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How the Pandemic Improved My Teaching: Consolidating gains from a time of loss

Dr. Byron Newberry, Baylor University

Byron Newberry is Professor of Mechanical Engineering at Baylor University. He holds BS and MS degrees in Aerospace Engineering and a PhD in Engineering Mechanics. His technical background is in aerospace materials and structures, and in ultrasonic non-destructive evaluation, but his recent work has been in the areas of engineering ethics, philosophy of engineering and technology, and higher education research. He primarily teaches engineering design, engineering and technology ethics, and sustainable engineering. Newberry serves as Associate Editor for Journal of Science and Engineering Ethics, and Editor for the book series, Philosophy of Engineering and Technology.

ABSTRACT

Extended Abstract

There is probably little doubt that the Covid-19 pandemic degraded the overall quality of instruction in higher education in the short term. In the spring of 2020, I, like most of my colleagues around the world, had to convert in-person classes to online classes midsemester with only a week's notice. Also like many of my colleagues, I had no prior experience teaching online. When the spring semester ended, I then moved two summer courses completely online with only three weeks lead time. In the fall semester of 2020 I converted a team-based, hands-on design project course to a hybrid in-person/online format. I also taught an in-person course, as well as an online course as a teaching overload to accommodate students who opted for a fully online class schedule. And at any given time during the semester, the hybrid and in-person classes both had numerous students who were working remotely due to quarantine, effectively requiring two parallel modes of course delivery, participation, and assessment. These experiences have entailed, among other things, rapidly learning how to manage new technologies for producing virtual content, learning how to assign and assess student work remotely, and learning how to keep students engaged and on task in the virtual environment and amidst the many distractions of the pandemic. Needless to say, this road has had its bumps. And I'm sure that my experience isn't unique, that I'm not alone among teachers this past year in having felt constantly overwhelmed, out of sync, and under-prepared.

The above considerations alone are obviously not conducive to ideal course instruction. But so far, I've only mentioned the mechanics of course instruction. The affective dimensions of teaching and learning must also be considered, which will vary by individual. Speaking personally, my preferred teaching style depends heavily upon frequent interpersonal interaction in the classroom, active learning methods, and non-verbal cues and communication. Thus, the online environment, as well as the in-person environment mediated by masks and social distancing, have posed significant psychological challenges for me as a teacher by disrupting the normal modes by which I forge interpersonal connections with students. And there is evidence to suggest that the pandemic's affective impacts on students are significant as well. For example, Besser, et al. [1] found that the switch from face-to-face learning to synchronous online formats was associated with decreased student feelings of belongingness and mattering, as well as increased levels of loneliness and boredom, stemming from the physical and social isolation. So, in addition to coping with massive logistical and technological upheaval, both students and faculty are coping with corresponding psychological challenges.

But while there are clearly many ways in which the pandemic has likely degraded the overall quality of instruction during 2020 (and may continue to do so at least through the first half of 2021), I would also like to acknowledge the ways in which being forced to adapt quickly – if imperfectly – to the realities of the pandemic have likely improved and strengthened my teaching in the long term. No doubt, once the pandemic subsides and life on campus returns to a semblance of normalcy, the way I teach my courses will revert to something close to what it was before the pandemic. But it will not revert completely. The lessons I've learned and the methods I've adopted in the past year, largely out of necessity (and sometimes out of desperation!), have permanently expanded my teaching toolbox. So, while my pandemic-acquired bag of tricks may no longer be called upon to do the heavy lifting in my post-pandemic teaching, it will nonetheless assume an important new supporting role that I believe will enhance and improve my teaching long term. None of the things I've learned or skills I've developed are particularly novel. They are generally well-known to people who have long been teaching in virtual and hybrid environments. Some are ideas I've contemplated before, or even tinkered with previously. But learning, implementing, and becoming comfortable with new teaching methods entails transaction costs (time, effort, material resources), which creates barriers to adoption. The pandemic effectively rendered such transaction costs moot by suppressing any alternatives. Each of us, I'm sure, has learned our own particular set of useful ideas and techniques, depending on the types of classes we teach and the particular strategies we adopted for managing pandemic teaching. Below, I outline a few specific examples of things I've learned and which I believe will enhance my teaching.

