

Flipping the Classroom

How to turn your students' worlds upside down

Use a laptop, smartphone, iPad, etc:

Go to LCatalytics.com

Click “Create student account”

Click “I have a signup code”

use the signup code DEMO



Julie Schell
Sr. Educational Research Associate
Mazur Group, Harvard University
@julieschell
scholar.harvard.edu/julieschell

New England Board of Higher Education
15 October 2012
Boston, MA



Ancient Greek Amphitheater



Modern American Classroom

Problem?

“Education is suffering from narration sickness.”

Pedagogy of the Oppressed, Paulo Freire, 1970, p. 17



Consequence

Passive education creates passive people

Pedagogy of the Oppressed, Paulo Freire, 1970, p. 17



Solution

Limit passivity, boost engagement

Pedagogy of the Oppressed, Paulo Freire, 1970



Goals

After this talk you will be able to...

1. Have a sense of the history of the call for flipped classrooms
2. Explain basic steps for flipping a class
3. Describe 1 best-in-class flipped method and tool
4. Access resources for learning more about flipping classrooms

1 History of the call for flipped classrooms

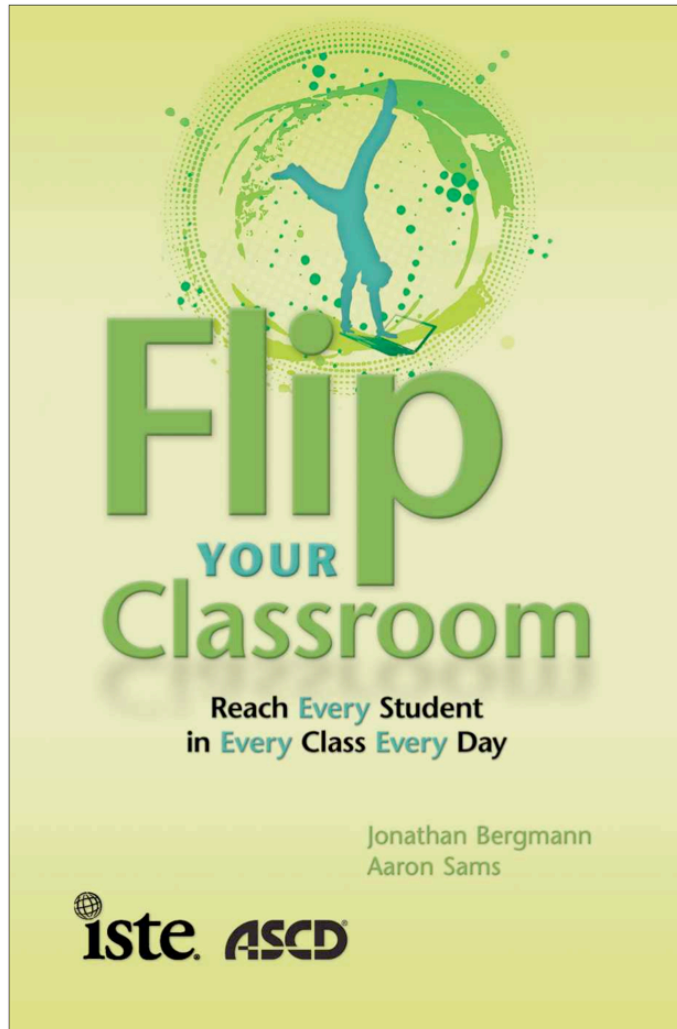
What is a Flipped Classroom?

“Flipping the classroom is...[a] **mindset**

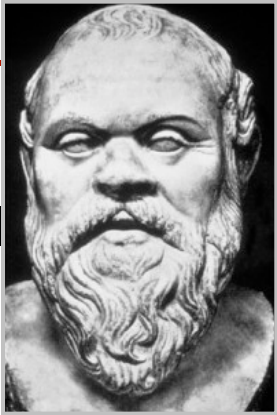
redirecting attention away from the teacher and putting attention on the learner and the learning.”

Bergmann and Sams p. 12

What is a Flipped Classroom?



