

Team Update Meetings as a Homework Replacement with Enhanced Student-Faculty Interaction

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Extended Abstract

Student engagement hit a low in my Fall 2020 fluid mechanics course, when only four students regularly attended in-person and the remaining 17 were on-line synchronously. The course was flipped and lecture time was used for me to work a problem followed by the students working a related problem in pairs. Their work was submitted at the end of the class and graded primarily on participation. The on-line students rarely asked questions and did not turn their cameras on. I did not get to know the on-line students or their abilities and would not be able to write a recommendation letter for any of them. Student-faculty interaction has a significant effect on student self-efficacy (which affects GPA and retention) [1], so I intentionally increased required student-faculty interaction in my Spring 2021 lecture course.

In my separations/mass transfer course, I had stopped requiring homework due to concerns about students copying solution keys. For Spring 2021, I wanted to include some homework for practice. To increase student-faculty interaction, I required that the homework be presented to me orally by one of the three team members each week. Each team member presented three times during the semester. The premise was that the team supervisor (me) had requested some work and the team was updating me on what they had found. Each assignment had fewer problems than a typical homework assignment but focused on exploring a topic in more depth. I called the assignments mini-projects. The presentations were informal in that the students could scan their handwritten notes and share them during our virtual meeting instead of creating a Powerpoint presentation. The person presenting was required to be on camera (and I was, too). One weekly meeting time for the 4-credit hour course was dedicated to these presentations, but another hour (outside of regular class time) was required to hear all of the presentations each week.

The increased student faculty interaction was fantastic. Each student spoke with me for a total of 30 minutes during the semester. I recognize these students, and I have a sense from their presentations if they understood the work the team had done. An unexpected side effect was the increased student-faculty interaction *before* their mini-project presentations. More students asked more questions while working the mini-projects than they did for written homework assignments. My hypothesis is that the students set higher performance thresholds for themselves because these were oral presentations to the faculty member instead of just written homework solutions. Because I could (and did) ask questions, they needed to be able to explain the work more than they would for written homework. The increased student-faculty

interactions came at a cost, however. Nine of the 56 class meeting times were used for these mini-projects in addition to another nine hours of faculty time.

Informal oral presentations of mini-projects instead of traditional written homework increased student-faculty interaction both formally in the presentations and informally in office hours. The cost of this increased interaction was faculty time.

References

- [1] C. M. Vogt, "Faculty as a Critical Juncture in Student Retention and Performance in Engineering Programs," *Journal of Engineering Education*, vol. 97, no. 1, pp. 27-36, 2008.

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