

dB-SERC lunch summary – February 29, 2016 – Implementing flipping in a large enrollment introductory science course

Discussion Leader: Dr. David Nero, physics and astronomy

- One important issue that came up during the discussion was whether it was appropriate to reduce the amount of in class time for a flipped course. David Nero's students in the flipped class meet two hours per week + 1 hour of recitation. The decision to reduce the number of class hours was because of the students' workload – the video lectures students watch become part of their out of class work. However, one faculty member mentioned that the off-loading of lecture videos should not reduce the number of in class hours, since the in class hours are meant to serve as interactive, engaging learning sessions (and should not be reduced). The question of how to require students to watch videos before coming to class without overloading their out of class work is still under debate.
- Dr. Nero stated that he usually has approximately 75% attendance rate for the flipped class, and a little less than 70% for the traditional course. One faculty noted that it would be interesting to see if there was a correlation between exam performance and attendance and whether the correlation is different between the flipped section and the traditional section. This would show how much more students may benefit from attending the flipped classes (which were more interactive and engaging) vs. the traditional classes (which were more passive).
- Dr. Nero administers concept quiz questions for students in the flipped course to answer after they have watched online lecture videos. These same concept questions were not given in the traditional course. These concept questions could potentially be asked in the traditional class after the corresponding lecture. It may be interesting to compare the performance of students in the flipped class vs. traditional class to see if the scores are comparable – this would show that going to a lecture would be just as effective as watching a video lecture outside of class.
- One faculty member asked about how the flipped course was framed, in particular, with regard to the teaching assistants. Dr. Nero mentioned that there was a discussion with the TAs about the format of the flipped course and that their recitations should be interactive and engaging. However, there may be a need for more TA training with regard to how to conduct an active learning recitation section. It may be beneficial to investigate student learning outcomes with respect to the TA.
- David Nero gave conceptual surveys as pretests in his courses. Chris Schunn asked if there was differential growth by pre-survey score – is there more improvement for students who had a low performance on the pre-survey for those in the flipped course? Also, how do the attitudes of those students change by the end of the course (and how does this compare to the attitudes of students in the traditional course)?
- Sean Garrett-Roe mentioned that it might be useful to implement an inquiry-based activity in class *before* the students watch video lectures. That way the students have already had a productive struggle with the concept before watching the videos, and they may be more “primed to learn” and engaged when watching the online videos.