

Don't Reinvent the Wheel: It's OK to Use One Another's Videos!

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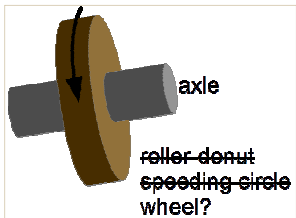
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Introduction:

Flipping a class takes lots of time and effort if you do all the work of making instructional materials yourself. As flipped classes replace traditional lectures, teachers often use short, lecture-style videos that students view before coming to class. Conventional wisdom in making these videos says that it is better for the video to be of the actual course instructor rather than a video of someone else thus requiring many faculty at many institutions to make videos of the same material.



But is it really necessary to reinvent the wheel? Especially for video lectures for large service courses, can we reuse other people's presentations without harm to students?

Methodology:

NCSU faculty member Anna Howard paired with Matt Jensen at Florida Institute of Technology to test the hypothesis that familiarity with the presenter in the video is optimal for student learning.

Anna Howard had eight semesters of experience teaching Statics as a flipped class at NCSU. Matt Jensen had taught Statics once as a lecture class but was interested in flipping his Statics course at FIT. After discussing which learning objects could be reused in Florida, we determined to use principally NCSU videos with two exceptions: Jensen reproduced the videos for two chapters following the content as closely as possible.

FIT students were split into two groups as shown in table 1. Each group watched Dr. Howard's videos for all the chapters but one. The groups were very similar in demographics. While it was possible that one student could have shared links with another, the incidence of this happening was presumed to be small.

	GPA	Gender	Major
Group A: NCSU videos for chapters 1-5, 7-10	3.09	Male: 25 Female: 7	ME: 13 AE: 10 Other: 9
FIT videos for chapter 6			
Group B: NCSU videos for chapters 1-4, 6-10	3.08	Male: 24 Female: 4	ME: 12 AE: 9 Other: 7
FIT videos for chapter 5			

We compared test results and survey opinions to see whether using local professors in the videos was necessary.

Results:

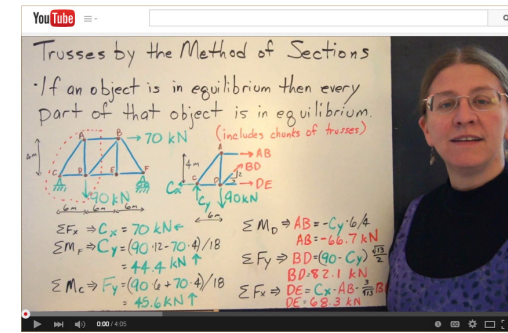
The number of students in this pilot was small, but for these students there was no statistically significant difference between their exam, homework, or quiz scores except for one quiz. Given the rest of the results, we believe this is likely a random event rather than a true difference in only one item.

Student preferences also did not show a significant bias for one video presenter over another.

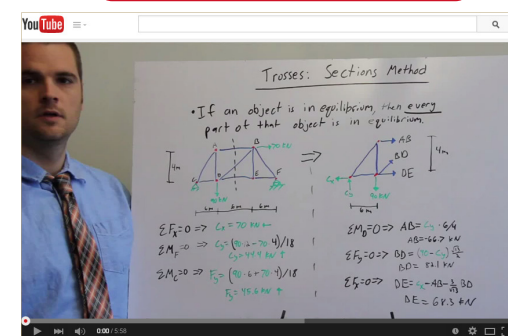
Measure	Item	Group A Mean (%)	Group B Mean (%)	p-value
Midterm Exams	CH5 #1	85.9	83.9	0.782
	CH5 #2	78.05	77.8	0.967
	CH5 #3	86.8	85.3	0.743
	CH6 #1	68.64	75	0.396
HW	CH6 #2	40.12	45.72	0.445
	CH5	86.25	80.95	0.572
Quiz	CH6	83.34	86.55	0.624
	CH5	79.95	65.92	0.001
Final Exam	CH6	78.91	72.47	0.158
	CH5 #1	78.1	81.9	0.453
	CH5 #2	54.5	36.2	0.19
	CH6 #1	63.53	50.87	0.087
	CH6 #2	66.47	71.6	0.399

 = Group A:
 = NCSU videos for chapter 5
 = FIT videos for chapter 6
 = Group B:
 = FIT videos for chapter 5
 = NCSU videos for chapter 6

At FIT		At NCSU	
What percentage of the videos would you say you viewed at least once?		Please indicate how often you used the YouTube videos.	
Fill-in-the-blank	average 70% stdev 28.66 median 80%	never used 2 (1%) used once 1 (1%) used occasionally 42 (23%) used many times 137 (75%)	
How would you rate the quality of the videos assigned for this course on a scale of 1-10 with 10 being the highest quality?		Please indicate the value you place on the YouTube videos in your learning so far this semester.	
Fill-in-the-blank	average 6.48 stdev 2.14	Not Important 3 (2%) Somewhat Unimportant 3 (2%) Neutral 11 (6%) Somewhat Important 38 (21%) Very Important 125 (69%)	
If given a choice for your next engineering course (say Dynamics or Strength of Materials), would you prefer to take a course as flipped or traditional lecture style?		If you had to choose a section for Statics again, which section do you think would be best for you? (Students were not given a choice of traditional format because previous flipped sections have shown higher scores.)	
Traditional lecture class	24 (71%)	Flipped class	163 (90%)
Flipped class	8 (24%)	online-only class (no regular class meetings)	17 (9%)
No preference	2 (6%)		
I preferred watching videos from ...			
Dr. Howard	8 (24%)		
Dr. Jensen	4 (12%)		
Didn't Matter	22 (65%)		



Short Concept Videos on YouTube



Conclusions:

Generally finding no significant difference in a study is a bad thing. Here we are encouraged that using another's videos can be just as effective for first-time faculty who want to flip their classes.

If a similar study is ever repeated, NCSU students should also be broken into groups and shown FIT videos. We were unable to track individual student views of the videos; such data would be an excellent additional study.

While individual professors will always have the desire to tailor the classroom content for their own presentations, it is important to allow externally produced materials as a viable, respected alternative. Additional innovation will be required to make finding these materials easier.

Jensen, M., and Howard, A.K.T. "Flipped Classes: Do Instructors Need to Reinvent the Wheel When it Comes to Course Content?" *Proceedings of the 2015 American Society for Engineering Education Annual Conference & Exposition*, Seattle, WA, June 2015.