REPLACING LECTURE WITH ONLINE VIDEO TUTORIALS

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1. CITY COLLEGE OF SAN FRANCISCO

City College of San Francisco is a two-year college.

Most of our students are general-education students looking to fulfill a natural science requirement for transfer to a 4-year college.

2. OCEANOGRAPHY

Introductory-level general-education science class covering physical, chemical, geological, and biological oceanography.

Class details:
• 3-unit lecture (optional lab)
• Two 75-minute class meetings/week

Class size: 25 to 50 students

Student access:
• Use the class website to access and watch weekly video tutorials, access links to and complete weekly quizzes, and review supplemental web resources.
• Use the Oceanography 1 Workbook to review images, data, text, and tables from weekly video tutorials, and access weekly worksheets (based on videos), concept sketches, and other activity sheets completed in class.
• Use class time to turn in and review completed weekly worksheets and concept sketches, engage in class discussion, and engage in class group activities.

3. REPLACING LECTURE WITH VIDEO

When? Since Fall 2012 I am now in my 5th semester of using this new format.

Why? Sheer frustration that my students were not coming to class prepared (not reading the textbook).

How? All videos I use to replace my lecture are videos I produced.

I created videos originally based on my PowerPoint™ slides and then expanded as I picked up additional technological expertise.

• Tools: Camera, Tripod, Camtasia Studio™, PowerPoint™, Adobe Photoshop™, Adobe Illustrator™, and Audacity™.

• Process:
  1. Write a script (imagining myself in the front of a classroom with access to all materials I’d want; this script later becomes my closed-captioning and a resource for students).
  2. Use Audacity™ to record script narration (adding in sound effects where appropriate).
  3. Gather all media I envisioned when creating script (scientific illustrations, maps, screenshots, video of class demonstrations, video of live Earth processes: either public domain, Creative Commons, or self-produced).
  4. Use Camtasia Studio™ to combine all elements, and add in embedded quizzes, animations, and closed captioning.
  5. Produce as a .mp4 and a flash-wrapped .html both published to my class website so students can access.
  6. Edit continually to improve quality and eLearning: segment into shorter modules (5-10 minutes where appropriate), replace copyrighted material (so available to be shared publicly), and reduce cognitive load.

4. HOW DOES IT WORK?

1. Video tutorials are assigned as required pre-class homework.
2. Videos are accompanied by a multi-page worksheet, and an online quiz, both of which must be completed prior to the first class meeting each week. (These ensure tutorials are watched, considered critically, and applied to problem solving prior to class.)
3. In class, in groups of 3 or 4, students discuss completed worksheet answers and compare with answer key.
4. For the second class meeting, students bring and discuss completed concept sketches in small and large groups.
5. The rest of class time consists of hands-on demos, activities, and group discussion.

5. DATA AND IMPACTS

• Students come to class better prepared
• Higher energy and more insightful discussions in the classroom (classroom isLouder, and desks are more askew).
• More student engagement
• More critical thinking in class (less writing down, word-for-word, lecture notes).
• Improved catch-up and review opportunities for students outside of class.
• Greater student satisfaction on weekly evaluations (online and in class).
• More relaxed and enthused instructor in the classroom. Everything we do there is bonus!
• More harried instructor out of the classroom because of all the time spent making videos.

Quantitative impacts:
• Increased classroom interaction among instructor and students. Pre-flip: ~20% class time | Post-flip: ~90% class time.
• Increased average exam scores (based on standardized student learning outcomes exam): Pre-flip: 56% | Post-flip: 69%
• Fewer discipline problems. (Students who don’t want to put in the time drop quickly.) Pre-flip: 2-4 incidents/class | Post-flip: 0
• Increased class attendance.

Pre-flip: later semester drops off to ~40-60% Post-flip: stays solid all semester at ~90-95%

http://fog.ccsf.edu/~kwiese/content/Classes/oceanography.html