

SPOTLIGHT



—Alyssa Schukar for Education Week

To help K-12 educators and policymakers make better sense of blended learning, Education Week looked at the experiences of schools such as Belmont-Cragin Elementary in Chicago, where students like 13-year old Llocelin Rivera receive tailored instruction in the hopes of boosting performance and closing achievement gaps.

BLENDED LEARNING

EDITOR'S NOTE

While efforts to measure success are ongoing, schools are developing bold blended learning initiatives they hope can stand the test of time. In this Spotlight, discover how a district's blended learning program is building positive school culture, why personalized learning is coming under scrutiny, and tips educators can use to make blended learning more student-centered.

CONTENTS

- | | | | | | |
|----------|--|-------------------|--|-----------|---|
| 2 | Harvard Business School Examines K-12 Blended Learning | 7 | Blended Learning Research Yields Limited Results | 10 | 18 Tips for Making Blended Learning More Student-Centered |
| 3 | The Case(s) Against Personalized Learning | Commentary | | 11 | 7 Ways to Break Bad Blended Learning |
| | | 8 | Is Blended Learning at a Tipping Point? | 12 | Key to Blended Learning: Data-Informed Small Groups |

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Harvard Business School Examines K-12 Blended Learning

A Pennsylvania district's blended learning effort captures the attention of a business school researcher.

By Michelle R. Davis

In the leafy suburbs of Philadelphia, the affluent Downingtown, Pa., school system has high test scores, plenty of digital resources, and features one of the best high schools in the country.

Even so, Superintendent Lawrence J. Mussoline decided to shake things up. The 13,000-student district already offered students online courses from a vendor, but Mussoline wanted a blended-learning program taught entirely by Downingtown teachers with Downingtown-created courses.

He hired a coordinator of blended and cyber learning to oversee the new Ivy Academy. She spent a year training teachers on blended instruction for classes that only meet face to face half the time, while students work independently the other half, but cover the same ground as traditional courses. Ivy Academy is now finishing its second academic year.

The model captured the interest of John Jong-Hyun Kim, a senior lecturer at Harvard Business School. Kim used Ivy Academy as a case study in his Entrepreneurship and Technology Innovations in Education class at Harvard, in part because of the district's efforts to measure effectiveness and initiate a change in district culture. *Education Week* spoke to both of them.

Why disrupt things in Downingtown when 95 percent of students already go to college?

Mussoline: If we're investing a lot of money in 1-to-1 technology, we better be using the technology in productive ways. We're trying to get to the golden egg, which is individualized instruction.

Some teachers haven't been enthusiastic about the blended-learning courses. How have you handled that?

Mussoline: Where there's a lot of the pushback is from teachers who say it's not for every student. I still have a math department that has not bought into this. We have teachers who will tell students, "You won't learn it unless I'm in front of you every day." It's going to take a while to break that. But we're breaking it.

Do blended courses work for all students?

Mussoline: We have common midterms, common finals, and we're comparing those in blended classes and traditional classes. We're seeing gains in the blended classes. Not everywhere, but even when there aren't gains, they're about the same. This year, from the midterm data collected, it's more like two-thirds in the blended classes are doing better and a third are doing equal or not as well as traditional classes.

What's the feedback from the students?

Mussoline: The first year we had about 300 students taking blended courses, this year we have about 750, and next year we'll have over 1,100 students taking these courses in just about every subject area. The students are telling us the teachers are more productive—they're more on point, they're not wasting any time.

Where will you take this in the future?

Mussoline: We started in high school; now, we want to move the blended program to the middle level. Then we want to take it to full cyber at the high school. My vision is to have Mrs. Smith teach a traditional class Period 1, Period 3 she teaches a blended class, and Period 4 is a full cyber class.

What was interesting about this program to you?

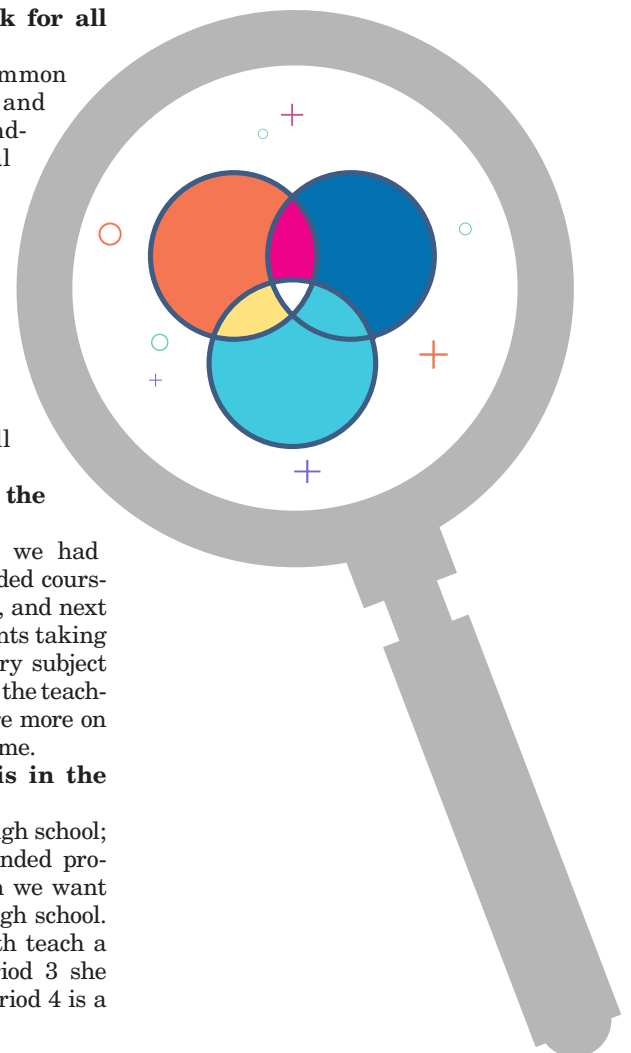
Kim: I was seeking an example of a district that had implemented a new approach coupled with real results. There are a lot of districts investing in technology, but many fewer districts are actually looking at results and trying to learn from that.