•BC 469



One possible Flipped Class Timeline, with omissions

Freire

Dewey

Langdell

•1970s

•1920s

•1870s

Bergmann & Sams
Lecture Capture/
Flipped Classroom

•1980s

•1990s

•2006-2007

•2011-2012

Lyman
Think-Pair-Share

Michaelson
TBL

Mazur
Peer Instruction

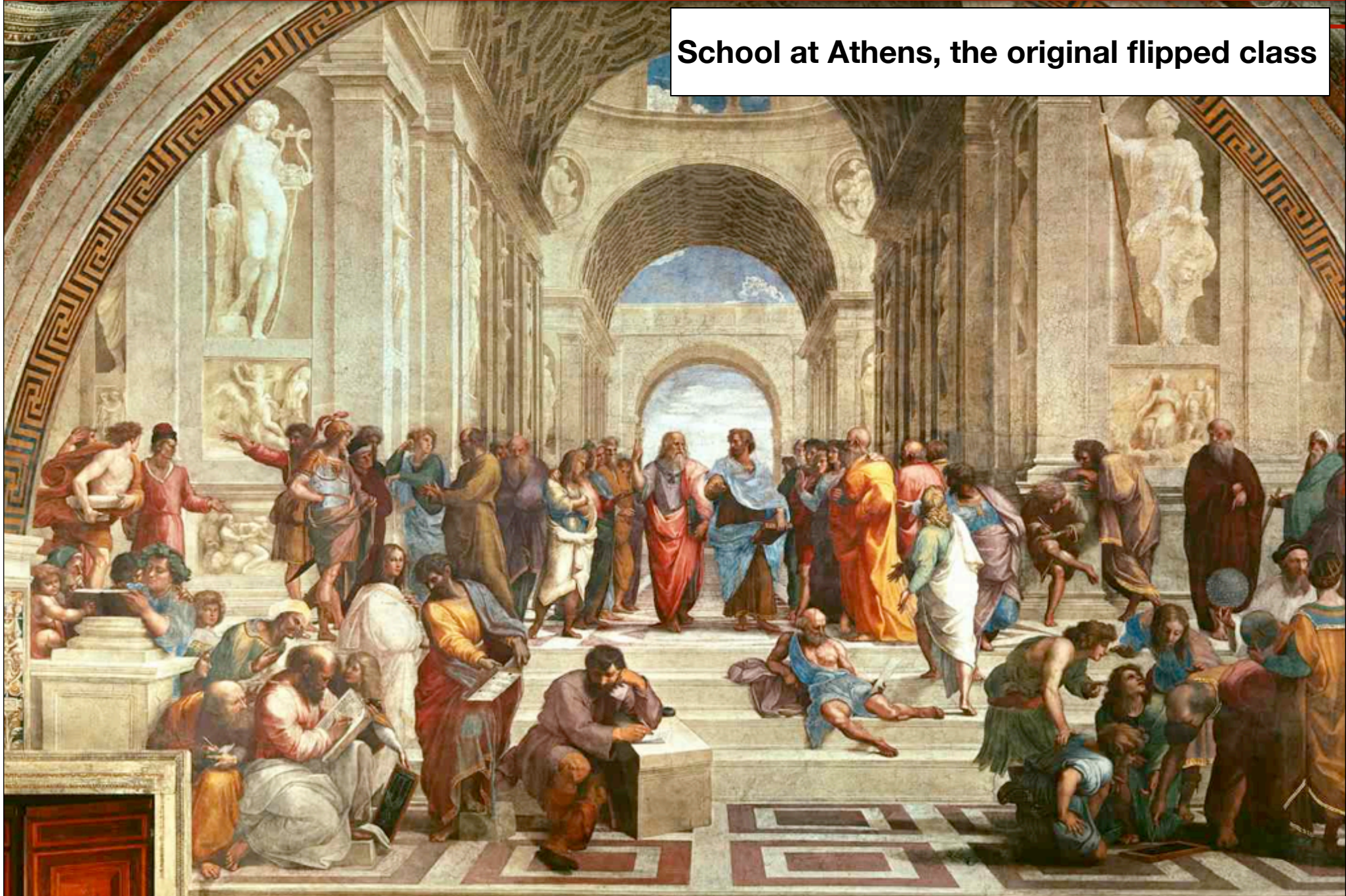
Novak et al.
JiTT

Hanson et al.
POGIL

Koller et al.
Coursera

What is a Flipped Classroom?

