

FROM THE 2014 MILKEN INSTITUTE GLOBAL CONFERENCE

From Textbooks to Tablets Reinventing How We Learn

Panelists:

NOLAN BUSHNELL, Chairman & CEO, Brainrush Inc.

JIM COULTER, Founding Partner, TPG Capital; Co-chair, Leading Education by Advancing Digital
(LEAD) Commission

JOHN DEASY, Former Superintendent, Los Angeles Unified School District

ROGER KASSEBAUM, Director, Mitchell Academy of Science and Technology, Milken Community
High School

JOEL KLEIN, CEO, Amplify; Former Chancellor, New York City Department of Education

Moderator:

RAFI MUSER, Founder & CEO, Stax Inc. and Stax DevCorp; Founder, Ed.co

From Textbooks to Tablets

Reinventing How We Learn

Overview

Evidence is building that the introduction of personal technology and innovative software programs into classrooms is dramatically improving educational outcomes for students. Initial steps to introduce these programs have been slow and halting because of cost and bureaucracy. Now, as the price of technology drops and access to broadband Internet connections becomes more prevalent, the pace of innovation and change is accelerating—though it is still early.

As teachers become more comfortable with educational technology and as it is adopted more broadly, technology has the potential to fundamentally change the nature of education in this country. Change, especially when disruptive, is always difficult. However, the stakes are very high if the United States wants to stay competitive. Transformative education is our best hope to remedy longstanding problems like poverty and social immobility. Strong leadership at the national and local levels is needed to secure funding and drive adoption.

Context

Stax's Rafi Musher moderated a panel discussion at the 2014 Milken Institute Global Conference among educational leaders on how technology is being integrated into the classroom, what the challenges are for large-scale adoption, and the long-term implications of technology adoption in classrooms for education and society as a whole.

Key Takeaways

The use of technology in classrooms is fundamentally changing how students learn.

The panelists were unanimous in believing that technology is improving the learning experience. Students:

- **Are more engaged.** Students typically find learning by using technology to be more fun and engaging. Mr. Klein pointed out that he has seen students who struggle with books become more emotionally invested in an assignment that uses technology because the learning experience is so different. Engagement drives learning.
- **Learn faster.** One estimate is that students learn 10 times faster after technology is introduced into the classroom.
- **Learn in a more personalized way.** Software allows learning to be customized and personalized to each child's learning style, level of proficiency, and pace of learning.
- **Learn dynamically.** Historically, education has been imparted using static materials, particularly textbooks that did not change for years, even though the world around students changes every day. This has limited what students learn. With electronic media, this limit disappears and learning can be unlimited. Content can be immediately updated, making the material far more relevant and interesting.
- **Learn collectively.** By using technology, students can work together collaboratively on projects in ways that were previously unthinkable. Also, instead of just turning in written reports, students can now show what they have learned by submitting videos and producing other types of content.

THE IDEA IN BRIEF

- Technology in classrooms is fundamentally changing how students learn.
- Students who use technology are more engaged, can access more up-to-date relevant content, learn faster, and learn in a more personalized way.
- Mobile technology enables students to learn anywhere from almost unlimited sources.
- It will better prepare students for college and to enter the workforce.
- Tech adoption in schools has been slow. Key obstacles include lack of funding, infrastructure, software, evidence, and teacher support. All can and are being overcome.
- Driving tech adoption requires visionary leaders who see the future and are willing to take risks.

“It’s not about gadgets and gizmos. It’s not about putting a tablet in a kid’s hand. If you don’t view this through the lens of teaching and learning, you will not succeed.”

Joel Klein

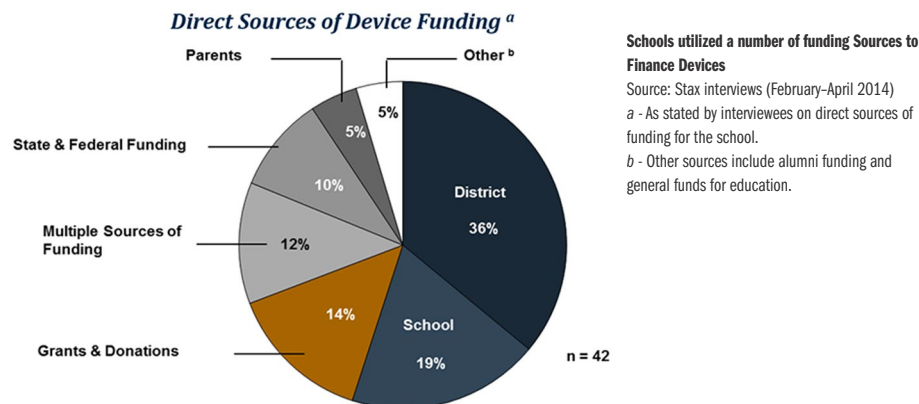
Technology in the classroom impacts the way that teachers teach. Because teachers can monitor individual students in real time and customize lessons for them, many teachers find the use of technology to be empowering. It was suggested that every child learns at a different pace. To expect them all to be at the same place at the same time is unrealistic. Technology allows teachers to customize the pace of instruction to the individual needs of each student.

