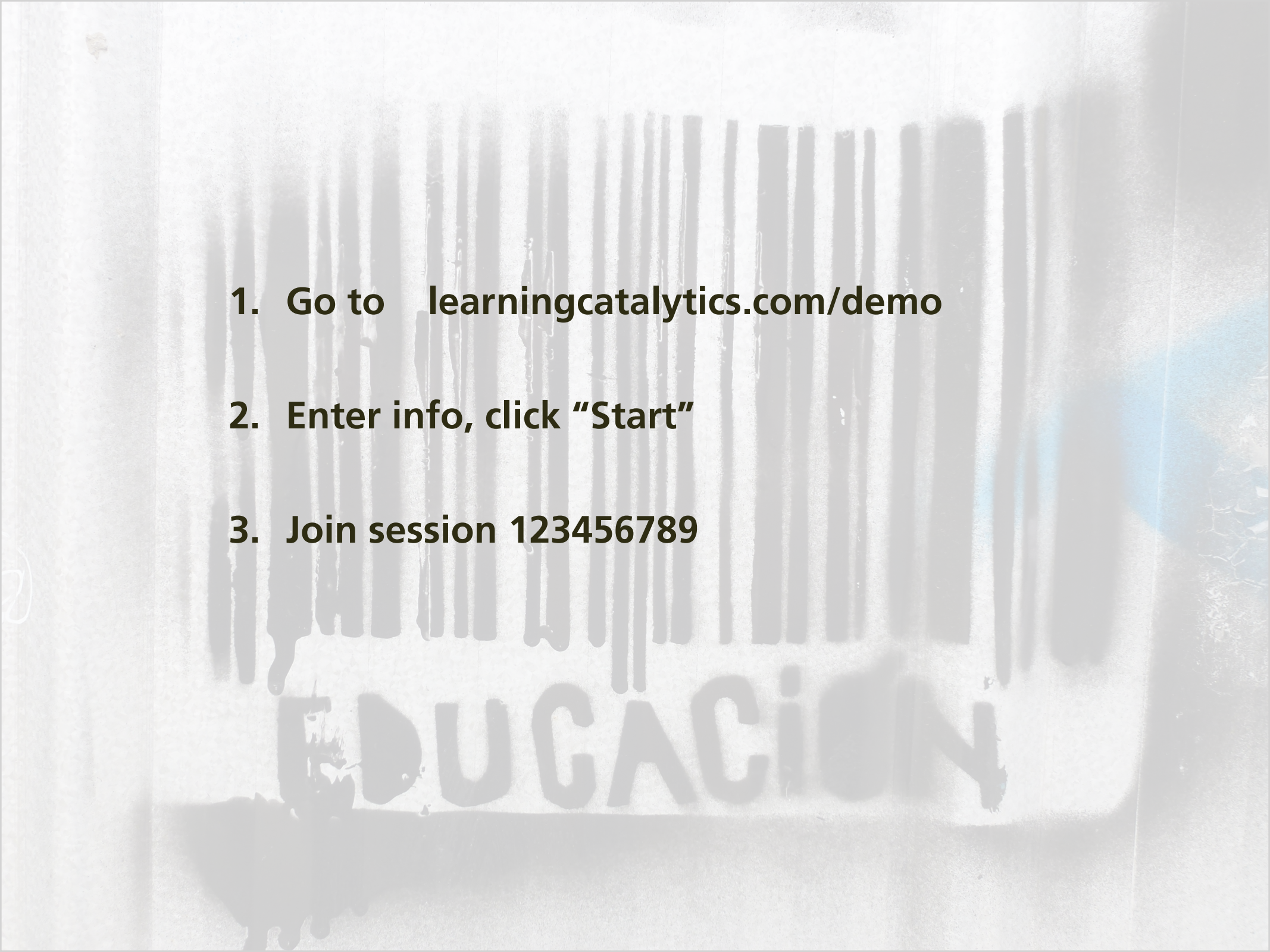


1. Go to learningcatalytics.com/demo
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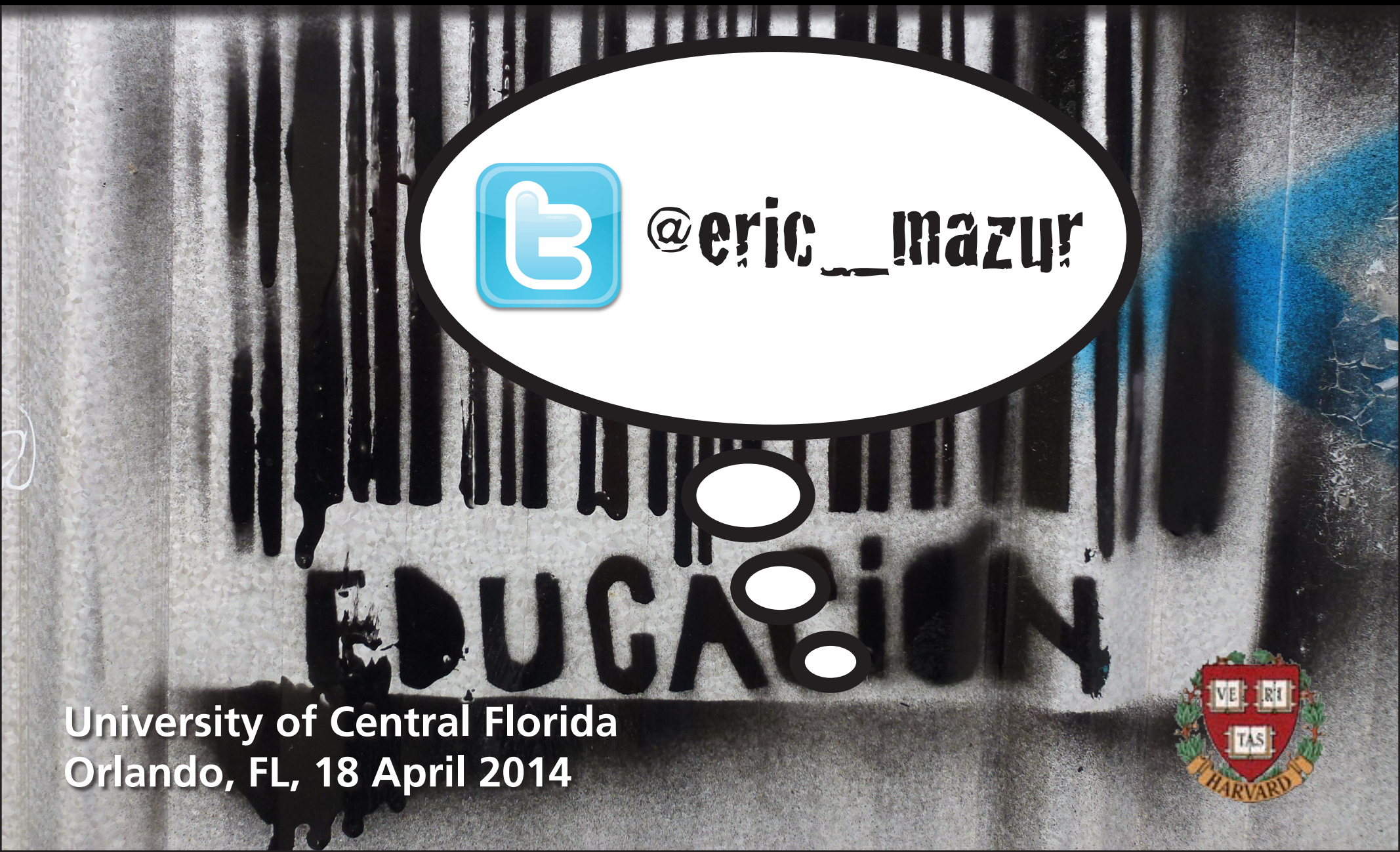
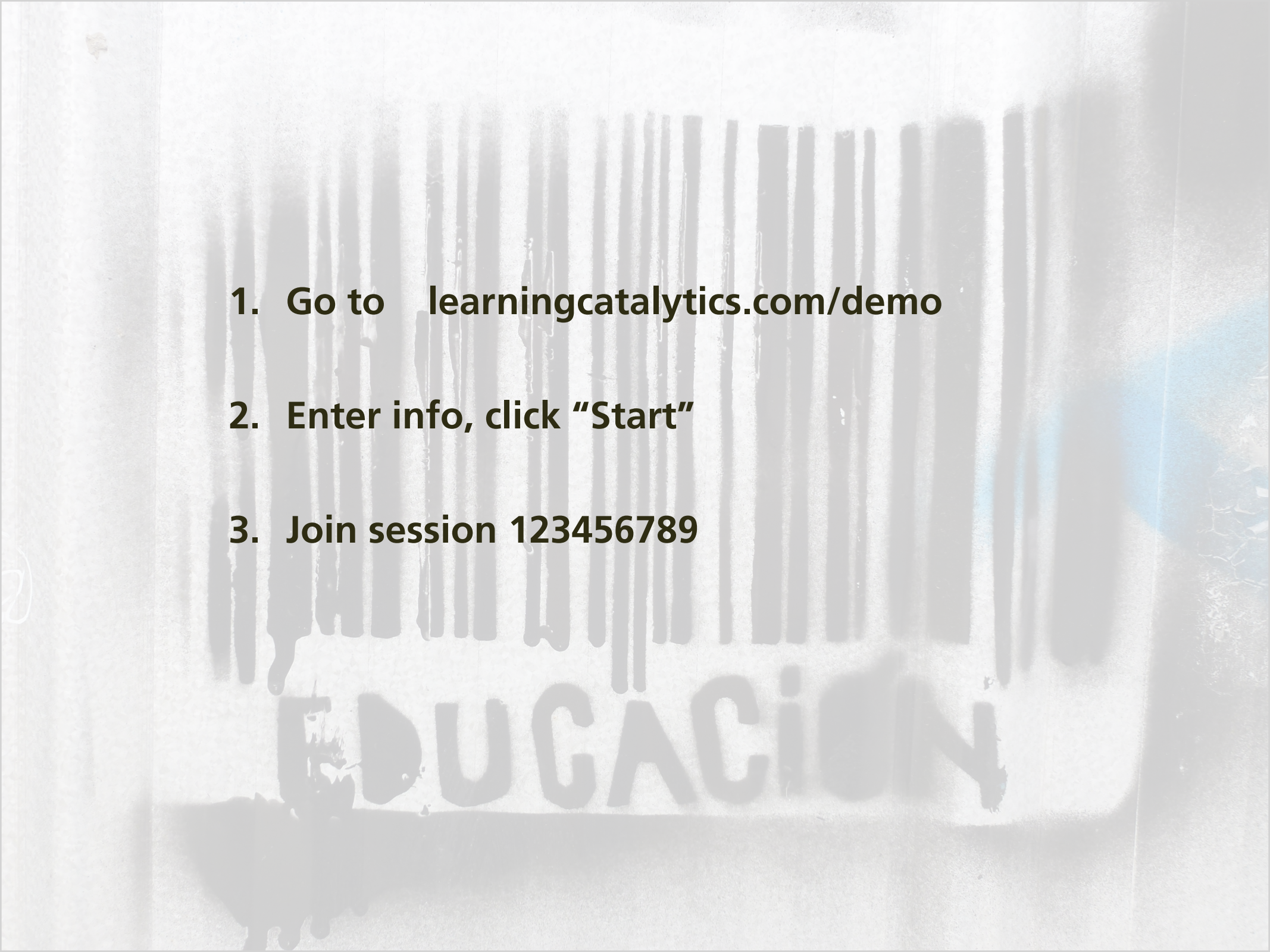
# Turning lectures into learning


University of Central Florida
Orlando, FL, 18 April 2014

# Turning lectures into learning




University of Central Florida
Orlando, FL, 18 April 2014

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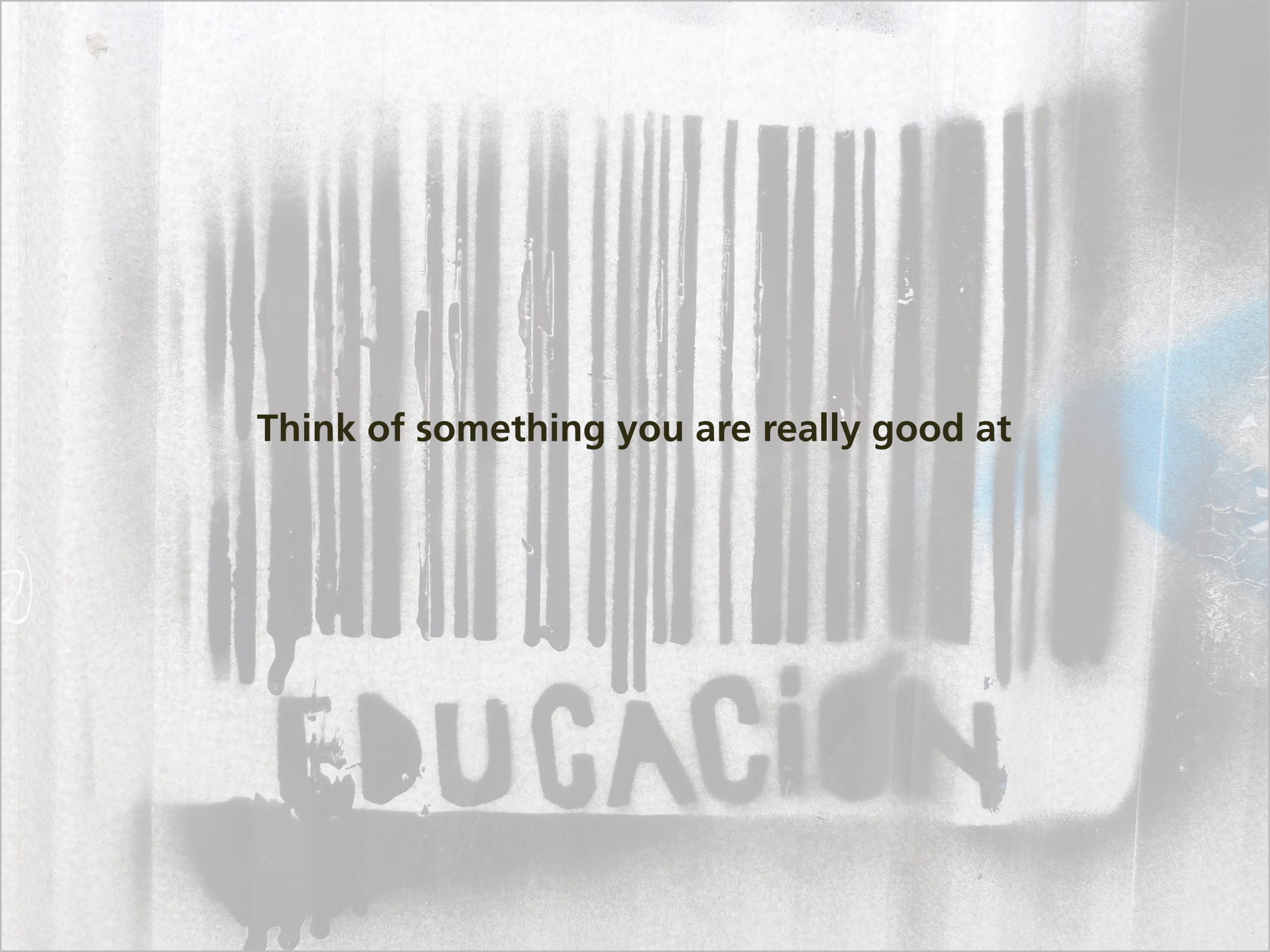

