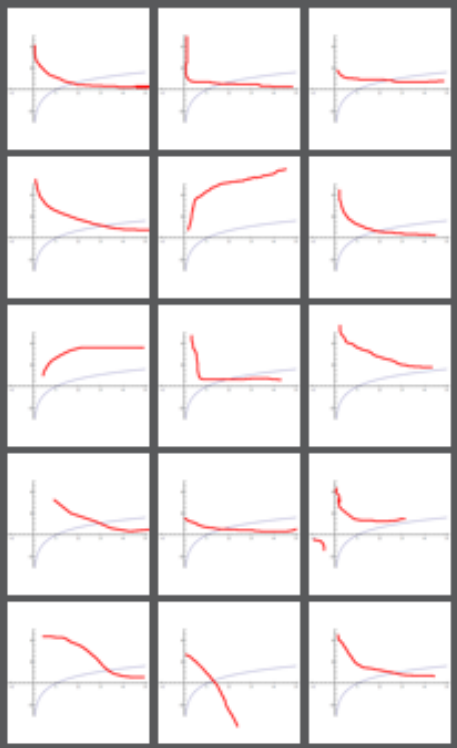
This is a graph of $f(x)$ =



Round 1

15 responses



6 get it now

0 still don't get it

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1. highlighting What do you see as the most important part of this Shakespeare sonnet?

Stop delivery Deliver again Assign groups Show all results

For shame! deny that thou bear'st love to any,
Who for thyself art so unprovident.
Grant, if thou wilt, thou art beloved of many,
But that thou none lovest is most evident;
For thou art so possess'd with murderous hate
That 'gainst thyself thou stick'st not to conspire.
Seeking that beauteous roof to ruinate
Which to repair should be thy chief desire.
O, change thy thought, that I may change my mind!
Shall hate be fairer lodged than gentle love?
Be, as thy presence is, gracious and kind,
Or to thyself at least kind-hearted prove:
Make thee another self, for love of me,
That beauty still may live in thine or thee.

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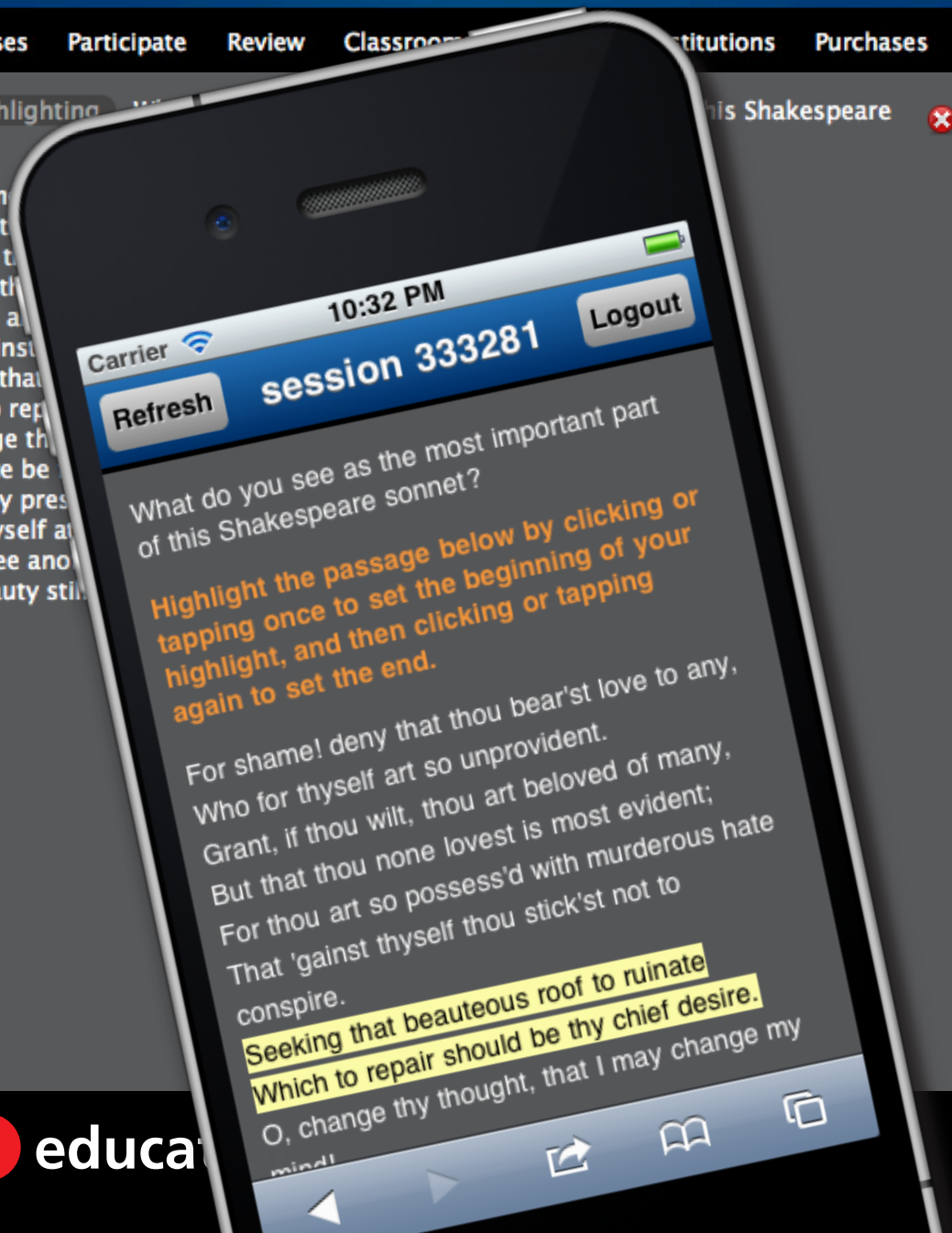
1. highlighting … …is Shakespeare sonnet?

Stop delivery Deliver again Assign groups Show all results

For sham…
Who for t…
Grant, if t…
But that th…
For thou a…
That 'gainst…
Seeking tha…
Which to rep…
O, change th…
Shall hate be…
Be, as thy pres…
Or to thyself a…
Make thee ano…
That beauty sti…



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3 PI 2.0

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Help
Stop delivery
Deliver again
Assign groups
Show all results
Round 1
3 responses
For shame! deny that thou bear'st love to any,
Who for thyself art so unprovident.
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But that thou none lovest is most evident;
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Which to repair should be thy chief desire.
O, change thy thought, that I may change my mind!
Shall hate be fairer lodged than gentle love?
Be, as thy presence is, gracious and kind,
Carrier
10:32 PM
Logout
Refresh
session 333281
What do you see as the most important part of this Shakespeare sonnet?
Highlight the passage below by clicking or tapping once to set the beginning of your highlight, and then clicking or tapping again to set the end.
1 educa
3 PI 2.0

Sample question types:

- direction
- expression
- long answer, short answer, word cloud (fill in text)
- multiple choice, multi choice
- numerical (enter a number)
- ranking
- region (select point on image)
- sketch

data analytics

1 lecture 2 PI 3 PI 2.0

human interaction

1 lecture

2 PI

3 PI 2.0

Carrier 9:31 PM 100%

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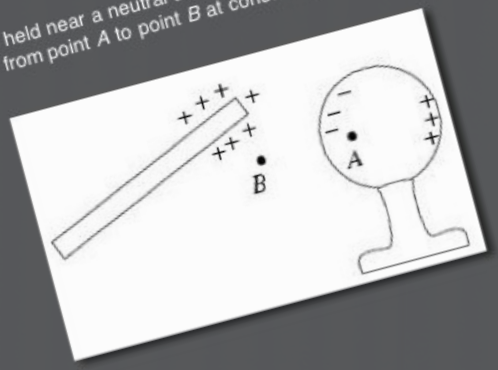
A positively charged rod is held near a neutral conducting sphere as illustrated below. A positively charged particle is moved from point *A* to point *B* at constant speed. The potential difference from *A* to *B* is



A. positive
B. zero
C. negative
D. depends on the path taken from *A* to *B*
cannot be determined without knowing more about the polarization induced in the sphere

Round 1
74 responses, 61% correct
A. 61%
B. 4%
C. 35%
D. 0%
E. 0%

Round 2
75 responses, 83% correct
A. 83%
B. 0%
C. 17%
D. 0%
E. 0%

Search:

1 lecture 2 PI 3 PI 2.0

Carrier 9:31 PM 100%

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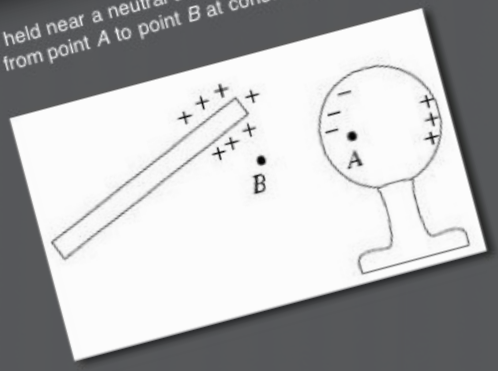

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Round 1

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A. 61%

B. 4%

C. 35%

D. 0%

E. 0%

Round 2

75 responses, 83% correct

A. 83%

B. 0%

C. 17%

D. 0%

E. 0%

Search:

1 lecture **2 PI** **3 PI 2.0**

Carrier 9:31 PM 100%

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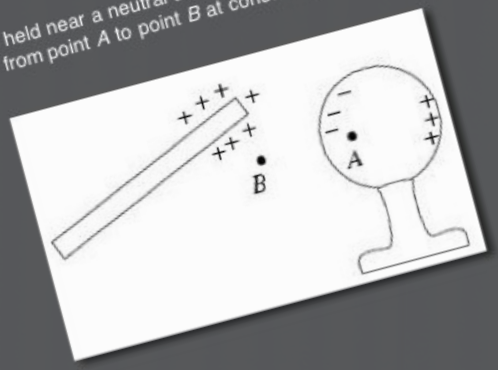

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A. 61%
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D. 0%
E. 0%

Round 2
75 responses, 83% correct
A. 83%
B. 0%
C. 17%
D. 0%
E. 0%

Search:

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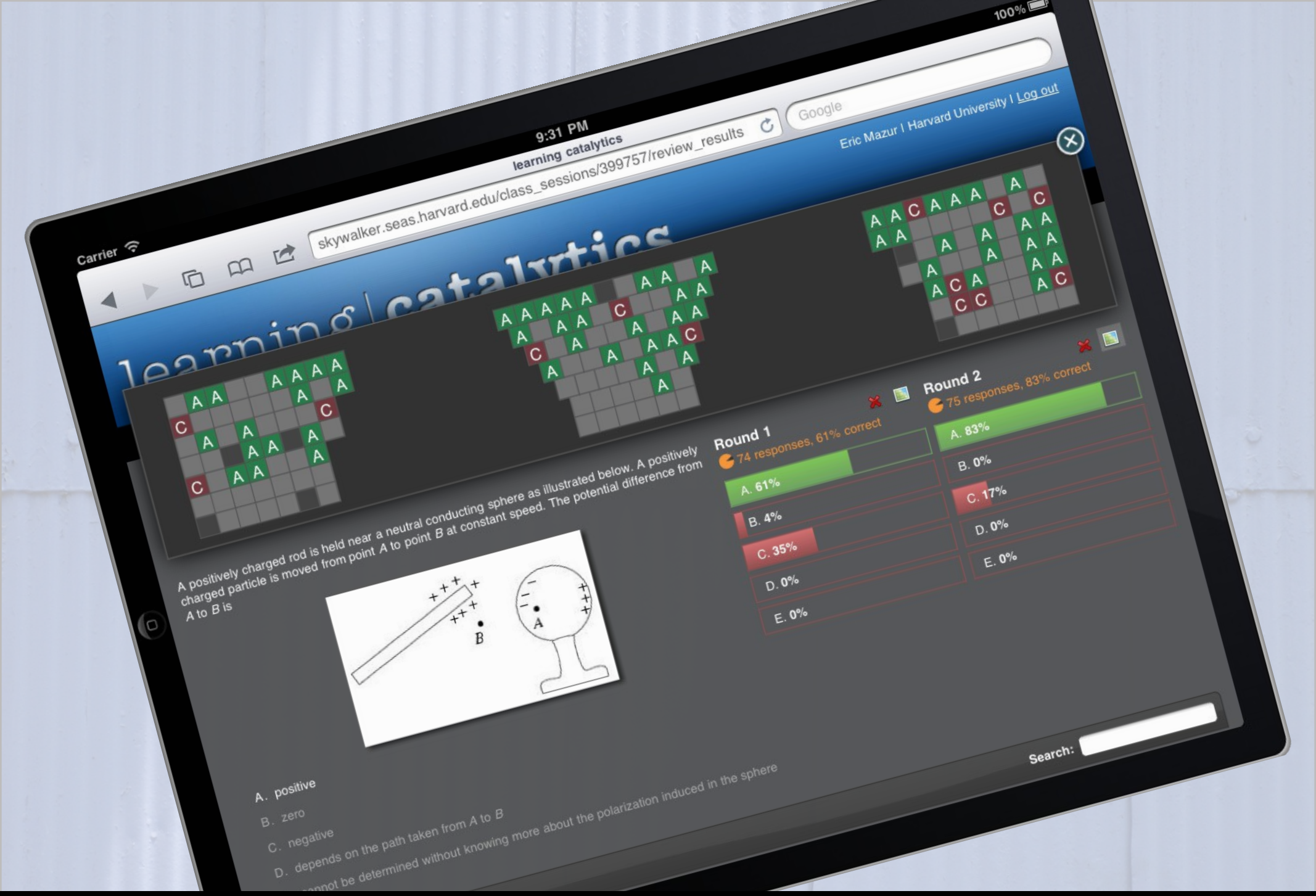

1 lecture

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3 PI 2.0

let system manage pairing

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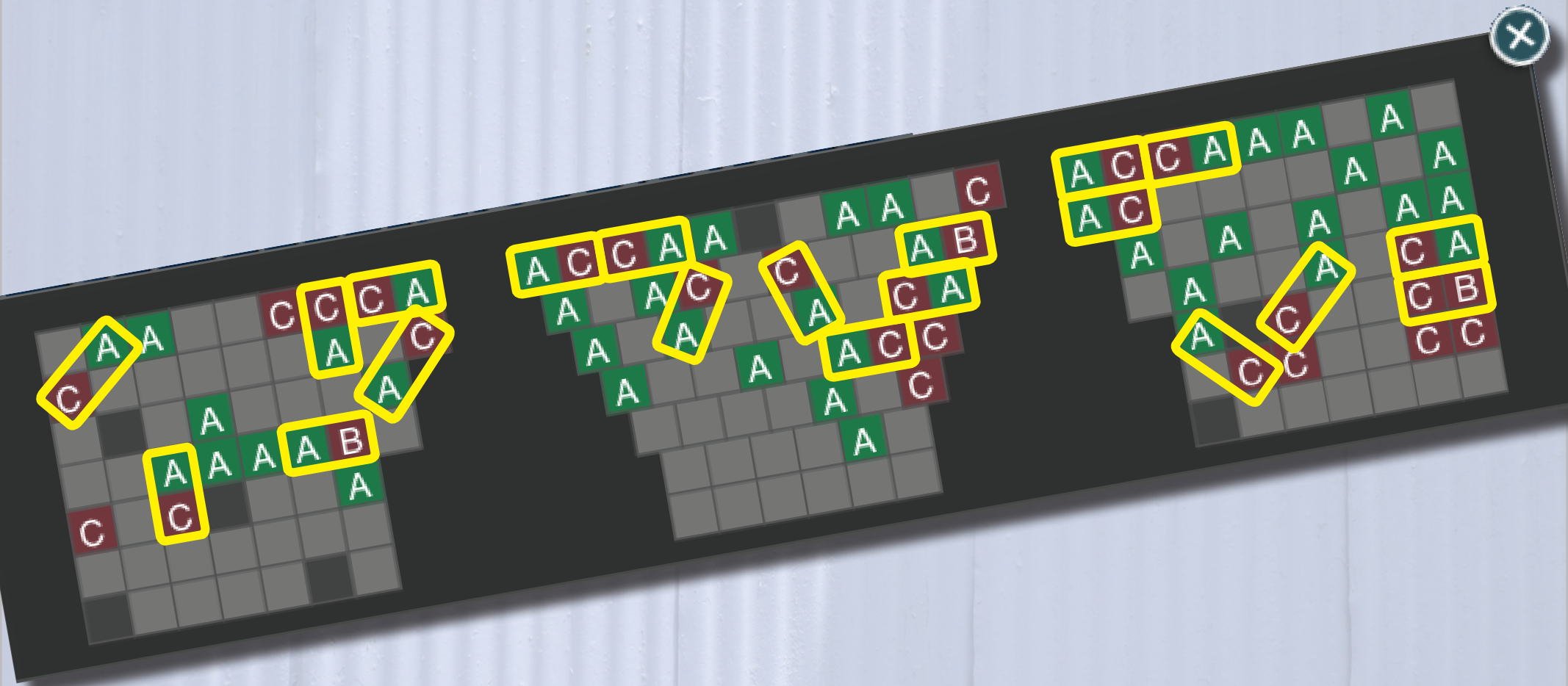