Technology is also changing the types of relationships formed between teachers and students. Previously, a teacher stood at the front of the class and instructed the entire class. That dynamic is changing. Now, students know more about technology than teachers, while teachers know more about the content. With customized instruction, there can be more one-on-one relationships with the teacher as the content expert advising the tech-savvy student.

While technology adoption in education has been slow, it should grow as adoption challenges are overcome.

Adoption of new technology by school systems has been sporadic, and even for those that are testing devices and software, results have been difficult to measure because school districts use inconsistent, varying measures. Still, in one review by Stax of 70 different pilot programs using tablets or e-readers, 61% used some form of quantitative measurement, and the program results were largely positive—showing that technology in classrooms is producing favorable outcomes.

Stax research also found that there is no single source for technology funding; the chart below shows that funding has come from many different sources. There is no clear-cut model for how to fund these initiatives and districts need a great deal of funding assistance.



Despite this slow start and the challenges that exist, the consensus of the panel was that the challenges can be overcome and the adoption of technology should grow significantly in the next few years for a number of reasons:

- **Financing.** While funding for technology has been a challenge, the cost of technology is radically decreasing. Mr. Coulter estimated that just a few years ago, it would have cost \$1,500 to equip a student for electronic learning. Today, because of WiFi, the cloud, and low-cost tablets, school districts can offer technology to students for little more than the cost of a textbook.

Securing adequate funding for technology will require a change in how capital is allocated. For example, while chancellor of the New York City schools, Mr. Klein received from the state about \$600 million per year that was specifically earmarked for textbooks. He asked the state legislature for just \$500 million instead, with the latitude to use these funds flexibly. Despite promising savings of \$100 million, this idea was rejected.

“A lot of kids are too busy going to school to learn . . . I have 40% less classroom time to teach. And I get some extraordinary results because I have kids work on their own time [using technology] for 7 hours every 2 weeks. I require them to pursue what they are interested in . . . they don’t know enough to quit because it is relevant to them and they are interested. They end up doing amazing things.”

Roger Kassebaum

“Seventh grade math. What an absurd concept—the idea that all 7th graders would be doing the same math at the same time. Yet that’s how our education system works.”

Jim Coulter

And, when there has been spending on technology, it has often been to equip schools with computer labs, which are quickly becoming a thing of the past.

Funding entities need to understand that major investments are required in new technology, specifically small, portable devices and large-scale, non-tangible software implementations requiring installation, training for teachers, and ongoing updates. Traditional school district procurement departments have no experience with these types of purchases and must be brought up to speed.

- **Infrastructure.** A minority of U.S. schools have broadband or wireless connections to the Internet. This is rapidly changing. Until recently, connecting classrooms to the Internet meant tearing down walls to wire schools. Now, because of WiFi and the availability of fiber optic connections, this is no longer the case. Further, President Obama's proposed [ConnectED Initiative](#) has set a goal of equipping 99% of America's public schools with a broadband Internet connection within five years. Mr. Coulter estimated that 95% could be given this capability for \$10 billion and that such a program could be funded by adding a few pennies to everyone's phone bill. Moreover, this could be accomplished without passing legislation. The FCC can mandate this charge by a simple majority vote of its Commissioners, which may occur.
- **Credibility.** Another reason to believe that the pace of implementation will increase is that as larger, more sophisticated districts, like Los Angeles and Miami, adopt electronic learning, the credibility of this new methodology will be enhanced and smaller districts will have meaningful models to emulate. In addition to credibility, these early adopters will generate evidence about their success and best practices.
- **Teacher comfort.** Getting the devices into classrooms is only part of the challenge. Devices without the right software and properly trained teachers are of little use. Significant investments must be made to support teachers in growing comfortable with using new technology in the classroom.

Teachers are understandably skeptical about any new technology that risks disrupting "tried and true" classroom methodologies. However, as the cohort of younger teachers, who have a greater comfort level with new technology, take on a more important role in the educator population, word of mouth and best practices will spread and much of this resistance will dissipate.

- **Availability of software.** Choosing a textbook program that is aligned with the Common Core is relatively simple. Because there are only three major textbook publishers, choice is limited. This contrasts dramatically with the number of programs and apps available for electronic devices. Teachers today have a mind-boggling array of options from which to choose for all grade levels in just about every discipline.

The panelists see the current environment as overwhelming, cluttered, and noisy. They believe that market forces will ultimately determine which programs are the best. They see great potential in [Graphite from Common Sense Media](#), which was referred to as "Trip Advisor for educational technology." Through Graphite teachers can rank the tools they find most helpful.