What was significant about the approach in Downingtown for your business school students?

Kim: We often think about change in districts that are very urban, or where there's a performance gap. When you think about incorporating technology in a place like Downingtown, some of the resistance you'll get is from people who are actually very good in the current system.

What measurements would signal success for Ivy Academy?

Kim: The true test will be whether this prepares students better for the way college is set up, which is one of the motivations behind it. We have traditional high schools with a pretty strict period-





Reading at Sharpe Elementary Skyrocketed!

Blended Learning that Works

At the start of the school year, more than 70 percent of Sharpe Elementary School students read below their grade level. The administrators at this Tennessee school held higher expectations for the success of their students. Looking to increase student literacy by 60 percent, they turned to Istation for a path to improvement.

Sharpe Elementary began using Istation at the start of

the school year for students in prekindergarten through 3rd grade. By November, the school had added Istation's Advanced Reading program for grades 4 and 5, thus beginning a powerful and exciting change.

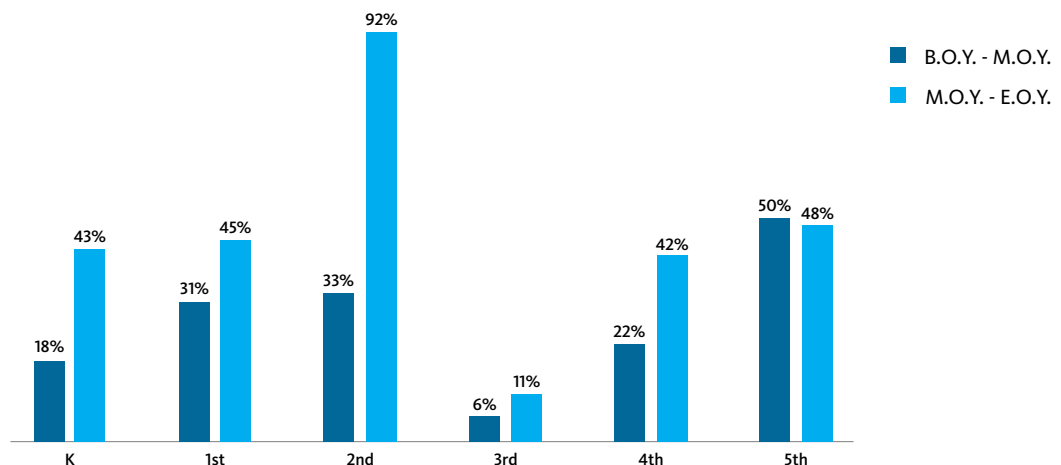
The campus embraced the program's potential by reporting weekly assessment data to all students and faculty, thereby enabling teachers to make

informed decisions about instruction and helping students take ownership of their learning. Sharpe Elementary students know exactly what reading tier they are in and are eager to continue the Istation journey to improve their literacy scores.

Upon seeing Sharpe Elementary's success, other schools in the county followed its lead in using

Istation's tools, including assessments, online interventions, and teacher resources. Students and teachers have honest conversations about student performance, and due to that transparency, the students' growth in Istation and in reading has skyrocketed.

Growth Rate of Students Assessed Reading at Grade Level



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Strategic Leadership with Blended Learning

Turn Around a Failing School with Teaching and Technology

For administrators taking on the challenge of turning around failing schools, developing a strategic focus for improvement efforts is crucial. Stringfellow Elementary in Colquitt County Schools in Georgia went from one of the state's lowest performing campuses to one of the district's most improved and highest scoring elementary schools with the help of computer-adaptive instruction from Istation Reading.

Seven steps Stringfellow took to turn around a failing school:

1) Carefully select the curriculum

Analyze data to determine what fits the school's needs. Stringfellow vetted lots of curriculum choices and software programs before deciding on a reading curriculum with Istation's computer-adaptive instruction.

2) Schedule support

Match the master schedule with the demands of the curriculum; the same goes for the educational technology. Istation provides adaptive curriculum with flexible teaching resources and a scope and sequence that supports intervention, development, and enrichment.

3) Ensure fidelity of instruction

Doing anything with fidelity will improve student outcomes. Istation's reports and teacher support helps drive fidelity, measure progress, and track usage.

4) Implement some benchmarks

Paint a clear picture for the future and how the year is going with benchmarks. Providing direction prior to standardized test time, Istation's priority reports pinpoint where intervention is needed and groups students requiring small-group instruction.

