

Connecting the End: Sparking a New Beginning

a synthesis by Stephanie Green

The Road Less Traveled

To continue in the process of my cycle of learning, I selected a course of study which was in all aspects, a road less traveled by most of my colleagues. At the time, a completely online Master's Degree Program was a new form of learning, at least to me, that offered the flexibility of meeting times, as well as a breadth of new experiences all in an online forum. With the impeccable reputation of the Michigan State University School of Education, and my lifetime as a Spartan fan, I at the very least knew I wanted to earn my degree as a beloved Spartan. With much thought and trepidation, I decided to embark on this online journey in the Masters in Art and Educational Technology (MAET) program against the more traditional and more comfortable methods in face-to face classes. I had no prior experience in online courses, or with many of the new technologies that I would eventually learn to enhance my own classroom. As I look in the rear view mirror, I am reminded of the many positive learning experiences that shaped my outlook on life, both personally and professionally.

The foundations of this learning experience were built in the Technology Certification classes, which would eventually branch out into the formal Educational Technology Endorsement courses that instill the incorporation of technology into K-12 classrooms as well as incite a passion for learning in a digital world. Through research, cooperative learning, discussion, and evaluation, I learned the importance of teaching 21st century students through the use of technology in a non-biased, informative platform that looked at all issues surrounding the integration of technology in schools. However, this was not done in the traditional sense of most master degree programs. Instead, we were invited to investigate new technologies, experience the programs in self-paced modules, delve into resources that could add to our arsenal of teaching tools and realize how quickly the modes of education were shifting.

In turn, we were given both the opportunity and the capability of keeping up with the innovations of educational technologies.

Stepping Stones

My journey originated in CEP 810, *Teaching & Understanding with Computers*, where the groundwork for technology integration into the classroom environment was set. The objectives of this course were to build on the prior knowledge of basic programs such as Microsoft Office Suites and Internet Explorations to guide instructors in their effective use in the classroom. By the end of this course, my eyes were opened to the immense applications that these systems offer in the classroom. Using these principles, I was able to establish some important teaching strategies that correspond to teaching with technology. Using a constructivist model, I began to scaffold the new techniques that I have learned using Powerpoint, Word and Excel to introduce my students to the power of learning in a motivating and engaging style. Acquiring these new and practical applications of technology, I learned how to create fun word documents that address content concerns and reach students in a different way, how to use hyperlinks within a PowerPoint, either externally or internally to open up a whole new way to view this type of presentation and to use Excel for more than just a Baldrige data gathering of grades and attendance. In addition to Microsoft tools, we researched innovative technologies that can assist teachers in instruction. Through my research on paperless classrooms, I began to incorporate my online math textbook for more than just a homework helper and began tracking student progress through SuccessNet, a differentiated instruction tool from Pearson. In looking at these strategies to integrate technology, it is very exciting to note the constant changes and evolution of the technologies that have become available to teachers. There is such a vast amount of support for teaching using several strategies and each of them enables our students to become a responsible partner in their own learning.

Continuing in this process of promoting technology in the classroom, CEP 811, *Adapting Innovative Technology to Education* and CEP 812, *Applying Educational Technology to Problems*, honed in on the computer aided technologies, such as WebQuests, online learning programs, assistive technologies for special education, Web 2.0 tools, and educational games that foster student achievement in all academic areas. Specifically, we looked at technology as an innovation in the classroom and researched how leading technologies could assist the problems educators face in teaching students. As a math teacher, my focus was on teaching problem solving skills as well as fractional relationships. I learned how to create Stand Alone Instructional Resources, evaluate and create WebQuests to further student development in understanding fractions, (as well as other content area explorations), how to use Google docs as a collaborative tool to demonstrate mastery of learning, and how to incorporate internet sources such as IXL, a math practice online program that uses data and student participation to assess student progress. Blogging was also an important tool that we used to collaborate among team members, receive feedback on various projects and as learning forum to continue with our own professional development. We created our individual blogs in CEP 811 and continued its use in subsequent courses to extend previous understandings of our work and build upon future knowledge as well. Along with our blogs, we also learned how to build RSS feeds that allowed me to be easily notified of new or changed content of my favorite blogs, news websites, educational wikis, and community organizations furthering my continuation of professional development in an organized and efficient way.

