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

Class Session: 881750

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New England Board of Higher Education
15 October 2012
Boston, MA
Think of something you are very good at.....
Ancient Greek Amphitheater
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 cultivates 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 one best-in-class flipped method and tool
4. Access resources for learning more about flipped classrooms
1 History of the call for flipped classrooms
What is a Flipped Classroom?
One possible Flipped Class Timeline, with omissions
One possible Flipped Class Timeline, with omissions

2011-2012

Koller et al. Coursera

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One possible Flipped Class Timeline, with omissions

- 2006-2007
  - Bergmann & Sams
    - Lecture Capture/Flipped Classroom

- 2011-2012
  - Koller et al.
    - Coursera
One possible Flipped Class Timeline, with omissions

- **1990s**
  - Peer Instruction
    - Mazur
    - Novak et al.
    - JiTT
    - Hanson et al.
    - POGIL

- **2006-2007**
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- 1980s
  - Lyman Think-Pair-Share
  - Michaelson TBL

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One possible Flipped Class Timeline, with omissions

• 1970s
  - Freire

• 1920s
  - Dewey

• 1870s
  - Langdell

• 1980s
  - Lyman Think-Pair-Share
  - Michaelson TBL

• 1990s
  - Mazur Peer Instruction
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One possible Flipped Class Timeline, with omissions

- **1870s**
  - Langdell

- **1920s**
  - Dewey

- **1970s**
  - Freire

- **1980s**
  - Mazur
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What is a Flipped Classroom?

School at Athens, the original flipped class
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?

a flipped class moves coverage out
What is a Flipped Classroom?
What is a Flipped Classroom?

moves *un*coverage 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

**Traditional Flipped class**

- **Class time:** Homework
- **At home:** Lecture
Basic Steps for Flipping a Class

Traditional Flipped Class Protocol
Bergmann and Sams version
Basic Steps for Flipping a Class

Traditional Flipped Class Protocol
Bergmann and Sams version

1. Video record lecture using screencast software
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
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
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
3 Best-in-Class Method and Tool
Peer Instruction

- brief presentation
- Question
Peer Instruction

brief presentation

Question

Student poll 1
Peer Instruction

1. Brief presentation
2. Question
3. Student poll 1
   - If >70% correct:
     1. Explanation
     2. Repeat from start

Friday, October 19, 12
Peer Instruction

brief presentation

Question

Student poll 1

<30% correct

revisit concept

>70% correct

explanation

repeat from start
Peer Instruction

1. Brief presentation
2. Question
3. Student poll 1
   - <30% correct: revisit concept
   - 30-70% correct: peer discussion
   - >70% correct: explanation
4. Student poll 2
5. Repeat from start
Peer Instruction

Goldilocks Range of Desirable Difficulty

- <30% correct: revisit concept
- 30-70% correct: peer discussion
- >70% correct: explanation, repeat from start

Student poll 1

Question

Student poll 2
Thermal Expansion
Evolution of Classroom Response Systems
Evolution of Classroom Response Systems
Peer Instruction

Evolution of Classroom Response Systems
Evolution of Classroom Response Systems
Evolution of Classroom Response Systems
Learning Catalytics (learningcatalytics.com)
Cloud-based technology - students “BYOD”
Cloud-based technology - students “BYOD”

Piloted for the first time in Spring 2011
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)

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

Lots of practice
Submit response
IM the instructor

Round 1
123 responses

experiences
learning observing
reading people being
experience time
practice
work others school
working good through family
watching many listening
61 get it now
4 still don't get it
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
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

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

Round 2
- 75 responses, 75% correct
A. 83%
B. 17%
C. 0%
D. 0%
E. 0%
4 Resources
Peer Instruction Network
Connect. Share. Learn.

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learning|catalytics
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Slides: scholar.harvard.edu/julieschell
Blog: blog.peerinstruction.net
followme: @julieschell
Let’s Try It!

Systematic Moral Analysis
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.)