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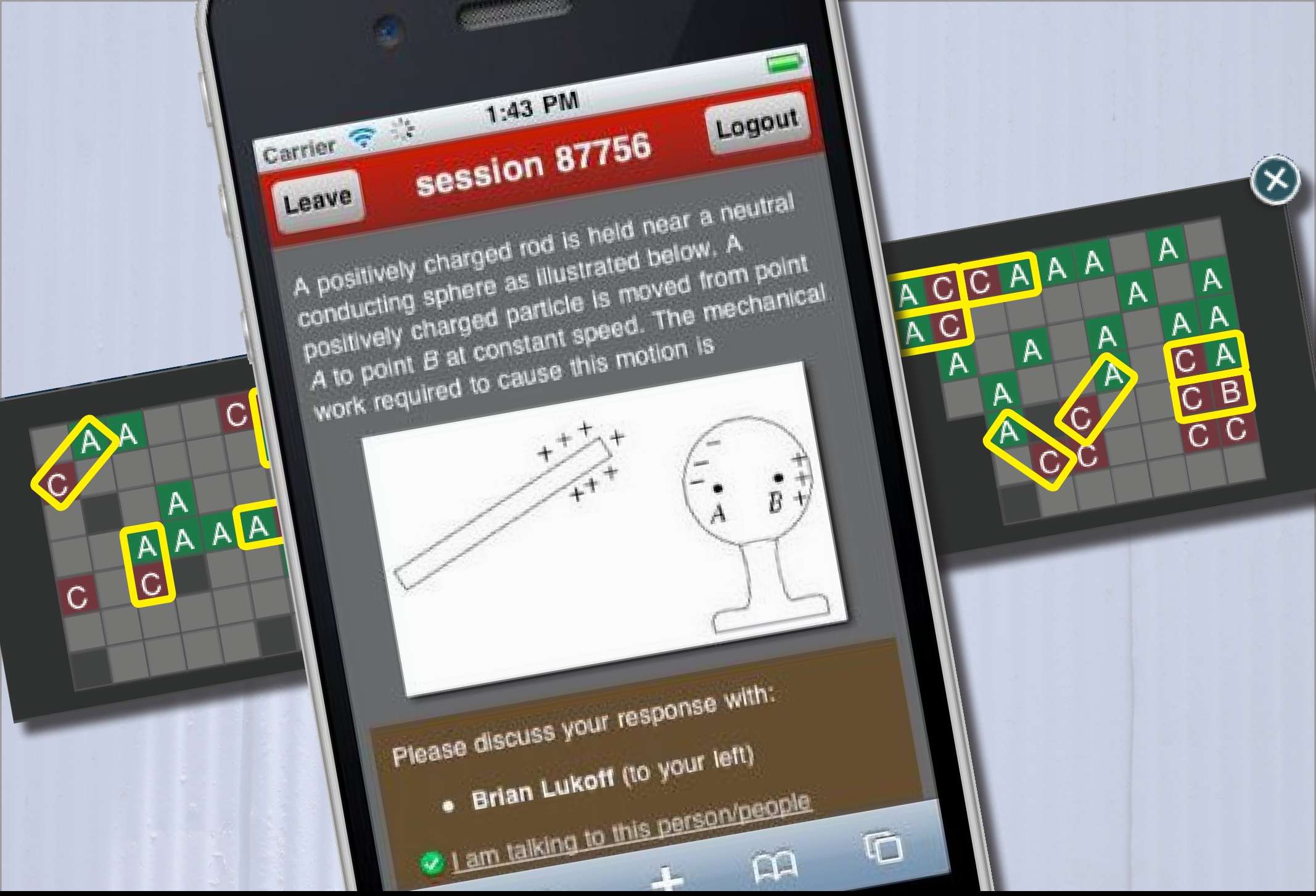

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2 PI

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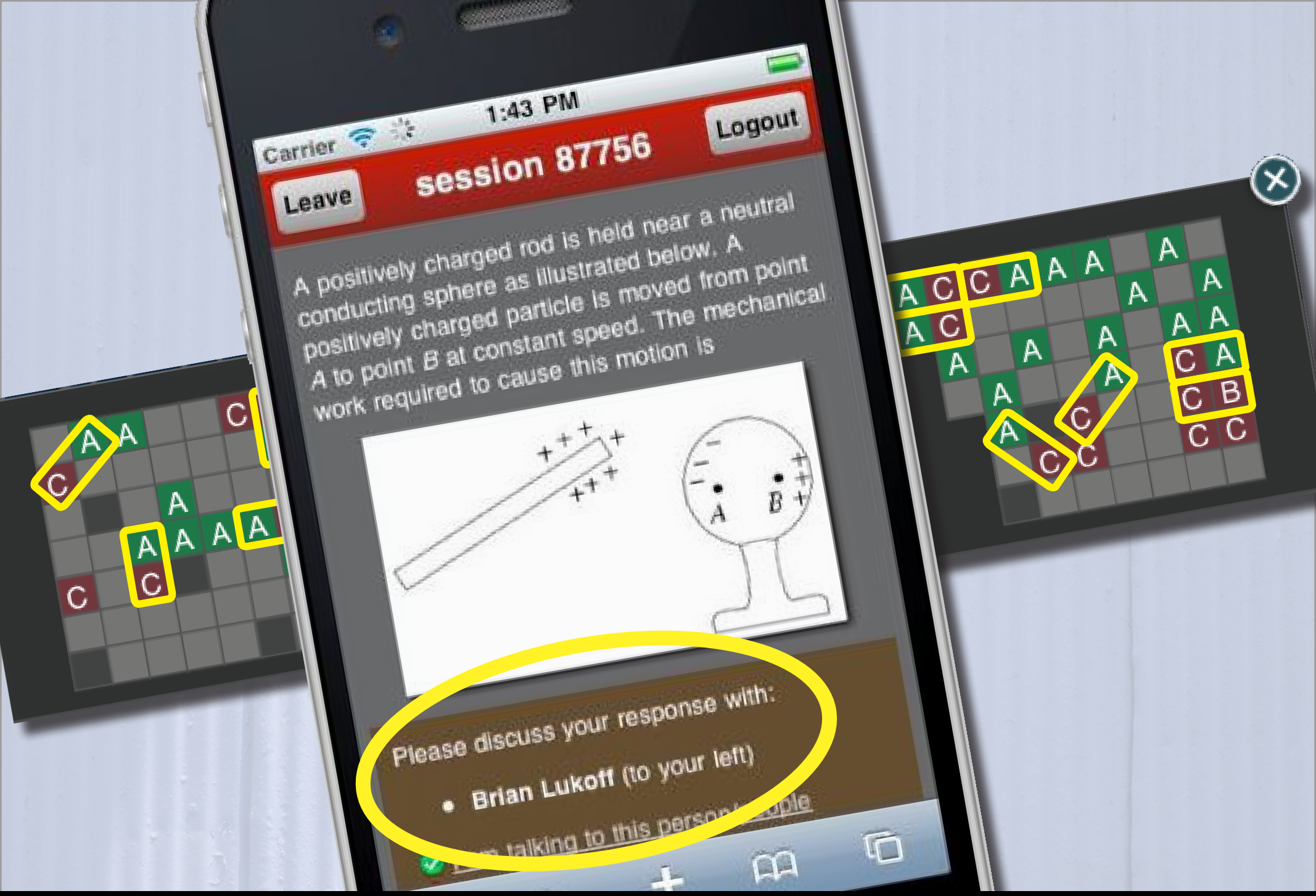