Think of something you are really good at
EDUCACION

Now think how you became good at it

1 lecture

1 lecture

2 PI

1 lecture

2 PI

3 PI 2.0


1 lecture

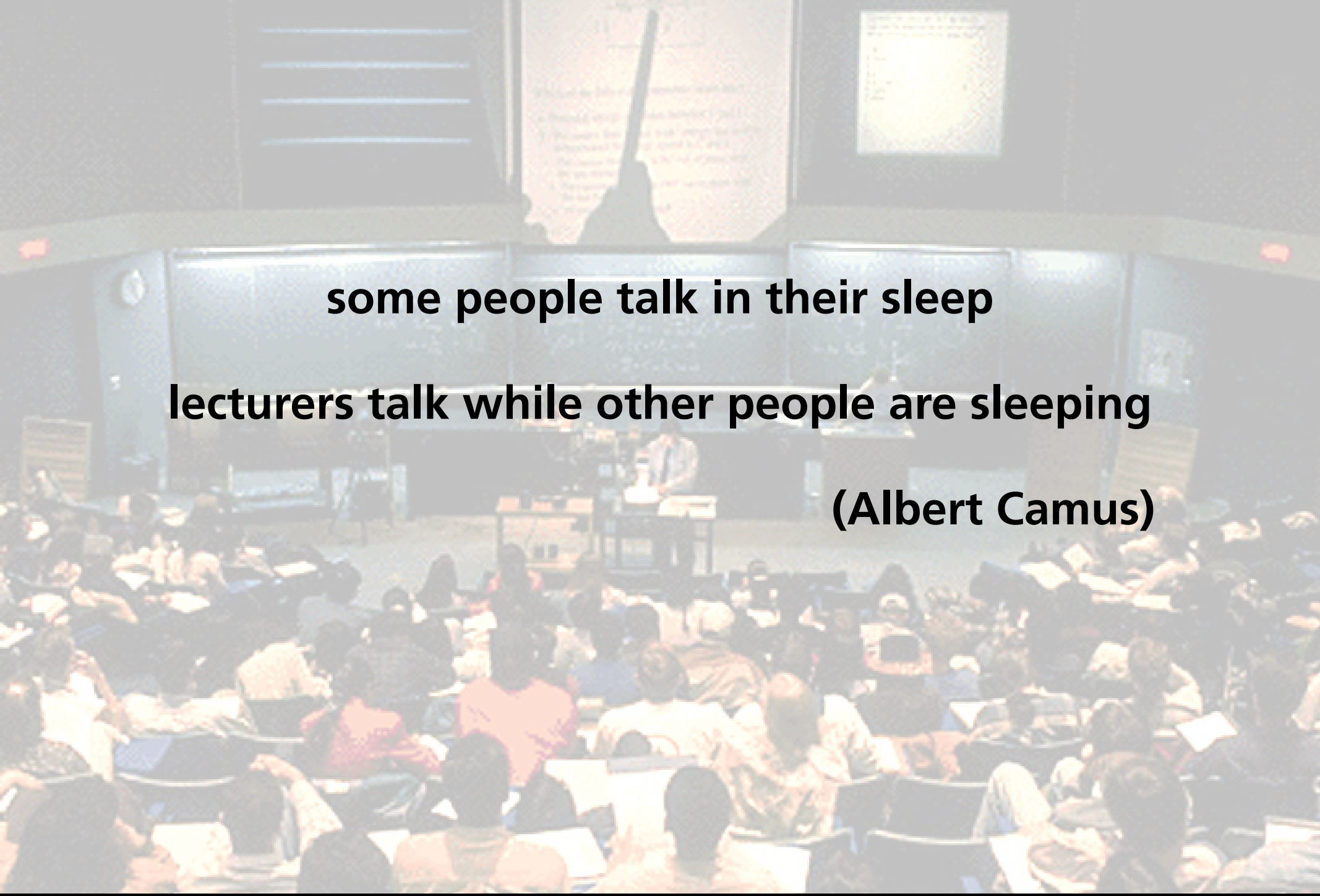
2 PI

3 PI 2.0

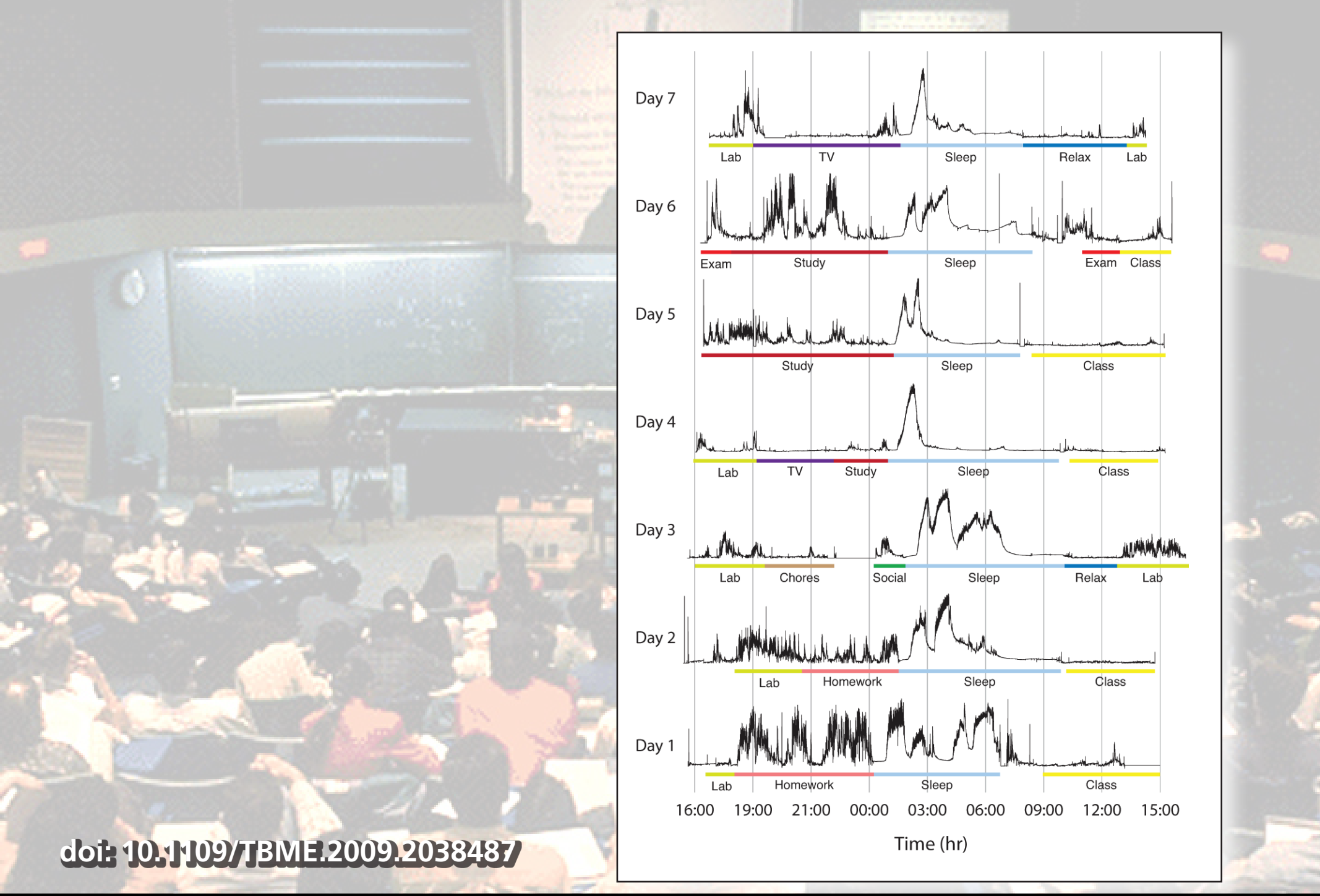

What happens
in a lecture?

1 lecture


1 lecture

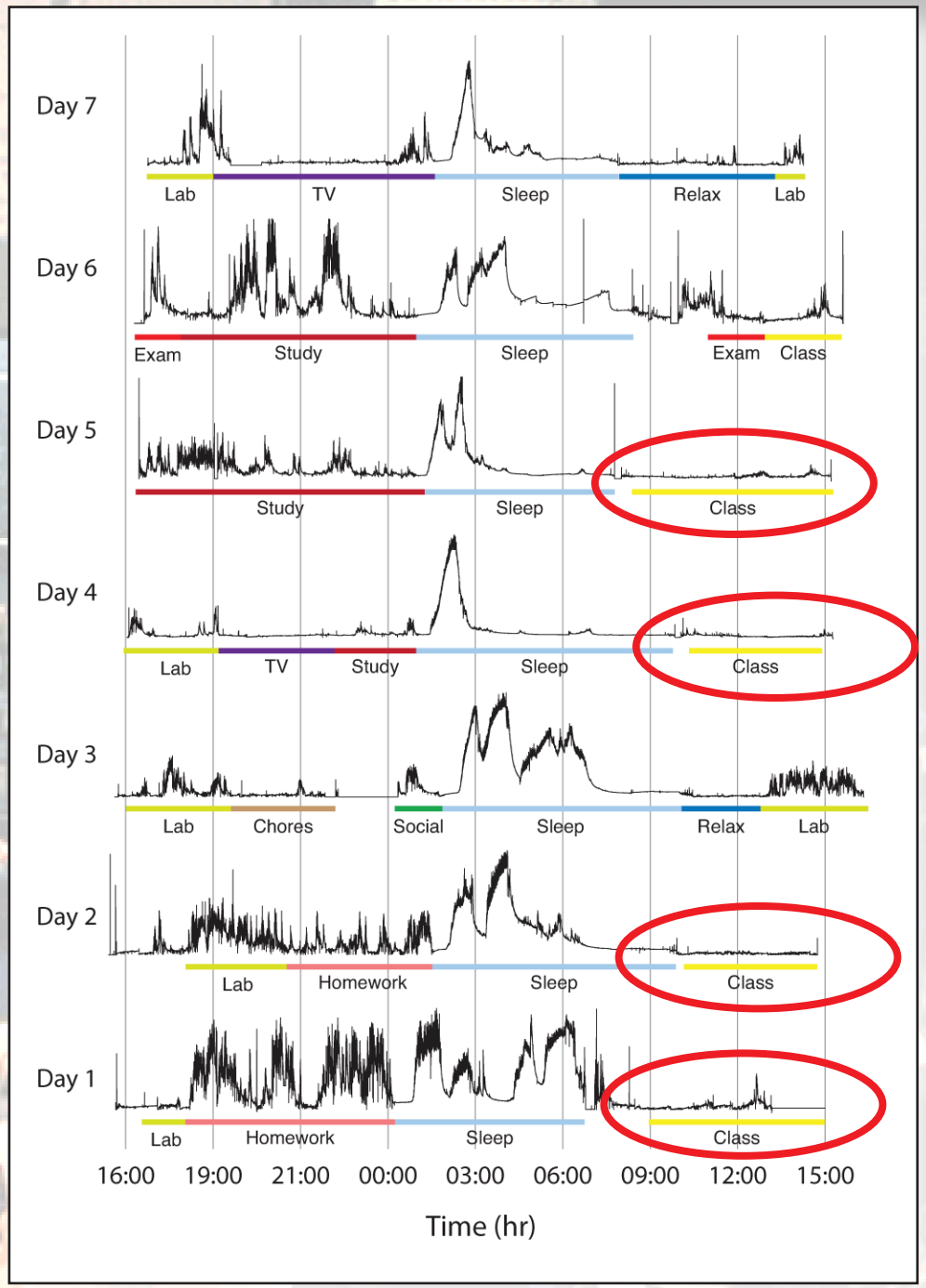

some people talk in their sleep
lecturers talk while other people are sleeping
(Albert Camus)

1 lecture




doi: 10.1109/TBME.2009.2038487

1 lecture

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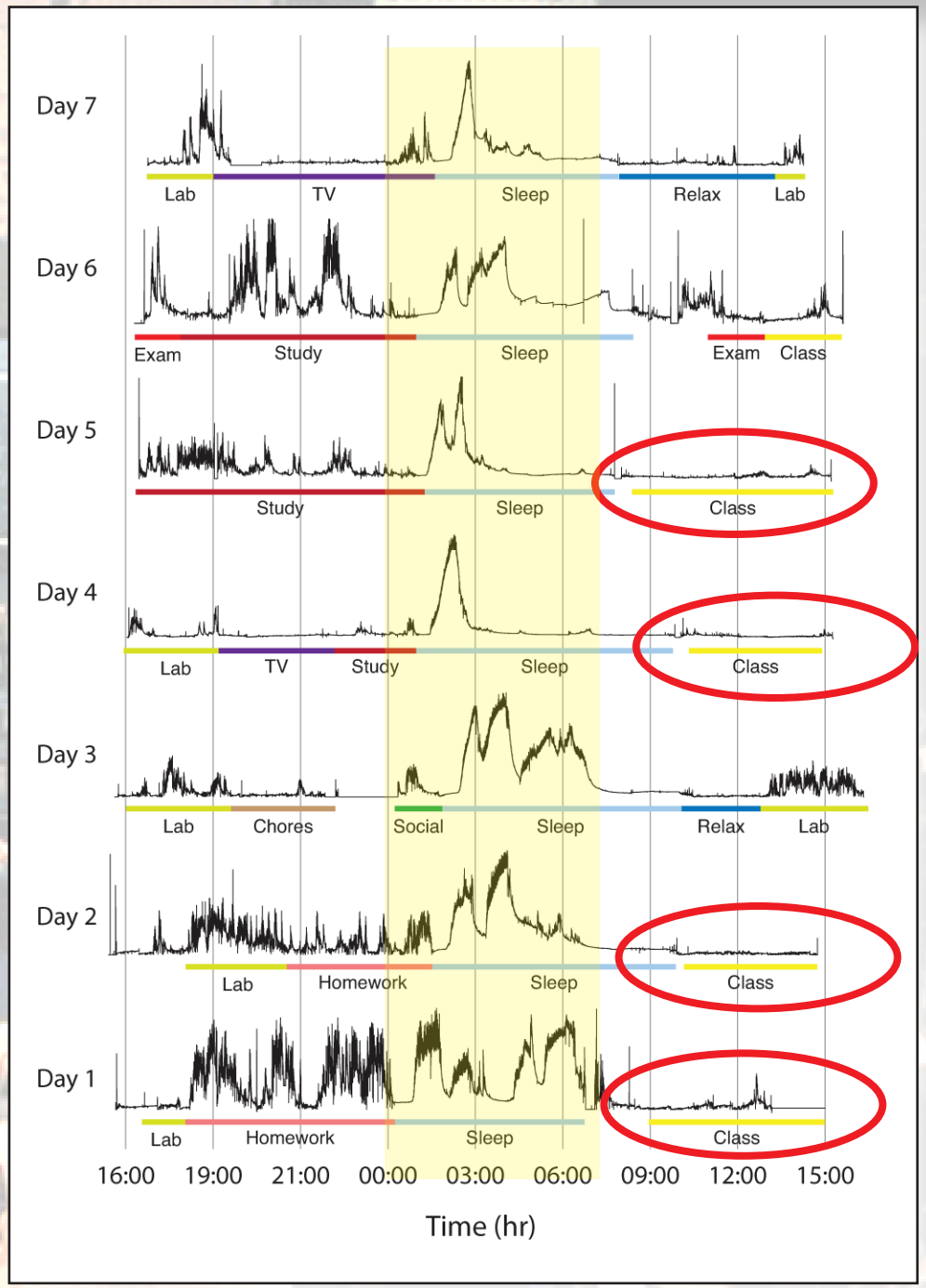
1 lecture

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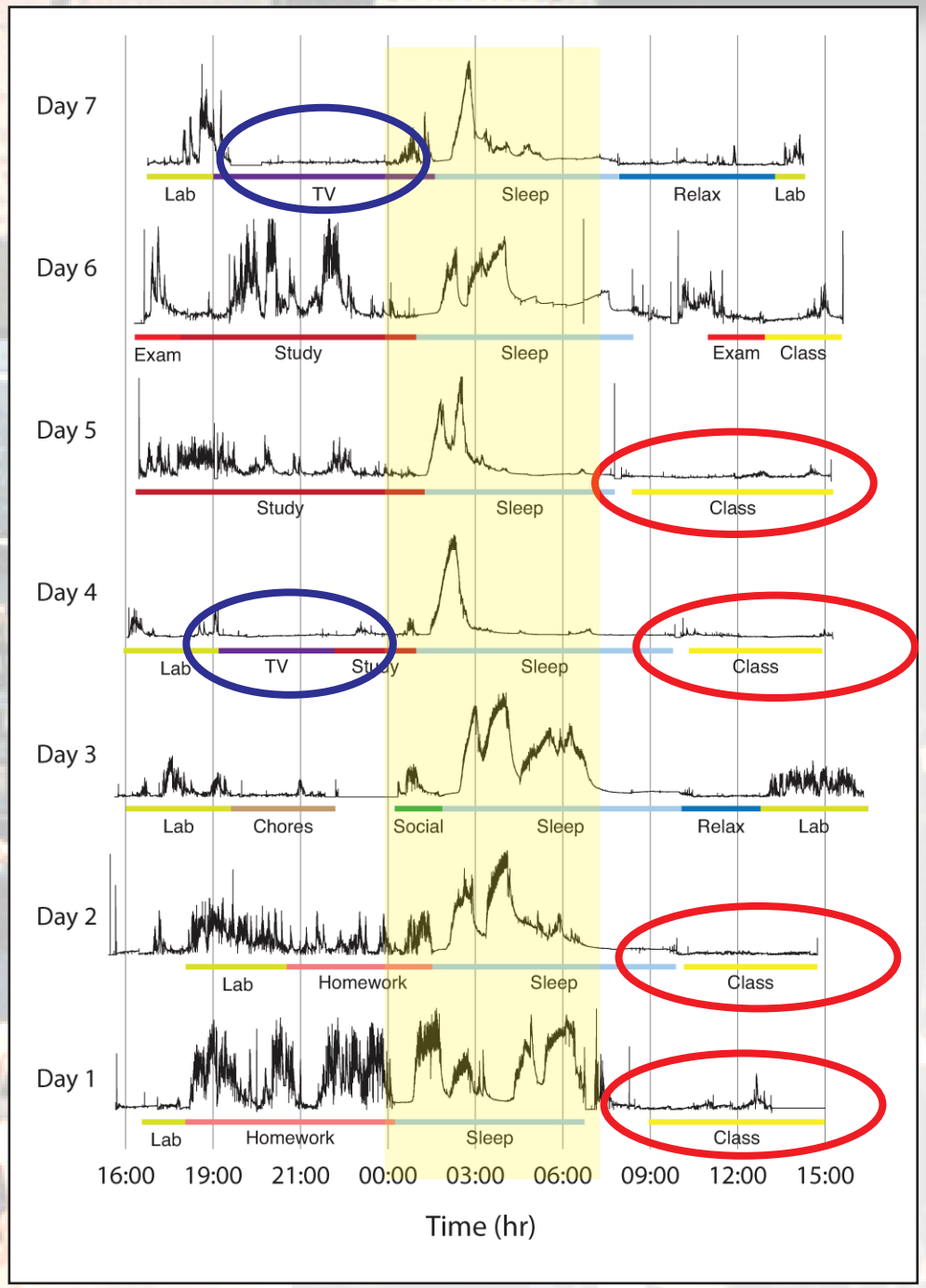
1 lecture

