

Why Do We Need to Learn This?

You teach middle school and you like it? This is the most common response I receive when meeting someone and telling them that I am a middle school mathematics teacher. It is usually followed with 'I have no idea how you do it and especially when teaching mathematics'. Sometimes I even wonder myself; especially on the days my students ask 'Why do we need to learn this, when are we ever going to use this in our lives?' Surprisingly enough some days I wonder exactly the same thing. My only answer then is to graduate from high school. So I began to ask myself, how we can teach mathematics differently to make it more applicable or engaging. What will students in the coming years actually need for success out in the real world? Are we even preparing them for the right jobs? I was unsure if pursuing a master's degree would fully answer all of these questions, but it was a good place to start.

I entered the MAED program at Michigan State with excitement about the technology component I could add to my learning. I never had a desire to pursue a master's degree in educational leadership or curriculum and development. This one fit the changing education system that I was seeing. Not only did this program allow me to begin exploring technology in education, but to incorporate it with the teaching of mathematics. Since Michigan State's cutting edge program is offered fully online I had the opportunity to experience this different type of education as something that my students may also experience. This is exactly what I was looking for to engage middle school students in the study of mathematics.

I was most looking forward to the technology courses, but the course that impacted me the most was entitled Creativity in Teaching and Learning, CEP 818. It not only stretched my

thinking in the classroom, but also in my personal life. One of the main projects in this course was to keep a personal journal about we were incorporating different forms of creativity into our life. We get completely lost in the requirements and grading of school that creativity is lost. Somewhere in a student's educational experiences the joy and fascination of learning new material begins to diminish. Not only are we losing creativity we are losing engagement. I see a loss of engagement in the study of mathematics in middle school so this idea really resonated with me.

I was taking this course in the fall while I began my sixth year of teaching. Keeping up with this personal creativity journal I was realizing that even with different projects and activities I was planning for my class, the students were still not experiencing a great deal of creativity in their learning. It is easy to just say mathematics is learned through paper and pencil I cannot be creative the students just need to learn it. It was shocking to me that even when trying to incorporate creativity I was not actually succeeding. My new goal was to adapt some of the activities to allow students creativity and engagement in their learning! My realization was that simply incorporating the technology I had been learning about was not allowing for student creativity. Students need to be given the opportunity to come up with their own ideas for demonstrating their learning. This course forced my thinking about how abstracting, patterning, embodied thinking, modeling, and playing can change the way students retain and understand information.

Another activity from this course that I took away some great understanding was during the module that dealt with abstracting material which is "the process that begins with

something real that exists in our environment, and then pares away everything except one key element, revealing a critical essence.” I began applying this idea to the foundational process of solving equations. My assignment worked with how to write the equation, setting up the equation sign in the middle and what key concept, keeping equations balanced, it was demonstrating. The difficulty with beginning to apply this in my teaching is that it is such a new type of learning for students. However, as difficult as it might be for students to feel comfortable exploring and being creative, giving them the opportunity and multiple experiences with this will allow them to become more comfortable and further their mathematical understanding.

Really thinking about the reasoning behind the results of this type of education, refocused my purpose within the classroom. Yes we must teach the content so that students are able to pass the course and advance in the subject, but what struck me was how the curiosity for learning diminishes throughout the years a child spends in school and is being lost forever. This course put the focus on how to bring creativity back into our own lives and the lives of our students. Allowing creativity and discovery gives students an ownership to their learning and not a feeling of being told what they must do. So how do we gain this curiosity back, with my first goal to continually incorporate technology within the classroom.

