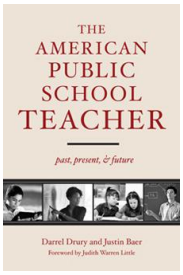
"Time, Teaching and Technology" by Michael Dell



Excerpted from the book, "The American Public School Teacher: Past, Present & Future" *published by Harvard Education Press*

I was fortunate to have been mentored by some outstanding teachers who helped spark my curiosity around science and mathematics and a lifelong desire to learn. My junior-high math teacher, for example, spent countless hours after school with a group of us who demonstrated a deeper interest in the subject. She brought in our school's first teletype computer terminal, which was a great source of inspiration for me. No one could have guessed how impactful those sessions—and that teacher—would be in my life.

Today, demands on teachers' schedules are tougher than ever. From NEA data, we know that teachers now have even less time to teach because they have to focus on disciplinary actions, increased paperwork, testing demands and meetings. We also know that classrooms are increasingly made up of students with unique learning styles and from diverse backgrounds—so much so that nearly half (47 percent) of teachers want more training to help them teach students from diverse backgrounds. Given this spectrum of students and styles, one teaching approach will probably not work for the class as a whole. I believe that technology has the power to help teachers spend more time addressing their students' individual needs.

This assertion seems logical coming from a technologist like me. However, when it comes to technology and education, the discussion too often segues immediately to computers in the classroom: How many computers should schools invest in? Is it one computer per student? Is a single computer lab enough? As many districts have learned, these are not necessarily the right questions to ask when considering how to use technology to improve teaching and learning.

I had a discussion along these lines last year with a group of school superintendents gathered at our Texas headquarters. One of these administrators told me that his district had purchased a computer for every student, but hadn't really seen improvements in student performance. That's not surprising. The point is that computers on their own, absent the right training, curriculum and measurement, won't make a difference. It's what people—teachers and administrators—*do* with technology that has the power to transform lives.

Using technology to get more personal;
The NEA data tell us that 45 percent of teachers want to understand how to use data in their decision-making processes regarding school improvement. I have a few suggestions. Imagine a classroom where the teacher has a comprehensive history of students' educational careers—how they performed in previous years, what subjects they excelled in or struggled with, how often they missed school. All of this data close at hand would not only free up time for educators, but also enable them to focus more closely on lesson plans that would be of the highest impact for the class as a whole. How about a classroom in which teachers get real-time feedback on how students are doing as they work through each six weeks of material? This is where technology can help drive personalization—and ultimately success in education.

But the technology must first be applied to assemble the needed data. While vast amounts of information on students are generated every day, it will be no surprise to those of you who teach that these resources are not easy to access, analyze and ultimately act on. They often reside in fragmented, noncompatible district databases—often even in file cabinets—that prevent meaningful sharing of information.

And thus, too often, the beginning of a school semester is more like the beginning of each student's educational career; the slate is essentially wiped clean from year to year. As much as they want to know their students, it's simply not possible for teachers to go on a fact-finding mission for each and every one before the school year begins.

But that doesn't have to be the case. Progressive districts are demonstrating that it's possible to centralize data so that, with a few clicks of a mouse, teachers can get the background information they need to plan ahead for how to help students improve in areas where they need specific attention. With the right data, aided by technology, teachers have the power to tailor education for every student.

Let me share a real-world example. The Dell family foundation worked with the New York City Department of Education to implement the Achievement Reporting and Innovation System (or ARIS). ARIS gives teachers a holistic view of students' test performance, grades, attendance, special programs and discipline records. All of this information is compiled into one online database. When teachers log on, they see an intuitive dashboard they can use to get information on their students. For example, a teacher can click on the "My Students" tab on the dashboard to view each student's profile. That teacher can see where similarities or differences exist in the students' records and use that data to create specialized lesson plans.

Through this technology, one fifth-grade teacher says she already knows what actions she can take to move students forward before they've even started the school year. She's able to flag emerging issues before they become problems. She can devote more time to teaching to her students' strengths and focusing on the subjects where they need help. And, most important, the students benefit from this personal attention because they're able to learn in a way that is unique to their circumstances.

This application of technology can also help make a difference to students preparing for college. In both Dallas and Chicago schools, principals use dashboards to monitor their students' college readiness. These tools identify trends in attendance, test scores and grades so that teachers can intervene quickly and put a personalized plan in action to prevent students from dropping out or failing their classes.

For example, students with an excessive number of absences would be flagged for attendance intervention before school started in the following year. Principals, counselors and teachers would share these reports online through the attendance tracking database. Teachers would share information and take action such as adjusting class schedules when they recognized a group of students who were distracting one another. They would have in-person counseling sessions with students to help them understand how they could improve their own performance by showing up to class regularly.

Just one year after the plan was put in place, one Chicago school reported that 69 percent of ninth graders were on track to graduate on time, up 10 percent over the previous year. Imagine extending this results-oriented concept beyond the individual classroom to an entire school, a district or even a state.

By using online dashboards and Internet-based applications to understand students' backgrounds, administrators can more quickly identify where to invest funding and boost teaching resources. Teachers can identify groups of students with special needs or advanced skills in order to develop specialized curricula. They can use Web-based technology portals to search for state-approved courses that meet their specific needs. They can even participate in online communities to share their challenges and collaborate with other educators district-, state- and, ideally, countrywide. What's more, all of this information can be available anytime, from any location with Internet access.

A perfect example of this occurred several years ago, when American Reinvestment and Recovery Act funding was made available to schools. In many cases, the application process for these grants was complex and districts needed support to get through all the paperwork. Dell helped bring these educators together with the right people who could give them advice they needed to optimize their chances for receiving the funds. This was not a conference or event—this was through an online community. I continue to be encouraged as I see more and more teachers embrace the Internet and social networking as a way to inspire each other to integrate technology into their classrooms.

Just like teaching, technology is not one-size-fits-all

For technology to be effective, each district or school needs to assess its goals, gaps and measures of success. It must have a plan that will work within its unique circumstances. What systems are currently in place and where are the gaps? How do teachers use technology at present, if at all? We know from the NEA data that almost all educators have their own computer, access to the Internet and use e-mail regularly, but more than half of them want training on how to use technology in the classroom. As part of any plan to implement technology as an effective teaching tool, teachers and administrators must be offered professional development that will give them the skills to apply technology to the work they do in their classrooms. There also should be milestones set to track progress and reinforce accountability.

All of this obviously requires strong leadership and commitment from school and district administrators, from planning to implementation to measurement to continuous improvement and maintenance. It's only when everyone is aligned and moving toward one goal—empowering teachers with the data and technology they need to improve the quality of education for our youth—that they can truly realize success.

I am grateful for the opportunity to share my passion about how technology can help teachers make education more personal to their students. I especially want to thank teachers across the United States for their selfless dedication.

To me, technology has always been about enabling human potential. For teachers, this potential is embodied in how we can use its capabilities to best prepare our students to achieve their dreams.