School at Athens, the original flipped class



What is a Flipped Classroom?

a flipped class moves coverage out



What is a Flipped Classroom?

and moves uncoverage in...



2 How do you flip a class?

Basic Steps for Flipping a Class

Traditional Class

Class time: Lecture

At home: Homework

Basic Steps for Flipping a Class

Traditional Class

Class time: Lecture

At home: Homework

Vs.

Traditional Flipped class

Class time: Homework

At home: Lecture

Basic Steps for Flipping a Class

Traditional Flipped Class Protocol

Bergmann and Sams version

1. Video record lecture using screencast software
2. Put lecture online, require students to watch, give some instruction on effective viewing
3. Spend 10 mins of following class time talking about the video
4. Do traditional “homework” during class

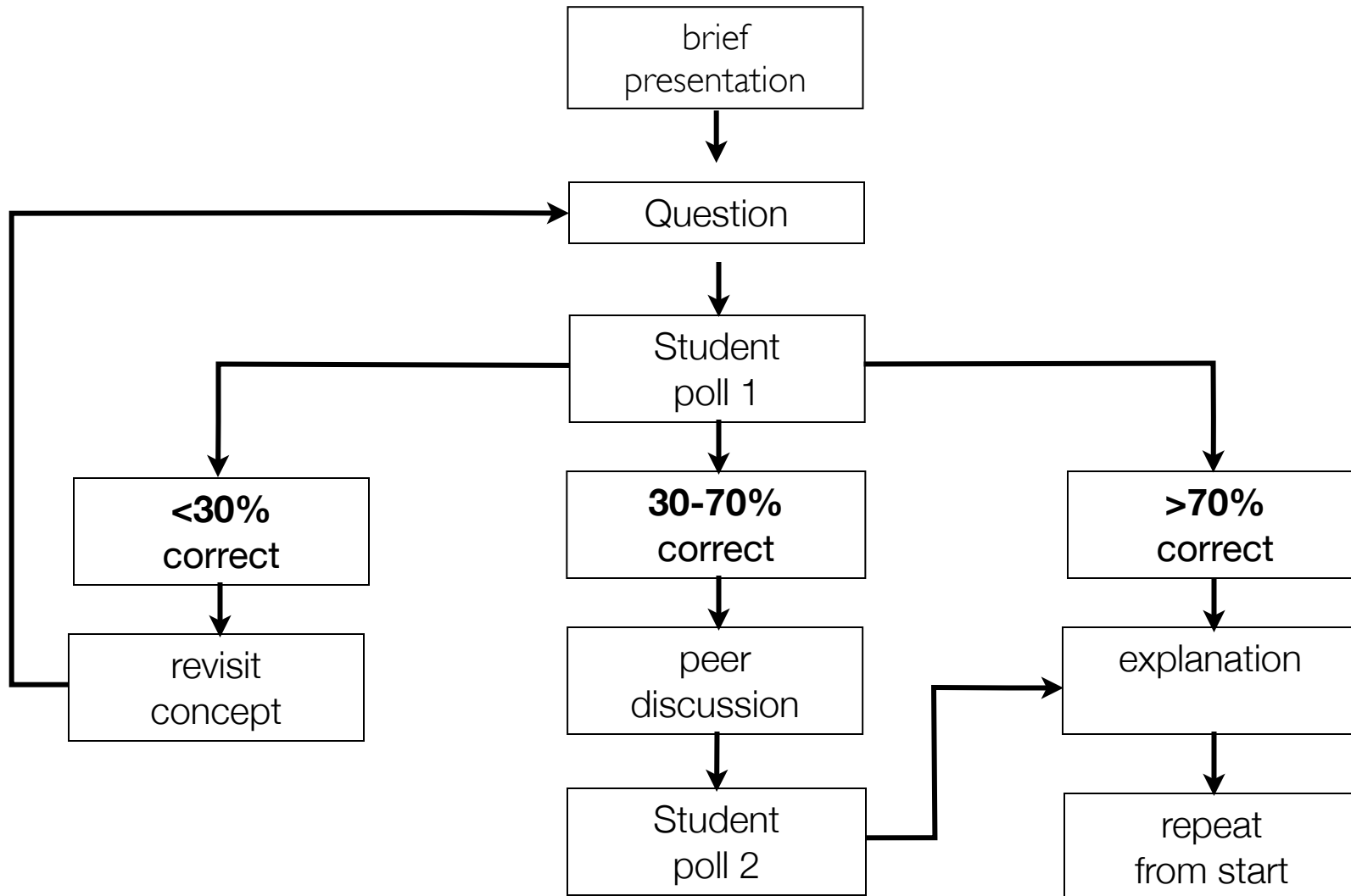
Basic Steps for Flipping a Class

Bergmann and Sams
use Flipped Classroom
Mastery Model now

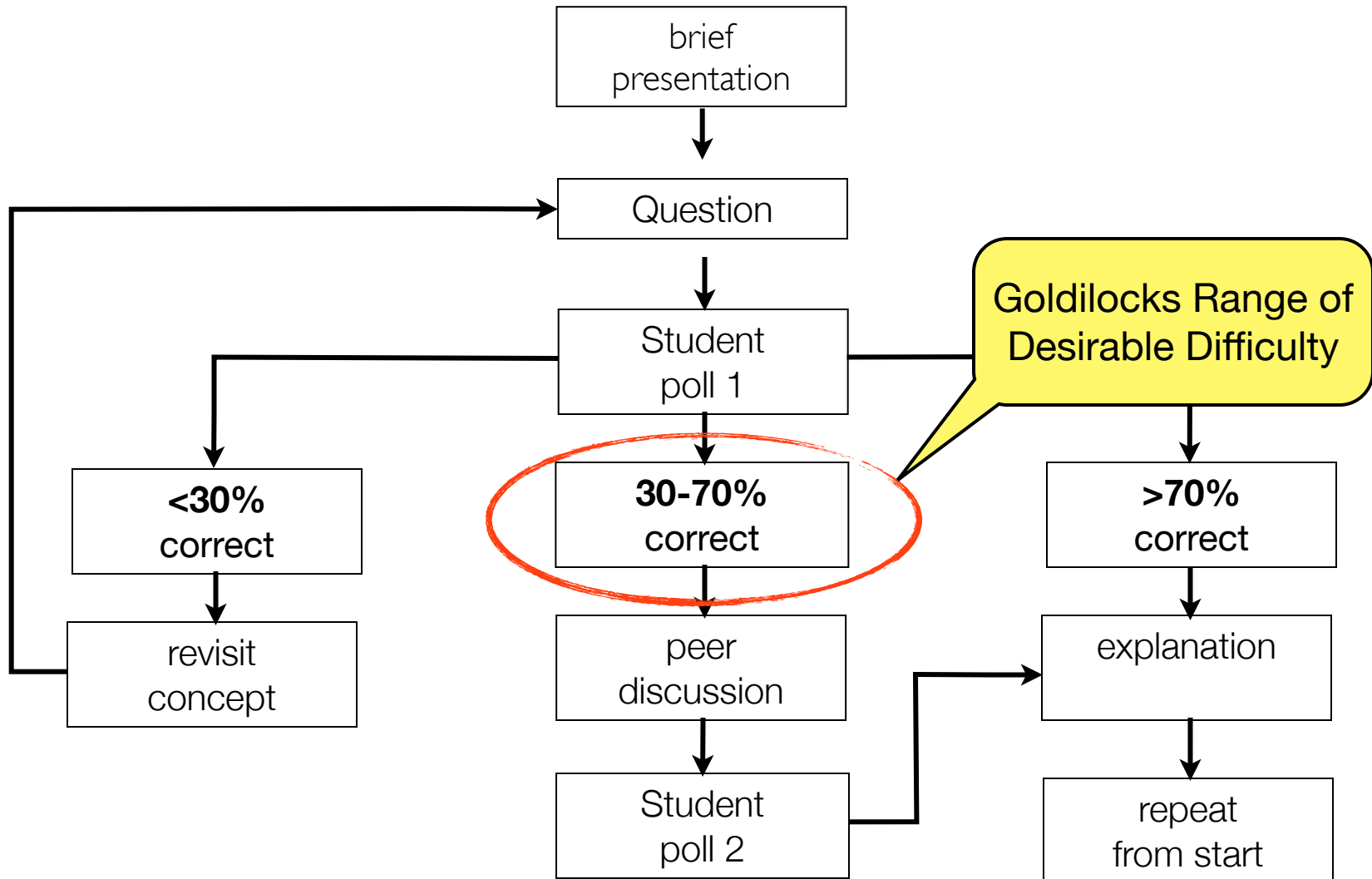
Traditional Classroom		Tradition Classroom	
Activity	Time	Activity	Time
Admin	5 min	Admin	5 min
Questions?	10 mins	Questions on video	10 mins
Lecture on new content	30-45 mins	Guided & independent practice	30-45 mins