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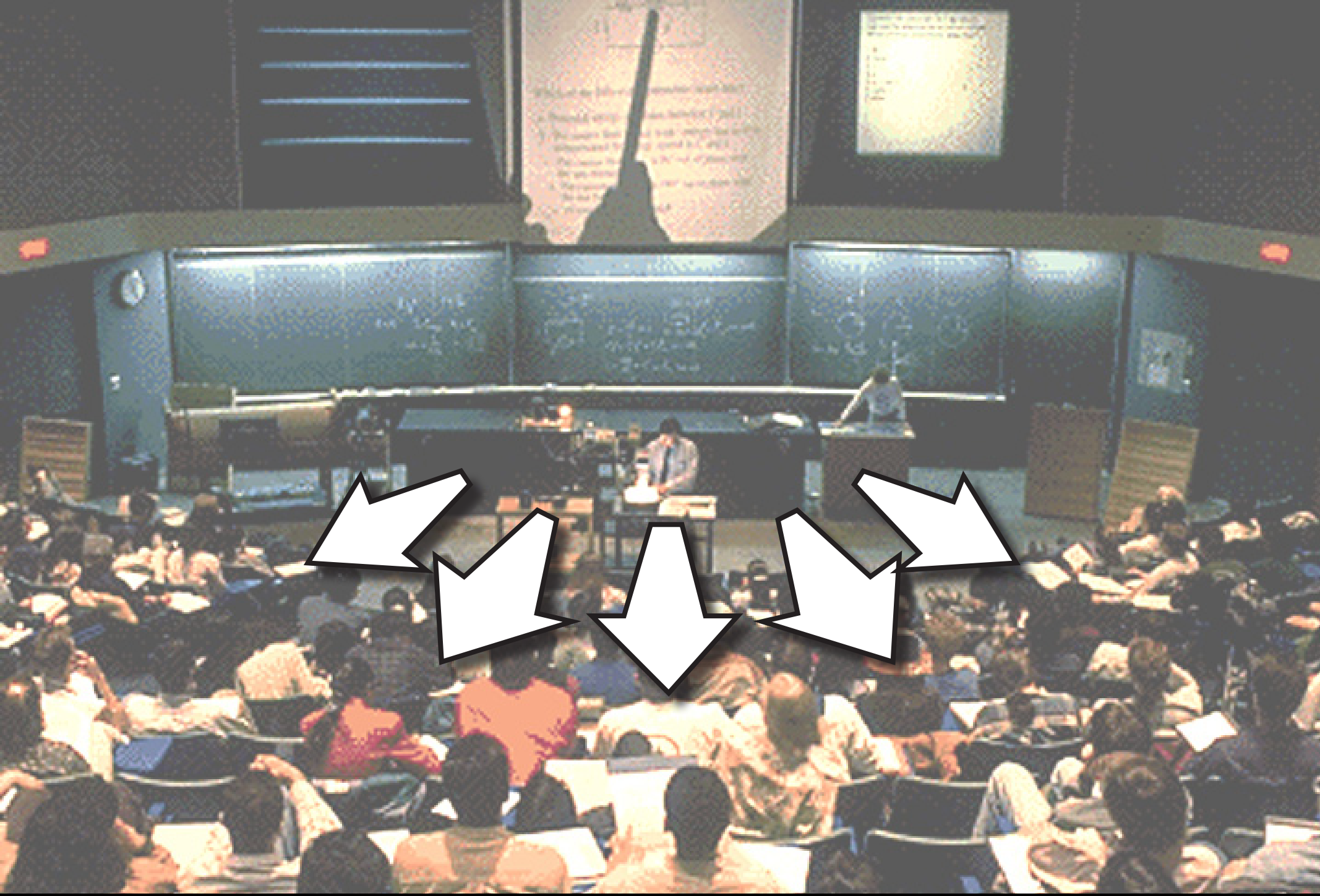
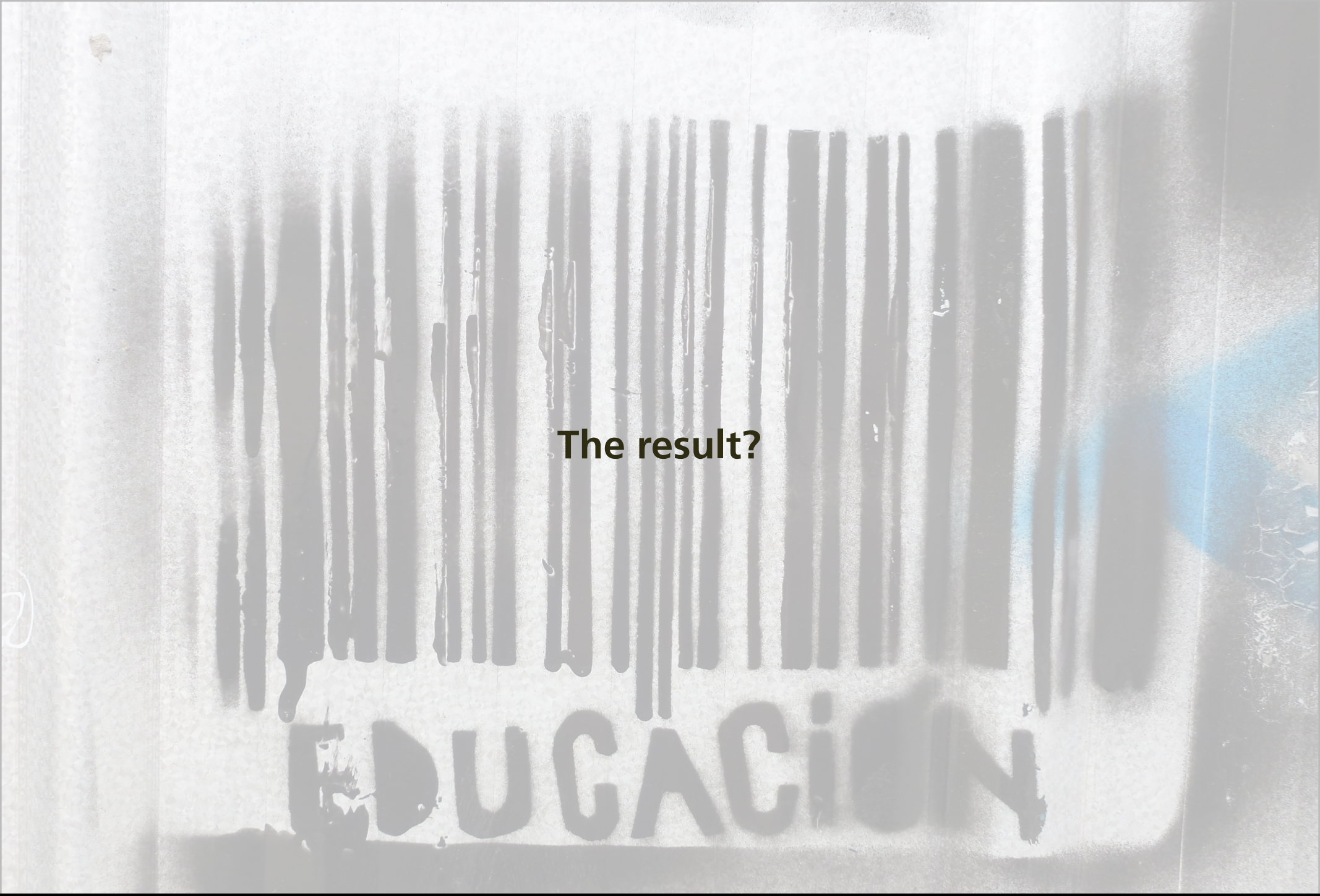
1 lecture

1 lecture



1 lecture




1 lecture


1 lecture


1 lecture

1 lecture

2 PI


1. transfer of information

1. transfer of information

2. assimilation of that information

1 lecture

2 PI

1. transfer of information (in class)

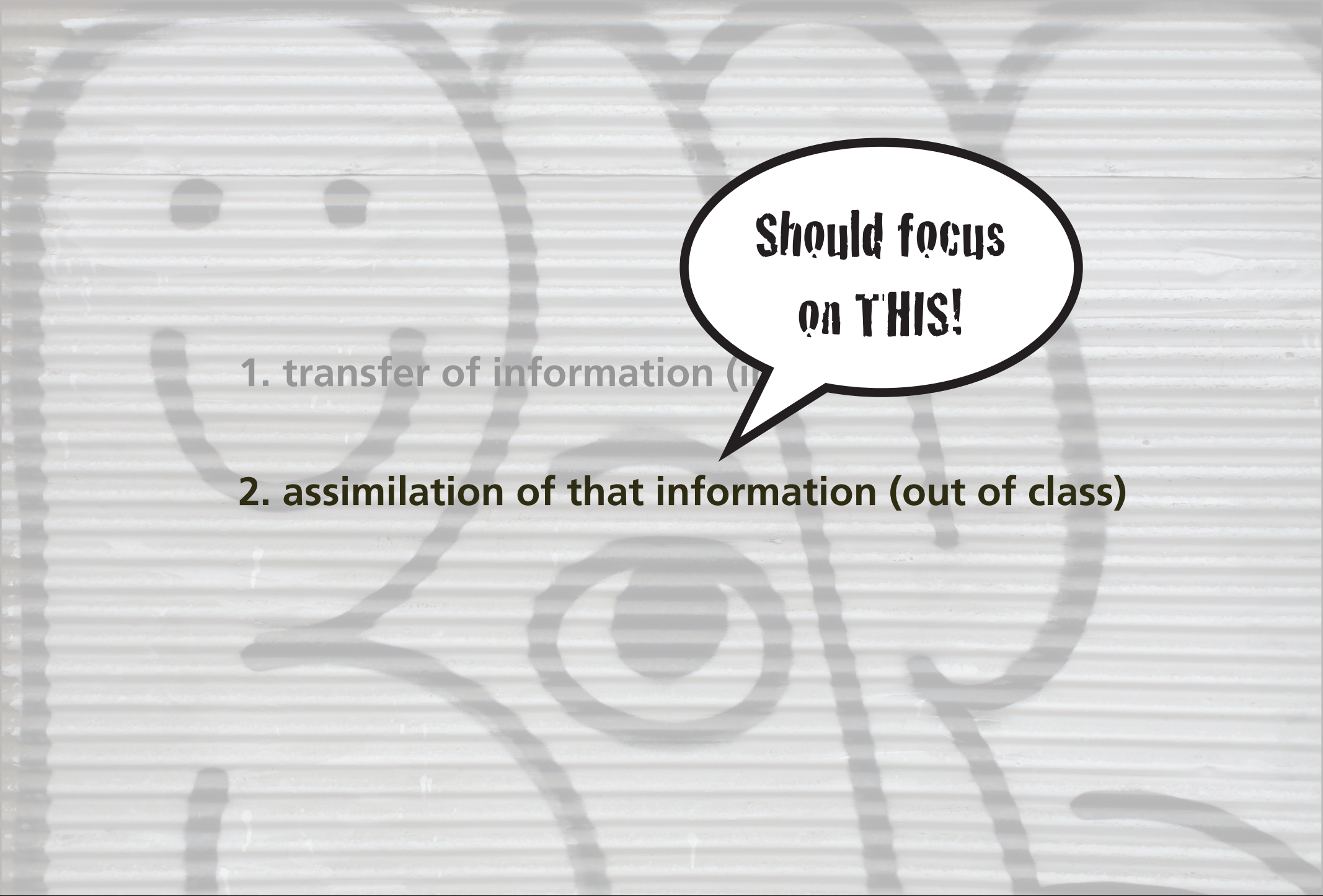
2. assimilation of that information

1 lecture

2 PI

1. transfer of information (in class)

**2. assimilation of that information (out of class)**




1 lecture 2 PI

1. transfer of information (in class)

2. assimilation of that information (out of class)

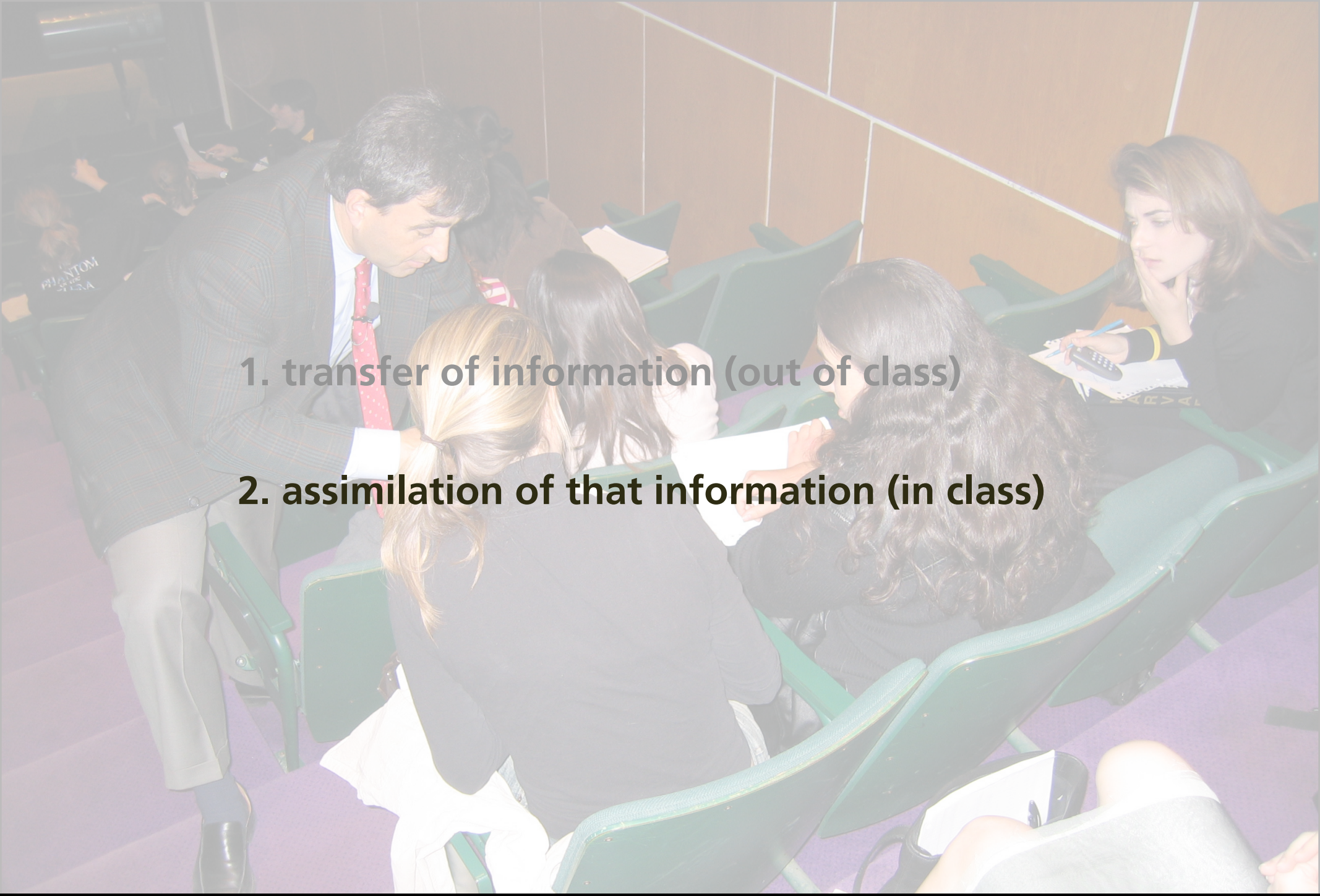
1 lecture 2 PI

1. transfer of information (out of class)

2. assimilation of that information (in class)

1 lecture

2 PI

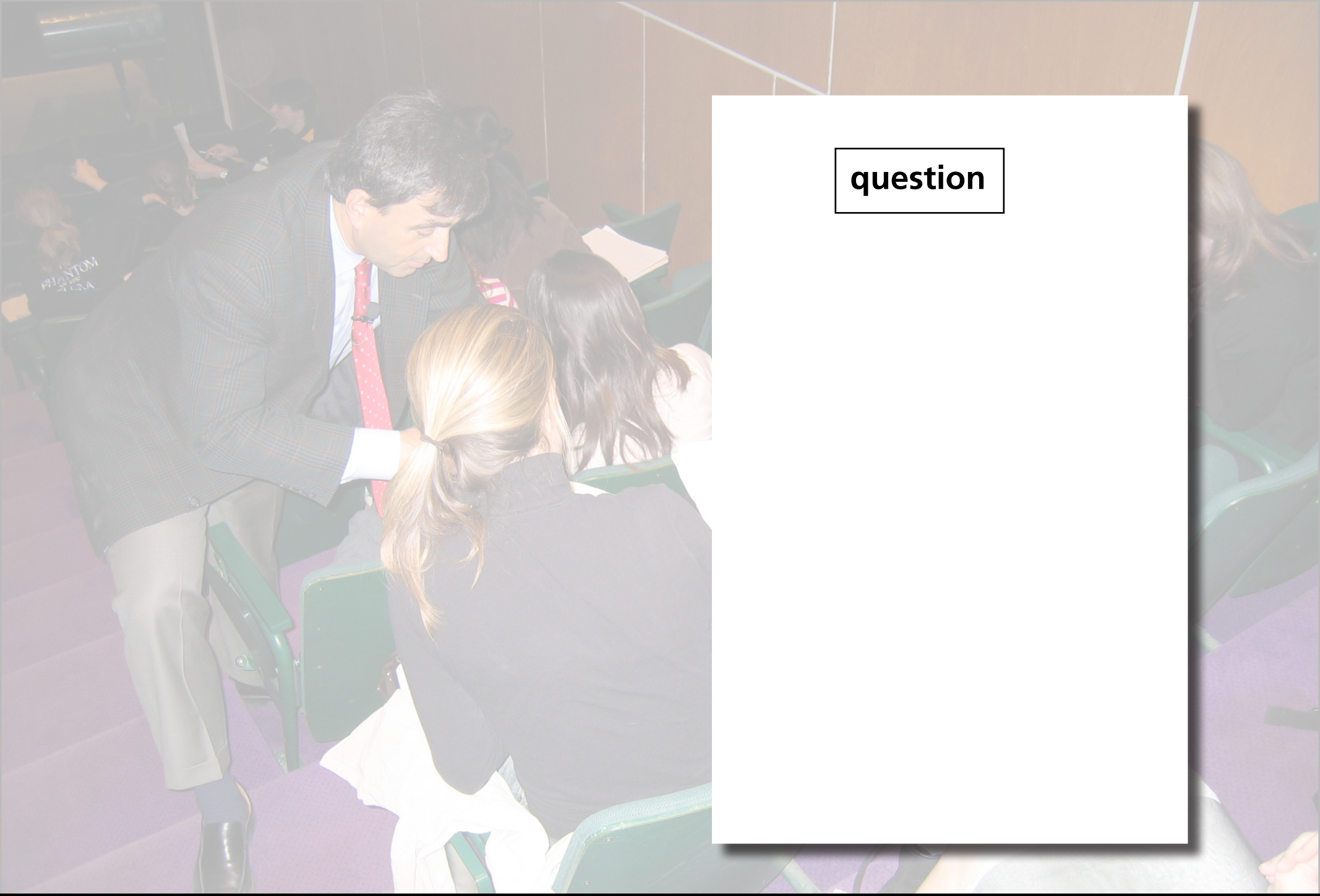


1. transfer of information (out of class)

