



Developing Best Teaching Practices for Today's Digital Natives

by Graham Smith, developmental mathematics coordinator, Kellogg Community College

While the debate continues as to whether the internet is changing the way we think, two things are clear: the internet is changing the way we gather and receive information. Today's students have grown up immersed in technology, and they've been able to quickly find the information they seek and have it delivered in a concise format. In fact, students expect information to be available at all times in aspects of their lives. Instant access enables them to often bypass the problem-solving process by quickly locating the answer to their dilemma.

Academia, in stark contrast, values the deeper thinking skills associated with problem solving and critical thought. This often makes it difficult for today's students to adapt to the academic culture of college. This creates many challenges, as well as frustrations, for students and instructors.

For the past several years, faculty and students at Kellogg Community College in Battle Creek, MI, have been working to address these challenges in the entry-level mathematics courses. While it is too soon to provide statistical significance, this work has led to positive results. The student pass rate in the lowest-level math course—basic mathematics—was 81% in the spring semester 2010. That is up 13 % from the spring of 2009 and more than 20% higher than the national average for this course.

We have been using two successful strategies to provide learning experiences that respect the proficiencies the students currently possess and help develop the critical-thinking skills we want them to attain.

Strategy 1: The text

We use *Basic Mathematics* by Goetz, Smith and Tobey in our lowest-level math course.¹ This text was written by instructors at Kellogg Community College (including myself) and was intentionally designed to provide an engaging book that plays to the strengths of today's learners. This textbook presents concepts and learning activities in byte-sized pieces, similar to the way students learn information on the internet. A one-topic-at-a-time approach more closely aligns with their fast-paced attention span and enables them to learn, practice and master a skill quickly.

Simultaneously, *Basic Mathematics* leads students through a series of study and self-assessment strategies that teach them how to learn, practice and retain information. As a result,



while students are learning math, studying math and developing self-assessment techniques, they are also developing critical-thinking skills that will help them succeed in future math courses as well as other college courses.

Strategy 2: YouTube and Twitter

Our students lead busy lives, and many have family and job responsibilities that don't allow them to benefit from on-campus tutoring. In turn, we offer them help with their homework when it is convenient for them. We do this by pairing the tutoring with Twitter and YouTube. The accessibility and on-demand features of these technology tools mesh well with the learning preferences of today's students.

The process is fairly simple yet effective. Our teaching experience enables us to anticipate where our students will struggle with their homework. We create videos that address the difficult exercises and concepts in their homework and post these videos on YouTube. Then, we place the video link in a tweet that comes to them from Twitter.

My students receive a tweet for each assignment, which provides them help with potential stumbling blocks in their homework. Because all of this information is on the internet, students can access this information at exactly the time they need it. Incorporating these popular social media tools with our teachings has allowed us to connect with students outside the classroom and offer them homework help in a format they already use to connect with friends (Twitter) and learn about their world (You Tube).

Creating a partnership

We have a tremendous opportunity to discover and shape the place on-demand information has in colleges and determine the best practices for teaching today's digital natives. We cannot, however, expect the traditional top-down educational paradigm to help us meet these challenges. Students will always be ahead of us in the technology learning curve, and the way they process information will continue to change.

We need to empower students to help us shape the way we enhance our classes with technology, and we need to partner with students to create learning experiences that build on their strengths and lead them to the skills we want them to attain.

Reference and notes

1. Brian F. Goetz, Graham F. Smith and John Tobey Jr., *Basic Mathematics*, Pearson, 2010.



2. For more information about *Basic Mathematics*, visit www.pearsonhighered.com/gstbasicmath.

3. To learn more, follow me (@math100graham) on Twitter or view this YouTube video, which further explains our tutor process: www.youtube.com/watch?v=prZy2QqSBME.

Graham Smith has been the developmental mathematics coordinator at Kellogg Community College in Battle Creek, MI, for 10 years. Developmental math courses are noncredit, pre-college classes. Students take these courses when they do not possess the prerequisite skills to take a college-level algebra course.