3 Best-in-Class Method and Tool

Peer Instruction

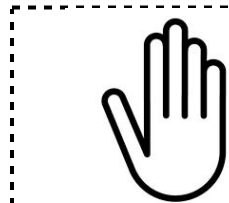


Peer Instruction



Peer Instruction

Evolution of Classroom Response Systems

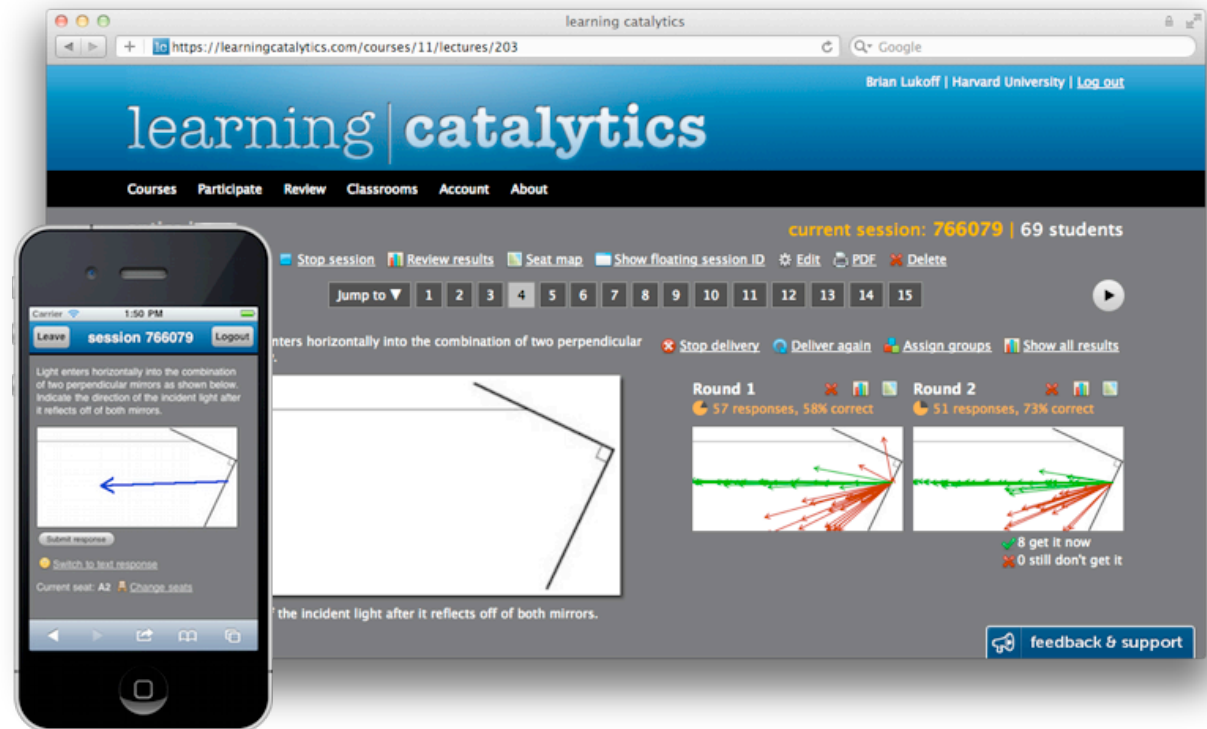


Learning Catalytics (learningcatalytics.com)

**Cloud-based technology
- students “BYOD”**

**Piloted for the first time
in Spring 2011**

**Now used both in K-12
and higher education**





Not restricted to multiple-choice questions

Learning Catalytics (learningcatalytics.com)

2. word cloud Now describe in a couple of words how you became good at whatever it is you entered in the previous question.

[Deliver](#) [Show all results](#)

