Personal Technology Plan

My Vision:

Technology is such a broad-sweeping term in these fast changing times where personal computers are becoming more affordable, shrinking in size, and growing in computing capabilities.

As defined by The National Academy of Sciences:

> *Technology is the process by which humans modify nature to meet their needs and wants. Technology is more than tangible products. Technology includes the infrastructure necessary to design, manufacture, operate, and repair technological artifacts. Technology is the knowledge and process used to create and to operate technological artifacts. In short, technology necessarily involves science and engineering.*

Moreover, technology is improving the way we interact with one another and providing a wealth of learning opportunities by making research, multimedia, and conferencing more readily available.

As stated by the Secretary of the U.S Department of Education:

> *Technology can help us create schools where every child has the opportunity to succeed, while we work to close the achievement gap and address the economic and workforce needs of the future.*

This fast-changing technological world is becoming an interlinked culture through global participation. Industry, higher education, and government are recognizing the benefits of using technology for communication, collaboration, and transfer of knowledge. It is only natural that the K-12 education sector follows suit by providing the appropriate training with, and possible uses of technology in a student's education thereby preparing our students for this new, "flat" world.

It should be our goal to provide students with a scaffold of experience with technology as they progress from a beginning learner through matriculation, instructing the student on the use of the appropriate tools to become a contributor through research and creation of multimedia and Web 2.0 products intended for a global community.

Granted there will be students that do not relate to the gravity of learning these tools on their future; however, as educators, we can instill a general knowledge and understanding of the uses of these basic tools encountered in the world that we are preparing our students to lead.

Unfortunately, due to the rapid pace of technology improvements over the past decade, though more so now and certainly into the future, many students are unable to keep pace with industry. Staying current on the most modern hardware, applications, and software can be a costly venture for a business or school, let alone a student and their family. In order to provide our students with the appropriate tools, we must provide computers with high-speed internet access in school, as well as the use of alternative media sources like open-source and free-ware applications used interchangeably and seamlessly at home and in the classroom. Additionally, most teens are moving beyond the realm of personal computers and rely solely on a laptop device or cell phone, or jointly on a laptop and their phones to satiate all their

Personal Technology Plan

technology needs. Cell phones have become as capable of performing daily tasks that computers once accomplished at a laborious rate and laptops are now small enough for a student to carry in a purse or backpack. Educators must address this flux in personal computing, information sharing, and social networking in their classes and incorporate these modes of communication into their daily classroom activities and projects.

My Role:

My first experience with teaching, other than being a student, was my role as an instructor at an experiential education center. In this role, I realized how students are capable of learning better through hands-on activities as well as through activities that relate to their world, like technology. We, the staff, were well behind the students that visited; however, we were eager to learn and provide these groups with relevant applications of the concepts we were teaching. As a result, many of us would work extra hours or volunteer to design and construct technology-rich demonstrations like exposing computer CPU's and using Plexiglas to make the new housing so students could see the inner workings of their favorite device. Further, we would demonstrate the efficiency of human power by connecting bicycles to generators that would run the electronics in a simulated home with televisions, lights, and appliances. As a result, students seemed to gain a greater understanding of the concepts as well as a greater desire to learn how the concepts applied to other areas of their life.

My next stop was at a K – 12 private schools, the Buckley School in Sherman Oaks, California. Here, I am chiefly the 8th grade Physical Science teacher, but I also teach Conceptual Physics, Astronomy, and 6th grade mathematics. Upon my arrival, the school, the science department specifically, was well behind in the teaching of science; the classes were and some still taught using a didactic approach to learning. However, my department chair was eager to allow me to redesign the method of delivery for the 8th grade science curriculum. As a result, I enthusiastically began incorporating the use of VEX robotics kits into the classroom experience. Additionally, I managed to create an Upper School level FIRST Robotics Team to compete in regional robotics competitions, though my greatest excitement stems from incorporating Vex into my 8th grade. Concepts presented to students follow an idea/inquiry based approach. Next, I ask students to collaboratively complete projects that incorporate the concepts discussed in the classroom. Because of these projects being oriented toward the concepts discussed, students are able to gain a deeper understanding of the relation of Physics to their daily lives. Thusly, my students improved upon their overall effort and desire for learning as well as their scores on necessary assessments, such as quizzes and tests, through the content they have learned while participating in their collaborative projects.

As well as robotics, I have included the use of blogs and group internet discussions through the school's Microsoft SharePoint site, data analysis using spreadsheets, and group presentations using both PowerPoint and FLIP video cameras in concert with one another. As a result, my students are eager to come to class and see what tool they are going to learn with or learn about today.