5) Analyze data

Don't stop with just conducting benchmark

assessments. The real-time data compiled by Istation's personalized data profiles can be fully analyzed to drive instructional decisions.

6) Provide intervention

Istation was a very important aspect of Stringfellow's intervention process. Students used every available computer on the campus, five days a week for thirty minutes at a time to provide the best possible intervention.

7) Inspect the expected

Monitor, monitor, monitor. Encouragement and motivation are key while planning observations during critical times throughout the year.

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and-days rotation, and then you go into the world of college, and it's very different. I hope to follow these students and see how well they do over time.

What are your business school students going to do with the knowledge they get from your class?

Kim: Of my class, about a third will go directly into some education-related enterprise, whether it's a charter school, an ed-

tech startup, or a traditional school district. They care deeply about improving public education and education overall, but they're looking for entrepreneurial opportunities to do so. Another third will end up doing it at some point in their careers, but it might be later. The third group will probably never work directly in the sector but may end up sitting on boards or volunteering their time or donating money. I want to make sure

they know how to support the organization that has the greatest impact. ■

Coverage of trends in K-12 innovation and efforts to put these new ideas and approaches into practice in schools, districts, and classrooms is supported in part by a grant from the Carnegie Corporation of New York at www.carnegie.org. Education Week retains sole editorial control over the content of this coverage.

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The Case(s) Against Personalized Learning

By Benjamin Herold

Bill Gates and Mark Zuckerberg are backing it with hundreds of millions of dollars. States from Florida to Vermont have adopted supportive laws and policies. And school districts across the country are embracing this emerging education trend.

But as “personalized learning” takes root, it's also coming under greater scrutiny.

Leading researchers say their work does not support the most enthusiastic claims being made by personalized-learning supporters. Education experts are raising questions about implications for teaching and learning. Tech-industry critics are sounding alarms about Silicon Valley's growing influence over public schools. And a small but vocal coalition of parents and activists from across the political spectrum deride the term “personalized learning” as an Orwellian misnomer for replacing teachers with digital devices and data-mining software.

Such resistance is probably not surprising.

When any new educational strategy receives money and attention, questions arise. Like other efforts to improve U.S. schools, personalized learning is getting swept up in decades-long disagreements over how children learn, the proper role of teachers, and who gets to decide how public education is organized.

But personalized learning also faces some unique challenges. The biggest is

lack of clarity around what the term actually means.

In general, personalized-learning models seek to adapt the pace of learning and the instructional strategies being used to best fit each individual child's strengths, weaknesses, and interests. In



the digital age, realizing these goals is often seen as dependent on technology—to help measure in real-time what each student knows; to develop “learner profiles”; and to help match each child with customized learning experiences and “playlists.”

In practice, though, “personalized learning” is used to describe everything from supplemental software programs to whole-school redesigns.

As a result, the term has become a blank slate on to which supporters and skeptics alike project their own hopes, fears, and beliefs.

To help K-12 educators and policymakers consider personalized learning from every angle, *Education Week* is taking a close look at the perspectives of critics like Tiffany Dunn, a veteran teacher in Kentucky's 101,000-student Jefferson County school system whose strongly held concerns broadly reflect the worries of other opponents.

“This whole thing is coming from the tech industry, which doesn't understand that what kids need is someone to love them and get excited about them,” Dunn said. “I'm not aware of any research that says sticking a child in front of a computer for hours on end does them any good.”

Do such arguments hold weight? How do proponents respond? What do third-party experts say?

What follows is a breakdown of the three main critiques leveled against personalized learning.

Argument #1: The Hype Outweighs the Research

No one has studied personalized learning more closely than the RAND Corporation.

And RAND is unambiguous about what its research shows.

“The evidence base is very weak at this point,” said John F. Pane, a senior scientist and the group's distinguished chair in education innovation.

Still, the hype around personalized learning has continued to grow. Take, for example, Facebook's Mark Zuckerberg. Along with his wife, pediatrician Priscilla Chan, the founder of the giant social-networking company plans to use

his Chan Zuckerberg Initiative to invest billions of dollars into personalized-learning efforts. Zuckerberg regularly articulates his goal of “personalizing education for every student.”

Such lofty ambition is common throughout the ed-tech industry. Dozens of companies now tout a wide range of software, platforms, and apps as transformative tools for personalizing student learning.

Schools are buying in: 97 percent of district leaders surveyed by the Education Week Research Center last year indicated that their districts had invested in some form of personalized learning.

Proponents say it would be a mistake to dismiss all those efforts as misguided, or not based on any evidence at all.



The evidence base is very weak at this point,” said John F. Pane, a senior scientist and the group’s distinguished chair in education innovation.”

JOHN F. PANE

SENIOR SCIENTIST, RAND CORPORATION

For one thing, RAND has found early signs that some comprehensive, whole-school personalized learning models yield modest student achievement gains.

And at its heart, said Richard Culatta, the CEO of the International Society for Technology in Education, personalized learning is about giving students control over their own learning; differentiating instruction for each child; and providing real-time feedback. Plenty of research supports each of those strategies.

What’s new about contemporary versions of personalized learning, Culatta maintained, is the use of technology to bring those individual approaches together into a coherent whole. What’s happening now should be understood as research-and-development, with many experiments taking place at once, Culatta said.