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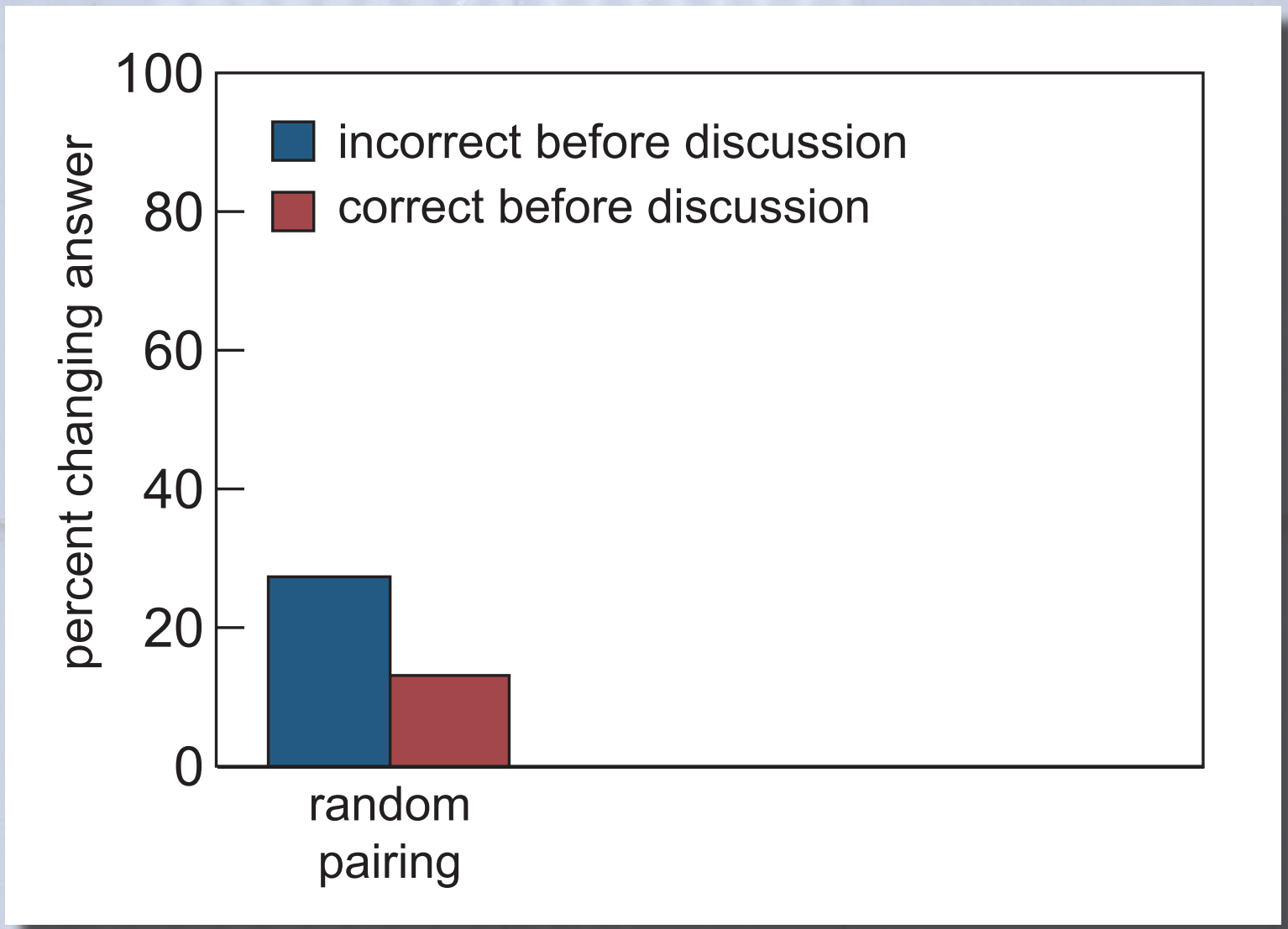
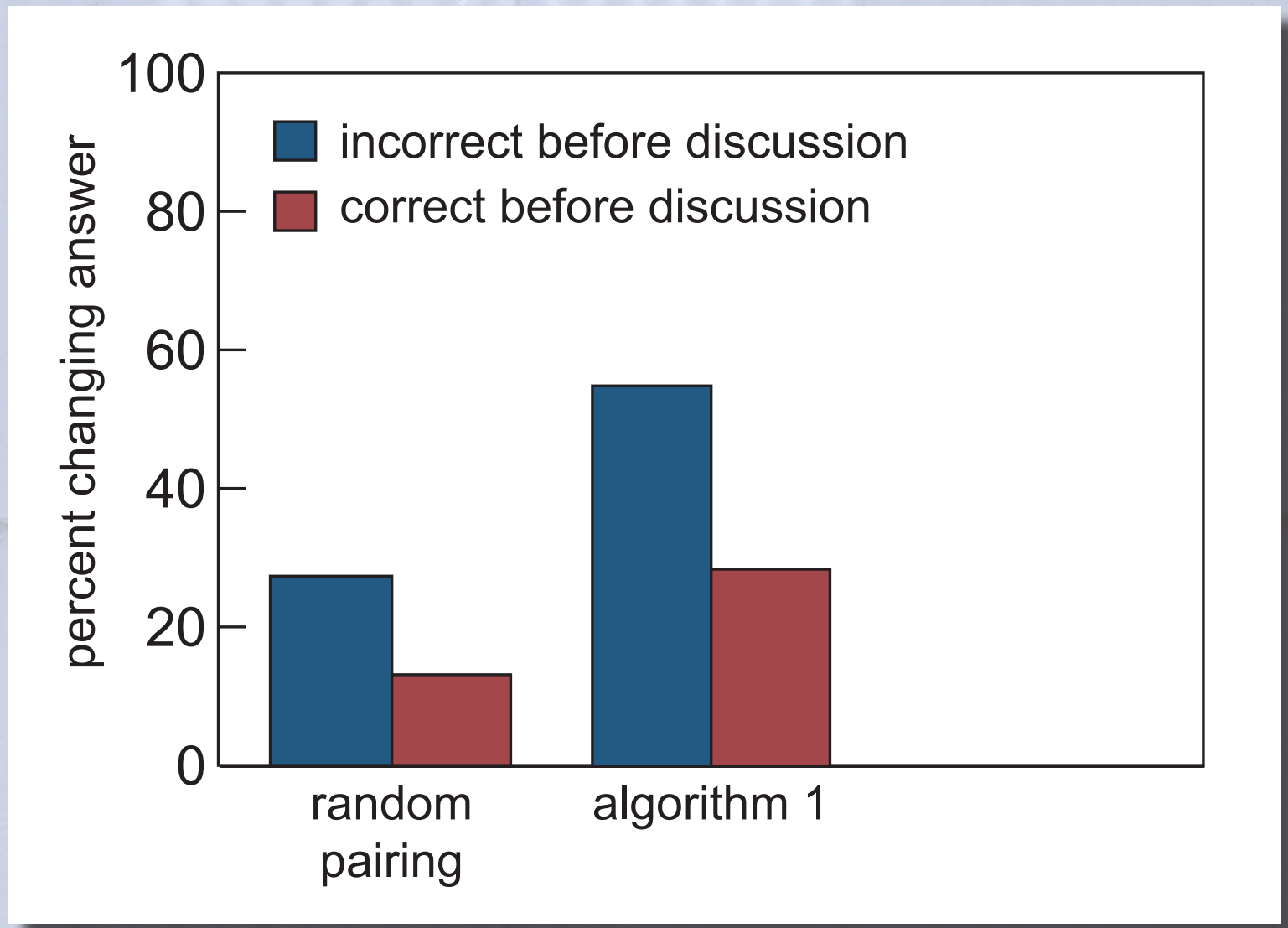
2 PI

3 PI 2.0


100
80
60
40
20
0
percent changing answer
incorrect before discussion
correct before discussion
random
pairing



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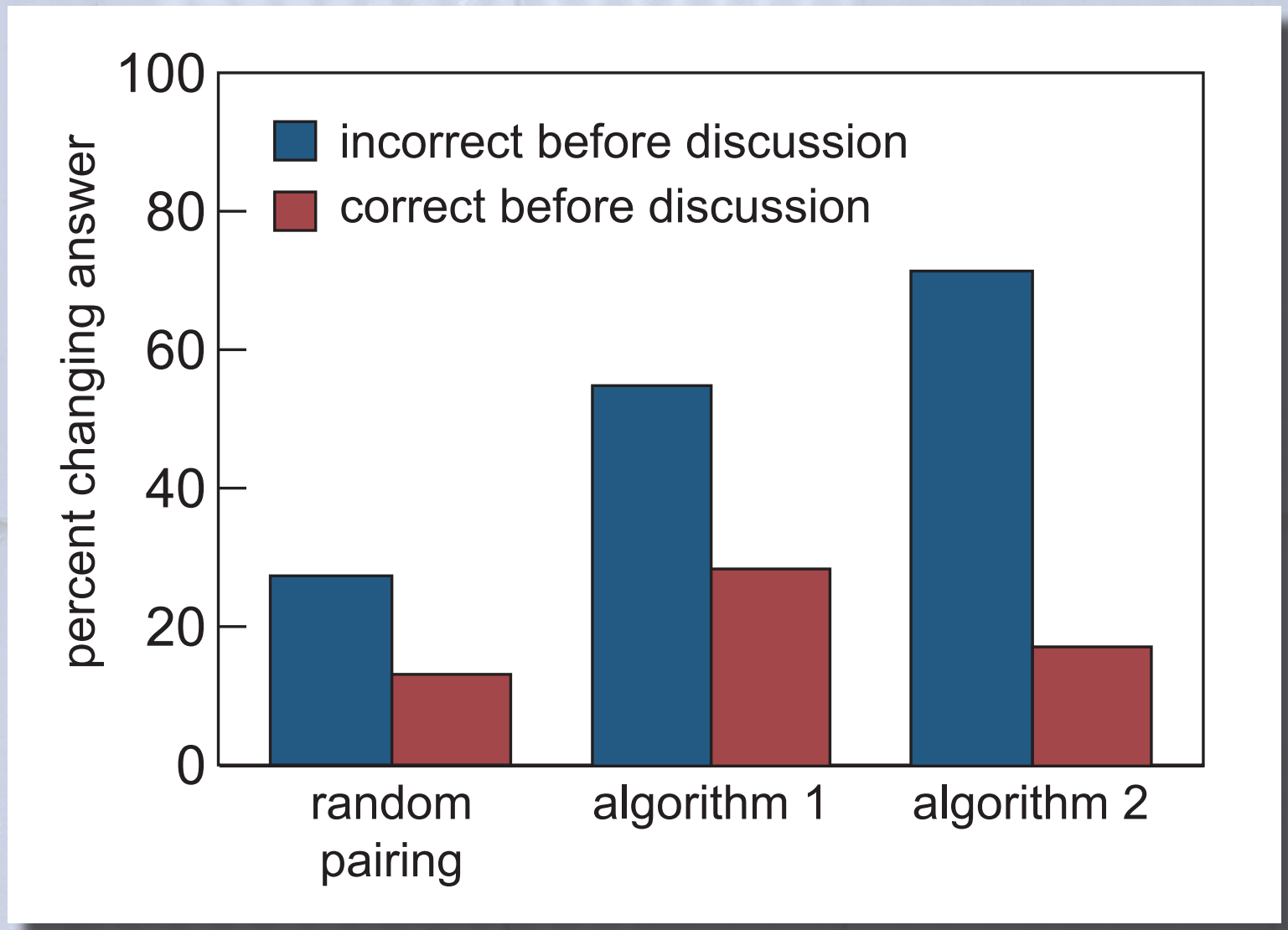

