Flipping 101: An introduction to flipped classrooms

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The University of Texas at Austin
Julie Schell
Director, OnRamps and Strategic Initiatives
Center for Teaching and Learning
onramps.org

Texas A & M Health Sciences
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Temple, TX

I

Education
I love Education

I

Education
brianna girlie @bripaigegirlie
I hate school. Ihateschool. I HATE school. I h8 school. I hate skool. Ih8skool. I hate. school. Eye h8 skool. I HATE SCHOOL. #ihateschool

LundenStallings @livestrong_1
Feb 25
I was having a pretty good night, until I realized i gotta get up for prison in the morning 😛☠️ #ihateschool
Kaylee Krepps @kay_lay13
Dear pre-calc, I hate your stinking guts. You make me vomit. You're the scum between my toes. Love me. P.S. send that message to physics too.

JasmineJandu @JasmineJandu
I hate the fact that there's school tomorrow. Dead serious right now, I'd rather throw up and sit on it. #ihateschool
Kelly Chen @pianokchen
School is so boring #ihateschool

Jessie Stockstad @jessiestockstad
Casually sitting in my room staring at the wall cause that’s more fun than actually studying #iloveschool
History = there dead dude.
English = dictionary/ google.
Science = not a nerd. Don't need it.
Math = calculator.
#ihateschool #die
KAILS @kaillleybird
7 Apr

Never learned how to get a loan, buy a house, car, or anything else useful in life, but I DO know the effing **pythagorean theorem**

Would be funny...if it wasn't so heartbreaking.
The number of hours students spend in a system they hate.

10,800

What #hashtag best describes your schooling experience?

a. #ihateschool
b. #iloveschool*(really)
c. #schoolisboring
d. #schoolisnotpractical
e. #mixedfeelings
Q. What keeps you up at night?

A. Nothing! I sleep well.

Q. What keeps you up at night?

A. The future physicians I teach will be delivering healthcare to me in 5 to 7 years.
Q. What keeps you up at night?

how to make learning "stick" in students' memory and how to keep everyone engaged in the classroom

how to engage students and maximize learning and interaction simultaneously
Q. What keeps you up at night?

A. There is not time or resources for effectively interacting with our 200+ students.

Q. What keeps you up at night?

A. Not holding students’ attention; content not beneficial through.
A. Desinteresse!!

Q. What keeps you up at night?

A. How do I am & how little will be retained by the student. Yale
Students and professors want the same thing.

I want you engaged.
I want you engaged.

We want to be engaged!

I want you engaged.

We want to be engaged!
Education doesn’t have to be this way.

What’s going on in this classroom?
What's going on in this classroom?

a. teacher left the room
b. talking about dating
c. working on a physics problem
d. this isn’t a classroom, it’s a party
My goals for this talk...

This doesn’t seem so bad.

My goals for this talk...

This doesn’t seem so bad.

I’ve been doing this for decades but didn’t know it.
My goals for this talk...

This doesn't seem so bad.

I've been doing this for decades but didn't know it.

I already do this. I'm going to innovate and help others.

3 essential questions about flipped classrooms
Big ideas about flipped classrooms

What is a flipped classroom?
The Flipped Classroom

In Class

Students practice applying key concepts with feedback

Students check their understanding and extend their learning

Out of Class

Students prepare to participate in class activities

Students check their understanding and extend their learning

created by Josh Walker
How have you already flipped your class?

- Have had students do a pre-assignment after watching a pre-recorded video.
- Students are assigned readings, videos, internet sites, and quizzes before they attend the in-person session with me. During the in-person session, I ask students questions about the assigned learning materials.

Myth 1: You must flip your entire class

Big idea: A flipped classroom is an approach that can be implemented gradually or all at once.
Myth 2: Flipped classrooms are the latest edutrend.

![Graph showing the number of Google Scholar hits for "flipped classroom" over time.]

Christopher Columbus Langdell, 1890s
Myth 2: Flipped classrooms are the latest edutrend.

Big idea: Flipped classrooms= new term, old idea.

- 1st modern flipped classroom developed in 1890s
- Eric Mazur, Peer Instruction 1990s
- Seminal publication in Economics 2000 Lage et al.
- Larry Michaelson, Team Based Learning 1980s.
Myth 3: A flipped class replaces faculty with computers and videos.

I don't really know what a flipped classroom is, but judging from the questions, it seems to involve recording your lectures.
Myth 3: A flipped class replaces faculty with computers and videos.

Big idea: Flipped classrooms are not about technology, they are about pedagogy.

Main approach
1. lift coverage of some content out of the class
2. privilege content application in-class
3. find ways to motivate continued learning after class.
How could you flip your class without videos?