How can K-12 educators and policy-makers make sense of such a confusing, evolving landscape?

Louis Gomez has some ideas.

An education professor at the University of California, Los Angeles, Gomez studies the ways technology initiatives play out inside school systems.

The reality, he said, is that many schools purchase off-the-shelf software and call it “personalized learning,” without being able to say what is supposed to change in the classroom. And even when schools do take a broader view, they often fail to recognize that success depends largely on decisions that educators and administrators make on the ground.

That’s in part because many versions of personalized learning seek to change or replace fundamental processes that shape the day-to-day life of schools—everything from how teachers prepare lessons to how students are graded.

Inevitably, Gomez said, that causes tension.

RAND’s research, for example, has consistently found that even in the best-supported personalized-learning schools, teachers frequently say there’s not enough time to truly tailor the learning experience to each child.

Does that mean that schools should ditch the personalized-learning experiments?

No, Gomez, Culatta, and the RAND researchers agree. There’s real reason to be excited.

But it’s OK to wait for more and better evidence, they said. If you do plunge in, be sure the initial stakes for failure are low, and build in opportunities to learn.

“I would not advise schools to dump massive resources into going fully into personalized learning,” said Laura S. Hamilton, the associate director of RAND Education. “Experiment with some new approaches that might be a good fit for your particular school or district, but monitor it very closely.”

Argument #2: Personalized Learning is Bad for Teachers and Students

Every student is a unique combination of individual skills, abilities, and preferences, writes Todd Rose in *The End of Average*, which has become a kind of bible for the personalized-learning movement. Therefore, trying to peg each child’s learning experiences to some notion of what is typical for most children is both misguided and harmful.

Instead, many personalized-learning proponents suggest, schools should leverage technology to expand the benefits of good one-to-one human tutoring. By pursuing that vision, personalized learning can help children develop the skills, purpose, and passion to not only learn content and skills, but to think critically and build relationships, said Diane Tavenner, the CEO of California’s Summit Public Schools charter network.

“Here’s what I consistently hear,” said Tavenner, describing her interactions with the thousands of educators across the country receiving training on Summit’s technology platform and instructional model (which were developed with support from Facebook and the Chan Zuckerberg Initiative.) “They say, ‘This lets me be the teacher I’ve always wanted to be.’”

But many experts, from across the political and pedagogical spectrum, aren’t sure they buy it.

The sharpest critiques have come from progressives like Alfie Kohn, the author of *Schooling Beyond Measure*.

“It’s behaviorism on a screen,” Kohn said of personalized learning.

Here’s what he means:

First, many critics believe that personalized learning boils down to kids working alone on software, an approach they say ignores the crucial social aspects of learning and reduces teachers to the role of “facilitators.”

Because so many different approaches get labeled as “personalized learning,” it’s hard to say how often that really happens. In the schools RAND is studying, the researchers describe such practices as relatively rare.

But in August, the Silicon Schools Fund, which provides millions of dollars to leading personalized-learning networks, released a report describing lessons learned during five years supporting the field. Among the concerns were “schools that were often very quiet,” because “students were head-down, working on their computers at their exact level.” Now, the fund says, most of the groups it supports are trying to reduce the time students spend alone on computers to 20 to 40 percent of the school day.

On a deeper level, Kohn and some other progressive educators believe that real learning happens when students are driven by their intrinsic curiosity to pursue answers to their own questions about the world. By contrast, Kohn said, much of what’s marketed as “personalized learning” amounts to little more than breaking knowledge and ideas down into “itty-bitty

parts,” then using extrinsic rewards to “march kids through a series of decontextualized skills they had no meaningful role in choosing.”

Some conservative education-policy experts raise similar concerns.

Michael Petrilli, for example, is the head of the Thomas B. Fordham Institute. Like Kohn, he worries that some versions of personalized learning encourage a “reductionist type of education” that “breaks learning into little bits and scraps and bytes of disparate skills, disconnected from an inspiring, coherent whole.” That tendency is particularly troublesome in the early grades and in subjects other than math, he said.

But while Kohn worries that personalized learning doesn’t give students enough control over their learning, Petrilli fears the opposite.

It’s already hard enough to ensure that all students are held to challenging standards and offered rigorous curriculum, he said. Personalized learning’s emphasis on offering different content and paths to each student could open the door for watered-down expectations, greater inequities, and more difficulty holding schools accountable.

Tavener, of Summit Public Schools, described both critiques as “legitimate”—but only in those cases where personalized learning is solely about helping students efficiently master discrete information and skills.

That’s not the case at Summit, Tavener maintained. She said the strongest personalized-learning models offer the best of what both conservatives and progressives want: high-quality standards and content for students, with opportunities to apply that knowledge via self-directed projects, all supplemented by human mentors and technology tools that help students keep track of their own learning.

Do such claims hold up to outside scrutiny?

There’s not yet any definitive answer. But Stanford University professor Larry Cuban, a long-time ed-tech skeptic, recently spent a year observing classrooms at Summit and other personalized-learning schools in Silicon Valley. Cuban said he was surprised to find “meaningful, incremental improvements in how teachers organize and teach a lesson”—but not the kind of revolutionary new model of education that Tavener describes.

