

Inquiry for Life: Channeling My Inner Kindergartener **Chrissy Chavez**

Learning is exhilarating. It is intimidating and frustrating to tackle unfamiliar topics, procedures, and problems. It is thrilling to try, retry, and persevere through the challenges to eventually see the fruits of your labor as new ideas are applied, practiced, and mastered. It is rewarding to showcase what you have learned highlighting how you have overcome obstacles to obtain this newfound understanding. It is exciting to ask questions and actively seek out answers through investigations, research, and collaboration. Learning is a beautiful process, but not all learners have experienced the electrifying feeling you get when you learn something new. As teachers, it is not only our job, but our responsibility to provide students with stimulating learning experiences to spark wonder needed to become a lifelong learner. But how do teachers create a space that fosters lifelong learning?

As I reflect on my own experiences as a child, adolescent, and an adult learner, commonalities among my experiences channel *The Magic School Bus* leading character Ms. Frizzle's most popular catch phrase, "Take chances, make mistakes, get messy!" Lifelong learning involves risk taking, problem solving, and thinking outside the box, all things that I have learned to do through both nurturing and challenging learning experiences that were carefully crafted by my instructors. Jokes aside, the Master of Art in Educational Technology program at Michigan State University has challenged me to rethink how I learn to better understand the diverse range of learners that enter my classroom each year. Through analysis of learning theories, application of course concepts in practice, and reflection, I'm confident in my ability to intentionally plan

considering technology integration, pedagogy, and content knowledge needed to accomplish learning goals. Below, I discuss how the master's program has enhanced my teaching practices by highlighting courses and specific experiences that have transformed how I teach and learn in my middle school classroom.

#MSUrbanSTEM: Quest for Wonders

In 2014, I began taking three educational technology courses (CEP 815, CEP 805, and CEP 806), as part of the Wipro MSU Urban STEM and Leadership Fellowship, a program created to build science, technology, engineering, and mathematics (STEM) capacity in Chicago Public Schools (CPS). Through face to face summer coursework, quarterly in person sessions, and online learning, I collaboratively studied along with twenty-four CPS teachers to design transformative learning experiences for our students as we developed our leadership at the school and district level. It was during this initial educational technology coursework that I learned the power of wonder in a classroom setting.

During the first week of coursework, Professor Punya Mishra shared an Alice Wellington Rollins quote which states, "The test of a good teacher is not how many questions he can ask his pupils that they will answer readily, but how many questions he inspires them to ask which he finds it hard to answer." This quote illustrates the beauty of wonder driven instruction that drove our coursework in the fellowship. As an adult learner, you would think it would be easy for me to stop and ask questions about the natural world, however I found it challenging and it required me to reexamine how I looked at the world. My classmates and I participated in a "World of Wonder" activity in

which we generated an open question about anything in the natural world and presented our findings, I found having such broad parameters to be exciting, however I quickly learned that having too many options was overwhelming for my adult learner self.

I thought to myself, “Just give me a topic! Do you have a rubric I can follow? What are you expecting from me?”

As coursework progressed, I soon realized this was the norm for future assignments. It was shocking to see how as an adult learner, I was comfortable with having my creativity stifled by explicit instructions, clear guidelines, and a rubric for the products I created. In a classroom of my own, I expected my students to be critical thinkers and problem solvers who could apply a range of strategies to multiple situations. It was apparent that my students and I had a similar reluctance to trying new things or learning with different approaches.

This led to serious reflection and wonderings about my own practices. Wonderings included:

- How am I creating opportunities for students to drive instruction?
- How can I integrate student led problem solving?
- What current opportunities are in place for students to ask questions?
- Why do my students have a challenging time with asking questions?
- What happened to upper grade students' natural born curiosity?

- How can I create a space that nurtures wonder?
- How can I channel my students' natural curiosity?
- How do I foster creativity in my classroom?
- Is there a way to connect wonder in other content areas beyond the STEM fields?
- How can I become a wonderer again?

The courses throughout the fellowship allowed me to re-experience what it meant to wonder. As I brainstormed and designed my yearlong inquiry unit that would be created, revised, and reflected across the three courses, I had a powerful brainstorming session with Professor Mishra about my vision for my project. Before beginning the fellowship, I taught middle school science for four years and a week before the fellowship began, I received an email from my new principal that I'd be moving to middle school reading in the upcoming year. Prior to our one-on-one brainstorming session, I felt overwhelmed by the daunting task of creating a STEM unit to be implemented in a reading classroom, but kept in mind my reflections and questions about wonder.

