by FREDERICK M. HESS & BROR SAXBERG December 16, 2013 4:00 AM

Just remember how the book revolutionized teaching.

It’s hard to talk about schools today without talking about technology. Enthusiasts celebrate the wonders of tablets, virtual schools, and “blended” learning. Skeptics recall a litany of overhyped, underwhelming past efforts.

News accounts whipsaw between breathless tales of digital learning and horrific accounts of troubled virtual schools. Last year, Forbes ran a cover story titled “One Man, One Computer, 10 Million Students: How Khan Academy Is Reinventing Education.” But we’ve been there before, plenty of times. Indeed, in 1922, Thomas Edison proclaimed, “The motion picture is destined to revolutionize our educational system. . . . In a few years it will supplant largely, if not entirely, the use of textbooks.”

Edison’s enthusiasm is a familiar phenomenon. In 1931, U.S. Commissioner of Education William Cooper established a radio section in the U.S. Office of Education. By 1932, nine states were broadcasting regular educational programs and Benjamin Darrow, author of Radio: The Assistant Teacher, touted radio as a “vibrant and challenging textbook of the air.” Similar stories can be told about TV, the desktop computer, laptops, and much else.

Indeed, we know of only one learning technology that has actually transformed teaching and learning: the book. When it was first introduced, educators found it disconcerting and of dubious value. Over time, though, they came to cherish it for its two great strengths. First, it gave students access to experts from around the world; children were no longer dependent solely on their teachers for learning. Second, no longer reliant on teachers to tell them everything, students could learn at home or on their own. This “flipped” the classroom, allowing teachers to spend less time lecturing and more time explaining, mentoring, and facilitating.

The book first became available to the masses after the invention of the printing press in the mid 1400s. Previously, teachers and students had relied on painstakingly hand-inscribed parchment. As statistician Nate Silver has observed, “Almost overnight, the cost of producing a book decreased by about three hundred times, so a book that might have cost $20,000 in today’s dollars instead cost $70.” The availability of books skyrocketed.

Educators today have expressed plenty of questions about new technologies, so it’s useful to recall that educators also didn’t exactly welcome the printing press. Schools were predominantly church-run affairs, and religious leaders worried about the lack of moral and interpretive guidance for learners left to their own devices. There were also fears that printed books would be a poor, cheap substitute for the rich experience of reading a scribe-written book. In 1492, abbot Johannes Trithemius fretted about the loss of “devotion to the writing of sacred texts. . . . Printed books will never equal scribed books, especially because the spelling and ornamentation of some printed books is often neglected.”

Despite these concerns, the book’s merits won out. The book made it possible to rethink the teacher’s role and launched an “information revolution.” Before books, students could learn only as much as their own teacher could convey. With books, students could master content and concepts outside of school, learning even when a teacher wasn’t there to tell them things. (Think of Abraham Lincoln working his way through Shakespeare and the Greeks alone on the Illinois prairie.)

Books enable students to move at their own pace and to re-read passages as needed, permitting the kind of reinforcement that learners need. Books make it possible for students to learn in the evening, when they’re ill, or even when assigned to an inept teacher. In each case, of course, books may well be inferior to a lesson delivered by a phenomenal instructor. But for most students, books are a huge improvement over the alternative.

That said, there are plenty of classrooms where students sit hunched doing busywork out of tedious textbooks. There are too many classrooms where instruction consists of teachers parroting the textbook, or having the class take turns reading passages aloud. The presence of the book matters less than its quality, and how it’s used.

The same can be said for tablets, smartphones, smartboards, and any other eye-catching new technology.

The book provides an invaluable template for how to best think about digital learning. Promising education technologies won’t “fix” schools or replace terrific teachers. Instead, they make it possible to reshape the teacher’s job, so that teachers and students have more opportunity for personalized, dynamic learning.

How can we expand on the book’s transformation of education? Well, the book has real limitations. Students learn best when eye and ear work in tandem — but books are a silent medium. Books are fixed, providing the same experience to every reader, every time. The material and language will inevitably be too difficult for some readers and too easy for others. Books can’t offer a live demonstration or a new explanation to a confused reader.

Online materials can be rapidly updated, are customizable to a student’s interests and reading level, and feature embedded exercises that let students apply new concepts and get immediate feedback. Virtual instruction makes it possible for students to access real, live teachers unavailable at their school; this can be a haven for some students, especially those reluctant to ask questions in class. Researchers have found that intelligent, computer-assisted tutoring systems are about 90 percent as effective as in-person tutors.

None of this will happen just by giving out iPads or mouthing platitudes about “flipped classrooms.” Rather, it requires getting three crucial things right. First, new tools should inspire a rethinking of what teachers, students, and schools do, and how they do it. If teaching remains static, sprinkling hardware into schools won’t much matter. Second, technology can’t be something that’s done to educators. Educators need to be helping to identify the problems to be solved and the ways technology can help, and up to their elbows in making it work. Third, the crucial lesson from those getting digital learning right is that it’s not the tools, but what’s done with them. When they discuss what’s working, the leaders of high-tech charter school systems like Carpe Diem and Rocketship Education, or heralded school districts like that of Mooresville, N.C., brush past the technology in order to focus relentlessly on learning, people, and problem-solving.

All of this is too often missed when tech enthusiasts promise miracles and tech skeptics lament that technology is an “attack on teachers.” What to make of such claims? The book didn’t work miracles or hurt teachers. It did allow us to reimagine teaching and learning, even if we’re still struggling to capitalize on that opportunity five centuries later. Here’s hoping we do better this time.

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