Pairing Technology with Pedagogy: A Beginners Approach to Flipping

Harvey Mudd: Flipped Classroom Conference
http://Tx.AG/MuddFCC

Amber Muenzenberger, atmberger@tamu.edu
Director of Remote Learning & Outreach Education
Dwight Look College of Engineering
Objectives

• Describe the various creation model for an inverted classroom
• Explain most commonly used technologies for classroom inversion and active/collaborative classes.
• Identify technologies most appropriate for a learning outcome in the inverted environment

Google Doc & Presentation - http://Tx.Ag/MuddFCC
3 Credit Hour Course

=  
3 Contact Hours
+
9 Out-of-Class Hours

(3 hours for each credit hour)
Sample of Traditional Process

- Out-of-Class Reading Assignments
- In-Class Lectures/Activities
- Out-of-Class Homework/Projects

In-class Lectures and Activities
Out-of-class Homework and Projects
Sample 1: Inverted Process

- Out-of-Class Preparation
- In-Class Discussions
- In-Class Practice/Acessment
- Online Interactive Training
- Office Hours
- Out-of-Class Practice/Acessment

- Out of Class Prep
- Discussion
- Training and practice
- Out-of-class Homework and Projects
Sample 2:
Inverted Process

- Out-of-Class Reading Assignments
- Out-of-Class Pre-Video
- In-Class Discussions
- Out-of-Class Assessments
- In-Class Assessments
- Out-of-Class Projects
- Office Hours
- Out-of-Class Post-Activity

In-class Discussions & Assessments
Out-of-class Homework and Projects
All In-A-Glance

In-class Lectures

Out-of-class Homework and Projects

In-class Discussions & Assessments

Out-of-class Assignments, Videos, Assessments, and Projects

Out of Class Prep

Discussion

Training and practice

Out-of-class Homework and Projects
What technologies have you seen or used to create a flipped course?
Online Technology & Infrastructure
Exams/Quizzes

Access to quizzes and exams
Course quizzes and exams will be posted on this page. You can access these quizzes and exams here or from within the modules.

Module 2 (Week 3) Quiz

Midterm Exam

Week12 Quiz
This quiz has 10 questions and a bonus question. Once you start the quiz, you have two hours to finish it. Do not start the quiz unless you are ready to take it. At the end of 2 hours, the quiz will automatically submit.

Final Exam
How do we use science reasoning etc.

Real World
Fuzzy requirements
Everything is connected to everything else
Complex phenomena
Unclear and subjective criteria
Decisions
Heavy use of words

Virtual world:
Everything is represented as symbols
Only rules of mathematical logic apply
Everything is idealized
Isolated systems
Reasoning is objective
Physical Laws
Models, parameters, algorithms, computations etc live here

Procedures
Intrinsic Material Properties (Geometry Independent)
Web-Meetings

Subsea Well Control Equipment
Since you want area, don’t forget to check if the function is above or below the x-axis from x=0 to x = 3. Since the function is above the x-axis we can evaluate the integral:

\[ \int_0^3 \sin x \, dx = \left. -\cos x \right|_0^3 \]

Can you finish it now?
Discussion

Does anyone have any experience with these type of online technologies or something similar?

What are the pros and cons?
In-Class Technology
& Infrastructure
Collaborative Technologies

Google Drive

WHAT IS HOTSEAT?

Hotseat provides all learners a place to quickly and easily participate in a productive backchannel discussion during class. Suddenly, everyone has a voice.

Adhering to the “run what you brung” model, hotseat allows learners to post questions and comments using whatever technology they have available – iOS boring, iPod and Android mobile apps, and desktop and mobile websites. This gives everyone a chance to actively engage in classroom activities.
Polling/Quizzing
Wireless Presentations

Software
Formal Learning Spaces

Dwight Look College of Engineering
Texas A&M University
Formal Learning Spaces
Informal Learning Spaces
Discussion

Does anyone have any experience with these type of learning spaces or in-class technologies within a flipped course?

What worked, what did not?
How do these components & technologies match with Bloom’s Taxonomy?
In this model, each of the colored blocks shows an example of a learning objective that generally corresponds with each of the various combinations of the cognitive process and knowledge dimensions.

Model created by: Ron Heer
Iowa State University
Center for Excellence in Learning and Teaching
Updated January, 2012
Licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.
For additional resources, see: www.celt.iastate.edu/teaching/RevisedBlooms1.html
Activity

What technology are you eager to try in your inverted/flipped course?

What is your implementation plan?
Thank You!

Amber Muenzenberger, atmberger@tamu.edu