Building upon the foundations laid in the Technology Certification courses, I began to envision how these technologies could assist me in my endeavor as a 6th Grade Math Teacher. In the course CEP 805, *Learning Math with Technology*, Dr. Ralph Putman led us to investigate technologies that enrich the mathematical class. His thoughtful analysis of the mesh of the Principles and Standards in School Mathematics (PSSM) as well as the content and pedagogy of teaching math directed our attention to the

possibilities of technology rich classrooms, not limited to calculators, that fostered student achievement in not only the instrumental understanding of math, but also the relational understanding of how math content fits and grows in sequential courses. His questioning of the methodologies taught formerly in math class and his initial example of a student named Benny, an Individually Prescribed Instruction Mathematics learner, will stay with me throughout my career. The examination of how this program really cheated this student by focusing on procedural understanding was a shocking glimpse into the student perspective on chosen curriculum and teaching strategies (or lack thereof). This insight was crucial in developing the rest of the course as we assessed methodologies using technology to assist in teaching math as a relational aspect of understanding. As a final project, I evaluated several online mathematical interactives in depth and showcased these evaluations in a wiki that corresponds to each strand in PSSM. This has become an invaluable tool when lesson planning and because of the stringent relationship between national standards and content, it is quick and easy to link games and activities to the content I am teaching in class.

Just as the *Learning Math with Technology* course taught me to consider how students think and learn mathematics, TE 846, *Accommodating Differences in Literacy Learners*, demonstrated the importance of reading and writing in all content areas, including math. In this course, our directed inquiry began with identifying students who struggled with language arts in our content area, along with strategies and methods that would help those students succeed. In a literary case study, we used several instructional strategies to aid struggling readers and instructional programs to help us to identify fluency and comprehension deficiencies in math students. In completing the process of this investigation, my eyes were opened to the succinct benefits of incorporating reading strategies into my class. Through my study, I uncovered echo reading and roulette problem solving approaches to link math and reading. In echo reading, students choral read a passage or a problem first with the instructor, and then in small peer groups. Echoing a skilled reader helps learners gain confidence in reading aloud, learn sight words

and identify meaning of important words and phrases, read material that might be too difficult for them to read alone, and practice proper phrasing and expression. This is a critical piece in problem solving in math, and one that I had previously overlooked. In addition to echo reading, roulette problem solving is when students have to give students a chance to collaborate on solving a problem and then to communicate their thought process and solution in writing. They also have the opportunity to communicate their thoughts to the rest of the group and learn to listen and accept other students' thinking. Using the two strategies in conjunction with each other showed significant increases for my student not only in comprehension, but also in the mathematical computations she was making. Viewing this connection in math and reading that I learned by completing the literary case study, has elicited the use of both of these strategies in my classroom as well as the incorporation of a weekly math journal blog that allows me to assess students' computational skills as well as their ability to comprehend what they are reading and writing in math class.

Bridging the Connections to Learning

One of my goals when I began this journey in the MAET program was to insure that my students get a quality education through the use of technology and I feel much more confident that my students are engaging in the education that they deserve because of my drive to implement the strategies I have learned in this program. Another goal of mine was to learn new and practical applications of technology as I take these successions of courses. Through this end, I learned how to create and evaluate technology resources and to implement the instructional strategies to reach students using these technologies. While completing the program, I was able to work cooperatively with my peers and step into the shoes of my students, so to speak, to create a group projects that are both challenging and entertaining at the same time. Through the integration and evaluation of technology, I have learned to identify lessons that are both meaningful and engaging to my students. Whether I am using whole class

instruction presenting a PowerPoint on how to solve equations, or my students are individually working on their own computers, I now have the confidence to try out these routines and set goals for using technology that are realistic. Through the plethora of resources gained in these classes, I have found that my classroom has become a blended one. I now try to utilize Internet based tools to expand and reinforce my content standards to extend my students learning beyond the classroom. I also have learned through evaluation that these tools can help to channel the home-school connection through blogs, websites, online grading systems and wikispaces.

As a result of my extensive work in the MAET Program, I have come to believe that one of the best strategies to support student understanding is through the use of teaching with technology. There are various technologies available, at numerous costs, and giving students access to these technologies can allow deeper understandings through metacognition within the classroom environment.

Technology developers hope to build upon the experiences students already have to introduce new concepts at the appropriate developmental level of each child, while allowing students to collaborate, reason, and analyze the concepts they are learning through the implementation of technology.

Teachers can use technology as guiding tools to stimulate conversations that pique students' interests and allow them to create collaborative constructs of their learning. This balance of surface knowledge and deep knowledge leads to students having the ability to monitor themselves as they learn, providing the most promise of the use of technology within the classroom. As facilitators of knowledge, we aspire to engage students in the learning process and with the use of technology, we can achieve those goals.