None of these **CHALLENGES** will be **OVERCOME** without courageous school **LEADERSHIP**. School boards and educational leaders must be willing to take on the status quo and risk failure by introducing **NEW TECHNOLOGY** into their schools.

"People are skeptical about the value-add of what we are doing. . . . Once we prove our case, then I think the funding will flow."

Joel Klein

"We know the solutions, but the question is whether we can find the leadership that will disrupt the status quo on a vast range of issues that we need to face."

Joel Klein

Getting technology adopted in classrooms means taking risk.

Also, while the pace of adoption is likely to accelerate, leaders must realize that broader adoption has just begun. It will take time and much will be learned along the way.

Addressing and overcoming these challenges involves taking risk, which as John Deasy pointed out, is not in the DNA of school boards. But Joel Klein emphasized that without tough, transformative risk taking—which requires strong leadership—change in education will not occur, which is the greatest risk of all. Rafi Musher encouraged attempting to de-risk the issue of technology in classrooms by conveying to parents, teachers, and school boards the compelling benefits from technology; celebrating courageous leaders who push the use of technology; highlighting success stories; and providing data about results.

The universal availability of electronic learning tools in schools will fundamentally change the nature of education.

Once portable learning devices are in the hands of every student, there will be a transformation in education, impacting just about every aspect of the teaching process:

- **Where students learn.** Using technology, students will learn at home, at their own pace. The teacher's role will be to monitor the students' progress and help them proceed to the next step. The goal, according to Mr. Bushnell, is not just to learn a subject, but to master it. The amount of time this will take will be different for every child so the program must be customized to fit each student's needs.

The results can be dramatic. Mr. Bushnell cites the results of using software to teach Spanish I. A typical student leaves a course with a 150-word vocabulary. His students, using technology, had a vocabulary of 1,500 words by year-end. Teachers love it because the vocabulary can be learned with the aid of technology at home, allowing the teacher to focus classroom time on grammar and syntax.

Mr. Kassebaum described how his students use technology to learn on their own, outside of the classroom, for seven hours every two weeks, resulting in a far more rigorous learning experience.

- **How students learn.** Students exposed to new learning tools will demand changes in how they are taught. Because they can learn at their own pace, many will master material typically taught in a required course while others may not be ready for that course. A customized, dynamic learning plan must be developed for each student.
- **How students prepare to enter the workforce.** Because their secondary education was customized, a greater number of students will leave high school ready for colleges, community colleges, technical training, or even the workforce. This will force post-secondary institutions and employers to adapt to stay in sync with the way students are taught at the secondary level.

Greater use of **TECHNOLOGY** in education will **ENGAGE** students by making education more **PERSONALIZED** and relevant to them. It will provide more opportunities for those in difficult situations, will foster **LEARNING** among those with different learning styles, and will give all students a **VOICE**.

“It (the device) is going to become the center of community and family learning. . . . The opportunity for communities that have never had voice before is transformational in large communities of poverty.”

John Deasy

Conclusions

This panel of educational experts and thought leaders made clear that:

- **Technology in classrooms is transforming education.** It is changing what, where, how, and how fast children learn. Through the use of technology, students are often more engaged, can learn collectively, and can access more and real-time information. Technology is changing everything.
- **Adoption has been slow, but the barriers can be overcome.** Despite the tremendous promise of technology in the classroom, its adoption lags. There are formidable barriers including lack of evidence, funding, infrastructure, and software, and the need to change teaching practices, which can make teachers uncomfortable. But the momentum is shifting as all of these barriers can and are being overcome.
- **Driving adoption requires leaders willing to take risks.** Educational leaders can see the future. They know the power of technology to change the game. They have a dissatisfaction with the status quo and a sense of urgency to drive change, which they know requires taking risk. But, they believe the rewards outweigh the risks and are taking action. They need support, including financial support, and assistance in moving forward.

About the Milken Global Conference

The Milken Global Conference convenes some of the world's most extraordinary people to explore solutions to today's most pressing challenges in business, health, government and education. Learn more at www.milkeninstitute.org.

About Ed.Co

Ed.co is a fundraising software solution that empowers K-12 schools to raise money and access resources to enrich the educational experience for all students. Ed.co streamlines the "art of the ask" to bring fundraising expertise to schools, parents and student groups, enabling them to raise up to 80% more funds compared to traditional efforts and access new funding sources. By aggregating school needs and attracting private funds, Ed.co offers a channel into schools for education merchants to deliver new innovations and share best practices to drive systemic change in K-12 education. For more information, visit hello.ed.co.

About Stax Inc.

Stax Inc. is a global strategy consultancy serving private equity firms and corporations across a broad range of industries. The firm partners with clients to provide data-driven, actionable insights designed to help management grow organically, enhance profits, increase value, and make better M&A decisions. Founded in 1994, Stax has offices in Boston, Chicago, New York, and Colombo, Sri Lanka. For more information, please visit www.stax.com.

Stax has collaborated with the Milken Institute on issues of national interest including education, financial services, and energy.