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1 lecture

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1 lecture

2 PI

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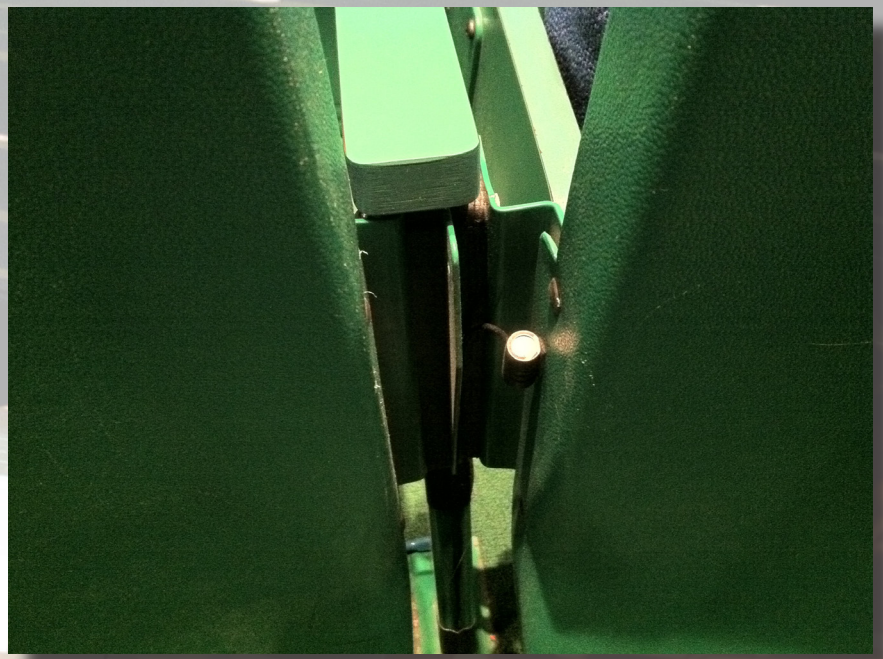
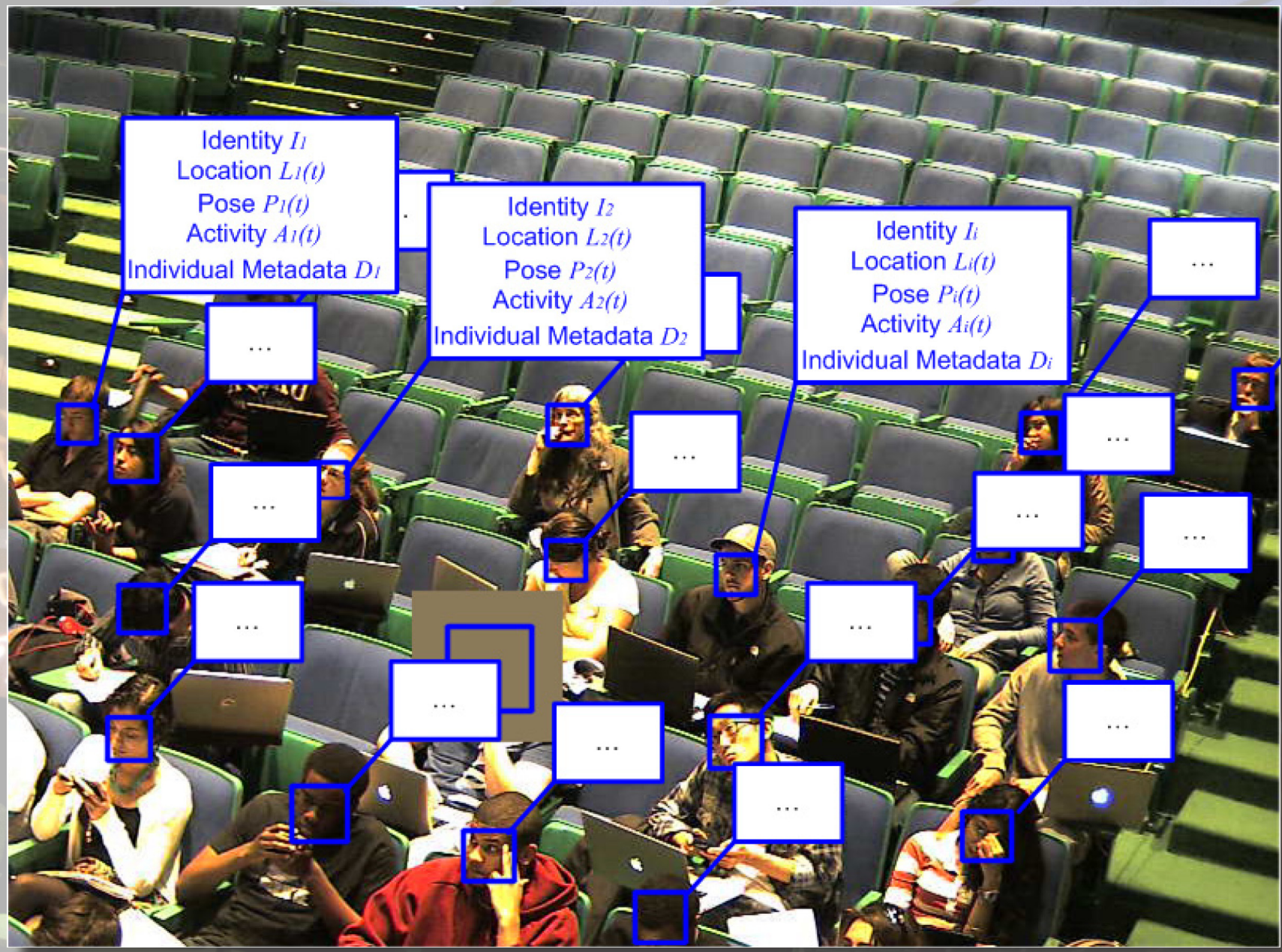


1 lecture

2 PI

3 PI 2.0

1. lecture
2. PI
3. PI 2.0



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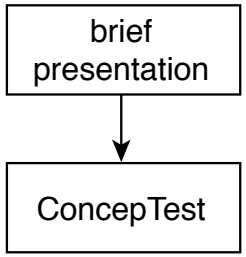
brief
presentation


brief
presentation
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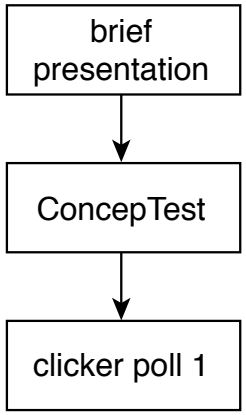
brief
presentation
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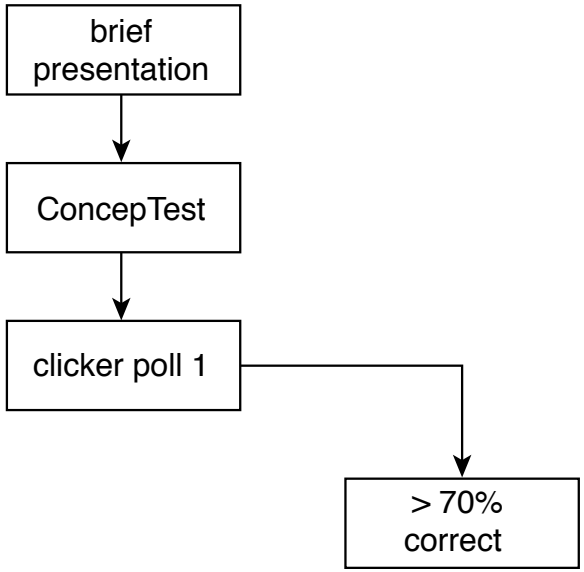
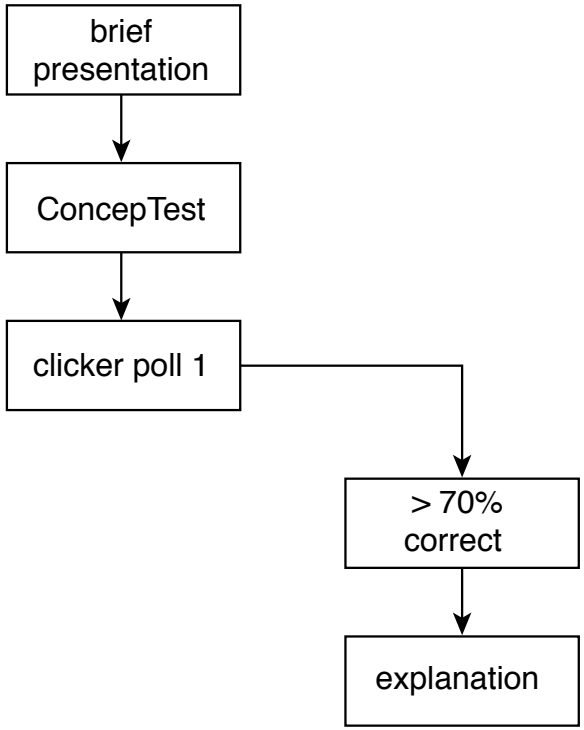
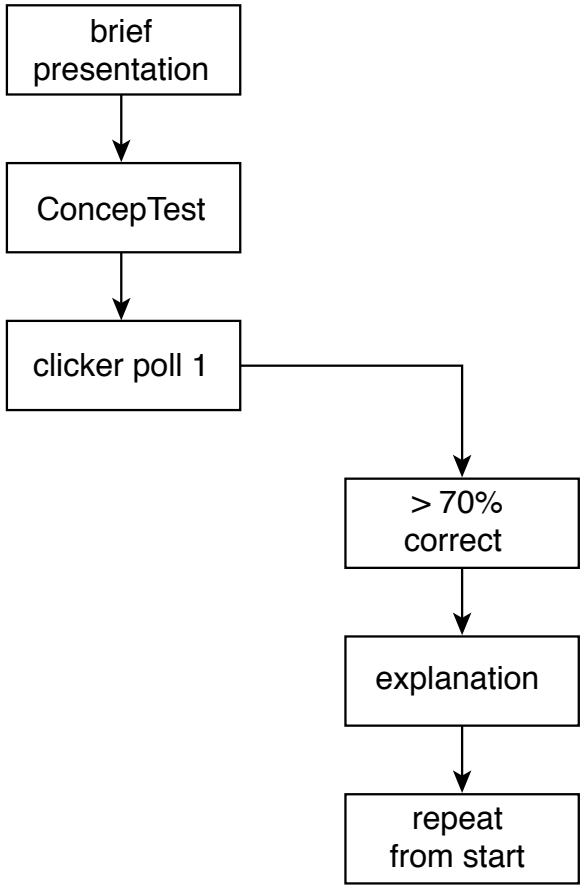
clicker poll 1