Round 1  

● 123 responses

experiences

learning observing

reading people being

experience time

practice

work others school

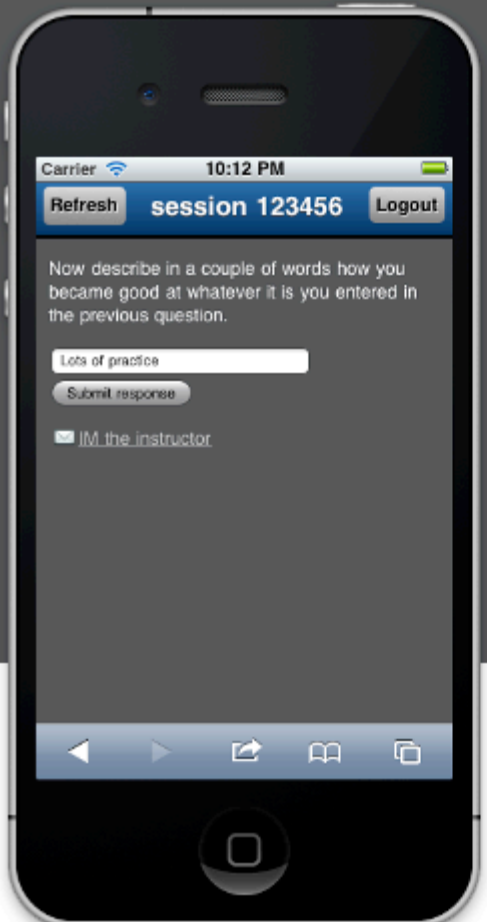
working through family

good watching many

listening

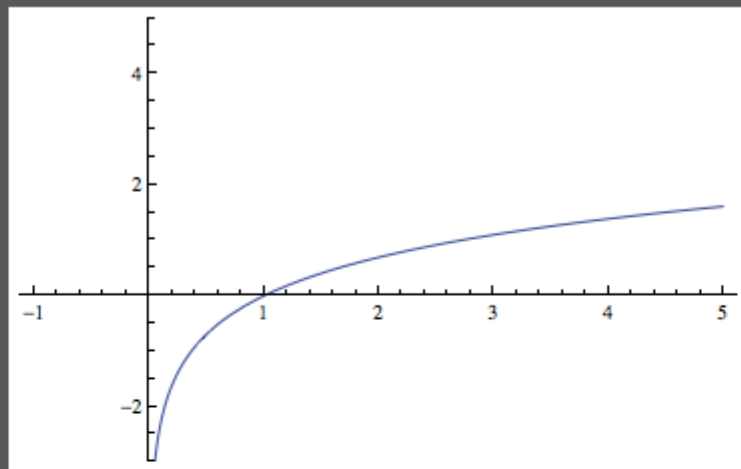
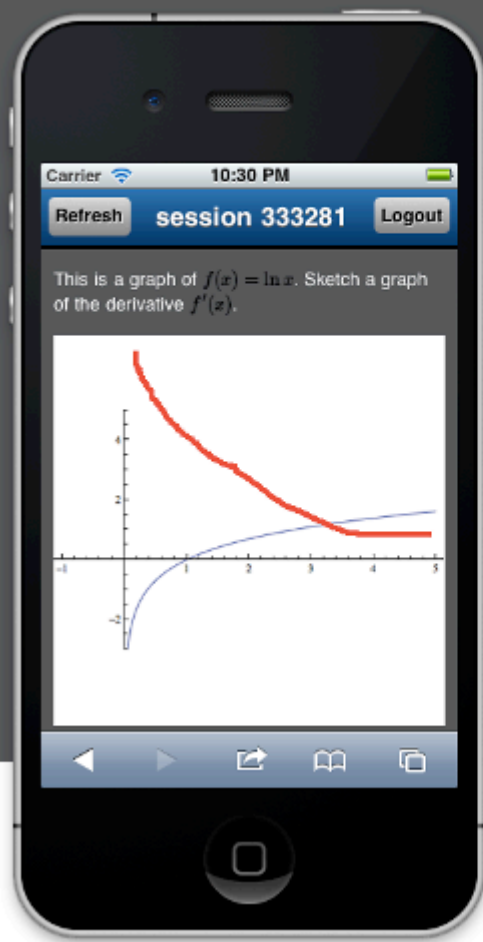
✓ 61 get it now

✗ 4 still don't get it



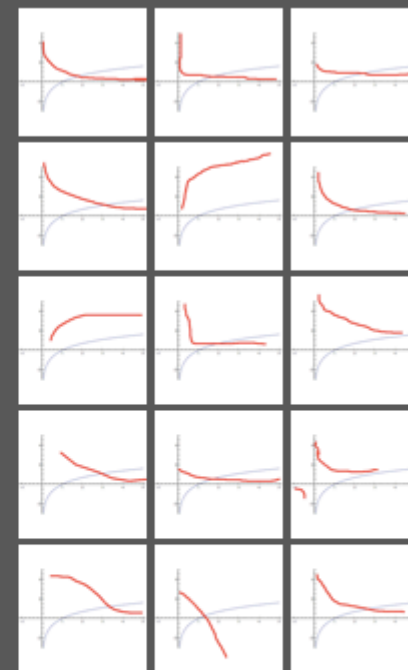
Learning Catalytics (learningcatalytics.com)

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



Round 1

15 responses



✓ 6 get it now
✗ 0 still don't get it

**Use real-time analytics
to improve discussion productivity**

Learning Catalytics (learningcatalytics.com)

The image displays the Learning Catalytics platform, showing a web browser view and a mobile app view. The web browser view shows a course page for Brian Lukoff at Harvard University, featuring a grid of colored squares (A, B, C) and a multiple-choice question about a positively charged rod and a neutral conducting sphere. The mobile app view shows the same question and a discussion section with a response from Brian Lukoff.

Web Browser View:

learning catalytics
https://learningcatalytics.com/courses/11/lectures/189
Brian Lukoff | Harvard University | Log out

Question:

2. multiple choice 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

Diagram:

Options:

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

Round 1:

- A. 61%
- B. 4%
- C. 35%
- D. 0%
- E. 0%

Round 2:

- A. 83%
- B. 0%
- C. 17%
- D. 0%
- E. 0%

Mobile App View:

Carrier 11:17 AM
Leave session 399757 Logout

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

Diagram:

Please discuss your response with:

- Brian Lukoff (to your left)

I am talking to this person/people

Demo

If you have a laptop, smartphone, iPad, etc:

Go to LCatalytics.com

Click “Create student account”

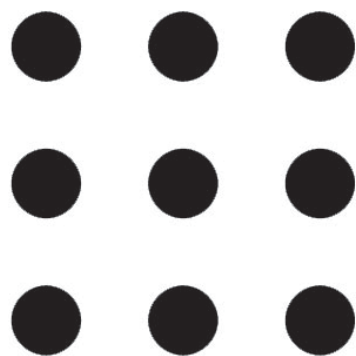
Click “I have a signup code”