Overall, the personalized-learning field is still marked by significant unresolved pedagogical tensions, said

Benjamin Riley, the executive director of the nonprofit Deans for Impact, which seeks to improve teacher preparation. Among the biggest: the appro-

interaction when every student is pursuing his or her own path.

Too often, Riley said, proponents gloss over such concerns.

“There are tradeoffs here, and we at least need to acknowledge them,” he said.

Argument #3: Big Tech + Big Data = Big Problems

Finally, many critics are worried that “personalized learning” is cover for an aggressive push by the tech industry to turn K-12 education into a giant data-mining enterprise.

For parents and activists like Karen Effrem, that belief provokes intense fear and anger. “We’re sacrificing our children’s privacy, and we’re allowing corporations to make potentially life-changing decisions about our kids, all for technology that doesn’t actually help them,” said Effrem, the president of Education Liberty Watch, an advocacy organization that supports parents’ right to control their children’s education.

Evaluating such critiques can be difficult. The proprietary technical engines that drive the personalized-learning movement are largely black boxes, inaccessible to public inspection.

What is clear, though, is student data are the fuel that makes many of those systems go.

Just listen to Bharat Mediratta, a former Google engineer who helped launch personalized-learning pioneer AltSchool, which aims to harvest information about students via everything from classroom cameras to computer keystrokes.

“First, we need to generate the big data,” Mediratta told *Education Week* last year. “Then, we start figuring out how to use it to transform education.”

Writ large, that philosophy has prompted worry about the sheer volume of information collected from children in school, especially amid the recent push to better understand students’ behaviors, feelings, and mindsets.

Security and privacy are also front-of-mind: Just this spring, for example, popular digital-learning platform Edmodo was hacked, resulting in the personal information of an estimated 77 million users being put up for sale on an unregulated part of the internet.

And many critics worry that algorithms are increasingly being used to make key decisions shaping children’s futures, without any real way for students and parents to understand how those



We’re sacrificing our children’s privacy, and we’re allowing corporations to make potentially life-changing decisions about our kids, all for technology that doesn’t actually help them.”

KAREN EFFREM

PRESIDENT, EDUCATION LIBERTY WATCH

priate role for software in the classroom, how much autonomy is best for student learning, and the challenge of maintaining high standards and social

choices are made, or challenge them for possible errors or biases.

Personalized-learning proponents generally acknowledge such fears as legitimate, suggesting they can be solved through dialogue and better regulation.

“As we in the tech world get closer to having a better picture of each student at any given point in time, all of these discussions about data and privacy need to continue,” said Kristen DiCerbo, the vice president of education research at global publishing giant Pearson. “It’s not too late.”

But some critics say that stance presumes that more data-driven personalization in education is both desirable and inevitable, so long as the wrinkles can be ironed out.

K-12 educators and policymakers should question the forces driving that narrative, said Audrey Watters, an independent researcher who maintains the popular Hack Education blog.

The push for more personalized learning isn’t happening in a vacuum, Watters maintained. The movement is emerging from the values and technologies that already define Silicon Valley. And it’s clear how the companies behind those systems operate.

“When Facebook promises personalization,” Watters said, “it’s really about massive data collection.”

In the consumer sector, critics say, the downsides of that approach are only now becoming evident, after the technologies have already been deployed at enormous scale.

Facebook, for example, has recently come under fire for its role in creating “filter bubbles,” in which users only see information determined by algorithms to fit with their existing preferences. Critics also decry the ways the company has reportedly sought to identify and manipulate users’ emotions, including a report last May that it had told some advertisers it could identify when teenagers feel “insecure” and “worthless.”

And Facebook is one of several tech giants currently in hot water over the way its platform was apparently misused in the run-up to the recent presidential election. Mounting evidence suggests foreign actors targeted unwitting Americans with personalized ads and misinformation designed to influence their voting behavior—a problem made possible by the extensive data that Facebook collects from users, and by the lack of public visibility into the customized information that each user receives. In late September, Zucker-

berg, the company’s CEO, apologized for “the ways my work was used to divide people rather than bring us together.”

Is it crazy to worry there could be similar unintended, unanticipated outcomes if personalized learning systems spread rapidly throughout K-12?

There are key differences between the consumer side of Silicon Valley and the work happening in education, according to Jim Shelton, the president of the Chan Zuckerberg Initiative’s education division. Most groups trying to bring personalized-learning technologies to public schools aren’t seeking exponential annual growth, Shelton said.

While CZI has given millions of dollars to AltSchool and its big-data-driven approach, the initiative is also supporting models like Summit, which says it avoids algorithmic recommendations and targeting in its platform. And as leaders like Zuckerberg bring their technologies, skills, and experiences into the K-12 arena, Shelton said, they face the burden of demonstrating that the products and approaches they support actually help children learn and grow.