brief presentation
ConcepTest
clicker poll 1
> 70% correct


brief presentation
ConcepTest
clicker poll 1
> 70% correct
explanation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ConcepTest
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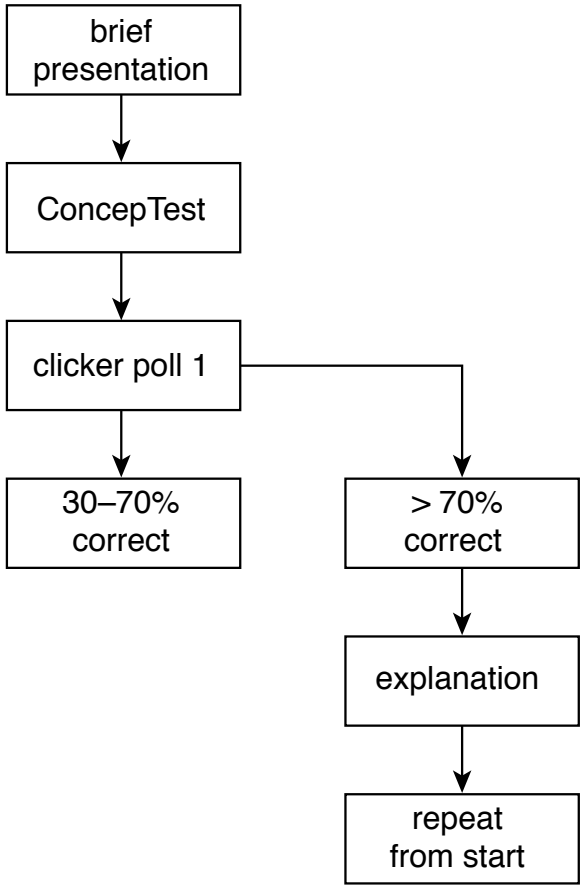
> 70% correct
explanation
repeat from start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ConcepTest