Enter your name, email address, and create a password; use the signup code DEMO

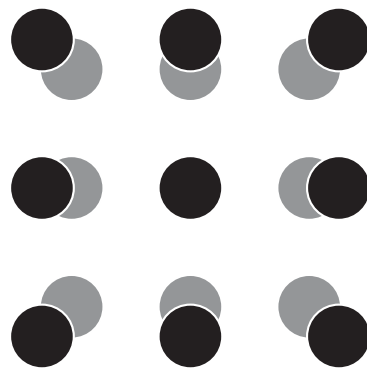
Thermal Expansion



Demo



Demo

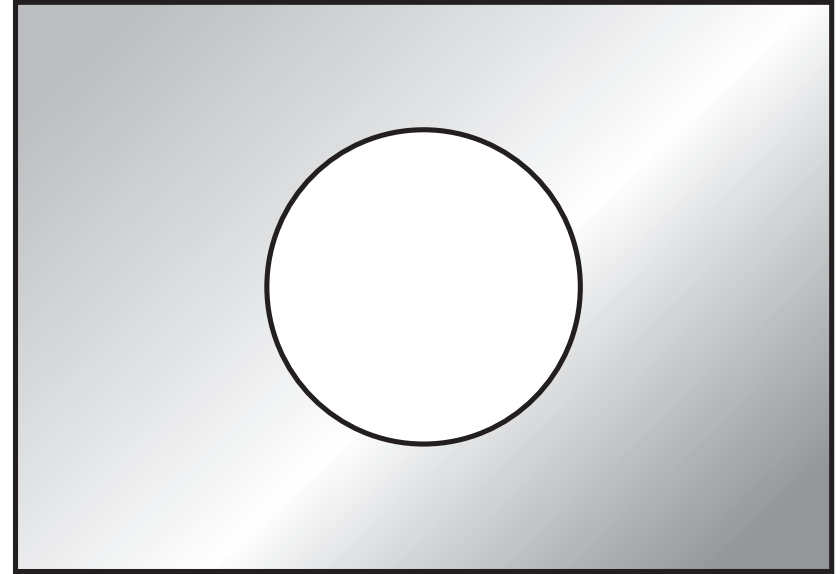


Demo

Consider a metal plate with a circular hole in it.

When the plate is uniformly heated,
the diameter of the hole

- A. increases.
- B. stays the same.
- C. decreases.



Systematic Moral Analysis

Gert's new 10 commandments

1. Do not kill.
2. Do not cause pain.
3. Do not disable.
4. Do not deprive of freedom.
5. Do not deprive of pleasure.
6. Do not deceive.
7. Keep your promises.
8. Do not cheat.
9. Obey the law.
10. Do your duty. (i.e. what is required by your job, social role of special circumstances.)

Demo

Heinz's wife was near death, and her only hope was a drug that had been discovered by a pharmacist who was selling it for an exorbitant price. The drug cost \$20,000 to make, and the pharmacist was selling it for \$200,000. Heinz could only raise \$50,000 and insurance wouldn't make up the difference. He offered what he had to the pharmacist, and when his offer was rejected, Heinz said he would pay the rest later. Still the pharmacist refused. In desperation, Heinz broke into the store and stole the drug.

Should Heinz have broken into the store to steal the drug for his wife?

- A. Yes
- B. No
- C. I am not sure

4 Resources

Peer Instruction Network

Connect. Share. Learn.

@julieschell

blog.peerinstruction.net

scholar.harvard.edu/julieschell



learning | **catalytics**

@LCatalytics

learningcatalytics.com

Acknowledgements

**Eric Mazur
Brian Lukoff
Mazur Group
Bergmann and Sams**

**Understanding by Design, Wiggins & McTighe
Why don't students like school?, Daniel Willingham**

Slides: scholar.harvard.edu/julieschell

Blog: blog.peerinstruction.net

followme: [@julieschell](https://twitter.com/julieschell)