

I embrace teaching as both a challenge and a pleasure.

My teaching philosophy has grown through three channels: (1) my own student experiences at both liberal-arts and R-1 institutions, (2) cognitive science within the Scholarship of Teaching and Learning, and (3) professional work experience outside academia.

The first pillar of my teaching philosophy is a desire to emulate the excellent teachers from whom I have learned. I am grateful for their tutelage, and feel a duty to pay that same service forward to my own students. As an undergraduate at Beloit College, I met professors to whom teaching was a true vocation. They made teaching look so easy, and only later did I come to realize how hard they were working behind the scenes.

These mentors modeled three core traits: demeanor, strategy, and expertise. Demeanor comprises subtle behaviors like body language, voice inflection, eye contact, and empathic listening. Their actions showed they could relate to students and that they were serious about their role and enthusiastic about the subject. This foundation of care and human connection is not replaceable by any amount of technical knowledge. However, my best mentors were not always warm and fuzzy – they were rigorous and exacting, and there were moments when I did not always “like” them, even if I knew they had students’ best interests at heart. Secondly, their teaching strategies showed they knew the best mechanisms to encourage our learning. Class activities and labs were thoughtfully curated to foster durable learning. Undergraduate students are rarely aware of the most effective ways to study, so it is up to the instructor to design a course deliberately rather than simply dump content in front of them. Third, it was clear these teachers possessed expertise in their subject and were credible, independent thinkers. There was no doubt about their technical proficiency, and I trusted the validity of their lessons. It is these three qualities – demeanor, strategy, and expertise- that I strive to emulate in my own teaching activities.

The second pillar of my teaching philosophy is informed by the Scholarship of Teaching and Learning (SoTL). As a scientist, my worldview includes the belief that empirically-proven ideas can be used to improve the human condition. Therefore, teaching methods should be informed by research data. Desire and effort are important, but to be a truly effective teacher one must also align his or her strategy with what actually works. The late author Steven Covey succinctly stated, “It is possible to be very busy without being very effective.”

My courses are designed around scientifically-backed activities like retrieval practice, spacing, and interleaving. I use a high-structure approach to minimize achievement gaps among students, with frequent feedback exchanged in both directions between the students and myself. I explicitly inform my students of why a task is assigned, and that while the strategies may not always “feel” comfortable or intuitive, their learning will be maximized for the long-haul. This enhances their buy-in to habits like frequent quizzing, answer generation, and peer-to-peer feedback: in other words, the elements comprising the tired if sincere buzzword “active learning.” I also strive for variability in instructional methods and divide lessons into 15-20 minute segments punctuated by a formative assessment or a change in delivery. It is my hope

that study habits developed in my course extend beyond the semester and follow the students as they become self-directed learners.

SoTL principles also inform the weaving of technology into my instructional design. Technology is a boon for instructors, but it must be thoughtfully incorporated and not treated as a sacred cow. An over-use of technology comprises a distraction when it diverts focus from the content. I use the R programming language, Canvas, and Google Education because they interact smoothly and deliver instructional tools not available in the analog world.

The third pillar of my teaching philosophy is crystallized from real-world experience in the private sector. Teaching assumes many forms outside academic classrooms and during my years as an operations manager in professional sports, I trained dozens of new employees. I developed an approach to training through intuition and observation – and I have been pleased to subsequently discover that much of this approach is backed by SoTL.

Many sports field managers train their employees to specialize in one task. I rejected this style and intentionally sought for each employee to be adept at many roles. This raised their engagement level and also made my job easier, because in a moment of crisis I knew I could trust anyone to operate a tractor or prepare the pitcher's mound. I allowed the staff to choose some of their jobs, but also re-assigned duties from time to time. Nudging newcomers to understand the whole operation cultivated a community of shared ownership and cooperation. Oftentimes the crew would suggest improvements I had not thought of. When teaching an employee how to operate machinery or repair damaged turf, I was explicit about my expectations for the end result, offered some pointers, and then allowed them to approach the task however they pleased. By asking the crew to know a variety of responsibilities and being open to feedback, I was helping them to practice the habits of retrieval, spacing, interleaving, generation, and elaboration – core tenets in the science of learning.

Finally, my work experience provides an advantage in focusing my lessons on what the students will truly need once they leave school. I held roles ranging from part-time laborer up to operations manager, and this hard-won experience garners respect from students and practitioners alike. As an intellectually-inclined person I do value knowledge for its own sake, yet I caution students against the danger of relying solely on “textbook” ideas and instead encourage them to pair scientific principles and with a practical and discerning world-view. I strive for a balance promoted by G. Agricola (1494-1555), a forefather of modern earth science. Agricola held a two-fold, humanistic vision of education: theoretical knowledge is valuable only when it merits application, and professionals should become educated beyond immediate practical needs. Is such a pairing not the essence of a learned and fulfilling life?

To conclude, my teaching philosophy is based on emulation of my own mentors, the Scholarship of Teaching and Learning, and reflection on my professional work experience. This philosophy continues to evolve through practice, study and reflection. I look forward to advancing and sharing knowledge for the rest of my life.