TechQuest Project: Using Web 2.0 Technologies to Help Students Study More Effectively

~ Jessica Scaggs, August 2010

What is the compelling problem of practice or opportunity for gain I want to address in your project?

As a middle school science teacher, one of my primary focuses is to prepare students for high school. I do this by teaching content that will support their learning of more complex science, as well as soft skills such as staying organized and learning how to study effectively. In looking at my 7th and 8th grade class lists from last year, I calculated 40% of my 7th grade students, and 46% of my 8th grade students, struggled with either organization of their personal materials for class, such as binders and homework submission, or studying effectively for quizzes and tests. This data is based upon my observations of their belongings they brought to class throughout the year; recollections of times we had one-on-one discussions about missing homework, or homework that took them a long time to locate due to their unorganized binder; quiz and overall science grades each quarter; and frequent conversations I had with the students over the course of the year about "not knowing what was assigned".

Adding these percentages together indicates that 86% of the total number of students I taught last year struggled to demonstrate their understanding due to un-mastered soft skills of organization and study techniques. Conversely, when I analyzed quiz scores of those students who consistently earned 90% or above, I noticed that these students were also very organized with their class materials; completed and turn in all homework; and reported via self-assessment surveys that they studied "very hard" to prepare for the quizzes. Due to this data, I believe students do not learn as much, or at least cannot demonstrate their knowledge to the highest potential, if they have not mastered these two vital soft skills of organization and ability to study effectively.

I desperately want my students to realize they are capable of better grades, if they could just learn to stay organized and/or acquire better study habits. I think all my students want to do well, but even with the instruction I provide, they don't seem to achieve to their fullest potential. I believe there are at least two key factors that contribute to this dilemma. First, it takes effort to stay organized and to study. Not all students have parents who have trained them to put forth the effort even when tasks are difficult or time-consuming. Second, my students are growing up in a culture where entertainment is top priority for them and is easy to access in multiple ways. It requires a significant amount of self-motivation, or parental direction, for students to step away from their adventurous virtual world and "study their notes" or "review their study guide", which involves a static piece of paper, and a pencil.

Although I see a joint weakness in lack of organization and poor study skills impacting student achievement on tests, the problem of practice I will address in my TechQuest is the struggle I face with teaching and encouraging students to study effectively; given their cultural competition with entertainment.

How do I plan to address this educational issue with technology?

I will battle technology with technology. Middle school students love to work with technology. Most of their entertainment involves technology. I can't say that I blame them for wanting to play video games or chat on Facebook rather than review their study guide. I plan to make studying more engaging and appealing to my students by incorporating collaboration and technology into the way they study. I will also provide opportunities for them to

take online practice tests where they will receive immediate feedback on what they have mastered prior to taking the real test in class.

The way I will make studying collaborative is I will form study groups near the beginning of the year for the students in each of my classes. The study groups will have no more than four people in them and no less than three. I will have mixed ability groups in light of research stating, "Low-ability students perform worse when grouped in homogeneous ability groups" (Kulik & Kulik, 1991, 1997; Lou et al, 1996). These study groups will remain in place for the entire year as to build community and cohesiveness with the group. These groups will spend time in class together reviewing on tasks that will allow the group to support and learn from one another, such as reviewing each other's homework before we discuss it in class and orally quizzing each other from class notes after a lesson. Out of class, these students will collaborate via wiki on a digital version of the study guide provided in class. I normally require students complete all questions on the study guide individually and turn it in the day of the test to "prove" they studied. I would change this requirement to allow the work to be done online via the wiki with their study group members. For accountability purposes, I will require each student identify themselves in every post they make. I will also encourage students to help others in their group to reply to their group member's posts in such a way that they encourage them to provide complete and thoughtful responses. In class following group collaboration time, we can access each study group's study guide to see how different groups are interpreting and answering the questions and bring clarity on a whole-group level to what students need to know and understand for the test.

Note: When establishing groups, I will first find out which students do not have Internet access at home and try to group those students together so they can perhaps find time to use school technology to collaborate like the rest of the students, or modify the assignment so they can work collaboratively during class or lunch and turn in a hard copy of their explanations. This modification still utilizes the aspect of collaboration, and has the potential to preserve the technology aspect of this study strategy.

I will investigate how the combination of support, integrating technology with the study process, and opportunity for immediate feedback impacts my students' motivation to study and n turn, improves test scores.

Research and Resources

- Article by J. Harvey & H. Watt - "Using learning technology to support student study skills"-- http://www.icbl.hw.ac.uk/ltdi/implementing-it/support.htm
- Article by Sherri Miller – "Putting the Pieces Together: Integrating Technology with Marzano's Instructional Strategies" -- http://gets.gc.k12.va.us/VSTE/2008
- Marzano's 12 Instructional Strategies -- http://www.netc.org/focus
- Cautions/Problems with using wikis for student collaboration "Teaching and Learning Online with Wikis" -- http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.133.1456&rep=rep1&type=pdf
- Possibilities of using wikis to promote student learning - "Wiki as a Teaching Tool" -- http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.105.8172&rep=rep1&type=pdf

Implementation

Prior to the start of school, in preparation for launching my students into this collaborative, technologically-based learning project, I will learn more about the service, "Wiki Spaces", so I can better teach my students how to navigate wikis and post information. I will also need to contact my administration to find their perspective on using wikis for student collaboration, and find out if our school network will allow students to access Wiki Spaces pages. If they

don't, I will contact our technology support person and see if my company will approve Wiki Space sites for students. What I will do during the school year is outlined above, however, it includes thoughtfully forming collaborative study groups (September), teaching students what a wiki is and how to navigate one(September), teach my students aspects of digital citizenship (September/October), allow time for practice and questions about posting items to their wiki (October), teaching students how to access digital copies of the study guide to post and dissect on their wiki (October), and obtain student wiki addresses for monitoring and assessment purposes (October). Once the initial set up is in place, the rest of the implementation will happen as study guides become available and test dates are decided.

How does my project address the four common places of education?

This is a brief summary, as the details are provided in the descriptions above.

Teaching – As the teacher, I will need to have technological knowledge of how to use, set up, and monitor wikis. I will need to employ effective teaching strategies for time spent in the computer lab and to foster social skills for working in collaborative groups. I will also need to have knowledge of the science content in each particular unit of study for which the study guides will be covering.

Learning – The students are 7th and 8th grade science students of all ability levels. Most students are very versed in technology, so they will probably come to class with a good set of skills to help them manage their group wikis.

Subject Matter – 7th and 8th grade science units of study such as: cells, heredity, chemistry, forces and motion, and weather and water.

Setting – The setting is a K-8 charter school on the outskirts of Lansing, Michigan.