2. assimilation of that information (in class)

1 lecture

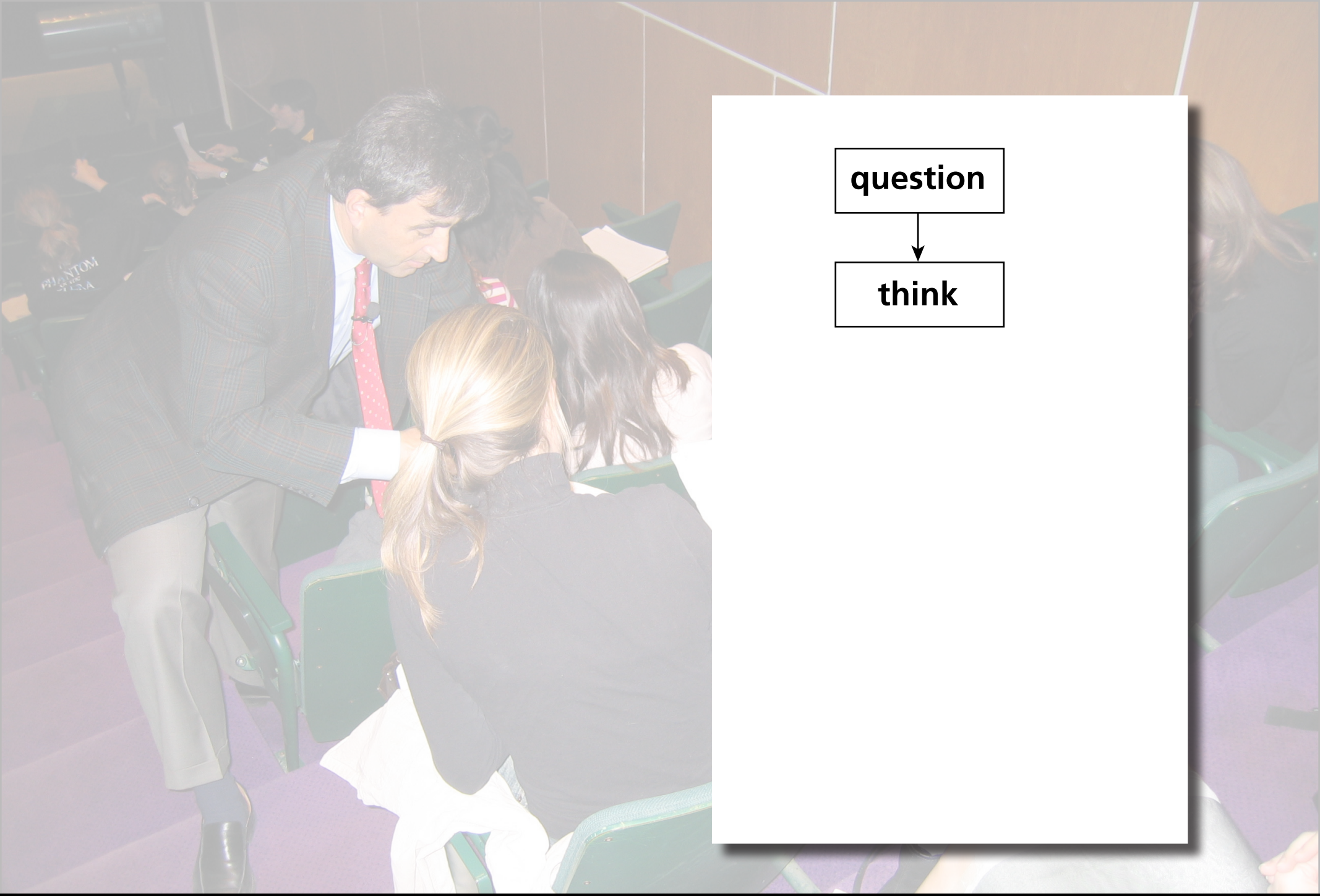
2 PI



question

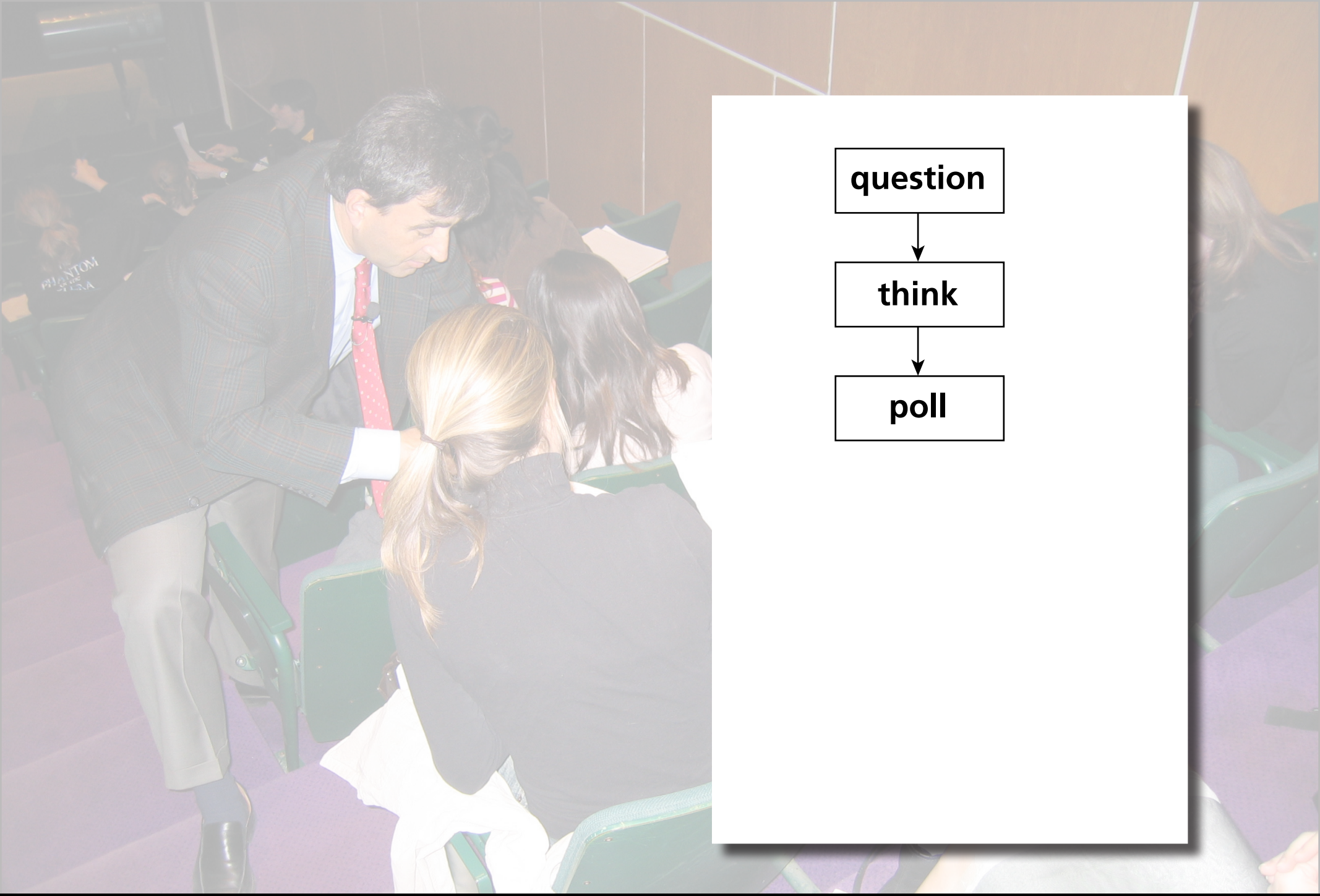
1 lecture

2 PI



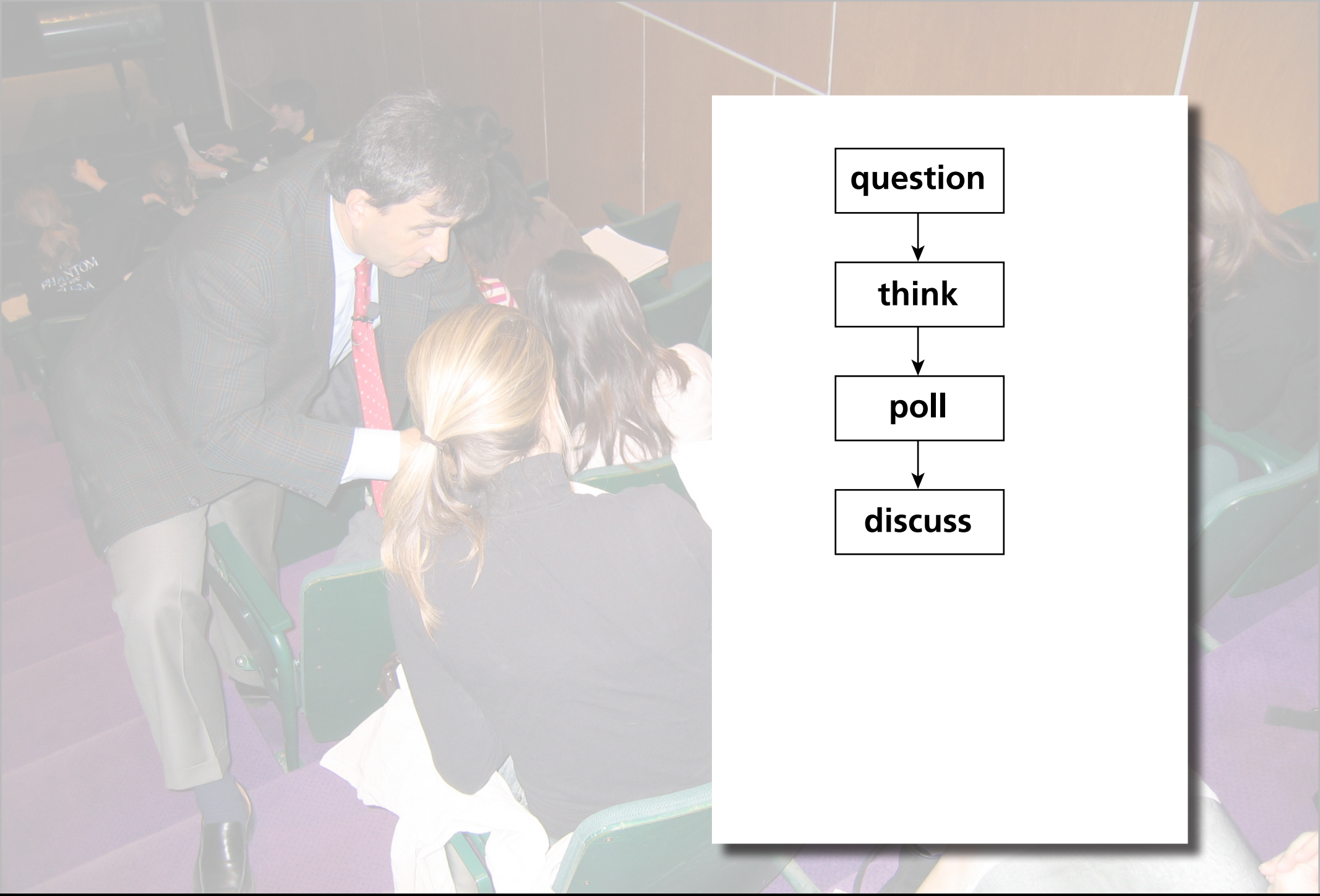

1 lecture

2 PI



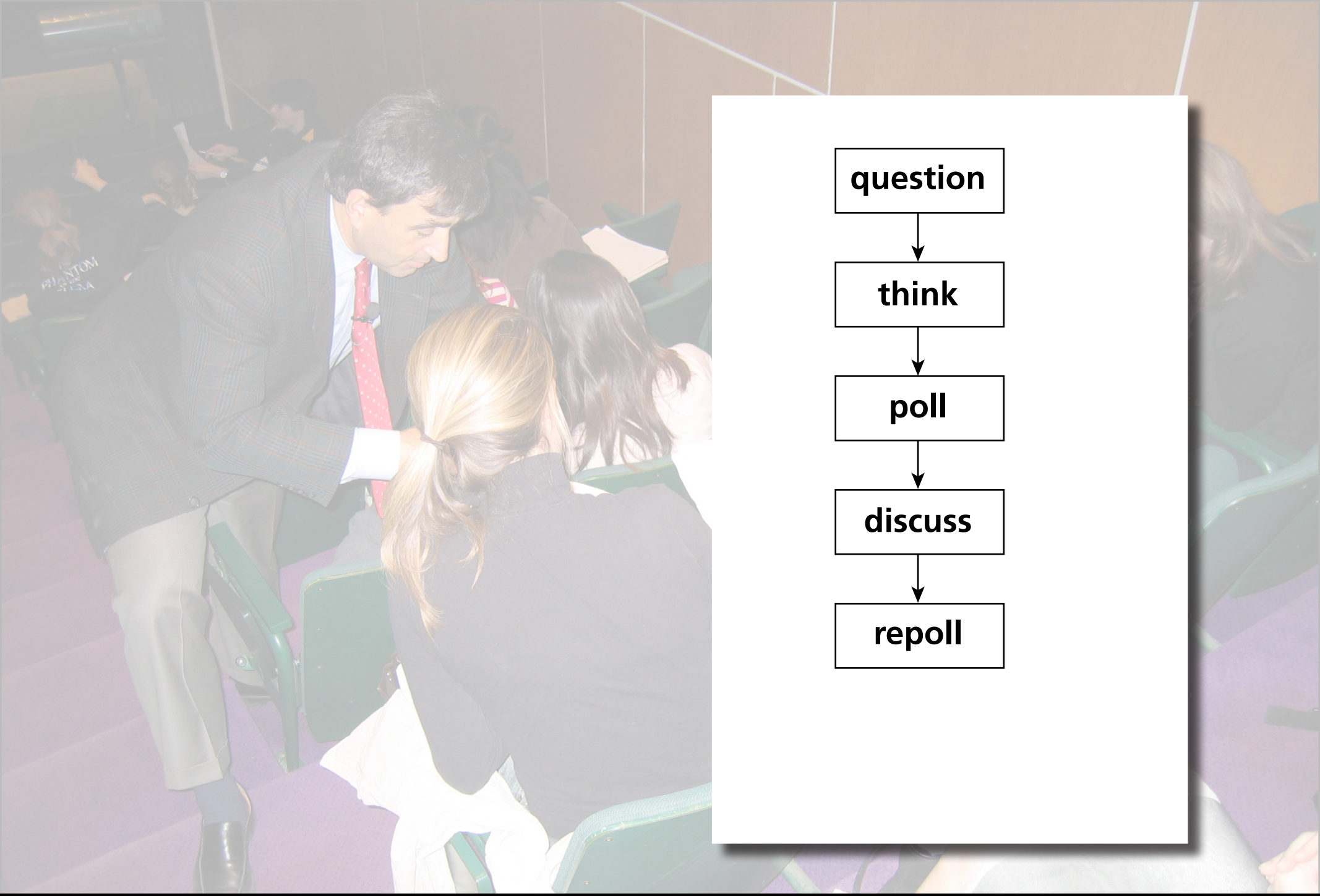

1 lecture

2 PI



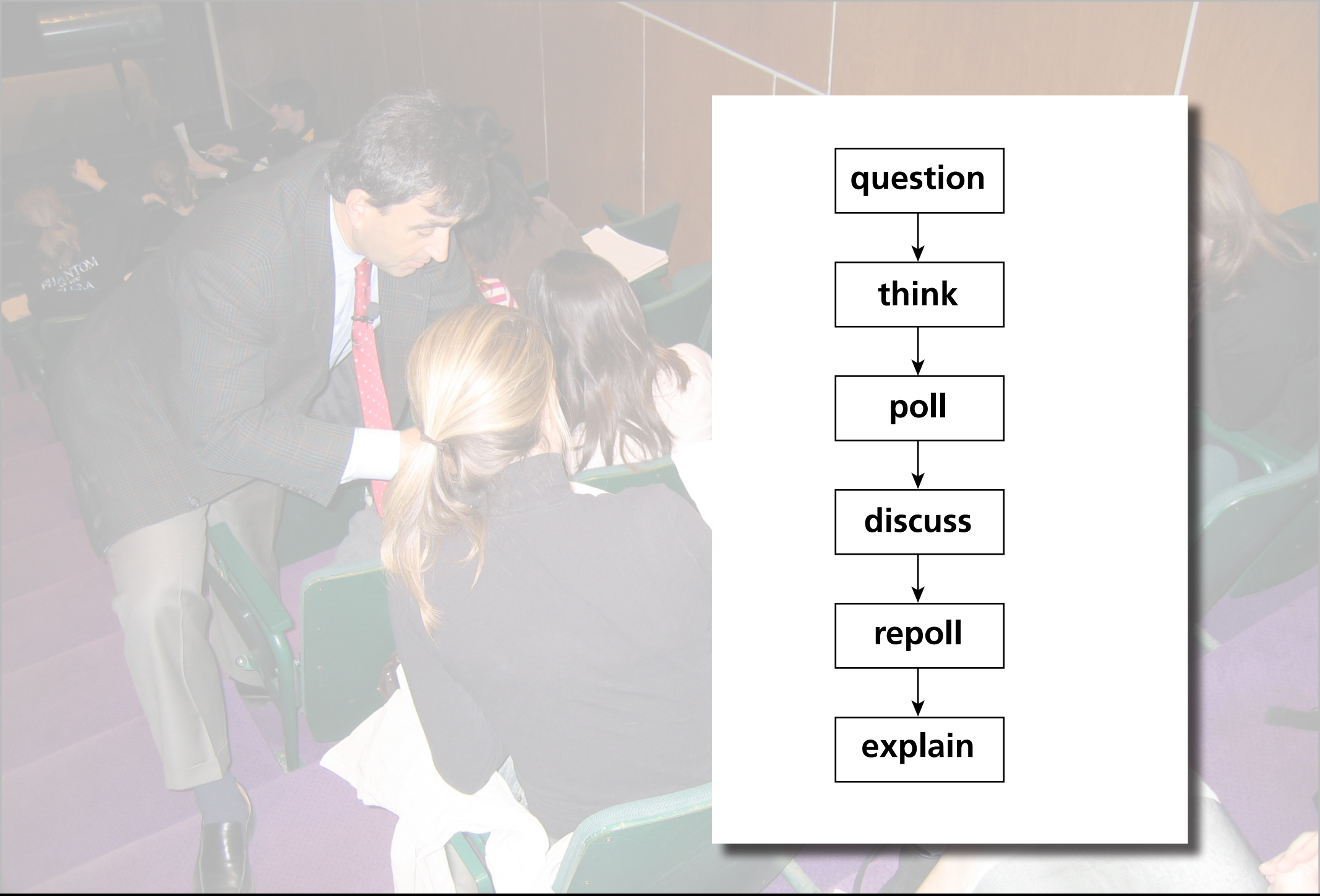

1 lecture

2 PI



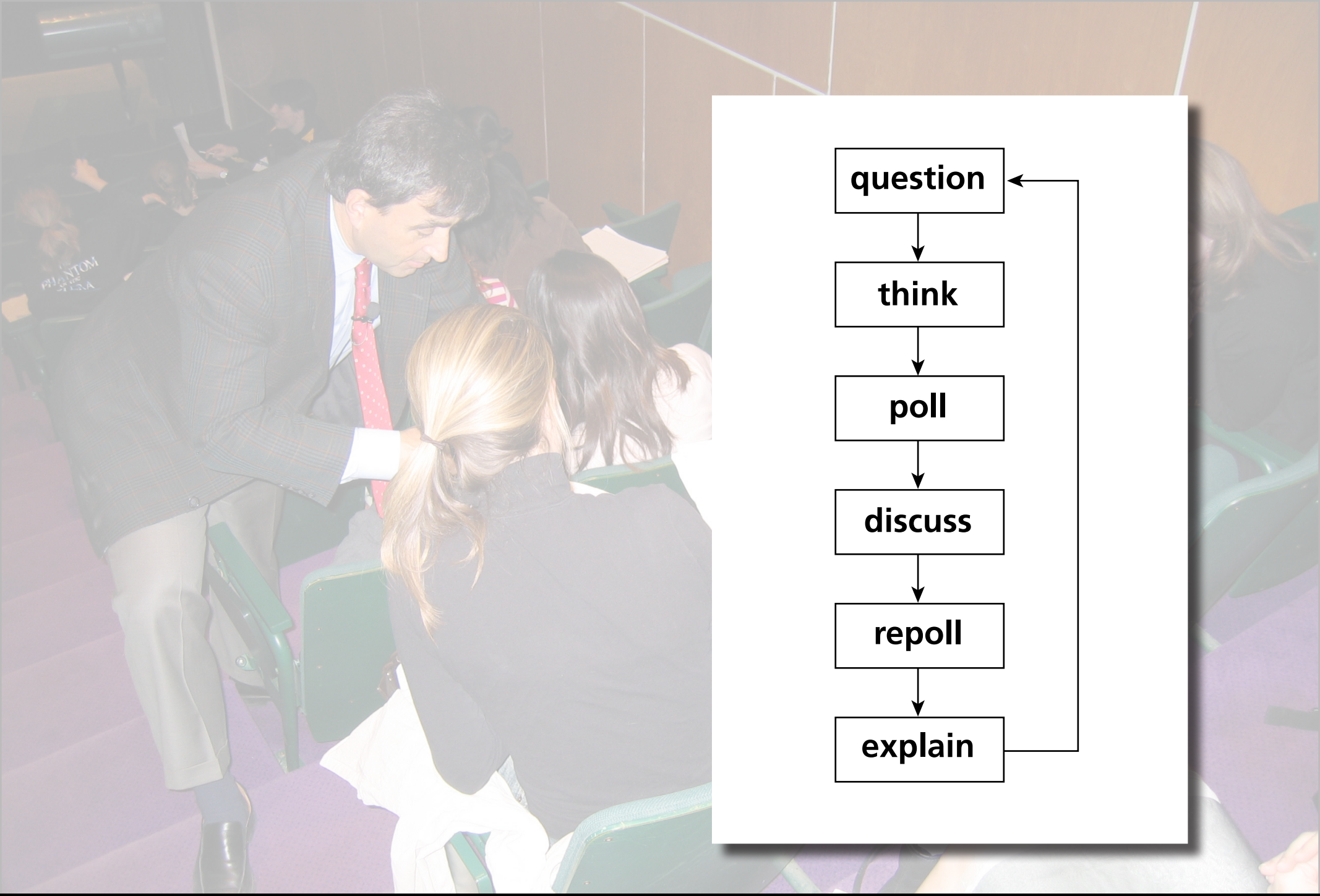

1 lecture

2 PI



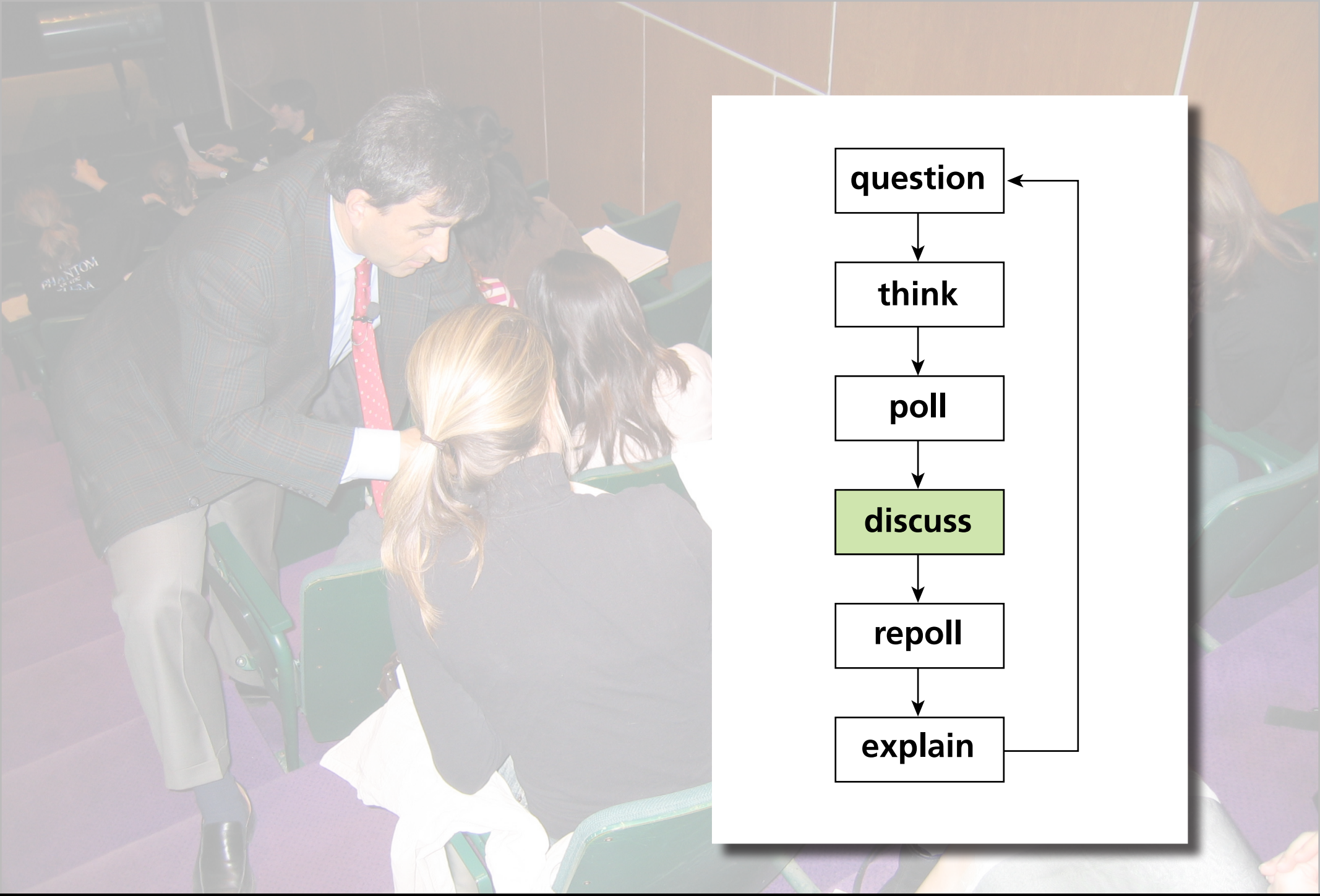

1 lecture

2 PI




1 lecture

2 PI

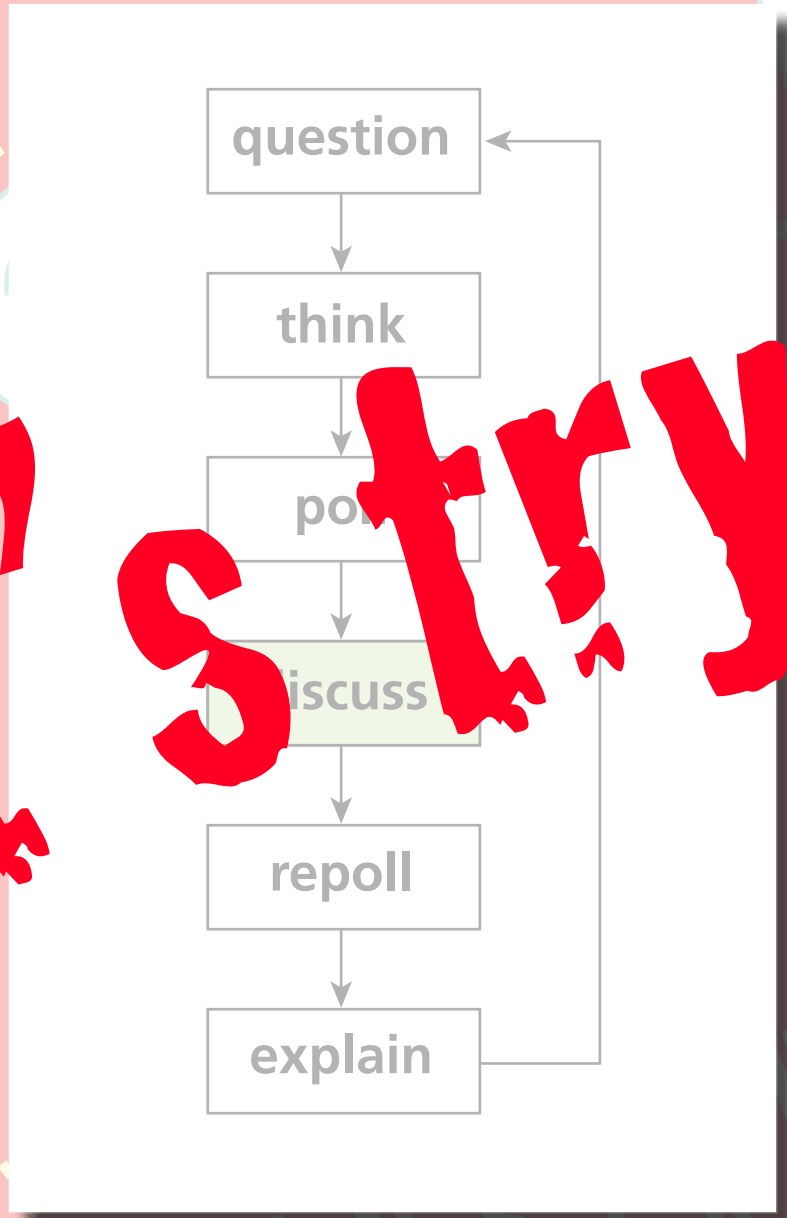



1 lecture

2 PI


1 lecture

2 PI




# Let's try it!

1 education

2 PI

# Archimedes' Principle

An object submerged either fully or partially in a fluid experiences an upward buoyant force the magnitude of which is equal to the magnitude of the force of gravity exerted on the fluid displaced by the object.