As I sat before Professor Mishra, I provided some background on the upcoming year's teaching assignment and began to discuss my ideas for a potential project. I discussed how I wanted to make my students' learning experiences authentic and relevant to the community that they lived in. I described the ecological makeup of our neighborhood which included housing projects and a school located directly in front of a marsh and prairie, but also neighborhood boundary lines such as train tracks, bridges, and major

streets that influenced social interactions across neighborhoods. I mentioned news headlines from our neighborhood about amounts petroleum coke entering the air and local activism that brought the EPA into the neighborhood. After each statement, Mishra responded with, “Why is this important for your students to learn?” and other variations of a ‘why’ question. I would regurgitate a rationale on the spot that ultimately led back to advocacy and citizenship. In that ten-minute planning session, I created the unit goal which stated that students would be able obtain, evaluate, and communicate environmental issues affecting our community while developing skills of an activist and a global citizen.

This experience was influential in encouraging me to rethink my pedagogy because it illustrated the power of wonder, but also the power of teacher to student discourse. Generating questions, diving deep to make intentional decisions in my classroom, being probed without critique, and having someone actively listening as I fleshed out my ideas allowed me the learner, to take ownership in what and how I showcased my learning. As a classroom teacher, I cherish this experience because it resulted in student engagement and strong teaching.

Let’s Play!

Wonder has been a prominent idea that has been explored in many of the courses I have taken as part of the MAET program. The courses discussed below have played a major role in how I’ve enhanced my pedagogy as a middle school literacy and science teacher due to the exploration of learning theories, analysis of my own learning

preferences, and the application of the learning theories when creating and implementing rigorous instructional experiences in my classroom.

The course, CEP 811: Adapting Innovative Tech to Education, explored Dale Dougherty's (2011) Maker Ed Initiative in which opportunities are created for young people to 'make' to foster creativity, engage students in STEM, and create opportunities for lifelong learning. This course resonated with me because the maker education movement encourages play to discover new learning. It gives the maker control to tinker, shape, and reshape ideas to create meaning (Dougherty, 2011). Throughout the course, I was required to channel my inner kindergartener when tinkering with learning theories, maker kits, and other technologies that were repurposed for classroom usage.

Part of my tinkering was around the question: How can technology reimagine learning? Repurposing technology can transform classrooms by fostering creative thinking and problem solving. As part of the course, I engaged in the repurposing process by rethinking how a circuit kit could teach reading content in a middle school classroom. During my tinkering phase, I got to play with my circuit kit to explore all the kit's possibilities. I experienced a roller coaster of emotions as I explored the kit, which included frustration when I was unable to illuminate my light bulbs using the sticky conductive tape to excitement when I created a switch to turn my bulbs on and off.

Through the process of tinkering, I developed my problem-solving skills, worked collaboratively with my colleagues and even my husband when engaging in the 'play'

component, and ultimately explored some of the demands of 21st century learning. Mishra and Deep-Play Research Group emphasized the demand for creative thinkers and innovative problem solvers in the 21st century due to changes in access of knowledge and technology because of globalization (2012). Through this course, I learned the importance of creating opportunities for students to engage in divergent thinking. By experiencing play similarly to kindergarteners, my students will develop the creative confidence needed to be a problem solver and lifelong learner.

Teachers as Designers

CEP 817: Learning Technology Through Design was another course that enhanced my practices by rethinking how I problem solve for the diverse academic needs in my classroom. Through the exploration of the Design Thinking Model from the Stanford Design School, I tackled teaching and learning through the lens of a designer. Design Thinking, a five-step method used by designers to problem solve, can be an effective way for teachers to problem solve academic, social emotional, and culture and climate problems that plague schools. Design Thinking consists of the following modes: Empathize, Define, Ideate, Prototype, and Test.

As part of the coursework, I engaged in the five modes of Design Thinking to tackle a problem in my classroom. For example, during the Empathize phase of Design Thinking, I explored my students experiences with science in our middle school classroom. I utilized empathic techniques such as the What? How? Why? Methods,

composite character profile, and an empathy map determine student needs which included:

- Play: Engage in play to create meaning and wonder
- Create: Create authentic products to showcase their discovery
- Collaborate: Work in cooperative groups to problem solve
- Share: Share work for collaborative feedback and reflection
- Redesign: Rethink how students are approaching problems in different ways

Tackling my classroom problem using Design Thinking illustrates the importance to taking time to understand your user, specifically the students you are teaching. The process required constant opportunities to generate questions, prototype, test, and reflect in efforts to thoroughly problem solve. In this course, we see the beauty of wonder, discovery, and redefinition to meet the needs of all students.

Life Long Learning

After completing coursework as part of the MAET program, I am confident in my ability to create transformative learning experiences for my students that will foster wonder, encourage problem solving, collaboration, and reflection. These experiences will put students in the driver's seat to increase engagement, develop a scientific identity, and have agency in the classroom. I've enhanced my practices using the experiences described above to ensure my students experience the thrills of learning to ultimately foster a future of lifelong learning.

References:

Dougherty, D. (2011, Jan). Dale Dougherty: We are makers. Retrieved from http://www.ted.com/talks/dale_dougherty_we_are_makers

Mishra, P. & Deep-Play Research Group. (2012). Rethinking technology & creativity in the 21st century: Crayons are the future. *Tech Trends*, 56 (5), 13-16.