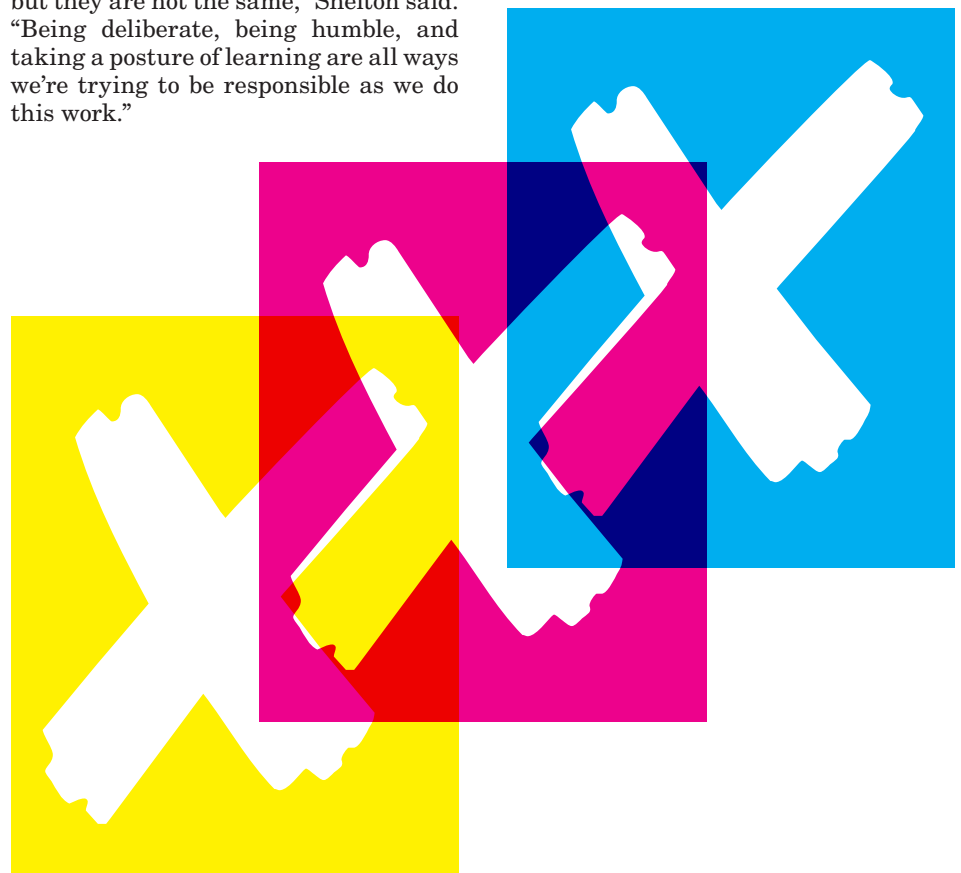
Facebook and CZI “may be related, but they are not the same,” Shelton said. “Being deliberate, being humble, and taking a posture of learning are all ways we’re trying to be responsible as we do this work.”

Still, educators and the public would be foolish to not carefully consider the tech sector’s influence in public schools, especially given its recent stumbles, said Ben Williamson, a lecturer at the University of Stirling in the United Kingdom who studies big data in education.

Billions of public dollars are at stake, he said. So are big questions about the fundamental nature of schooling: How do we believe children learn? Who should decide what students need to know and get to experience? How will we determine what they’ve learned?

“We need to open up a bigger debate about whether we really want Silicon Valley establishing this new model of data-driven schooling,” Williamson said. “These are people whose vision for reforming public education puts their own industry in charge.” ■

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Blended Learning: Breaking Down Barriers*

Blended Learning Research Yields Limited Results

By Sarah D. Sparks

Blended learning is gaining considerable popularity in American classrooms, but the question remains: Is there strong evidence that the strategy helps K-12 students?

"The answer right now is still no," said Sarojani S. Mohammed, a partner and lead researcher at The Learning Accelerator, a Cupertino, Calif., nonprofit group that helps districts implement blended-learning strategies. "We don't have definitive evidence that blended learning works or that it doesn't, though we do know some things about specific aspects."

Blended-learning practices have steadily evolved in classrooms, but there is little consensus on what, exactly, the term encompasses. This further hampers efforts to build a solid understanding of whether, when, and how the strategy of combining face-to-face instruction with technology-based lessons actually works.

Research on blended learning has begun to accumulate only in the last few years, with the U.S. Department of Education, the Bill & Melinda Gates Foundation, the Michael & Susan Dell Founda-

tion, and others having recently supported studies of its uses in classrooms.

"Whether blended learning works or not is a frustrating question because the answer is always going to be 'it depends,'" said Michael B. Horn, a co-founder and the executive director for education at the Clayton Christensen Institute for Disruptive Innovation, in San Mateo, Calif., which studies technology in society. "Depends on how it's implemented, how well teachers are trained. ... It's unlikely to be that blended learning magically causes better learning, and more likely, that it offers better opportunity to provide each student with what he needs when he needs it."

Even defining "blended learning" has proven difficult.

Terms go in and out of fashion—hybrid learning, virtual learning, technology-based instruction, personalization, and so on—and can describe virtually identical or radically different instructional models with disparate levels of technology use.

"Blended learning should be defined as a continuum," said Susan D. Patrick, the president and chief executive officer of the International Association for K-12 Online

Learning, based in Vienna, Va. "It's really important for us to realize blended learning is not only a combination of online and face-to-face learning, but that students have some control over time, place, path, and pace."

Coming to Terms

In a 2014 report underwritten by the Michael & Susan Dell Foundation, the research group SRI International studied 13 low-income charter schools using a "rotation" model of blended learning, in which students move among online and in-person stations for different parts of the school day. The SRI researchers who conducted the study found all the schools provided a formal education program with at least some online instruction and some coursework delivered outside the home, and students had some level of control over how they went through the material.