An object submerged either fully or partially in a fluid experiences an upward buoyant force the magnitude of which is equal to the magnitude of the force of gravity exerted on the fluid displaced by the object. The volume of displaced fluid is equal to the volume of the submerged portion of the object.

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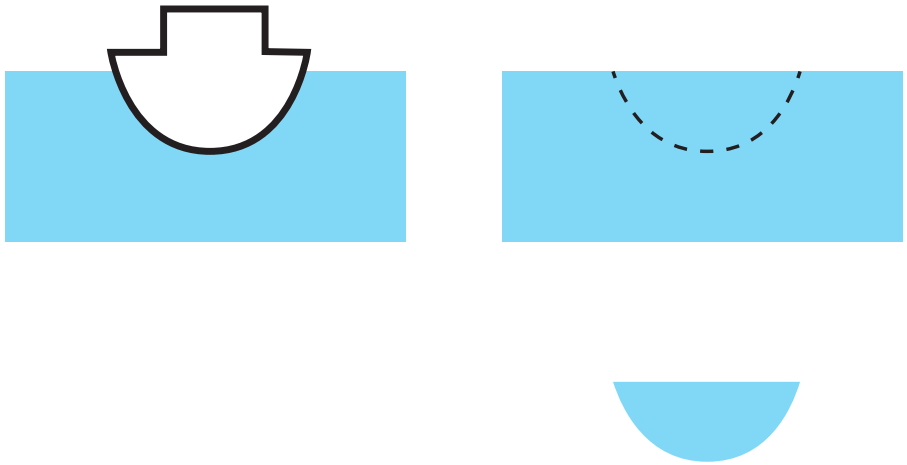
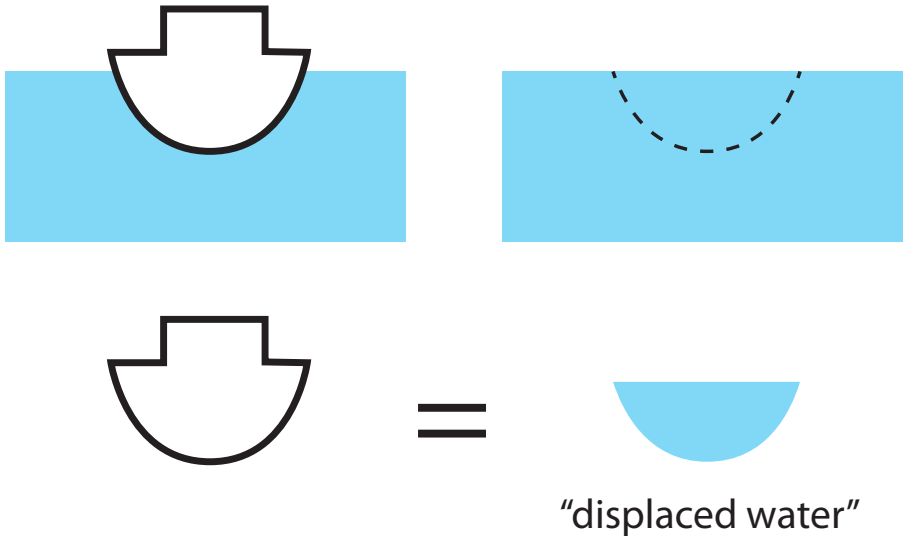


"displaced water"

An object submerged either fully or partially in a fluid experiences an upward buoyant force the magnitude of which is equal to the magnitude of the force of gravity exerted on the fluid displaced by the object. The volume of displaced fluid is equal to the volume of the submerged portion of the object.

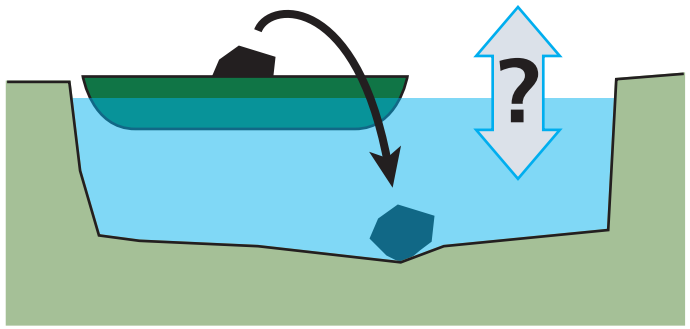


An object submerged either fully or partially in a fluid experiences an upward buoyant force the magnitude of which is equal to the magnitude of the force of gravity exerted on the fluid displaced by the object. The volume of displaced fluid is equal to the volume of the submerged portion of the object.

questions!

