



WIRED SUCCESS STORY

Interviews with Teachers Who Use Technology

To: Classroom Connect
 From: Mary McNabb, Author of
*Literacy Learning in
 Networked Classrooms*
 Re: How Technology Influences
 Teaching and Learning
 Date: September 2005

Q: What does research show about the effect of technology on learning?

Technology can positively influence children's learning, but it's not a magic solution. It depends on the context in which you're using it. If the technology is aligned and the teacher is doing things that make for an effective learning environment—using technology in ways that help drive home the curriculum and create a distributive learning community—chances are it will have a positive impact.

An important aspect of effective technology integration is alignment with a multitude of variables in the classroom. For example, Kulik's meta-analyses (spanning three decades of research) found that using integrated learning systems for reading is as effective as traditional reading instruction because it mimics traditional reading instruction. In contrast, another study shows how simulations challenge students to apply their conceptual math knowledge in ways that differ from traditional drill and practice. Students who used the simulations scored better in math on NAEP (the National Assessment of Educational Process) than those who engaged in drill and practice. The higher order learning activities in the simulation aligned better with math concepts than simple drill and practice.

Q: What do you mean by aligning technology with classroom variables?

Teachers should consider the best ways for students to meet the curricular objectives and understand students' prior knowledge and then, if appropriate, select technology that fits. If the objective is to have middle school students use a search engine to research a topic from a variety of perspectives, the teacher may assume that most of her students have misconceptions about search engines from their prior use of Google or Ask Jeeves. So she conducts group instruction about effective search engine strategies before asking students to conduct an online search about the topic.

Another teacher might select Rappin' Reader software to use with emergent readers because it has text-to-speech capabilities that can be used to bridge students' oral language knowledge with the print curriculum. This way, students can hear sounds they are familiar with while seeing the letters on the screen. These are really different ways of using technology, but both are effective because they are integrated with content area standards and aligned with students' needs.

Q: How does technology alter teaching?

The teacher/student relationship becomes more personal. Teachers who walk around the networked classroom can see into their students' learning processes. They can find out what students are attending to. Teachers can probe a student's thinking by asking why they clicked on a topic or by having them demonstrate a task.

The traditional classroom of the twentieth century was designed around an industrial production model. It had a print-based, linear

curriculum that teachers delivered via pre-structured, linear instruction. This did not adapt to the variance in students' learning styles, rates of growth, prior knowledge, and so on. Teachers primarily used summative assessments, which happened at the end of a lesson or unit. The driving force was competition, to bring forth the cream of the crop while there was little concern for addressing the differences in students' learning needs.

But the dynamics of effective networked classrooms are very different. Digital curriculum is interactive—students create their own learning paths and encounter assessments embedded into their activities so they can revise and correct misconceptions. Students become the driving force, and teachers' adapt their instruction accordingly, which gets to the importance of having a learning community that's distributive.

Q: What is a distributive learning community?

It means that teachers don't necessarily have all the answers. The depth of curriculum knowledge gets beyond what one person can hold in memory. It places value on student contributions, and requires that all students participate. The culture of the classroom is one where students' misconceptions or questions about core content are the focus for teaching and learning. Students are generally more engaged, but they're not necessarily covering everything on the state test. Here is where integration gets tricky and why alignment of technology with content standards is so important.

Q: Integrating technology into the classroom to make it an effective tool sounds as if it takes time.

Technology introduces changes into the classroom that can cause misalignment between curriculum and assessments, pedagogy, and students' learning needs. So, it does take careful planning and trial-and-error practice sessions to get everything aligned to positively impact students' learning in core content areas.

What's more, technology keeps changing, and it takes time to learn how the changes impact classroom practices. Teachers need to do what they can to support each other's professional growth in this area. They need administrative support to form professional learning communities where they can study the effects of using specific technologies in their own classrooms. After all, effective technology integration is context-based.

Technology Connections for School Improvement

www.ncrel.org/tplan/tplanB.htm

Educational Software Preview Guide

www-ed.fnal.gov/espq

Center for Applied Research in Educational Technology
caret.iste.org

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