



Flipped Classroom: Personal Experience

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Background

- Motivation:
 - ▶ Improve learning experience for students
 - ▶ Improve teaching experience

Hour 1	Lecture
Hour 2	Lecture
Hour 3	Semester project/HW discussion

- My concerns:
 - ▶ Real improvement for students?
 - ▶ Time required to flip course?
 - ▶ Suitable for my (graduate) course? (Computational, semester project)

Approach

- Because of concerns, decided to flip course partially
- Flip selected weeks, announce one week ahead of time
- “Flipped week”:
 - ▶ Students work through slides/notes before class
 - ▶ No videos yet
 - ▶ Answer Clicker questions before/at beginning of class

Hour 1	Clicker questions/discussion
Hour 2	Exercises/HW/problems/discussion
Hour 3	Semester project

- Flipped 2 of first 5 weeks (for time reasons)

Experience

- Clicker-feedback after 5 weeks (11 respondents/44 students):

Opinion of FC in this course?	Like idea and works well	6	55%
	Like idea, but does not work well	3	27%
	Do not like idea	2	18%
Previous exposure to FC?	Once	0	0%
	More than once	1	9%
	Never	10	91%
Opinion of Clicker?	Helpful and used well in course	9	82%
	Helpful, but not used well	1	9%
	Not helpful	1	9%

Experience

- Student comments on Backchannel:
 - ▶ Would like short summary at beginning of lectures
 - ▶ FC can be too busy: Clicker, discussion, blackboard, ...
 - ▶ Prefer answering Clicker questions in class rather than before class
- End-of-semester student feedback positive
- My experience with class room (HG E 41):
 - ▶ Excellent resource
 - ▶ Can be time-consuming/disturbing to change setup

Summary & Conclusions

- Explored partially flipped classroom
- Student feedback positive (small sample)
- Teaching flipped classes interesting (and fun!)
- Very useful to get more direct feedback on problems
- Flipping course is time-consuming
- Will flip more lectures in fall semester 2015...

Clicker Questions: Example

25.09.2014 13:15 - 16:00

G - Fundamentals of CFD Methods

RUN TIME

26:59:57

NUMBER OF VOTES

0017

Does a second-order accurate FD/FV approximation of the first derivative give the exact result (neglecting rounding errors) for a polynomial of the following degrees?

- Degree two (quadratic polynomial)
- Degree three (cubic polynomial)
- Approximation never gives exact result

41% | 7 Number of votes

18% | 3 Number of votes

41% | 7 Number of votes