

Classroom Activities: Math Success through Collaborations- Using Wikis in High School Math

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Technology continues to evolve and bring multiple ways for teachers and students to communicate, collaborate, and to teach and learn. Mathematics teachers are challenged by the National Council of Teachers in Mathematics (NCTM) and by national and state standards to seek ways to integrate technology in teaching and learning. For example, NCTM places emphasis on using technology in one of the six principles and states that technology is “essential in teaching and learning mathematics; it influences the mathematics that is taught and enhances students’ learning.” NCTM notes that in the classrooms envisioned “every student has access to technology to facilitate his or her mathematics learning.” NCTM (2000) The challenges of using technology in the classroom often bring added pressures to the teacher. Many different technologies have been used by the mathematics teacher, including calculators, online resources (e.g., WebQuests), presentation technologies (e.g., Geometers Sketchpad, whiteboards), math games, and tablet computers, however, teachers are sometimes reluctant to use a tool which may take time to learn and incorporate in classroom teaching. Within recent years, much has been written about Web 2.0 tools and the ease and accessibility they offer to today’s educators and students. Web 2.0 is an umbrella term that describes multiple online technologies (and, often free) that are quick to learn and to implement. In using most Web 2.0 tools, users can view, add, interact, communicate, and collaborate with the online content without the need to know a programming language. Technologies such as the popular social networking tools (e.g., Facebook and MySpace), and collaborative environments such as blogs and wikis are examples of Web 2.0 resources.

This article presents how a math teacher, Casey, used wiki technology to develop an online collection of math review resources. Wiki sites have become popular online choices for educators; they are easy to learn (wiki wiki means quick in Hawaiian), and they provide a collaborative environment that can also be monitored by the teacher. A wiki administrator (i.e., teacher, principal, student leader) has options to reject changes, restore content, and to keep content private. There are many wiki choices (e.g., PBworks, WikiSpaces) available to educators. When Casey started her project, she chose PBworks, which was also being used by a local university’s professional development program that she was participating in at the time.

With this project, Casey wanted to enhance her mathematics students’ understanding and use of technology, as well as provide a space for students to research, communicate, and collaborate toward a collection of study resources for the Alabama High School Graduation Exit Exam (AHSGE) in Mathematics. The wiki can provide this type of space as its collaborative environment can “teach students much about how to work with others, how to create community, and how to operate in a world where the creation of knowledge and information is more and more becoming a group effort” (Richardson, 2006, p. 74). Casey viewed her project wiki as one which would become a shared repository that could be used by students studying for the exit exam as well as students who needed a math review.

Casey began by creating a free, educator account on PBworks. She then invited her Geometry and Algebra 2 students (using their email accounts) to participate as a writer to the wiki (wikis offer various levels of participation including reader, writer, and administrator). The mathematics portion of the AHSGE, at the time, consisted of 17 standards. Casey created student pairs and assigned each pair one standard to

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research and to write a study guide that they would later post to the wiki. Since Casey was comfortable with using multiple technologies in her classroom, she also wanted more than text posted to the wiki. Therefore, her students wrote a video tutorial script for each standard. Following Caseys approval, the students used a recording device (a variety was used, including the Interwrite School Pad, Camtasia, and Jing) to create the video tutorials. The tutorials were uploaded to the wiki, along with student created worksheets. Students involved in these assignments had positive comments about the ability to use technology and to collaborate with other students.

Once several standards were complete and the resources posted to the wiki, the wiki was piloted with a group of students reviewing for the AHSGE. Casey first administrated a pretest (which covered the AHSGE standards) to the students. Following the pretest, each student was given a report that outlined his or her strengths and weaknesses. Students chose three weaknesses to improve upon. Each student then visited the school computer lab to complete the video tutorials and worksheets in their identified three areas of weaknesses. When students finished, they were given a posttest. Many students did improve their scores on the posttest and several students enjoyed the individual learning pace afforded to them through the wiki; however, some students commented they preferred the more traditional, teacher-led environment when learning math skills.

After receiving these comments, Casey made some adjustments to the wiki. She eventually wants each objective to contain two video tutorials: One tutorial for students who need a review and another for students who need more step-by-step instructions. Although the AHSGE is being phased out, Casey believes study repositories, such as her project wiki, can help students gain mathematics knowledge and skills. This project, while providing a valuable study guide resource and shared repository, also promoted a creative and collaborative learning environment and gave students a voice in the content creation. One student commented: "I liked the wiki. I had never seen or heard of it before now. It was really a great tool for studying for exams and learning the material." The wiki also gave students an opportunity to use multiple technologies. One student reflected: "The Wiki Project was a modern day project using modern day technology. It was one of the most exhilarating projects I have worked on. Caseys wiki project can be accessed at <http://ahsge.pbworks.com>.

References

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