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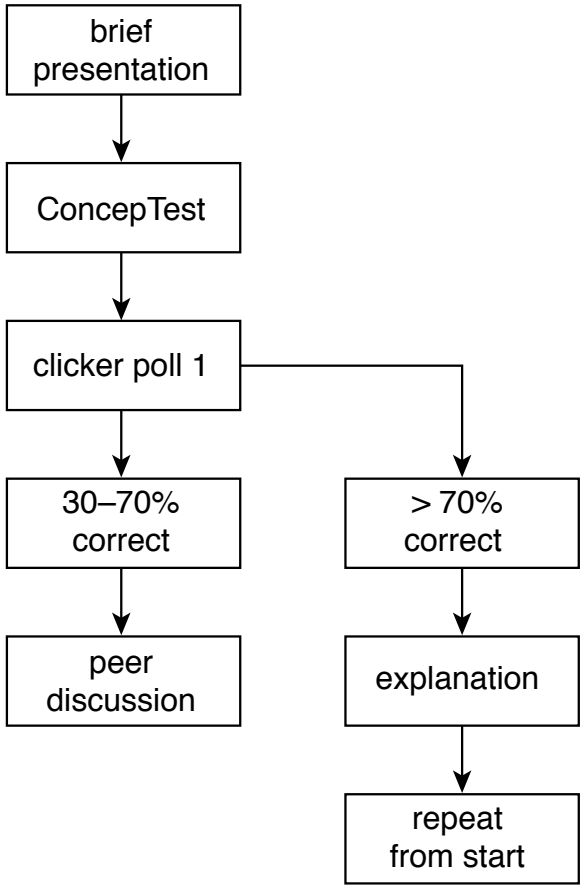
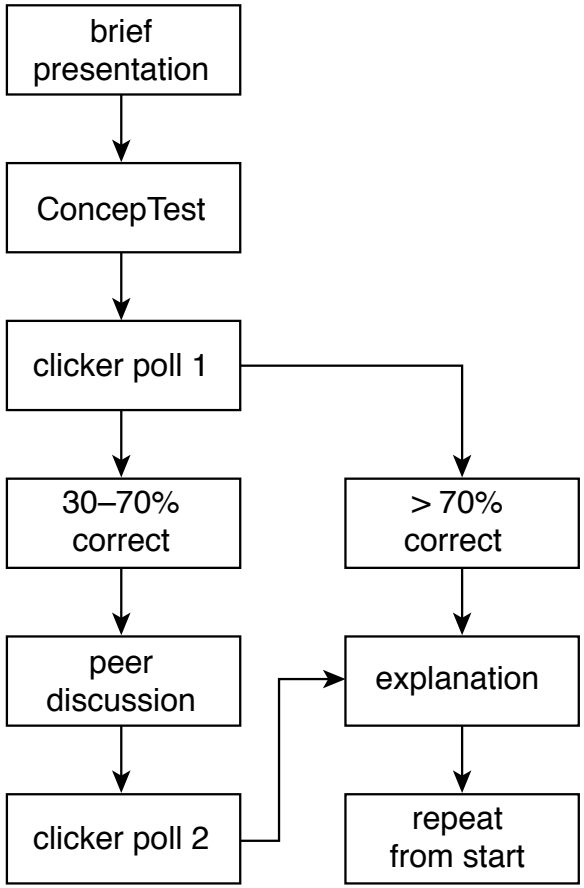
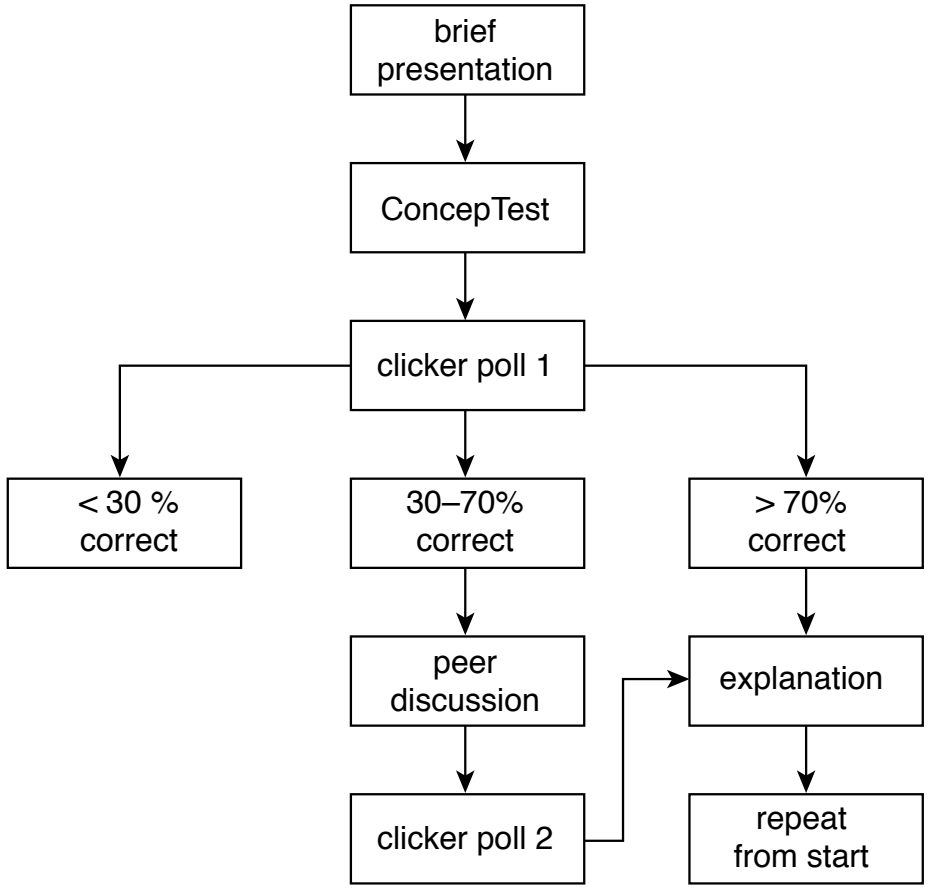
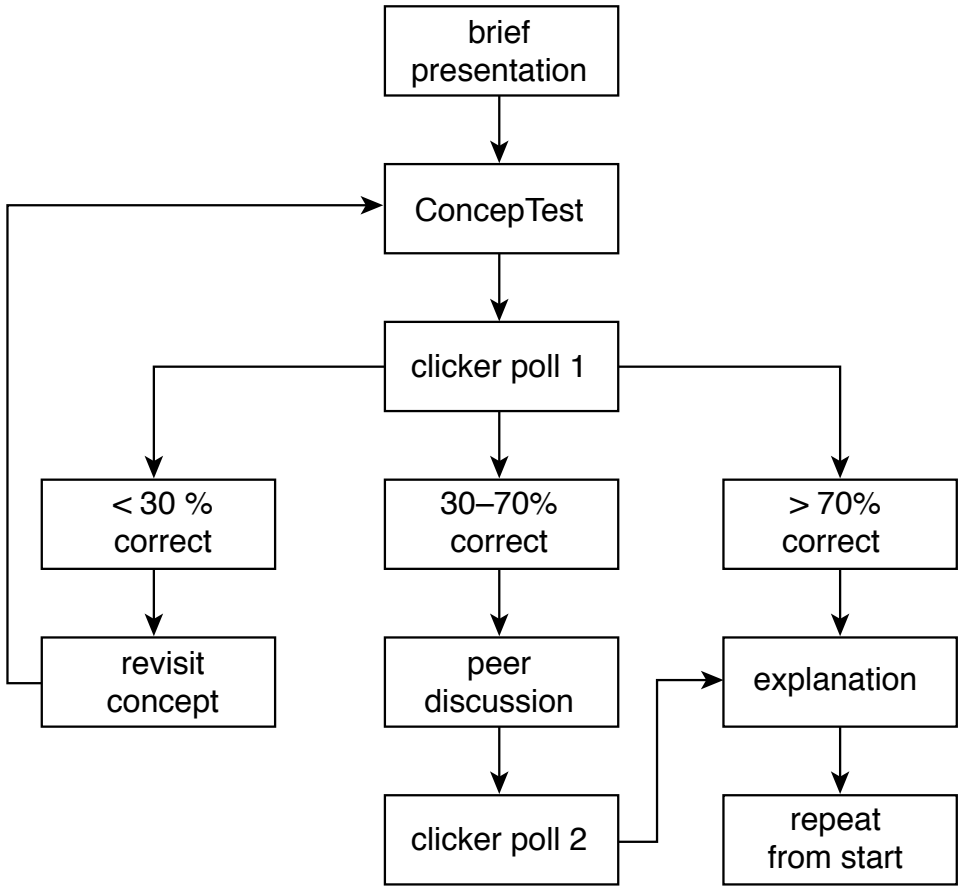
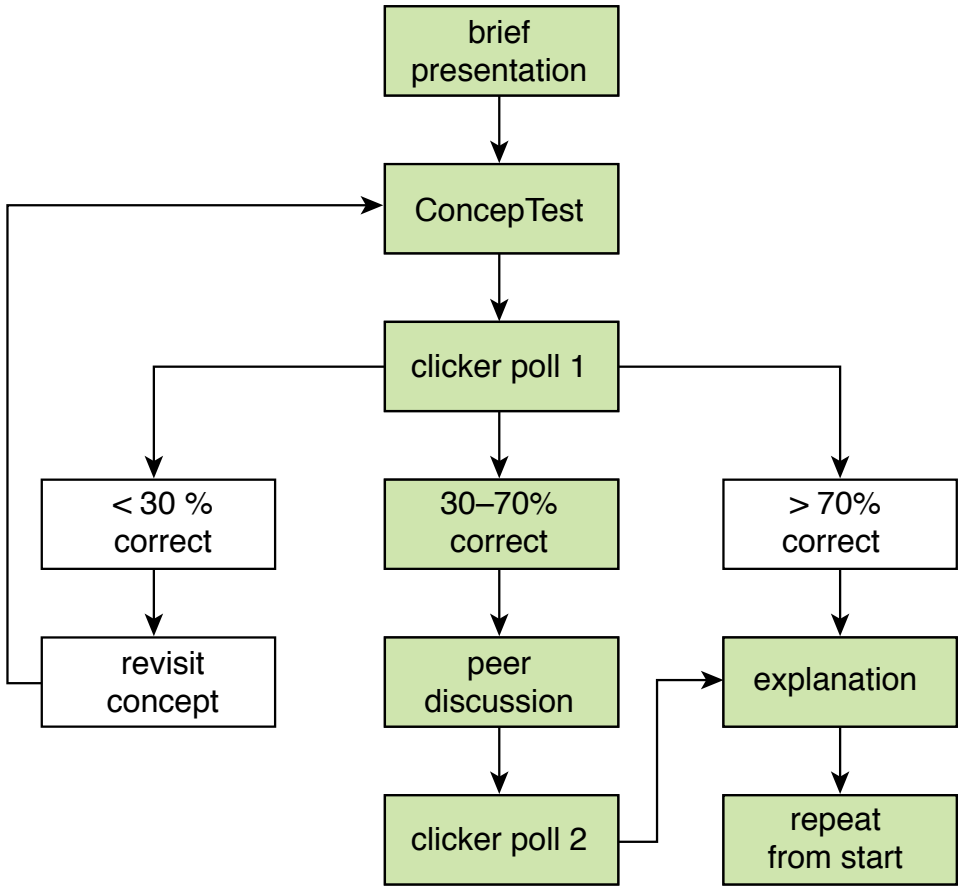
30–70% correct
> 70% correct
explanation
repeat from start