Unfortunately, though, by incorporating technology into your classroom and curriculum you isolate students that do not have the financial ability or technical ability to use these tools in a similar fashion to other students. There is a simple remedy to these problems though. As an instructor of science, now, science and technology, my task is to provide additional time to students that are not learning as quickly and to provide alternative resources to students that cannot afford similar products on their home computer or those that do not have a home computer. In a recent survey I conducted to determine the role of technology in the lives of my

Personal Technology Plan

students, I found that 81 out of 82 of my students have either a desktop PC or laptop of their own with high-speed internet access; however, one student does not have a computer. This was a shock to me because this student never once complained about the use inability to access assignments and they were always one of the first to post in the online discussion boards. I inquired a bit deeper and the student told me it was no big deal because the local library and the school library all have great access and the necessary software to keep pace. I was very impressed with this student's resolve, but it did make the problem of availability very clear to me. As a result, I will inquire more deeply at the beginning of each year before getting too deep into the assignment and application of technology-rich tools.

My Goal:

Currently, I use technology in my classroom on a daily basis with a SMARTboard and the technologies nested within the SMART software, i.e. simulations and assignments created by SMART and other teachers. Additionally, I have created assignments using spreadsheets that provide data to my students and they are supposed to graph this data using the spreadsheet tools and analyze the associated results, then define how those results relate to the physical concepts discussed in their reading and in the classroom discussion. Furthermore, as indicated in *My Role* (above), I have and continue to implement robotics assignments using VEX robotics kits. Although, during these assignments students are also required to program their robot for full-autonomy using VEX Easy-C, an icon driven programming platform, animate their design using animation software like Google SketchUp, Blender, Solid Works, or any other animation software (SketchUp and Blender are FREE). Further, students must present a marketing and sales strategy using presentation tools like Microsoft PowerPoint and Publisher (Free-ware such as Google Apps and Zoho Apps are encouraged).

In the future, because of my need to develop continually technology-rich, modern and applicable curriculum as well as the information I have gained through my Graduate courses at Michigan State University, I hope to provide a greater scope of technology's uses and abilities in the world of scientific inquiry, discovery, and engineering solutions. In doing so, I have provided my students with appropriate tools for a world that is continuing to become more technology driven and technology reliant, thus they are more capable of interacting with their peers in school and industry from other areas of the globe. I anticipate a fair number of my students eagerly pursuing advanced knowledge in the Upper School as well as into their university studies as a result of the lessons, projects, and tools they have been provided.

My Growth:

My growth with technology and its relation to instructing and guiding my students in Physical Science and whatever courses I might teach in the future relies on my continued desire to improve my curriculum and provide my students with the tools necessary for competing in a global race for employment as well as participating in a global community. I plan on reinforcing my current knowledge with additional information gained through participation in Michigan State University's Summer Cohort and Capstone projects as well as continuing to take classes online that provide technology-rich assignments and teach new and emerging technologies. Continuing to grow and enhance your curriculum should be the goal of all educators. Through independent learning, professional development, and support with tuition reimbursement I hope to further my knowledge of teaching pedagogy and the role of technology in the lives of my students by finishing my Master's in Educational Technology and looking beyond that to an additional advanced degree.

Personal Technology Plan

2003

2002
- Begin working as experiential educator.

- Design technology rich demosntrations as experiential educator.

2004
- Begin work at The Buckley School.
- Incorporate VEX Robotics into curriculum.
- Start Upper School FIRST Robotics team.

2006

2005
- Incorporate programming of robot into 8th grade curriculum.
- Design spreadsheets and presentations for use in class.

- Continue use of VEX kits and programming, but incoporate student presentations using PowerPoint.

2007
- Use of VEX kits.
- Introduce animation using Google SketchUp.
- Continued development of spreadsheets and PowerPoints for presentations during class.

The Future...

2008
- VEX Robotics
- Programming
- Animation
- Marketing Presentation
- Online Physics Simulations
- FLIP video presentations
- Spreadsheet development
- SMARTboard use

- Continued growth of robotics design projects.
- Develop simulations for use with SMARTboard.
- Learn more ways to integrate technology to develop learning strategies for Physical Science students.

....and beyond
- Develop technology-rich tools for students to incorporate math in science.
- Use technology to communciate with students and parents on a more regular basis.
- Continue to add to knowledge of technology tools and maintain love for learning.