

## Looking Back While Moving Forward

A Synthesis Essay by Chris Groenhout

When I began the MAET program, it was my goal to improve my own educational technology skills. I had been working with Moodle and Google Docs for some two years on my own. I went to a few professional development sessions, joined an online group and watched a lot of YouTube videos. The development of my classroom technology skills was taking too long and I lacked the general framework for organization and pedagogy to do the quality work I was in search of. I was able to learn and apply new technology. However, I was always lacking the re-assurance that I was doing right by my students. Based on the developing Common Core Curriculum, I could see that major changes would need to occur in our current educational mindset. Students will need to participate more in their own education. They will need to be involved on project based learning as well as thoughtful and organized communicators. Gone are the days of the worksheets and text book memorization. The industrial age of education is behind us and we need to move forward to produce critical problem solvers. I had seen how technology could empower students to participate in meaningful and creative work. The combination of the need for an educational technology framework and my desire to change my teaching style to engage my students in their learning made the [MAET program at Michigan State](#) the logical decision.

My initial [Technology Plan](#) at part of Teaching and Understanding with Technology started out very simplistic. I wanted to find some direction in my approach to educational technology. More specifically, I was trying to find the pedagogy to go support the development of my online course parallel in Moodle. My [Moodle Site](#) was developing, but it lacked purpose. It was a collection of educational resources that students and parents seemed to appreciate. However, it was not the clear and concise educational guide that I had envisioned when I began. As I became more involved with [MACUL](#) and started to see the relationships that can develop between Technology, Pedagogy, and Content ([TPACK](#)), I began to realize that this journey was going to be about much more than developing a single educational resource. I was beginning to see how technology can allow students to take in, play with, and express their knowledge more efficiently and more meaningfully than ever before. The course Adapting Innovative Technology reinforced and added to my developing understanding of educational technology. Goal-directed design, Universal Design, and Stand Alone Instructional resources were so interesting and made so much sense to me. Students enjoyed learning with these technologies and approaches to teaching, which served to further fuel my enthusiasm. The [Wicked Problem Project](#) and the [Group Final Project](#) for this course allowed me to solve technology based problems on my own and as part of a group. During the wicked problem project I was able to apply a systematic approach to solving and everyday problem. In this case, I wanted to increase parent involvement with Moodle. By clearly identifying the problem, conducting research on the problem, and then conducting a study of my own, I was not only able to solve the problem but also provide supporting evidence. In the group project, I was able to work with two other classmates asynchronously as well as synchronously. This not only allowed me to work on the issues that both situations presented, but also provided me with insight into the problems

students might encounter when working on their assignments in group settings. I began to see that being involved with the MAET was not merely an interest in a fringe segment of education. I was standing on the edge of education's future.

After I had completed the initial certification courses, I was hungry for more. I now had a better sense of the scope of learning I was going to experience in this program. My next large step forward would come during my summer cohort. This involved taking three courses at once over the summer with two weeks completed on campus and the rest completed online. These courses were Learning Theory, Technology and Leadership, and Educational Research. Those long days on campus were intense. A large number of technologies were utilized and multiple learning theories were researched. I found it to be very motivating and exciting to work intently with students that had so much in common with my view of educational change and the role that technology can play in that change. I had known early on in my teaching career that it was important to make connections with the learner and the content. However, the manner in which this would happen and the reasoning behind it had eluded me until that summer. The understanding student understanding project was the most influential activity for me in terms of connections. Through this activity I was able to see how we can draw out a person's understanding of a topic. The idea that "the inside beliefs and understandings must come out" (Shulman, 1999), was an eye opener for me. Seeing how these concepts and misconceptions could be drawn out, changed, or added on to, will allow me to do the same for my students. The importance of making connections was reinforced with the idea that no two students are the same in terms of their prior understanding (Levstik & Barton, 1997). Having students explain what they understand and then redefine this understanding by connecting to what they already know will provide a long lasting foundation from which students can build upon. In order for these new ideas to remain connected to their prior understanding this information will require an element of stickiness (Heath & Heath, 2007). Textbooks, worksheets and lectures typically do not embody this concept of connection building from prior understanding. Teaching for understanding has shown tremendous value to me throughout these courses and I do intend on following through with the changes described. Forming successful connections will help students to see that a singular concept will often contain common themes. Utilizing deep thought activities will help students uncover the meaningful details of the content as well as retain that information. Having students produce a product that will be meaningful to others will provide them with a sense of purpose given that they are provided sufficient autonomy and are allowed to master the topic. I learned how technology can help to provide the information, efficiency, collaboration, and sense of community needed to allow me to teach my students to a level of understanding in science that will enable them to become the problem solvers. For my "[Dream It Project](#)" I was able to employ the strategy of backwards design to develop a grant proposal using a systematic approach that proved to be very efficient and effective.

