

CULTURE OF STEM

Assignment 1: Self-Reflection Paper

(Scheduled for Week 5 9/23-9/29 - Completed 10/31/20)

Part 1: Identity Reflection (Post 4)

I can't say that I was surprised by any of the features. I think that all of us who are participating in this course are interested in and aware of culture, inclusivity, and engagement issues. I also think that we all want to be MORE aware and confident about how we interact with our students.

Feature 1 is a real challenge this fall because of our hybrid system of learning. Each day for 8 periods, I have in-person and online students at the same time. Sometimes you have to focus on one population or the other -- and then you might lose that connection for a few minutes. For example, in person you can read body language and you can see when a child shuts down -- but you can also see excitement and eagerness to share knowledge. Online you can sometimes "lose" a visual and you don't know if that student really is having camera issues, or is simply tuned out. In either case, how do you get them back?

I don't have a problem with saying "I don't know," and I believe that's a good phrase for everyone to be comfortable with. However, sometimes the students use this (especially online) when they've lost engagement, so they've lost the thread of our lesson or discussion. I will challenge students (politely) and say, "Yes, you do know this. Think of..." In many cases, they can pull the information from a clue, or an experience.

The biggest take-aways for me are: Don't ever quit trying to improve how I connect with my students. Stay aware of the fact that they have lots of different strengths and lots of knowledge that I might not be aware of. Keep it real -- let the students know why they are studying Science and STEM. People like them have changed the world and they can too.

Over time, and especially this year, I have come to recognize my privilege. Yes, I am female, and we've still got plenty to fix in this country. But being a white female in the US at this time really provides a lot of freedom. My students are privileged to be attending a private, diverse, rigorous school -- but very few of them are white. Recognizing how nice my life has been and how many choices I've been offered really does impact my teaching. I want the child from Ethiopia,

South Korea, Poland, and Englewood, NJ to have all the opportunities that I did -- and more -- regardless of their skin color and accent.

Part 2: STEM Learning History

My earliest memorable experiences of learning science don't come from school. I remember lots of walks in the woods, exploring creeks and beaches, and growing things with my parents. They didn't have any sophisticated scientific knowledge, and in fact my mother hadn't even gone to college at that point. But they were interested in the world, and exploring was a big part of our summers and weekends. My sister and I still love to explore -- and have incorporated it into our own families' lives.

In high school, I was put into an Honors Chemistry class because of my generally good grades. I had no background, no parent who could help me, no Khan Academy or Chemistry 4 Kids online..and I just didn't "get it." I was miserable, bored, lost -- and Honors Chemistry is the only class I ever fell asleep in during my entire life! I ended up with a C somehow, but my confidence was badly shaken and I felt really stupid. As a teacher, I finally feel like I get Chemistry. It's taken a very long time to get over that experience.

Biology was a much better subject for me. It was easier for me to understand the concepts without having to take apart and reassemble molecular structures and chemical bonds. As many children do, I loved animals (and still do) and I was eager to learn everything about them. Plants were interesting to me too, and I had a lot of experience with gardening. This type of science made sense to me and I focused on it during college. Earth science was just plain fun, I thought. It brought me back to finding fossil in rocks in the creeks of Ohio.

Until I began teaching, I considered Chemistry and Physics almost mysterious. In order to teach them though, I had to learn them in a different way so that I could really understand. That was hands-on and it changed everything!

Part 3: Role of Culture in Teaching

As a teacher, I try very hard to be respectful of my students' identities and their backgrounds and cultures. Because we are a small school and I teach the same children for the three years of middle school, I often get to learn about their families over time, and I get to know their siblings as well. I share some information about my family with the students, in the hopes that they get to know me as more than a teacher.

One of the first things that I do every year in 6th grade is ask about names. By asking why a child was named a certain way, you can get a quick glimpse of their background in a sentence or two -- although it's not that simple of course. We share the meanings of names, I ask them how they think of or picture themselves and what they are good at. We even talk about name spelling, pronunciation and nicknames too: How do they want to be addressed in the Science/STEM classroom?

I'm about as white as you can get, and I'm open about that with my very diverse set of students. I'm honest about the "white man" culture of Science and STEM, but I constantly remind my students that brilliance comes from every country and every culture. I show them scientists, engineers, medical professionals and professors who look just like them. Maybe the white men built the foundation, but I remind my students that they are in charge of the architecture of the future.

Regardless of your background, I believe that every student benefits if I am able to find something that ties into his or her interests. Even white kids in middle school don't want to just learn about what white men discovered 300 years ago. If I can tap into aspects of their current culture (music, basketball, dance, etc.) Science becomes more real and more meaningful.

Specifically for our STEM work, I suggest that students look at places in the world that interest them. Many have chosen to work with their family's home country and they therefore develop a much better connection to their project. ...And to their culture because each student has to become a "country expert" as part of the development of their project concepts.