We all retain information when we are interested, passionate, and invested in that learning. This is the goal I want for my students. This generation most of it comes through the use of technology and my goal for entering the MAED program at Michigan State. Teaching Subject Matter with Technology (TE 831) was the perfect course to begin this task of

incorporating both technology and creativity into my teaching. Students are able to use their creativity through the use of different forms of technology in the classroom in ways that they were not able to before. By developing a strong understanding of the TPACK Theory (Technological Pedagogical and Content Knowledge Theory) I began to understand what many teachers do not realize. Using technology for the sake of using technology is not beneficial. Using technology to allow creativity and further understanding is the proper use. The assignment of repurposing a type of technology for a lesson was an important first step for me to fully understand what technology can be used for. Mostly I was using technology as a form of engagement, which has its values, but it can also be used to deepen understanding.

As I began assigning this activity in my Pre-Algebra class for students to create an online sticky note project explaining their understanding of the foundational components of solving equations I realized that students need practice and time to allow themselves the options of being creative again. The exploration in elementary school was lost to the focus of grades. Even though I continue to grade them on this assignment, it is mostly as motivation to complete the activity. My goal is for them to discover how they learn and how they can demonstrate this learning through other means. This has to be allowed time. This year I was able to take out some of the requirements and allow for more creativity and I hope to continue doing this as students become more comfortable in my classroom exploring their learning and understanding.

Lastly, my initial goal of engaging students was impacted by CEP 805 Learning Mathematics with Technology. Over the course of my study I realized that engagement can be

gained through this idea of allowing creativity and using technology, so all three goals are wrapped up into how I want to continue developing my classroom in the future. The process of creating an online resource library for my Pre-Algebra classroom during this course continued to stretch my thinking about student engagement in mathematics. The purpose of creating the online resource library was to give students a chance to interact with different forms of technology while solidifying mathematical concepts. Difficult mathematical concepts can be studied and manipulated through the use of technology and allow students the opportunity to understand the concept instead of getting bogged down by the paper and pencil work. This is not always a way technology is used in the classroom.

This being my initial goal, to engage students, I had not really focused on the purpose of changing how the content was taught. My thinking has been changed from including the use of cellphones to submit answer to understanding foundational mathematical principles by testing them and looking at different options with the use of technology. Creating the online resource library opened my eyes to some great websites and resources that students and myself are able to use to help not only practice but understand mathematical content. This purpose of technology can allow for exploration in a way that we are unable to do with basic pencil and paper mathematical study.

This course allowed me to begin thinking about how to engage students with the use of technology. I admit that this is not an easy task to incorporate into the classroom especially at a time where some students have access to the technology resources and some students do not as well teaching responsible technology use. Students of this generation have great access to

technology and have a great skill for its use; however they need help in understanding the proper use for all of this technology and social networking. Along with teaching subject matter we need to incorporate this learning into our teaching as well.

My goals have continually developed and changed throughout my study. How do I want my students engaged? How do I want them to demonstrate their creativity? How do I want to continually incorporate technology into the classroom environment? These are questions that cannot and will not ever be fully answered. As discussed in CEP 815 Technology and Leadership “students must be actively engaged in the processing of information” (The Art and Science of Teaching p.31). So my goal as an educator needs to be to actively engage my students in the study of mathematics through the use of creativity and technology. This quote is my purpose and goal as I will continue in my professional development without formal schooling. Being on the cutting edge of education, having worked through an online master’s degree program, and having created different resources to aid in student learning I am now responsible to begin sharing these ideas with my colleagues.

If I am passionate about engagement and creativity to further student understanding I need to help lead others to follow some of these same ideas and patterns as the process of education continues to change. Even though I may not have been a part of the education profession as long as some of my colleagues, I have experienced similar educational ideas as what my students will be experiencing. This knowledge and understanding I am required to share. That does not mean I stop here and say I have learned or studied all that I need it. It means that I continue developing my technology skills, continue offering help to those teachers

that want to incorporate technology into their classroom, and continue learning about how education is changing.

The process of pursuing this degree was an extremely fulfilling task. I do admit that I am ready to be done with formal schooling, but I am excited about the ideas and new goals that I have developed throughout this process. I wonder if one day students can be so completely engaged in their own learning that the question 'why do I need to learn this' will no longer need to be asked.