This set of courses represented a major change in my approach to educational technology. The narrow goal to improve my course Moodle site had now expanded to include my entire approach to education. I wanted to challenge students to create instead of have them memorize and recite. I wanted to critically examine the way I provide and take in

information from my students. I also began to see how my learning was impacting my coworkers. People were asking me for help with their Moodle site, how I use iPads in the classroom, and how I was implementing Google Docs. There were so many requests for help that I created a [Moodle Tutorial Site](#) for teachers to reference. The impact of the MAET program was now rippling throughout the school and I was becoming more of a leader.

Now that I had a better idea of how to get students involved in their education through deeper, long term experiences, I needed to find a way to make that happen. In the course Electronic Portfolios, I found the method I was looking for. After an in depth look at several portfolio options, I chose to use [Weebly](#). This free resource was robust in its options, yet easy for students to learn. With a few pointers from a tutorial video, students were quickly able to start their own websites that included pictures and video. The next thing I needed to do was to find a way to express my expectations for these portfolios as well as assess and comment on student progress. To accomplish this, I created a [Project Rubric](#). The rubric clearly outlines the project goals and objectives for each section of their website. The results (like the one on the left) were incredible.

Students were researching real problems in their community and coming up with real solutions. They were excited about working on and sharing what they had created. Some of these portfolios were used in college applications. Others resulted in community funding for a coral propagation tank and water refill stations throughout the school. These students were conducting relevant, purposeful experiments and enjoying it! This is what science education should look like; students applying scientific concepts to solve a relevant problem and sharing it with the world. This idea and its implementation would not have gone so smoothly without my prior courses and the way they changed my outlook on education. This course helped me to solidify my learning by putting theory into practice with positive results.

Now that I had changed my views on education and my conceptual understanding of technology education all together I was going back to where I started. I am currently finishing a course called Teaching Students Online. Had I taken this course at the beginning of the MAET program, my experience would have been completely different. Now I have a broader view of education in general, as well as what educational technology will allow my students to accomplish. I do not view Moodle as "my course" but rather an access point for organized resources and a safe environment for student collaboration. I am also to assess student understanding and provided constructive feedback. It serves a "homeroom" for all of our activities and resources. For example, all of the links to the student portfolio site are housed in a discussion forum where students comment on each other's work and have access to seeing the work of their peers. The forum also allows me to comment on student work and organize their work.

The development of this online course was done following the [NEA Guidelines for Online Courses](#). This allowed me to ensure that my course followed best practice criteria. I chose this rubric after viewing several others because of its broad scope, the reputation of the organization, and it's easy to understand language. By having a rubric in place to

follow, I feel confident in explaining to others how and why I have developed my course the way that I have.

Writing this essay brings into focus the big picture. The experience is similar to looking at pictures after a cross country trip. I see what I have accomplished and am able to solidify the contextualization of this new knowledge. I can see clearly the advances I have made in my technical skills, leadership, and communication. What has changed the most is my pedagogy. I had been learning and applying technology to teaching since I became a teacher over 13 years ago. Now, I have a framework of research based best practices to guide me in this implementation. When you learn and apply a self-taught technology with high school students, there can be a great deal of frustration involved at times, trial and error if you will, but that is the scientific method. The component I was missing was the research. I am now connected with communities like [MACUL](#), [Classroom 2.0](#), as well as my fellow students and instructors at MSU. I have developed my outlook on educational theory to improve the educational experiences of my students. These enriching experiences have provided me with the solid foundation needed to be on the forefront of education. I feel prepared and confident to continue moving forward in working towards a rigorous, meaningful, and rewarding education for all students.

#### **Works Cited**

Heath, C., & Heath, D. (2007). *Teaching that sticks*.

Levstik, L. S., & Barton, K. C. (1997). *Doing history*. (pp. 9-16). Mahwah, NJ: Lawrence Erlbaum Associates.

Shulman, L. (1999). What is learning and what does it look like when it doesn't go well. *Change*, 31(4), 10-17.