But even within a single model, blended learning looked different from school to school. In some cases, teachers had a big say in which programs students used at different times, while in others, in-person teachers had little connection to the separate labs where students worked online. In still others, self-directed online programs were more likely to be an enrichment for advanced students, while other schools focused on remediation for struggling students.

"In a traditional environment, you're assuming a teacher is teaching the same thing at the same time, so you can code what's happening [in an observation study]. That's much harder with personalized learning," said Ms. Patrick. "It's hard to make general statements about blended learning when 20 different schools have 20 different models."

Ms. Mohammed noted that there are "lots of different flavors" of blended learning, and "the ecosystem has not really congealed around a definition."

Parsing Imperfect Measures

And even when studies are all looking at the same learning model, that research is often focused on adults, not school-age users.

A 2010 federal study underscored the scope of the challenge. The Education Department took a broad look at all available studies of online learning, including blended approaches. From 1996 through 2006—the decade in which the Internet rapidly evolved and became ubiquitous—there were no experimental or controlled

studies *at all* comparing online and in-person instruction for K-12 students.

The analysis ultimately found that students in blended-learning classes outperformed those in fully online or fully in-person classes and spent significantly more time on task. But it also found no significant improvements for K-12 students, for good reason: Out of 46 studies included, nearly all examined college-age or adult professional students.

Only five studies covered K-12 education, and they examined academic gains in a variety of subjects and age groups—8th grade social studies, 8th and 9th grade algebra, middle school Spanish, elementary special education—and, for a group of schools in Taiwan, 5th grade science.

Drawing meaningful conclusions from comparisons of adults' and students' experiences with blended learning is difficult, researchers say. College students, and adults taking on-the-job training courses, may have considerably more focus and motivation to use self-paced, computer-based instruction than K-12 students do, particularly at earlier grades.

One ongoing study by the RAND Corp. for the Gates Foundation is trying to tease out how blended learning plays out in lower grades. Researchers are chronicling how nearly 60 charter and regular district schools implement blended learning, and whether it improves student achievement.

An interim report, covering 23 charter schools and nearly 5,000 students, found students at two-thirds of schools that used blended learning made statistically significant gains on either math or reading tests. But researchers also warned that it isn't yet possible to know "which particular

instructional approaches may account for the positive student-learning outcomes."

Of the schools that have seen gains, "it's hard to say if these are just really strong charter schools, or if [blended learning] is playing a role," said John F. Pane, a senior scientist at the RAND Corp., who is working on the evaluation.

Racing the Clock

The time frame for experimental research—five to seven years for most randomized controlled trials—is seen as a problem for conducting studies of education. It poses even greater obstacles for evaluating blended learning, in which iterations of software and curriculum can shift dramatically from year to year.

"The things we have a lot of evidence for—things like early-reading development, personalizing—took decades" to research, Ms. Mohammed said. "I'm not sure that sort of framework is going to be useful in blended learning, where the technology and innovations are changing so rapidly."

From a research standpoint, online instruction would seem to have one clear advantage over in-person instruction: A researcher can't follow a student's thought process as he takes a test, but online programs like Carnegie's Cognitive Tutor can track practically every keystroke entered by every student using the program, allowing analysis not only of what questions a student answers correctly, but how he approaches and works through a problem.

So-called "big data" hold potential to reveal whether a student really understands and can apply a concept, Mr. Pane

said, but it's proved to be far from a panacea. The positive results found in a recent evaluation of Cognitive Tutor's blended-learning program, for example, remain in "a black box," with researchers still unsure what exactly caused the improvements in math performance.

"It's a huge volume of data and making sense of it is very challenging," Mr. Pane said. "You get a bunch of keystrokes, but unless you know what was on the screen when those keystrokes were happening, it's mind-bogglingly hard to analyze."

Mr. Horn and Ms. Patrick call for less focus on evaluating individual blended-learning software and programs based only on test scores, and more support for identifying which outcomes schools want, then building measures to test those.

School leaders should not think of online or blended learning as fundamentally different from traditional classroom learning, Ms. Mohammed said. The research suggests they should instead implement it when they "want to solve specific instructional problems," she observed.

"We have not focused on whether learning is actually different in the two different environments," Ms. Mohammed said. "If you take an ineffective practice in face-to-face instruction and move it to an online setting, you shouldn't expect better learning." ■

Coverage of "deeper learning" that will prepare students with the skills and knowledge needed to succeed in a rapidly changing world is supported in part by a grant from the William and Flora Hewlett Foundation, at www.hewlett.org. Education Week retains sole editorial control over the content of this coverage.

COMMENTARY

Published August 16, 2017, in Education Week's Education Futures: Emerging Trends in K-12 Blog

Is Blended Learning at a Tipping Point?