Faced with creating create virtual content for online and hybrid classes, I developed much of it in the form of videos, readings, and assignments meant for asynchronous consumption. One thing I discovered in this process is that some of the content seems to actually work better in this format than in the face-to-face format. In thinking about why this was the case, it is useful to distinguish between training and education. Although there is no bright line between the two, roughly speaking, training is often thought of as the process of acquiring, practicing, and honing specific skills, while education is the process of cultivating a mastery of knowledge, ideas, and critical thinking more broadly. In engineering education, both are obviously important, but in general it is the former – the training – that I have found to work better in the asynchronous virtual mode. The CAD modeling skills necessary in my design course are a good example. Students come into the course with a wide variation in prior familiarity and experience with the CAD tools, so the class time I traditionally spend on CAD training is highly inefficient. Moving the training online allowed students to master the skills at their own pace. Upon return to in-person instruction, this material will remain offloaded to the virtual environment, freeing up class time for other activities. This is just one example from one class. I have identified numerous examples of content in each of my courses that will probably remain in an asynchronous virtual format, resulting, in my opinion, in better skill acquisition is less time.

An important pedagogical goal in all my courses, but particularly in my engineering ethics and sustainable engineering classes, is to foster good class discussion. I am generally satisfied with achieving good discussions, except for one main concern. No matter how collegial the discussion environment, there are always many students who are hesitant to speak up in class, particularly on contentious issues, either because they don't feel confident speaking out, or because they require more time to organize their thoughts than a fast-paced discussion allows. To overcome this, I have attempted in the past to make use of a class discussion board, which allows students time to carefully consider what they want to say, and also avoids the more visceral dynamic of face-to-face discussion. My prior attempts to do this have consistently failed, however, much to my discouragement. Now I know that this is because I simply didn't stick with it long enough to find the right recipe for success. When the pandemic effectively made it my only option, I quickly converged on a method that worked for me and my classes. In fact, it has worked well enough that on their course evaluations my students during the pandemic have consistently cited the online discussions – and not just the discussions themselves, but the community created in the discussion forum – as one of the most effective and enjoyable aspects of my courses. As a result, I've gotten to hear the perspectives of students who I'm quite sure I would have never heard from in the classroom, or at least not to the same extent. The discussion forum will certainly be a constant feature of several of my courses from now on. In this case, the pandemic provided the impetus to practice and refine a technique I knew I needed.

I found that producing content for asynchronous use requires a bit of a different skill set than simply lecturing in class. As an experienced teacher, I can go into the classroom with an outline of the material I want to cover and the activities I want to do in class, and then I can improvise, elaborate, digress, or redirect as needed in the moment. If I fail to articulate an idea clearly the first time, I can rephrase it and try again. But producing asynchronous materials requires a more organized, more scripted approach, perhaps akin to film production. The content, once published, speaks for itself. Thus, the instructor, who confronts a tension between the needs for conciseness and completeness, has to think very carefully about how to select, organize, and articulate the content in a clear way – that is, in a way that minimizes the potential for questions or the need for elaboration. As a result, I found that I needed to prioritize the content, pick out the more salient concepts, and then script the production in a way that develops and highlights those concepts most effectively. Of course it seems obvious that this is what we should be doing no matter how we are teaching, but the need for doing this, in my opinion, is amplified in this mode of delivery and has caused me to reflect on this issue in a more concerted and explicit way. As a result, I feel I was able to streamline and clarify the material in a much more focused way, at times dispensing with some of the peripheral content, without, I think, compromising overall learning objectives. Even when returning to face-to-face classroom teaching, I feel I can carry over much of this more focused approach, leaving time in class for more active enrichment activities.

In my presentation I will elaborate on these points and others.

References

1. Besser, A., Flett, G. L., & Zeigler-Hill, V. (2020). Adaptability to a sudden transition to online learning during the COVID-19 pandemic: Understanding the challenges for students. Scholarship of Teaching and Learning in Psychology. Advance online publication. http://dx.doi.org/10.1037/stl0000198