Why should I flip my classroom?
Myth 4: Flipped classrooms are fads not tied to how people actually learn.

Study these letters, don’t write them down.
Study these letters, don’t write them down.

JFK FBI NATO UPS NASA IRS
Bloom's Taxonomy

<table>
<thead>
<tr>
<th>Traditional Arrangement</th>
<th>Instructional</th>
<th>In-class</th>
<th>Out-of-class</th>
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<tbody>
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<tr>
<td></td>
<td>Analyze</td>
<td>Evaluate</td>
<td>Create</td>
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created by Josh Walker
This is the brain... on lecture...

Bloom's Taxonomy

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created by Josh Walker
### Bloom's Taxonomy

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created by Josh Walker

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**How to lecture on or off line:** Chunk it
Chunking with Retrieval Practice

Test | Test | Test | Test

lecture | lecture | lecture | lecture

0 | 10 | 20 | 30 | 40

Myth 4: Flipped classrooms are fads not tied to how people actually learn.

Big idea: Flipped classrooms leverage how people learn best.
Myth 5: Flipped classrooms are a cure all.

- Big idea: Flipped classrooms take time, effort, and iteration - but doesn’t all good teaching?

Why should I flip if it is going to take time & energy I don’t have & will take more work at first?
How do I flip my class

Myth 6: Students will love not having lecture in class.
Students rarely want to interact with their instructor.

Almost all humans relish interacting with a good problem.
Thermal Expansion
When metals heat up, they expand.

Consider a metal (aluminum) plate with a hole in it.
Consider a metal (aluminum) plate with a hole in it.

If you heat the plate uniformly what happens to diameter of hole?

A. increases  
B. stays the same  
C. decreases  

When metals heat up, they expand.
What happens when you heat metals up?

a) they expand
b) they shrink
c) nothing

If you heat the plate uniformly what happens to diameter of hole?

A. increases
B. stays the same
C. decreases
“Lecture is a comfort blanket for students.”

Myth 6: Students will love not having lecture in class.

- Big idea: Lecture is a comfort blanket for students.
- Big idea: Humans relish problems at the Goldilocks range of desirable difficulty.

- Students may resist flipped learning
- Lecture a little every class period
- Don’t called it a “flipped” classroom
- Don’t call it an experiment
- Pose interesting problems in class
Myth 7: Students will not do pre-class work.

Interest in Hearing How to Get Students to Prepare Before Class

- Not interested
- A little interest
- Medium amount
- Interested
- Extremely interested
Just-in-Time Teaching

Pre-class assignment
  -> assessment
    -> 2 conceptual questions
        -> 1 feedback question
          -> address difficulties in class

What do you find most difficult or confusing about this concept?
Myth 7: Students will not do pre-class work.

Big idea: If you assess it, they will come.

Myth 8: There is one right way to flip a class.

Big idea: There are many ways to flip a class, and no one right way.

- For some weeks, we provide students with a case ahead of time, and then spend class time either role playing or meeting with standardized patients.

- I have done several lectures in which I have posted lecture notes and slides prior to the scheduled time, then spend the time discussing questions and answers to case-based scenarios based on the pre-posted material.

- When we do our Cardiovascular Pharmacology Self-Directed Learning Exercise...the students have had initial exposure to the material in lecture, but have not had to think through all of the drugs presented in a single session before.
### FLIP in 4 easy steps

<table>
<thead>
<tr>
<th>F</th>
<th>Find a concept to flip</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>Lift coverage / first exposure out of class</td>
</tr>
<tr>
<td>I</td>
<td>Incentivize out of class work</td>
</tr>
<tr>
<td>P</td>
<td>Privilege application activities in class</td>
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*Inspired by Josh Walker, Center for Teaching and Learning UT Austin*
### Big ideas about flipped classrooms

1. You can flip one concept or 10.
2. Flipped classrooms = new name, old concept.
3. Flipped classrooms are about pedagogy not technology.
4. Flipped classrooms align with how people learn best.
5. Flipping classrooms well takes time and effort.
6. Lecture is a comfort blanket for students, lecture a little.
7. If you assess pre-class work, most will do it.
8. There are many ways to flip a class and no one right way.
brianna girlie @bripaigegirlie
Ih8skool. I hate, school. Eye h8 skool. I HATE SCHOOL. #ihateschool
Expand   Reply   Retweet   Favorite   More
Tyson_Awesome @tegrinse614
6 hrs
today I developed my own proof for pythagorean's theorem. woooo
yeah baby #genius

Follow now!
blog.peerinstruction.net
Acknowledgements

BOOKS
Flip Your Classroom
Show! Don't Tell
Made to Stick
Why Students Don't Like School

www.jolieschell.com
@jolieschell