"displaced water"

A boat carrying a large boulder is floating on a small pond. The boulder is thrown overboard and sinks to the bottom of the pond.



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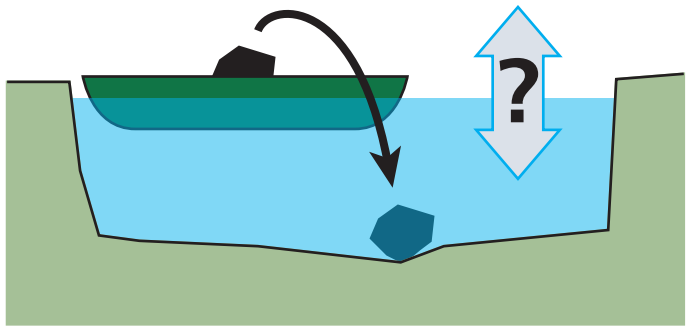
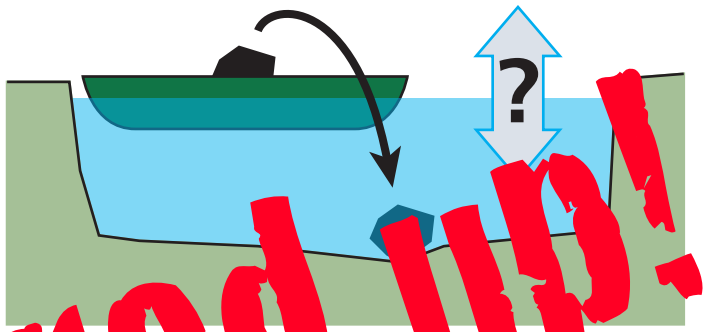



After the boulder sinks to the bottom of the pond, the level of the water in the pond is

1. higher than
2. the same as
3. lower than

it was when the boulder was in the boat.

A boat carrying a large boulder is floating on a small pond. The boulder is thrown overboard and sinks to the bottom of the pond.




After the boulder sinks to the bottom of the pond, the level of the water in the pond is

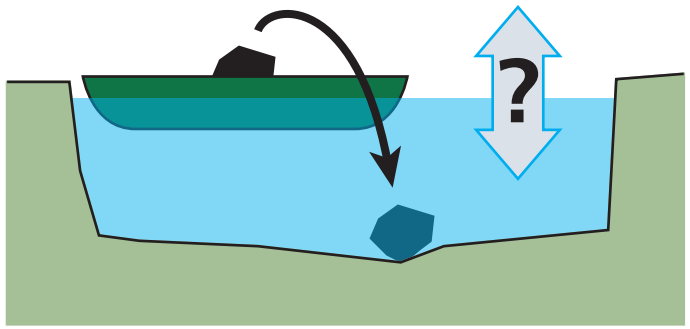
1. higher than
2. the same as
3. lower than

it was when the boulder was in the boat.

you got all fired up!

1 education 2 PI 3 test

A boat carrying a large boulder is floating on a small pond. The boulder is thrown overboard and sinks to the bottom of the pond.




After the boulder sinks to the bottom of the pond, the level of the water in the pond is

1. higher than
2. the same as
3. lower than

it was when the boulder was in the boat.

Before I tell you the answer…

1 education

2 PI

3 test

Before I tell you the answer, let's analyze what happened.

1 education 2 PI 3 test

Before I tell you the answer, let's analyze what happened.

You…

1 education 2 PI 3 test

Before I tell you the answer, let's analyze what happened.

You…

1. made a commitment

Before I tell you the answer, let's analyze what happened.

You…

1. made a commitment
2. externalized your answer

Before I tell you the answer, let's analyze what happened.

You…

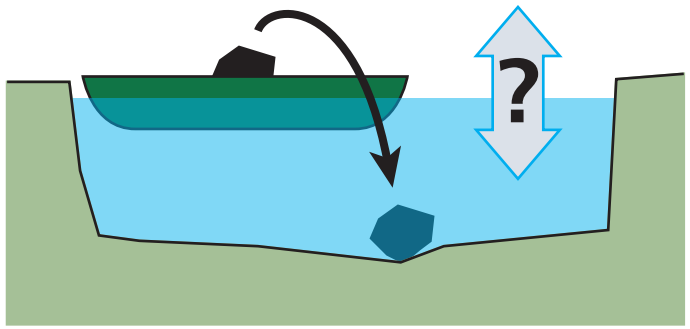
1. made a commitment
2. externalized your answer
3. moved from the answer/fact to reasoning

Before I tell you the answer, let's analyze what happened.

You…

1. made a commitment
2. externalized your answer
3. moved from the answer/fact to reasoning
4. became emotionally invested in the learning process

A boat carrying a large boulder is floating on a small pond. The boulder is thrown overboard and sinks to the bottom of the pond.

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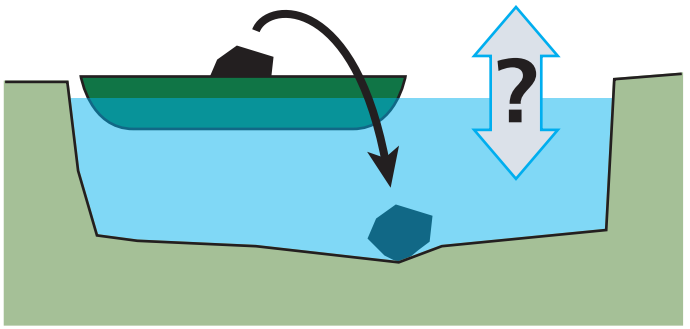


After the boulder sinks to the bottom of the pond, the level of the water in the pond is

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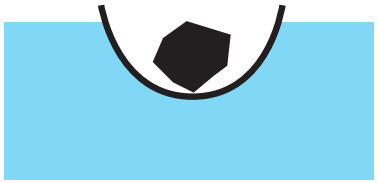
2. the same as
3. lower than ✔

it was when the boulder was in the boat.

remember: amount of displaced water

## remember: amount of displaced water



## remember: amount of displaced water

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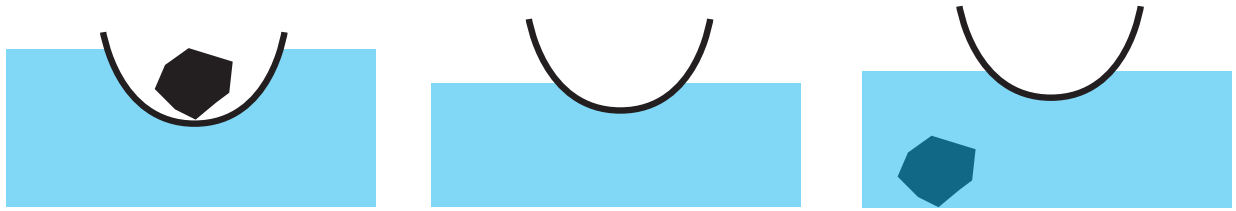
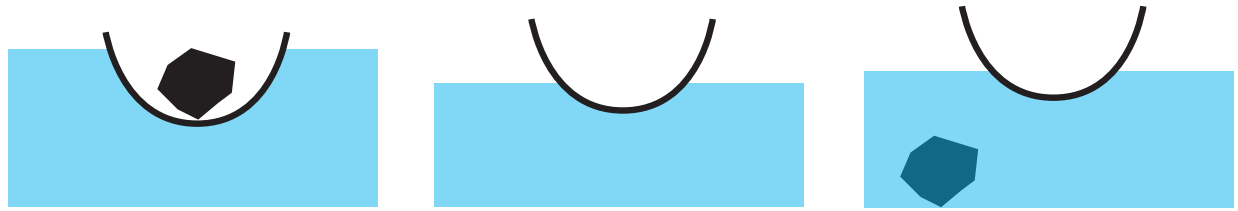
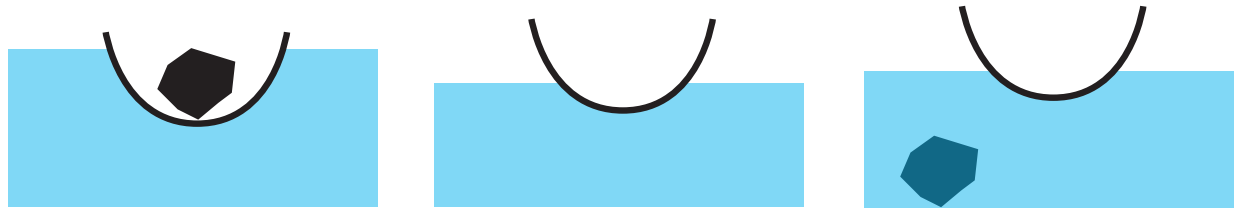


## remember: amount of displaced water



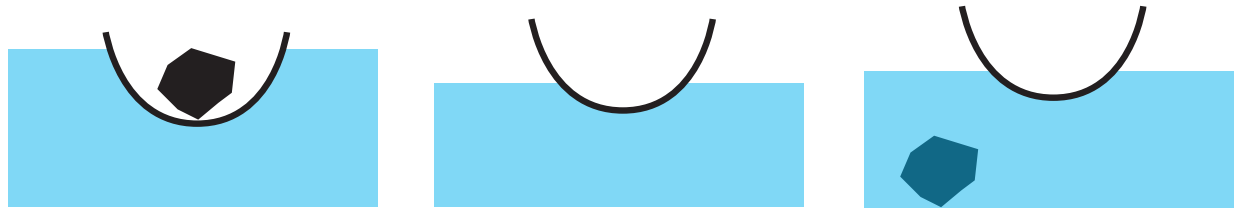
displaced
water

## remember: amount of displaced water



displaced water = weight of rock

## remember: amount of displaced water



displaced water = weight of rock

= volume of rock

## remember: amount of displaced water

displaced water = weight of rock

= volume of rock

you won't forget this


peer
back to pI
INSTRUCTION
1 lecture
2 PI


Peer
Higher learning gains
INSTRUCTION
1 lecture
2 PI


Peer
Higher learning gains
Better retention
INSTRUCTION
1 lecture
2 PI

1 lecture

2 PI

3 PI 2.0

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


1 lecture

2 PI

3 PI 2.0


1 lecture 2 PI 3 PI 2.0


## How do I…

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

1 lecture 2 PI 3 PI 2.0

learning | catalytics

1 lecture 2 PI 3 PI 2.0

Use intelligent algorithms and data analytics to…

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

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

## Sample question types:

- direction
- mathematical expression
- long answer, short answer, word cloud
- numerical, data collection
- ranking, priority
- region (select point on image)
- sketch, composite sketch
- highlight passage

## Sample question types:

- **direction**
- mathematical expression
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1 learningcatalytics.com/demo 2 enter info 3 ID 123456789

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Courses Participate Review Classroo… …titutions Purchases Users Tour Help

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

Deliver Show all results


1 lecture

3 PI 2.0

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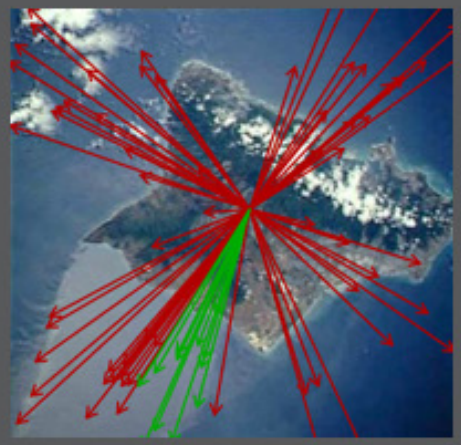
Courses Participate Review Classroo… …titutions Purchases Users Tour Help

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

1 lecture

3 PI 2.0

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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.

feedback & support

1 lecture 2 PI 3 PI 2.0

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Courses Participate Review Cla tions Purchases Users Tour Help

optics i

current session: 766079 | 69 students

ap Show floating session ID Edit Delete

6 7 8 9 10 11 12 13 14 15

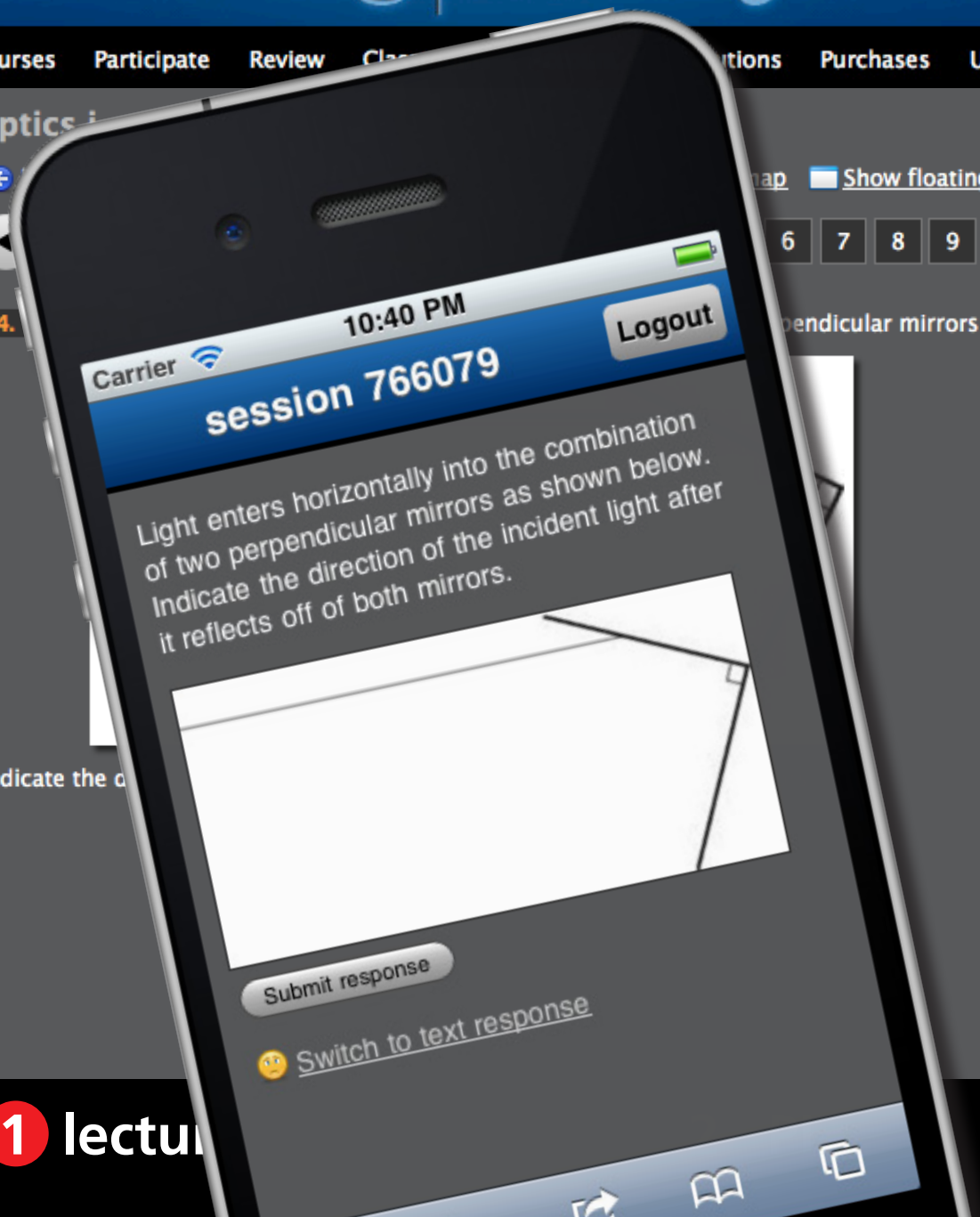
4.

endicular mirrors as shown below.

Deliver Show all results

Indicate the d

feedback & support




1 lectu

3 PI 2.0

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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

Indicate the d

feedback & support


1 lectu

3 PI 2.0

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# learning | catalytics

Courses Participate Review Cla tions Purchases Users Tour Help

optics i

current session: 766079 | 69 students

ap Show floating session ID Edit Delete

6 7 8 9 10 11 12 13 14 15

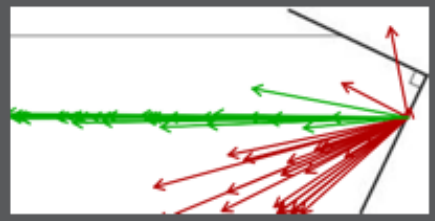
4.

endicular mirrors as shown below.

Deliver Show all results

Round 1

57 responses, 58% correct



Indicate the d

feedback & support


1 lectu

3 PI 2.0

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4.

endicular mirrors as shown below.

