Does Flipping the Classroom Lead to Learning Gains & Increase Student Satisfaction: CFANS Example-U. of Minnesota

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Objectives:
1. To determine whether flipping the lecture results in learning gains
2. To investigate the conceptual basis for flipping lectures/practice
3. To determine if flipping is applicable

Methodology:
1. Design course modules that would be amenable to flipped concept-video/online w. Moodle.
2. To execute the course modules in several courses - ApEc 3551,3451 & AIM 4011.
3. To evaluate results of flipped activities in terms of course evaluations, grades earned and mastery of material.

References:

What is Flipped Classroom Instruction?
*Blooms Taxonomy (2001) - students do lower levels of cognitive work outside the classroom and focus on higher forms of cognitive work in class(application/synthesis/analysis)

What is a Flipped Classroom?
First exposure is accomplished by readings, videos, powerpoints w. voice overs and other materials prior to class(called Inverted). Class time is spent on worksheets/mini-lectures, experiments, and small group discussions.

Examples of Current Curricula Efforts
1. Videos in ApEc 3451, small groups discussion & worksheets.

Assessment of “Flipped Learning”-survey
1. ApEc 3451/3821/3551 & AIM 4011

Student satisfaction:
SOS rating- 2012-5.40/6
SOS rating -2011-5.28/6

Learning gain/grades earned.
Ave .grade-2012-A-
Ave grade- 2011-B+

Other comments: deeper understanding/more fun

*Survey- 2012/13 classes

Appendix- B
Student Classroom Survey- Flipped
1. What is your grade level? Senior______ junior_______ sophomore_______ freshman_______
2. Class lectures not flipped
   - During the lecture, the pace was too slow and I was bored
   - During the lecture, the pace was adequate, so I was able to concentrate on the material
   - During the lecture, the pace was too fast so I was unable to take meaningful and complete notes.
   - During the lecture, I was distracted by other students in the class.
   - During the lecture, I find it difficult to take notes and listen at the same time.
3. Class lectures not flipped- How often were the lectures? Once per week_____ several times per week________ every day________ Infrequent________
4. Flipped classroom- How often were the following items used in class.
   - Video lecture- Once_____ two/five times_____ More than three times_____ 
   - Did you take notes during the video lecture? Yes_____ No________

5. What class activities were used for the Flipped Classroom?
   - Video lectures
   - Demonstrations
   - Labs
   - Homework
   - Peer tutoring
   - Teacher-student tutoring
   - Enrichment activities research and other
   - Class discussions/small group assignments
6. Which of these activities was the most useful in conveying the course material?
7. Homework completion
   - Were you able to easily complete the homework assignments in class? Yes, always____yes,sometimes____ No________