Flipping the Classroom

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Learning Objectives

• Compare and contrast a traditional lecture with a flipped classroom, including activities and theory behind the activities.

• Differentiate topics/lectures that may benefit from a flipped classroom from those that may not.

• Design a flipped classroom experience.
Session Map

• Defining the flipped classroom and why we use it.
• What to flip?
• Creating the flip
  – Outside of class
  – Did they do it?
  – Classtime
• Lessons learned
Session Map

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The Traditional Lecture

- Looks a lot like what I’ve been doing so far…
- “Sage on the stage” – the lecturer as the center of attention.
- Great for relaying information and modeling how to use it (if you have time…)
- Students then take material home to study/apply it.
- Very often, we then test on their ability to apply material.
The Traditional Lecture

• Very often, the lecture itself has prepared the student to answer the question (e.g.):

• Which of the following arterial blood gases would represent an acidosis?
  – pHa = 7.27
  – pHa = 7.38
  – pHa = 7.41
  – pHa = 7.47
  – pHa = 7.51
The Traditional Lecture

• But we expect the student to answer the question (e.g.):
  – A 39-year old male brought to ER due to 3-day history of fever and cough; dyspnea occurred today. Upon admission, the patient is in acute respiratory distress. Pulse oximetry reveals SaO2 is 70% on room air and the patient is immediately given 7 L/min Oxygen by facemask. Arterial blood gases are as follows: pHa = 7.28; PaO2 = 92 mm Hg; PaCO2 = 55 mm Hg, and HCO3 = 25 mEq/L. What is the patient’s acid/base status?
Our Expectations

But our test questions probably focus at this level or above.

Our lecture probably spends a fair amount of time here.

What we expect the student to do on their own...

Our Expectations... 

And no one has EVER been disappointed in the students’ success at doing this, right???????

But our test questions probably focus at this level or above

Our lecture probably spends a fair amount of time here...
Just a Note – Bloom’s Taxonomy has been updated…

- **CReating**: Putting information together in an innovative way.
- **Evaluating**: Making judgements based on a set of guidelines.
- **Analysing**: Breaking the concept into parts and understand how each part is related to one another.
- **Applying**: Use the knowledge gained in new ways.
- **Understanding**: Making sense of what you have learnt.
- **Remembering**: Recalling relevant knowledge from long term memory.

http://julietovar.edublogs.org/files/2011/05/blooms-taxonomy-1k4snjn.JPG
The Flipped Classroom

• Designed to let the students do the ‘easy’ stuff on their own.
• Class time then devoted to using the learned facts in higher cognitive processes.
The Flipped Classroom

Student homework now focuses on this aspect.

Class time is spent here (or higher).

Student homework now focuses on this aspect.
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What Might be Flipped?

• Anything...
• Is the lecture having the desired outcome?
• Is the lecture very basic, must know material?
• Are you or the students bored by the lecture?
• What else?
What do you think you should/could flip?
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Creating the Flip – Prior to class

- Reading – are there good resources?
- Pre-recorded lecture (lecture capture)
  - Two different ‘theories’ on how long these should be (regular class lecture or shorter vignettes)
  - Dictated by learning objectives, nature of materials, and learners.
- What else?
Preliminary materials – What would you do?
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Starting the in-class time: Did the students do the work ahead of time?

• I end my pre-recorded lecture vignette with a question – then pass out index cards and ask the students to answer the question and turn it in.

• In-class quiz (audience response system or similar)

• What else?
Starting the in-class time: Did the students do the work ahead of time?
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Class Time: The most important part of the flip!

- Plan ahead
- Be prepared for Encourage a noisy classroom (may require work).
- If you elected to flip a lecture because you weren’t happy with the outcomes of a lecture, this is where you can learn a lot about what the student’s aren’t catching.
Class Time: The most important part of the flip!

- Acid-base:
  - I had assumed that the calculations for identifying compensations were where most students stumbled.
  - I learned that they were in trouble even before that.
    - For example – students are all able to identify $\text{pHa} = 7.53; \text{PaCO}_2 = 30; \text{HCO}_3 = 24$ as a respiratory alkalosis;
    - But $\text{pHa} = 7.49; \text{PaCO}_2 = 30; \text{HCO}_3 = 22$ might be a metabolic acidosis in their minds.
Class Time: The most important part of the flip!

- What are you doing to do?
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Lessons Learned

• In order for the students to be active learners, you have to step back and be a little passive.
• How passive is a very fine line – yes, it is the student’s responsibility to learn, but it is still your responsibility to teach.
• Let the classroom get loud.
• Be flexible – you may need to change the in-class work in response to what is going on in class.
• Listen to the questions you are getting asked – they can tell you what the students need to really learn to do what you want them to do.
Lessons Learned

• Actions speak louder than words. When I’ve flipped a class, class time usually ends while we are still in a problem solving activity. NO students (250 – 270) left the class when the buzzer rang (and it was lunch time 😊).