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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


1 lectu

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## Sample question types:

- direction
- **mathematical expression**
- long answer, short answer, word cloud
- numerical, data collection
- ranking, priority
- region (select point on image)
- sketch, composite sketch
- highlight passage

If $2x - y = 4$, then $x =$

1 lecture 2 PI 3 PI 2.0

## Sample question types:

- direction
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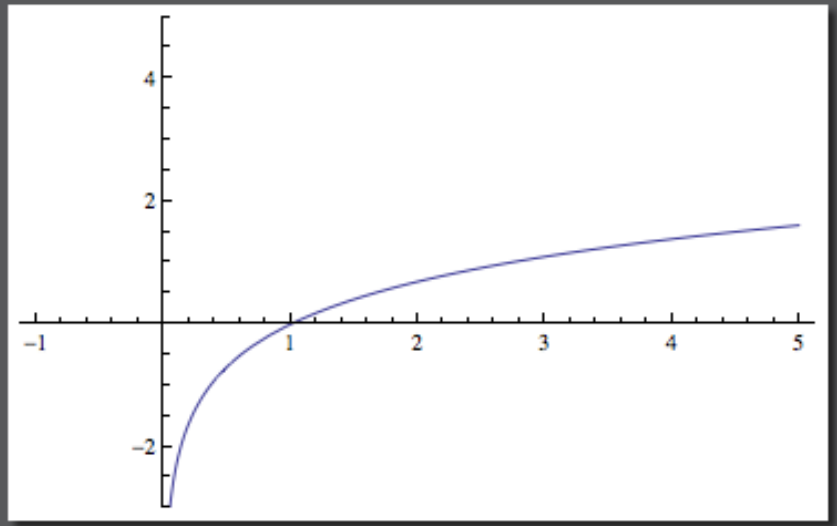
- highlight passage

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

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# human interaction

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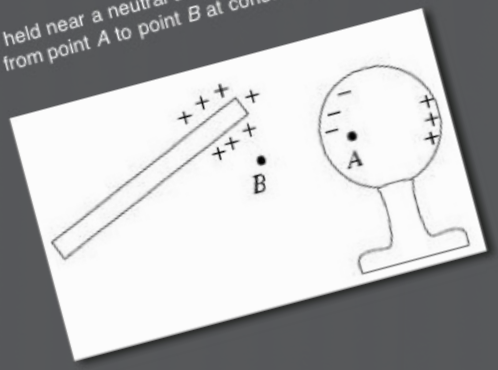
A positively charged rod is held near a neutral conducting sphere as illustrated below. A positively charged particle is moved from point *A* to point *B* at constant speed. The potential difference from *A* to *B* is



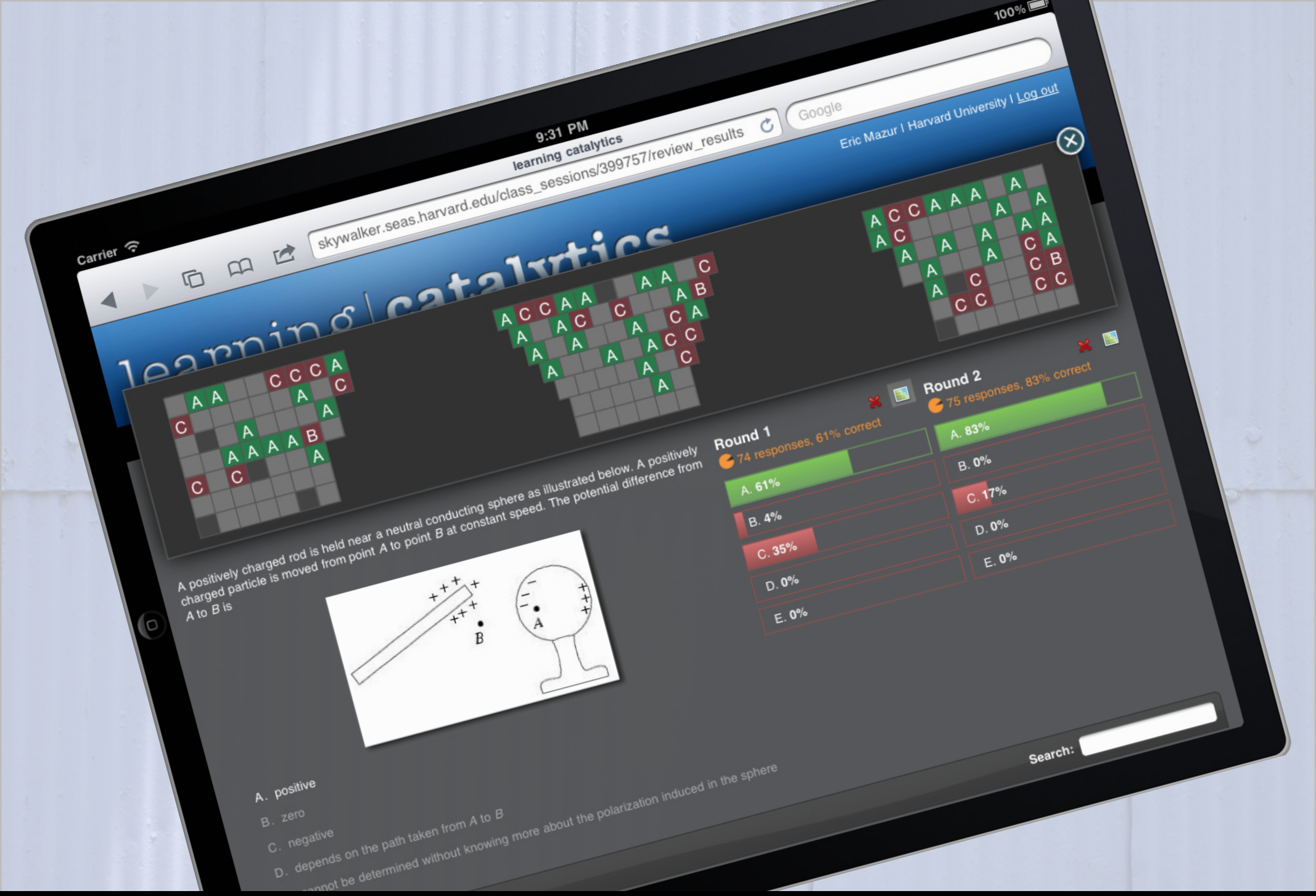

A. positive
B. zero
C. negative
D. depends on the path taken from *A* to *B*
cannot be determined without knowing more about the polarization induced in the sphere

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

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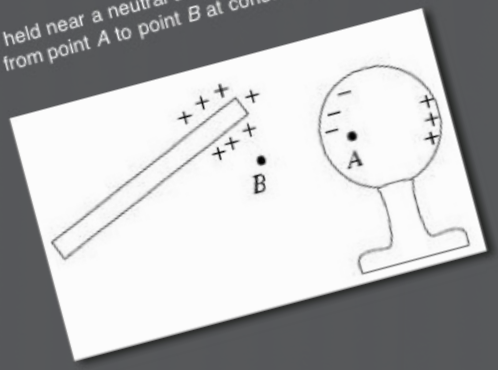


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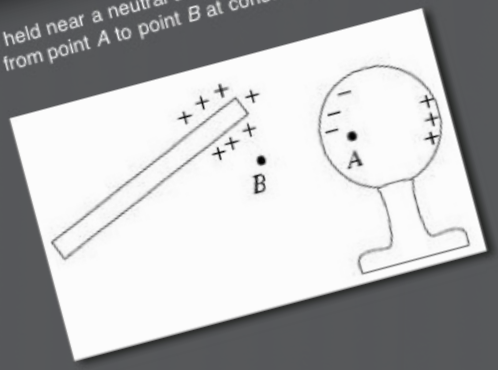


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let system manage pairing

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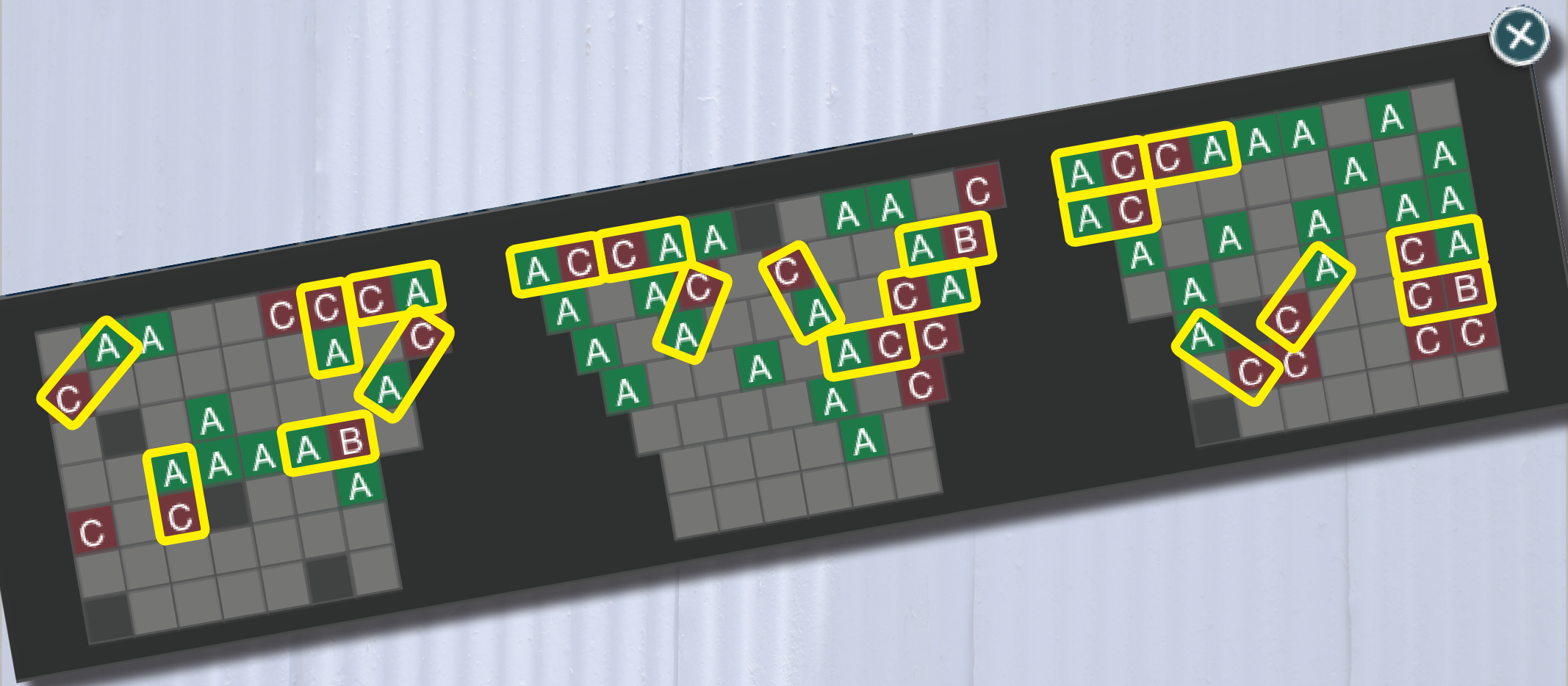

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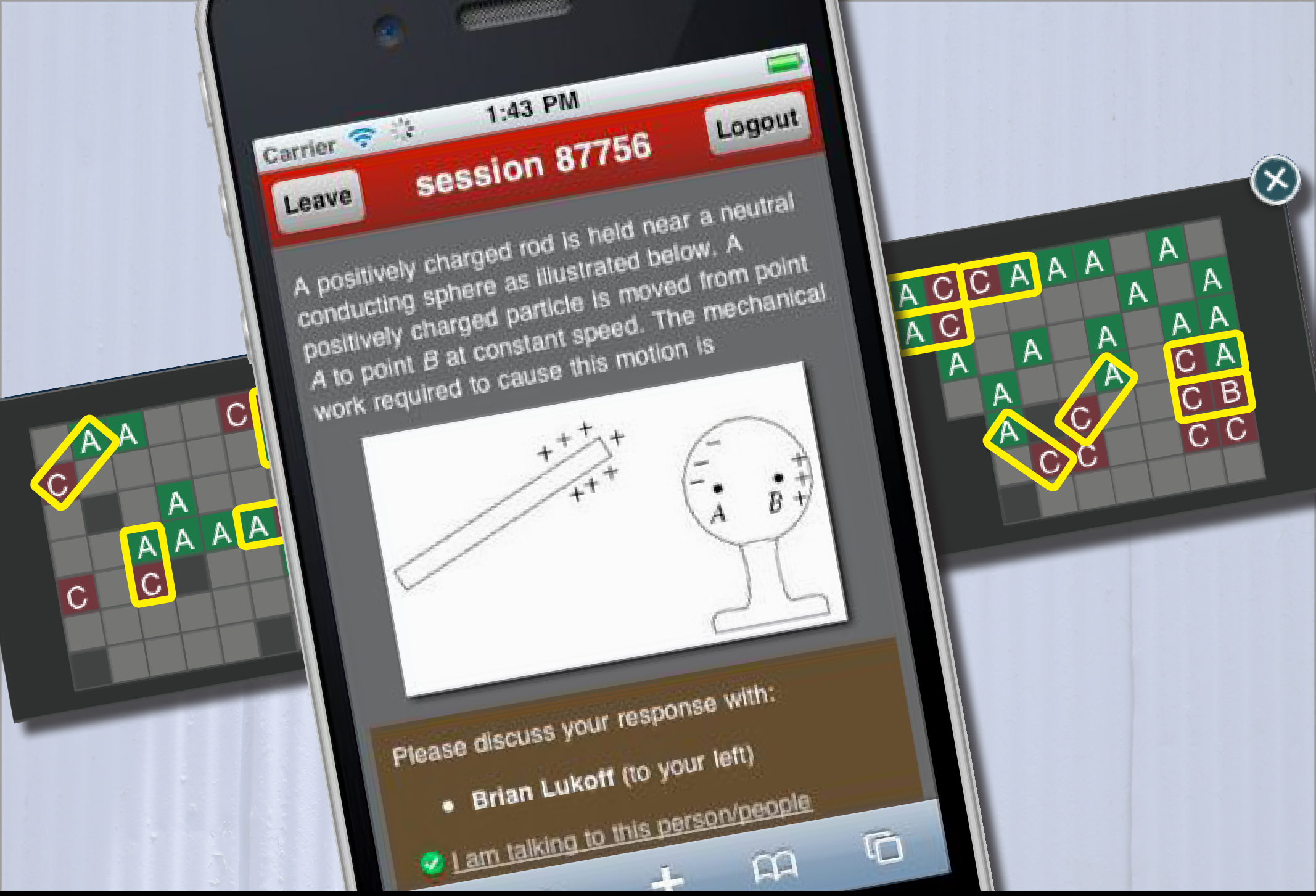


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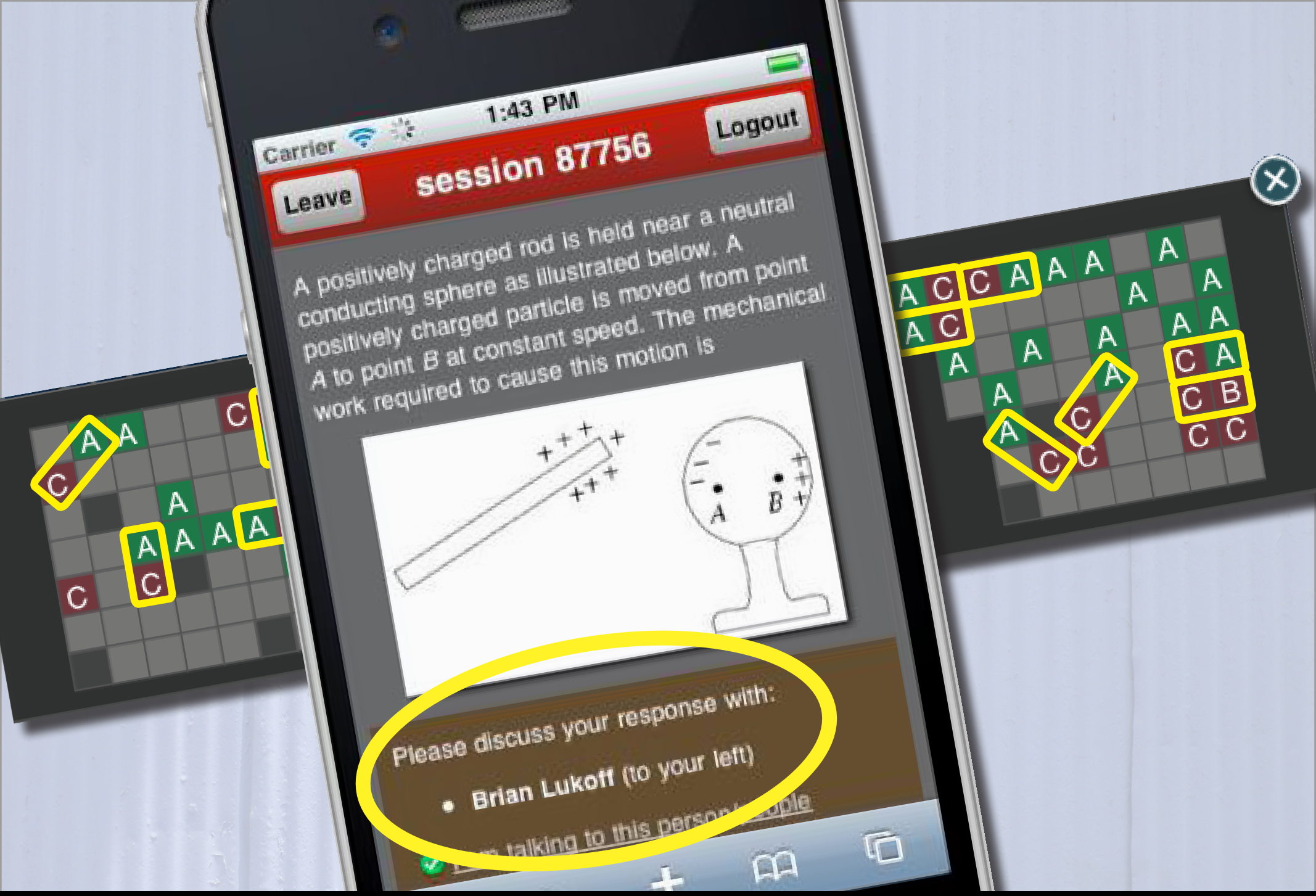


