

Facing “The Future” Through Learning

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I've never been one to plan for The Future. I capitalize the phrase with purpose. In my mind, *The Future* always seemed like a dark, looming cloud, crackling with forbidding unknown. It's funny. As I've waded through life fretting the future, I've also harbored a deep fascination with science. What is science, really, if not the embrace of the unknown and our unbridled curiosity to understand it? Through my science learning, combined with my teaching and my MAED experiences, I feel my perception of the future has finally begun to shift. There will always be some element of life that is unknown, so why avoid it? Why not reach out and tackle it through the best method possible, through learning.

I entered the MAED program to learn, and I recognize that if I am to improve my instructional practice for the benefit of my students, that learning must continue. Because I teach biology, an ever changing field of study, it is essential that my content knowledge remain current. Beyond my discipline, however, I strive to realize the inclusive focus of my educational philosophy in practice. Accessibility is essential, and technology is integral, if I am to engage the diverse digital natives I teach. In light of these factors, my immediate learning goals include expanding my biological knowledge, enhancing learning accessibility for my students through better understanding of Universal Design, and integrating technology more effectively into my teaching.

If I want to ignite my students' passion for science, what better way to do that than to fuel my own scientific excitement through further learning. I've found that conversations with colleagues, especially those colleagues who live and breath science, are a great way to expand my biological knowledge. Apparently, nearly 48% of the bacteria populating New York City's subway system are unidentified, according to a recent study a friend shared with me! Beyond conversations with colleagues, I might delve further into their fields of knowledge by auditing

their courses. For example, I took Molecular and Cellular Biology in college, but since I branched into ecology, I haven't studied DNA replication in over a decade. My virologist colleague (the one who clued me into that paper I mentioned) has successfully piqued my interest in microbiology. Beyond my own institution, schools like Duke and MIT publish certain course materials online for self-study. Relearning forgotten material or opening my eyes to fields I've never considered may help to round out my knowledge base, while ensuring my continued fascination with an ever-changing science. Come next May, I can repurpose the time once spent on MAED work for disciplinary growth.

My students will not spontaneously develop a passion for science however, no matter how much I further my biological knowledge. I must not only convey the excitement of my field, but also foster student interest in learning itself. This summer, both of my MAED courses introduced me to Universal Design for Learning (UDL). Through UDL, the curriculum is not retrofitted to provide accommodations to those students who need them, but rather, the curriculum is built on a foundation of accessibility. UDL recommends varied instructional methods to address multiple learning preferences, choice of assessment measures and other demonstrations of understanding, and fostering an inclusive learning environment. I have increasingly considered these principles since I first encountered UDL, but how does UDL really look when in practice? How can I build laboratory exercises that are both inquiry-based and UDL structured? It seems some professional development is in order, and fortunately, CAST (the creators of UDL) offer online, self-paced courses. These courses delve into the UDL framework, address learner variability and engagement, and there are even several science-specific options. The courses are not free, but CAST does provide a discount for group registration. Although these courses have a K-12 focus, I expect much of the content to be transferrable to my postsecondary context.

As an extension of the UDL emphasis on varied instructional methods, improving the incorporation of technology into my labs is an ongoing effort. As several of my MAED classes have indicated, students today tend to be viewed as “digital natives.” Despite this description, when I asked students in a pre-course survey this semester, whether they would like the opportunity to complete assignments using digital technologies, the majority responded, “no”. I find myself wondering whether these respondents truly prefer traditional instruction and assessment techniques, or whether their previous experiences with educational technology have been less than successful. Recently, I have branched out beyond standard technologies (e.g. Microsoft Office) and into the realm of Internet-based collaboration. I have implemented Google Drive extensively, yet I still feel that many student view the technology as a hinderance. Teacher blogs, descriptions of technology use in other courses, or even videos may assist in my endeavor to improve technological cohesion, and ultimately, accessibility. For example, the Center for Research on Learning and Teaching at the University of Michigan provides descriptions of innovative technology used in certain U-M courses. I imagine I will devote a good deal of my post-MAED time to discovery of new technologies and honing my integration of the tech I use currently.

A teacher’s ultimate responsibility, it seems to me, is to not only encourage students’ interest in learning, but also to foster their belief in themselves as capable learners. To meet this responsibility, I feel I must also fuel my own passion and expand my own capacity for learning. By improving my biological background, my understanding of UDL, and my ability to implement technology effectively in the lab, I will be taking several steps toward fulfilling the responsibility I’ve described. I also expect that I will improve my own well-being. I can still hear The Future, crackling in the distance, yet I’ve always been captivated by the sight of lightning

exploding through the air. I now recognize the utter fascination I sense beneath a crackling storm cloud to be an intrinsic solution I've kindled all along: approach The Future through learning.