brief presentation
ConcepTest
clicker poll 1
30–70% correct
peer discussion
> 70% correct
explanation
repeat from start


brief presentation
ConcepTest
clicker poll 1
30–70% correct
peer discussion
clicker poll 2
> 70% correct
explanation
repeat from start


brief presentation
ConcepTest
clicker poll 1
< 30 % correct
30–70% correct
> 70% correct
peer discussion
explanation
clicker poll 2
repeat from start


brief presentation
ConcepTest
clicker poll 1
< 30 % correct
30–70% correct
> 70% correct
revisit concept
peer discussion
explanation
clicker poll 2
repeat from start


brief presentation
ConcepTest
clicker poll 1
< 30 % correct
30–70% correct
> 70% correct
revisit concept
peer discussion
explanation
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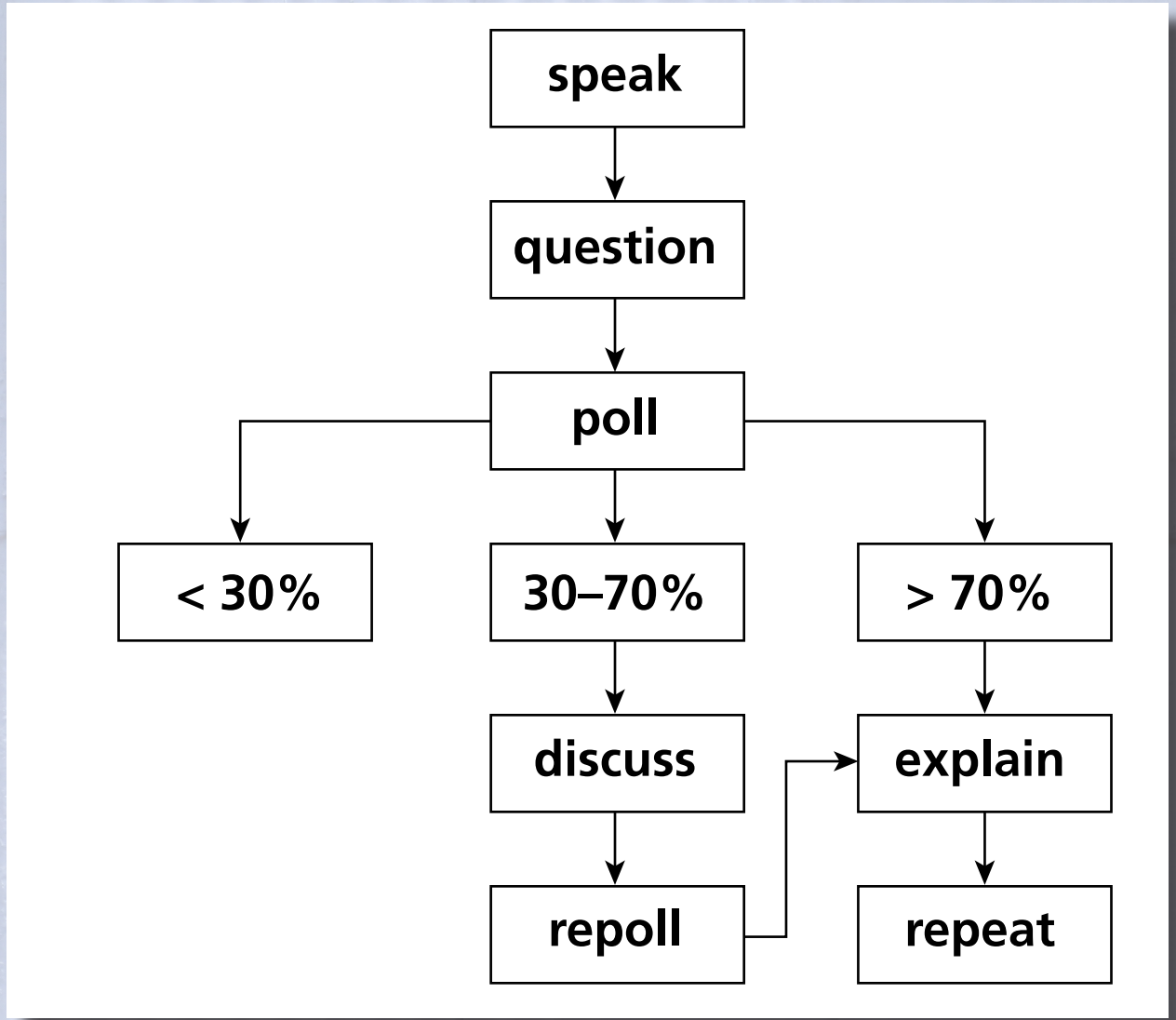
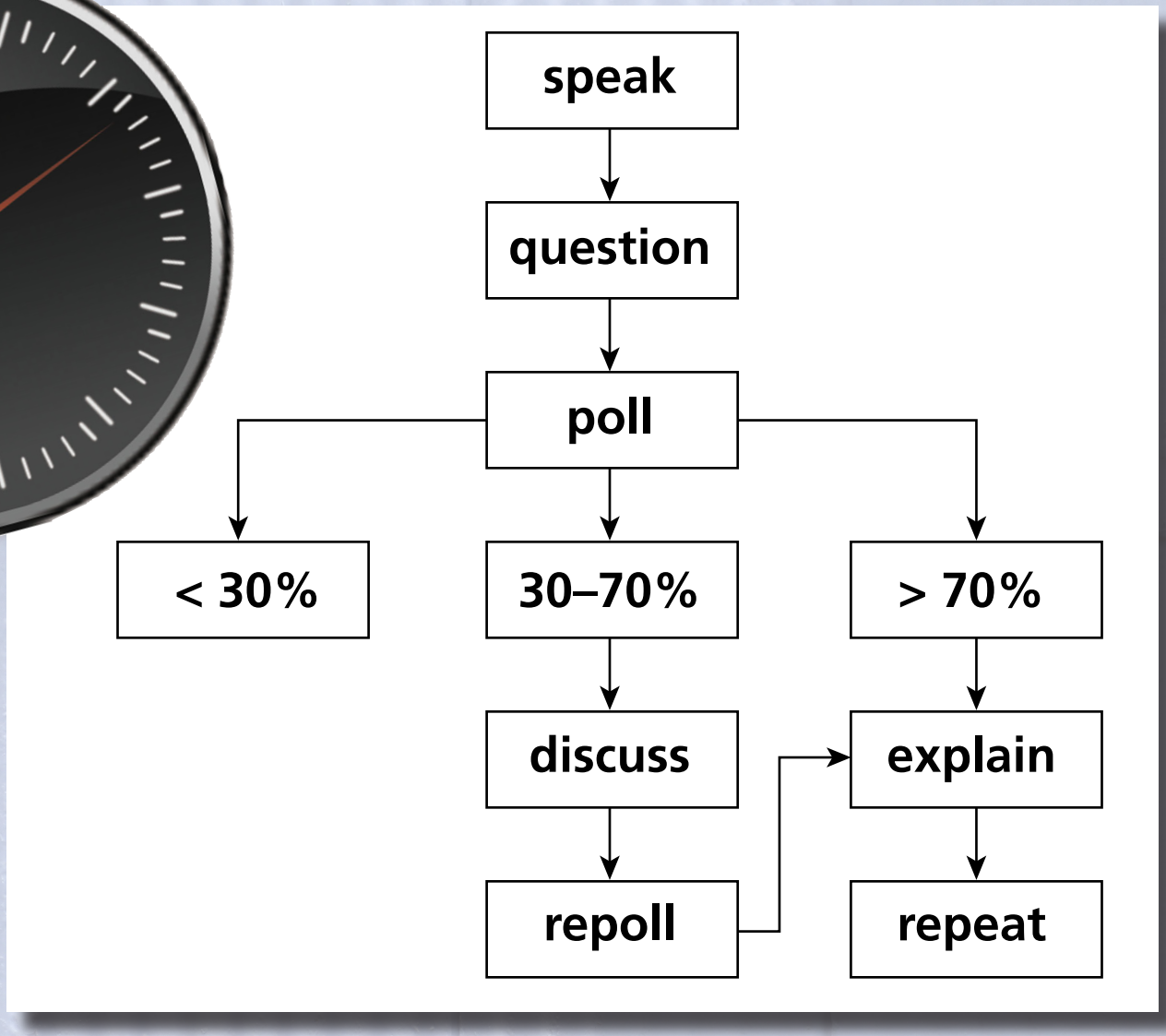
repeat from start



1 lecture 2 PI 3 PI 2.0



1 lecture

2 PI

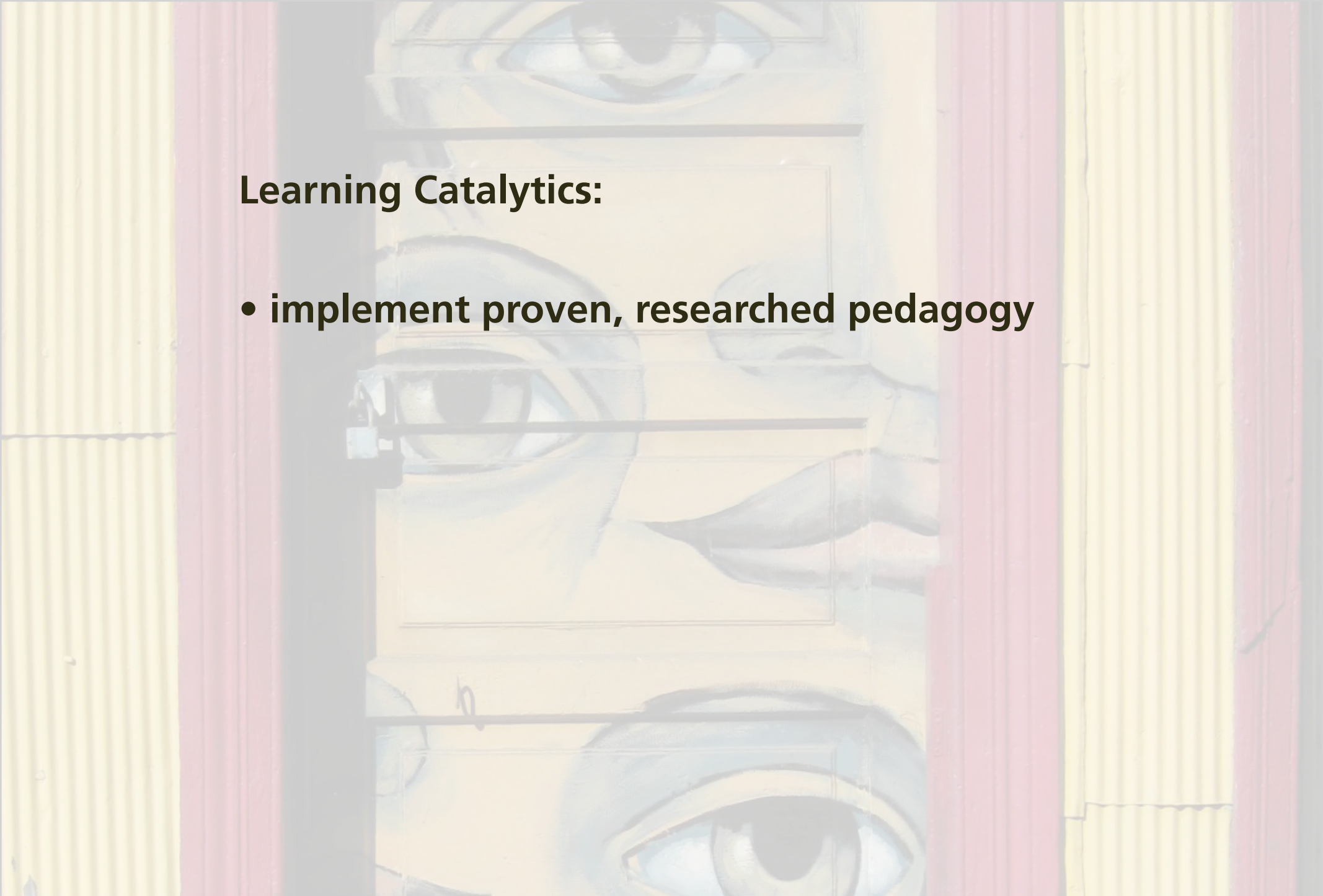
3 PI 2.0

1 lecture

2 PI

3 PI 2.0

1 education 2 PI 3 PI 2.0



Learning Catalytics:

- implement proven, researched pedagogy

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- use consumer devices

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- avoid pitfalls of MC assessment

Learning Catalytics:

- implement proven, researched pedagogy
- use consumer devices
- avoid pitfalls of MC assessment
- create a smart classroom *anywhere*