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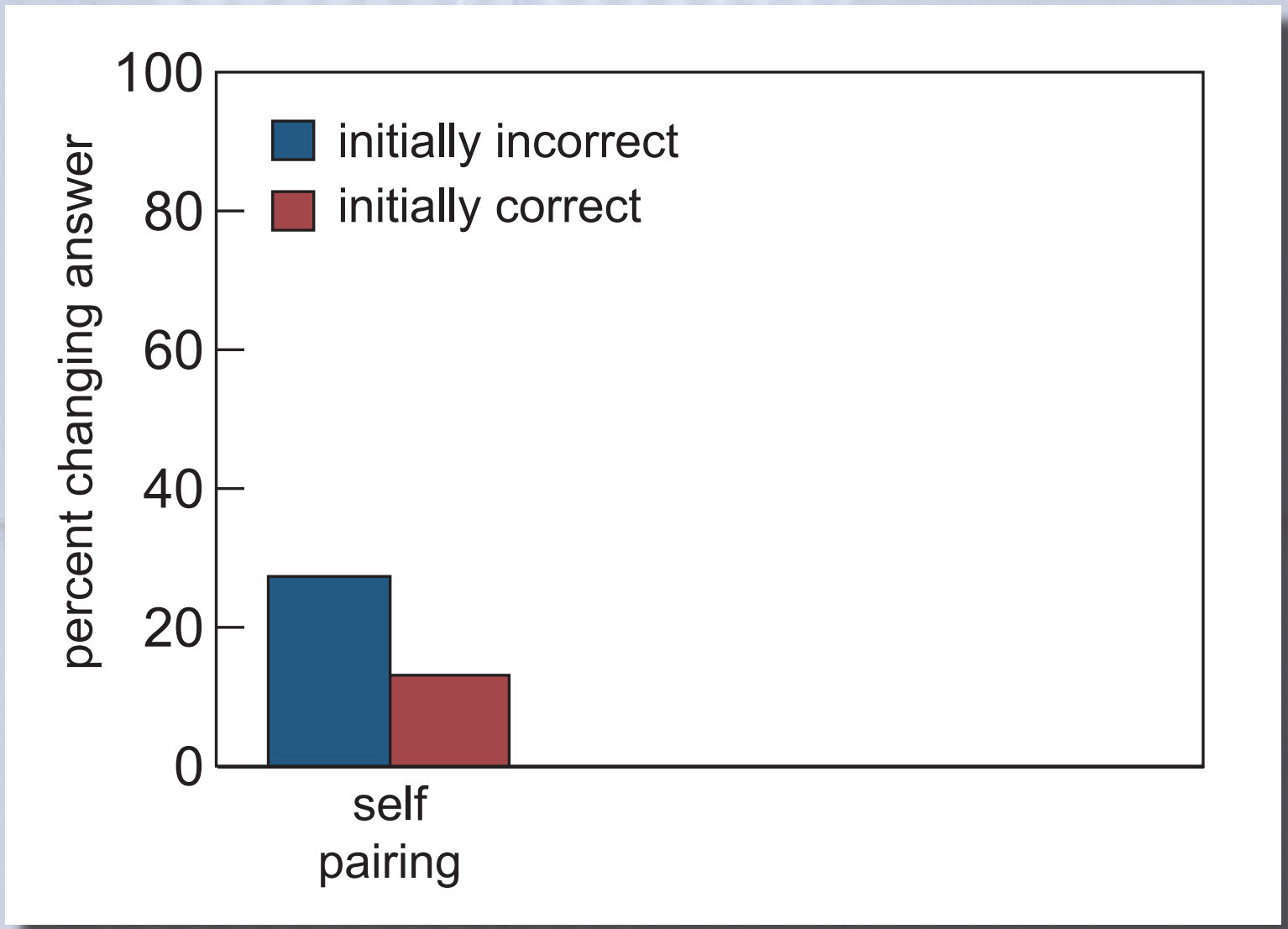
100
80
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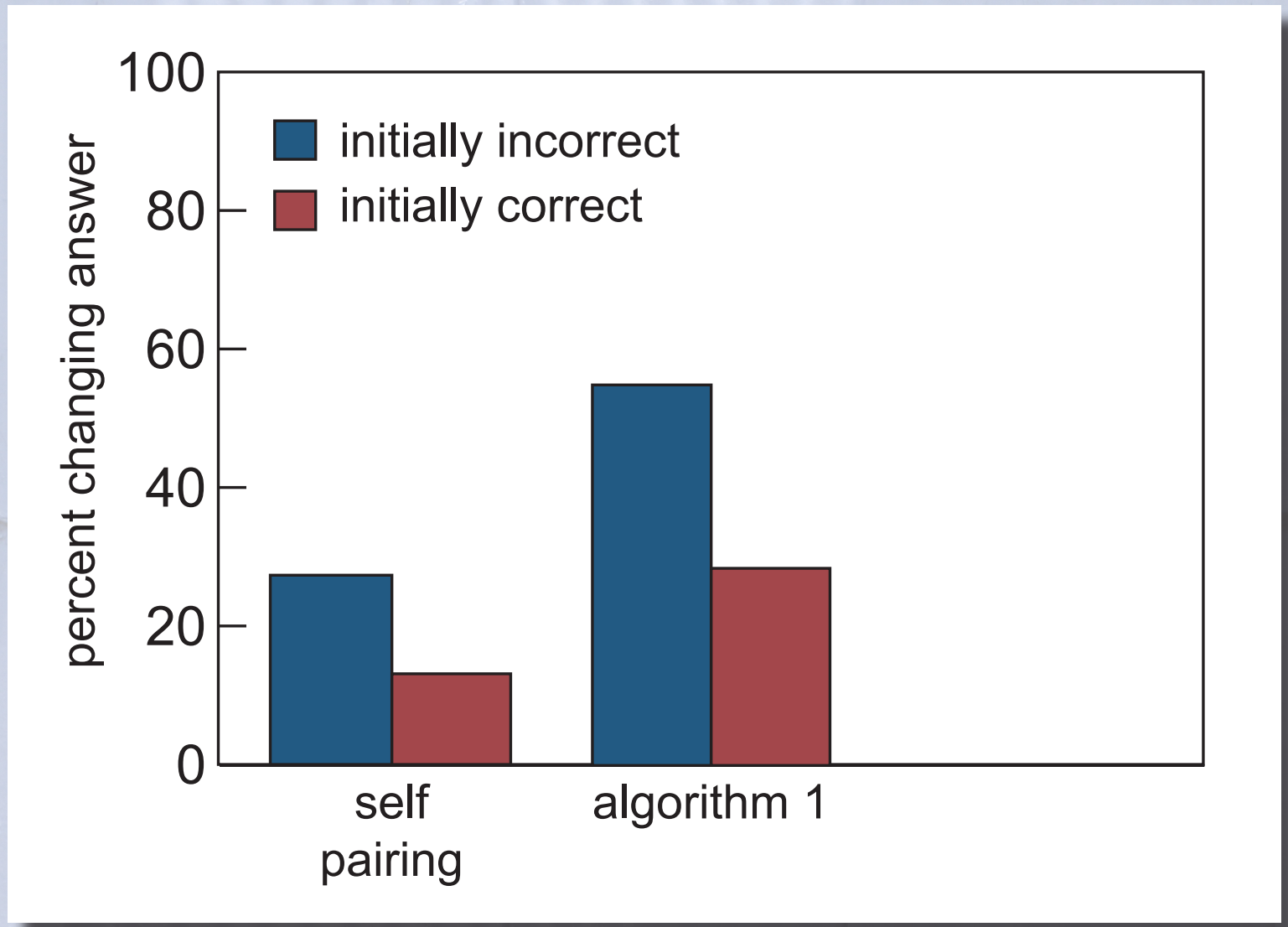
20
0
percent changing answer
initially incorrect
initially correct
self
pairing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percent changing answer
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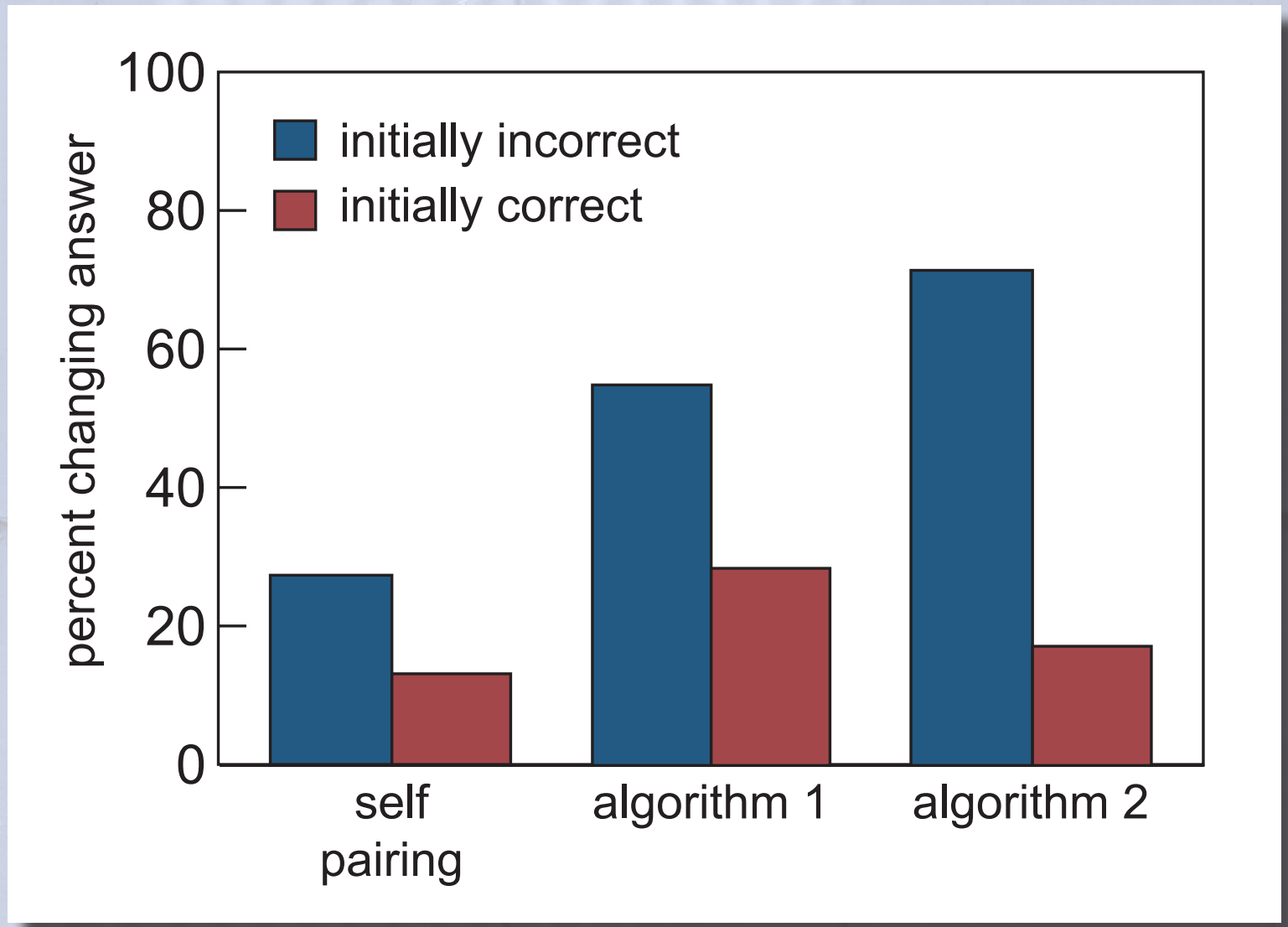
algorithm 1


100
80
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20
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percent changing answer
initially incorrect
initially correct
self pairing
algorithm 1
algorithm 2

1 lecture

2 PI

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Education is not just about:

- transferring information
- getting students to do what we do

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- getting students to do what we do

discovery & exploration a must!

## Learning Catalytics:

- implement proven, researched pedagogy

Learning Catalytics:

- implement proven, researched pedagogy
- use consumer devices

Learning Catalytics:

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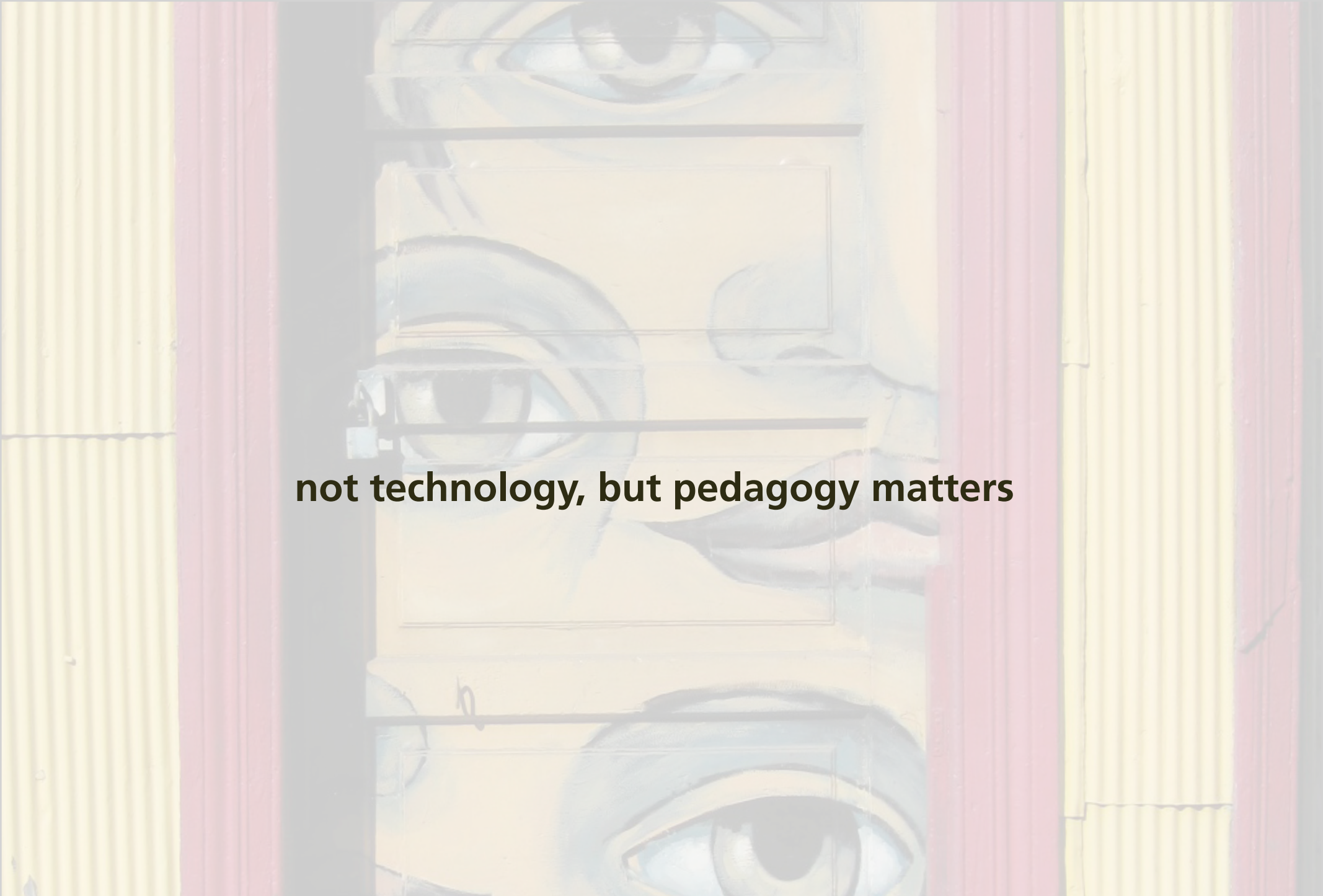
- avoid pitfalls of MC assessment

Learning Catalytics:

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



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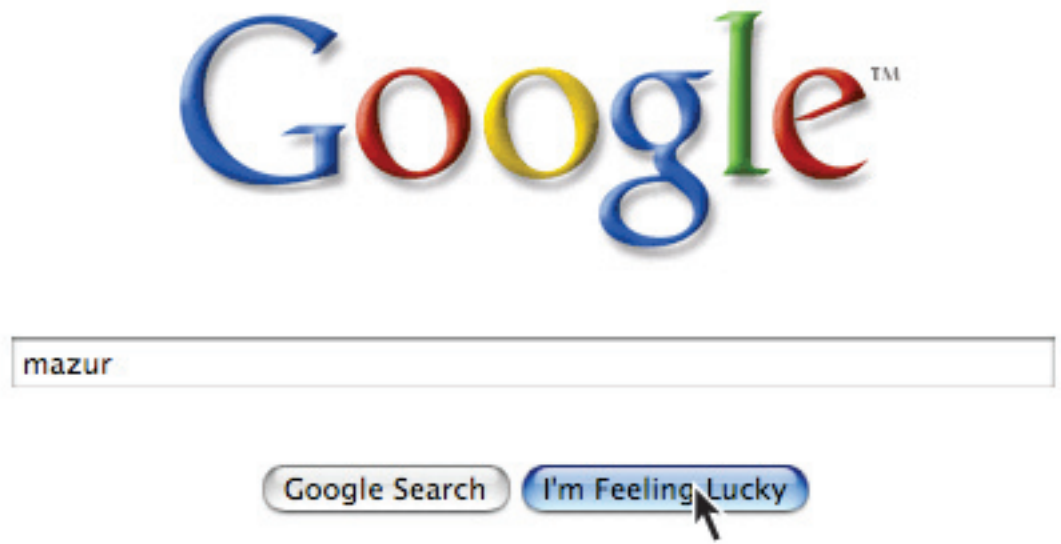
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