Teaching Philosophy

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Teaching is my passion. As the legendary philosopher Aristotle said, “Those who educate children well are more to be honored than they who produce the; for these only gave them life, those the art of living well.” All the teachers I considered as a role model have three characteristics in common: (1) they guided me through the learning map with a clear path in their minds; (2) they presented their lectures in a well-structured and inspiring way; and (3) they assessed the learning objectives in a challenging style that caught me think deeply. My teaching philosophy has been shaped from observing these professors I have had who stand out in the classroom and from practicing the approaches I have convinced by these role models.

During my four-year teaching assistant experience at Michigan State University, I have served as a TA for a large-size course (CE/ME 221 Statics) in the College of Engineering. Average enrollment is about 350 students per semester. It has been a long journey with the good and the bad. I taught recitation in the first year and then for the past three years I am the leading assistant with more administrative and management role. This was a unique opportunity to run a team of six TAs and to assist students in resolving conflicts or disputes throughout the semester. Three biggest challenges that I found in the student learning process are: (1) the presence of “The Big Picture”; (2) the level of teacher-student interaction; and (3) the efficiency of learning assessment.

“**The Big Picture**”: I found many students come to the classroom without sufficient preparation and they are expected to recall the core knowledge of the previous lecture. Teachers are in the driver’s seat and they know the final destination, while students only see the part of the complete map. Thus, teachers should present “the Big Picture” to show where the lecture fits in and why students need to care. Unfortunately, at least 50% teachers I had before ignored this and many others presented insufficiently.

**Teacher-student interaction**: I had many bad memories when a teacher read the PowerPoint through the entire class period and then I forgot everything after the lecture. Teaching is not just about presenting lecture materials and expecting your students learn every piece of it. Every time students lost their concentrations, something is wrong with the lecture, particularly the way of presenting it. Thus, the active classroom is needed to engage students in collaborative learning activities.

**Learning assessment**: Let us face the truth. Students hate exams but they do care about their scores, like everyone does in the college and the graduate school. The fact that they are inevitable will always face exams at every step of their life. If the teacher can integrate those assessments as an interesting activity instead of letting students sit on books, then the exam and other supplemental assessments could become a catalyst for their learning process rather than a painful experience.

I was fortunate to notice these three challenges in the early stage of my teaching career such that I can improve my teaching approach over the years. When I started my TA position, I realized
that good teaching requires planning and practice. I am always setting the tone in the first lecture and trying to be in their shoes as a mentor not just a “working manual”. It is vital to maintain a good chemistry between teachers and students because the classroom is a mutual place for both teaching and learning. When presenting new materials, I avoided cramming too much into one concept unless it is very important. I am always conscious of student backgrounds and figure out what they have already learned. I am always prepared a “recall” section in the beginning of my lecture and showed the connection with the current lecture to give my students a clear framework. I changed the pace and the structure of lectures based on students’ feedback. I facilitated small group discussions by introducing “extra points challenge” and promoted teamwork outside the classroom by using “extra credit project”. I introduced a self-evaluated take home quiz and the “learning objective” checklist after each lecture. I have received good evaluations on record and students in my section were very confident of finishing course and moving further.

At Dartmouth, my teaching enthusiasm keeps me motivated on involving in different teaching activities. I delivered guest lectures, helped on co-curriculum projects, participated in outreach events, and writing proposals on teaching innovation. For example, I along with Prof. Zi Chen is building a “Structure Library” for his course “ENGS 142: Intermediate Solid Mechanics”. Meanwhile, I assisted Prof. Ulrike Wegst on preparing a “Material Library” for her course “ENGS 21: Introduction to Engineering”. I’m trying to combine two libraries together for a novel learning experience for both engineering and non-engineering students to help them recognize the diverse characteristics of materials and mechanical behavior of structures. Based on the success of this project, I am expected to eventually create an independent course for my future career.

As a perspective faculty member, I’m very interested about renovating traditional courses and developing new courses to prepare the younger generation engineers for future challenges. My goal of teaching future engineers is to improve both technical skills and professional skills. For technical training, two key aspects I really embrace are: (1) interdisciplinary knowledge and (2) design innovation. I’m willing to encourage students to understand the crossing between different fields that may not be obvious to their future careers but it is important to have such curiosity. When following this motivation, interdisciplinary design-oriented course should be emphasized in the engineering curriculum such that students can apply knowledge in rational ways and put into a relevant context. For professional training, two skills I care about are: (1) teamwork and (2) communication. I prefer to incorporate group work and view myself as a facilitator of learning. My goal is to equip students with solid communication skills both in written and oral format such that students are able to collaborate with their colleagues and to express themselves technically with general audience. All these thought has been integrated to a proposed course named “The Art of Structural Design” as part of the fulfillment of college teaching course at MSU.

Teaching has been a big part of my graduate studies and a huge learning process. My students, colleagues and professors describe me as energetic, organized, and resourceful with a strong attitude towards helping students. I chose to pursue academia because I want to make an impact on students’ lives. I like the quote by William Arthur Ward, saying that “The mediocre teacher tells. The good teacher explains. The superior teacher demonstrates. The great teacher inspires.” I want to help them not only on understanding engineering concepts but also learning how to apply these concepts for a boarder impact on others. Teaching is an art. The bottom line is that, just like doing scientific research, teaching requires a systematic way of specifying the goal, choosing the method, collecting the data and evaluating the result. Thus, the nature of teaching philosophy is not static but ever-changing as the career moves on and the professional identity grows.