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Professional Issues Course: Continuing Evolution

- Civil, Environmental and Architectural Engineering ^[2]
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The required two-credit senior *Professional Issues in Civil Engineering* course has proven very challenging. The learning objectives are externally constrained because the curriculum committee chose to place a number of accreditation requirements in this course. This includes topics such as ethics, sustainability, business, public policy, and professional licensure. The model of concentrating these outcomes in a single course is common in civil engineering programs nationally. The size of the course (about 65 students) poses challenges to some of the ideas that I have considered in regards to personalized learning. However, I propose to test the idea of learning portfolios. Students come into the senior year at a variety of levels with respect to the learning objectives; for example, leadership. Some students are already enrolled in leadership certificate programs or ROTC and have likely met or exceeded the typical leadership-related learning objective in the course. In contrast, other students have worked on teams in previous courses but never exercised a leadership role. If students are able to document that they already meet some of the learning outcomes when they enroll, they can “personalize” their experience with alternative assignments and activities. The proposed study will explore:

1. To what extent do senior civil engineering students opt to document that they have already met particular learning outcomes and complete personalized activities in the course?
Students may believe it is easier to “repeat” a subject they already know and complete the baseline assignment versus documenting that they have met the outcome and self-selecting alternative activities
2. Does a learning portfolio approach appear to be more effective in fostering student satisfaction (as measured by FCQs) compared to previous course structures?
3. Does a learning portfolio approach improve students’ self reported learning gains from the Professional Issues course, as compared to previous course models? (optional questions included on FCQs and optional extra credit survey at end of course)

The course was first offered as a pilot version in 2015, with all graduating civil engineering students taking the course in 2016, 2017, and 2018. The learning objectives have remained nearly identical over time, but structures and assignments in the course have evolved. The primary assessment method used will be direct evidence from student assignments, student evaluations of teaching (FCQs), and the optional survey at the end of the course. In addition, a survey will be developed and distributed to alumni asking them to reflect on their experience in the course and comment on the alternative personalized learning / portfolio approach.

First, I must determine how students could demonstrate they have achieved each of the learning outcomes. Students will also be allowed to propose alternative documentation approaches. It is likely that I can find ideas for this in published literature. Second, I must develop alternative assignments that students can complete if they document that they met the standard learning outcomes in the course. Again, examples can be found in the literature. Perhaps some of this could include peer assessment or mentoring students in the course who have not met those learning assignments. The key limitation is the extent that students voluntarily participate in the FCQs and course survey; low participation rates will limit the ability to accurately assess the research questions. I plan to write-up the results for the ASEE Annual Conference; conference papers go through double-blind peer review.

In progress: IRB approval was obtained for the study over the summer. The course is in-progress this fall. Due to IRB restrictions, will not know which students opted to participate in the research (surveys, allow assignments to be explored) until after the end of the semester when grades are posted. To-date I have not felt that the new model has been any better in fostering interest. But perhaps perception tainted by one vocal student who seems to dislike everything about the course.

Groups audience:

President's Teaching Scholars Program

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