

**Reflective Teaching Portfolio**

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“A good head and good heart are always a formidable combination. But when you add to that a literate tongue or pen, then you have something very special.”

Nelson Mandela.

I believe that teaching is the transmission of critical-thinking that one can adapt to understand his/her own environment, to satisfy his/her own curiosities and tackle his/her challenges. Teaching is allowing students to read between the lines, to observe and analyze from different perspectives. Teaching is allowing them to find those different perspectives. Teaching is allowing another person to seek answers for themselves, beyond what they were taught in class. Teaching is showing someone else how to grow their own wings, tailored to their own curiosities, dreams and challenges, and “cultivate their own garden” and build their own freedom.

Learning science requires a training and a discipline of the mind that many students find daunting, especially those that are the most underprepared. Developing courses that ignite curiosity and inspire students can motivate them to persevere. My general approach with teaching is to present science as a tool to solve daily problems that students face. Science is inspiring to students and helps to capture their minds and engage them in global issues, such as how new technologies can help us combat global warming, trapping pollutants or improving solar cell technologies. Using their imagination and seeing them build up their knowledge from the tiniest particles to the materials and things that surround them is really fulfilling. At FIT, this experience takes a whole new level; with creative students, imagination makes for dynamic discussions of chemistry, zooming in and out of what we see. Yet, the first day of class, most express their complete lack of interest in the subject matter, often telling me that they have always failed science and that they don’t understand science. This acceptance of ‘science is too hard for me’ is what I have to overcome first, and show them that they are equipped. It is difficult to make science fun and stay educational; students can get too excited and unfortunately not retain learning outcomes but just have fun. Finding the right balance is key to delivering appropriate educational content to our students while allowing them to enjoy the experience. Learning is fun, and that is what I share most with students; any subject can be fun with enough knowledge and curiosity.

This is where my teaching philosophy was when the coronavirus outbreak started. Initially, going online was mechanical. I had done it before, although my experience was minimal, so I set up my Blackboard and started delivering what I had prepared for the in-person classes, thinking it would be fine. Unfortunately, it quickly turned out not great and I had to revise. I had, in a few weeks, shown them the fun of chemistry, and they needed it to be as exciting and visual. The students were doing their assignments, but they were not as engaged anymore. Soon, I realized that I was not the same person online, I am not comfortable talking to someone through a computer screen. I was not going around the classroom making sure that they understand and personally explaining to each of them. So I had to work on my ‘virtual persona’, and find the appropriate tools to personalize my content.

Overall, I would have described myself as a tech savvy person, and able to teach online. I have used technology in each of my courses, I make my own animations, and use a computer, a smart phone and internet every single day. This experience has taught me more. I know how to use the tools to communicate online, and I was throwing information on a webpage where I was talking a few times a week. In the current world, there are countless web pages with lots and lots of information. Setting up my Blackboard pages pedagogically is the goal I must now achieve.

The online workshop was really informative and helpful. I am not sure who certifies a master teacher, or if I have ever observed one, but I do learn from any class I observe or workshop I participate in. Jeffrey, Helen and Jose were masters of the virtual classroom today and certainly made me realize how interactive and lively an online classroom can get. They created an ambiance and an atmosphere that was relaxed yet professional and appropriate for learning. Finding that right format virtually for a semester requires the use of multiple platforms and tools to keep engaging students and allowing them to progress and enjoy their experiences. Borrowing different pedagogical tools from my peers and better my teaching skills is always a goal, and I will keep thriving to continue improving myself.

Teaching is most rewarding when we see that sparkle in someone’s eye, sometimes with a smile on their face, telling us “Yes, now it makes sense!”. I think we live for these moments as educators. Sometimes, these moments provoque a group reaction, where all the students participate in this intellectual effort and one at a time get that ‘click’ and help the person sitting next to them… and a natural chain of knowledge transmission takes place. I enjoy these moments most, and the joy that is expressed on their faces. It is difficult for me to point at a specific lesson, but I remember two of these moments in particular when I explained ‘electron configuration’ to one class a few years ago and ‘Lewis structure’ to a class last year.

My most unsuccessful lesson, I do remember… It was in Spring 2019. It was a few weeks in the semester, and it was going very well with the class. Then one day, I am explaining how atoms form covalent bonds by sharing electrons, and the students were not understanding it. This is not a concept that I have had any issue explaining before, so I was not expecting any problem. Somehow, I kept repeating over and over again, trying to find different ways to explain, drawing on the chalkboard, using whatever I had in front of me to show them what I meant… and I heard a student say “Oh Oh, she is getting frustrated!” And she was right, I was, but hearing was a wake-up call. It wouldn’t matter how much I would get frustrated, I just had to find a solution. Needless to say how bad I felt, and I jumped the section for that day. And I had that in my mind all the time… until I realized, I needed a video. I found a few on youtube, but none was as good as I wanted it, or maybe not good enough for how bad I had felt. So I made an animation with powerpoint for the next lecture, and showed my DIY video to the students. They did appreciate how I had gone out of my way to make this for them, and of course, it was a reward seeing that they did understand it this time.

The use of technology is inherent to my world, and I have always used it to enhance my students' classroom experience, but it also enhances my own organization and efficiency for teaching and research. Incorporating technology into my classroom is not new, but considering not one but multiple online only classrooms has made me feel uncomfortable and I really want to improve my virtual skills over the summer. This workshop was my first step, and I will be incorporating other resources into my virtual classroom. Padlet, which was featured at this workshop, is undoubtedly a tool that I am incorporating in my classrooms, virtual and in person. I am thinking of using it for the first course, as a chemical ice breaker, and further in the semester to articulate their term projects, if we are fully online for the Fall. In both cases, they will be used to enhance communication among students, and its effectiveness will be assessed, comparing it to previous semesters. I also always ask students to give me feedback, and tell me if they like something in particular, or don't like something. I find their advice to be helpful and constructive.

Technology is the present and it is the future. As a scientist, specialized in nanotechnology, I cannot imagine a world with less technology, but always more. However, in the classroom, it may compromise the teacher-student relationship, and we must be aware of it. Finding the right way to use technology is key for a successful teaching. We also must remember that students are not equally exposed to technology, and that we must tailor our use to their comfort.