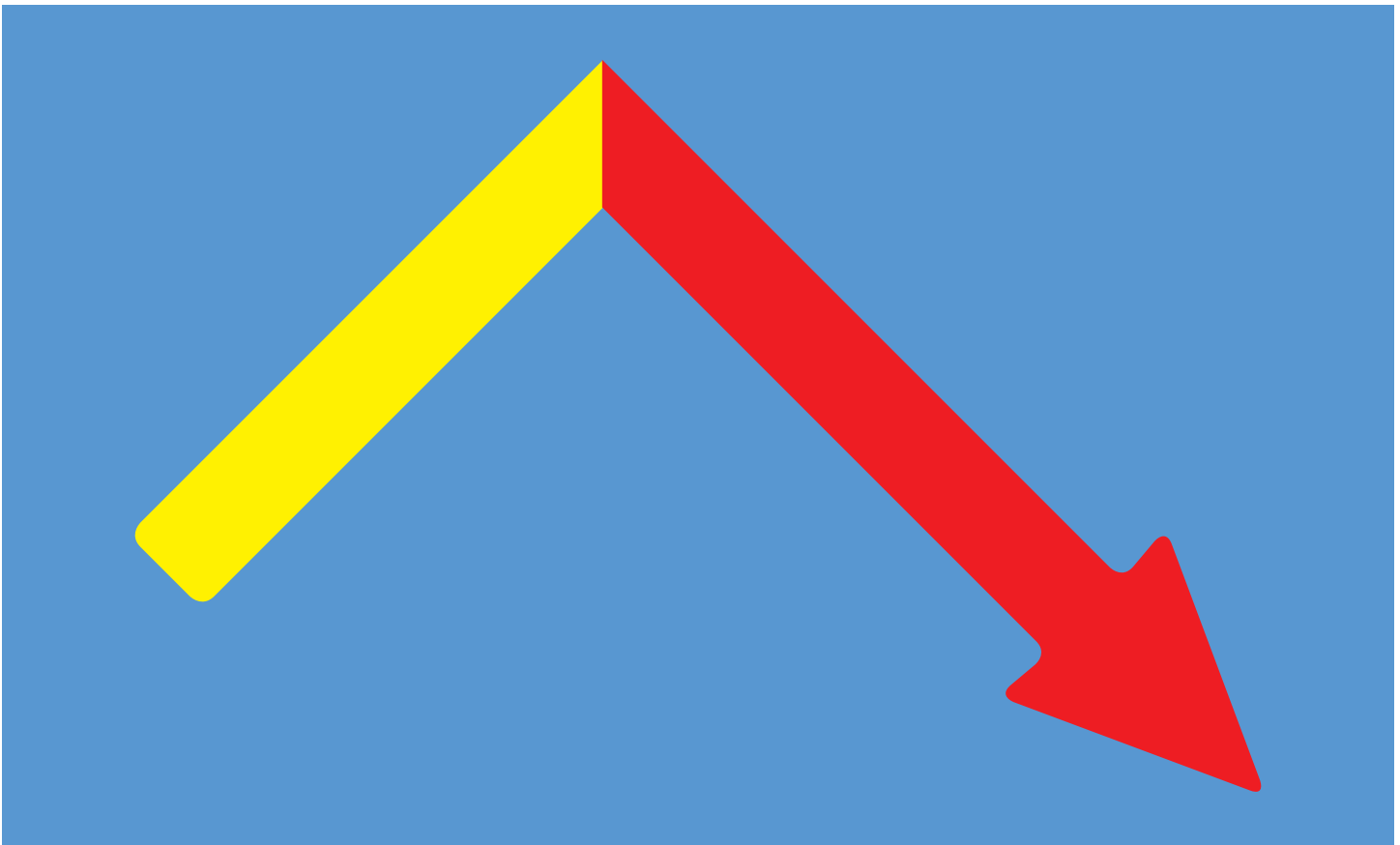
By Matthew Lynch

We all know that great innovations fail. A large reason for failure is because the innovation never reaches the point on the innovation curve beyond innovators and early adopters in the dif-

fusion of innovation. Malcom Gladwell (2017) describes the tipping point as "that magic moment when an idea crosses a threshold, tips, and spreads like wild-fire." It is extremely challenging to predict when educational models are going to reach that so called tipping point. This is because educational systems are inherently complex with multiple factors that

affect adoption. While the primary focus of blended learning is the classroom (physical and virtual); the policy, training, awareness, and professional development around this type of learning need to be examined as important factors to consider when exploring the tipping point.

It is helpful to look for a model to help explain the diffusion of in-



novation. Everett Rogers developed the diffusion of innovation model to help explain why and how something fails or succeeds. According to Rogers, there are five factors to consider when exploring where innovation is at in relation to the diffusion. These factors are the trialability, relative advantage, compatibility, complexity, and observability. We will look at each of these in the context of blended learning. Think about each of these factors in relation to blended learning and if the so called tipping point has occurred.

1. Trialability

Teachers and administrators need the opportunity to tinker with blended learning in a low-risk environment. An essential feature of trialability is the potential to pilot various blended models and software. Blended learning companies that do not have a 30-day trial fail to offer the chance to play with minimal consequences.

2. Relative Advantage

This point speaks to the benefits of a new innovation over previous models. In this case, blended learning is purporting

to replace strictly face-to-face or online learning. The benefits of blended learning include flexibility, focuses learning outcomes, and student-centered learning environments. It embraces technology and promotes flipped learning.

3. Compatibility

Compatibility centers on alignment with existing values and attitudes. It gets at the root of what is valued in education. Blended learning needs to be viewed as consistent with the fundamental axiological beliefs of educators to gain traction and approach that all important tipping point. If we consider the education of all students as the central value of teaching, then blended learning designed to the benefit of students should be consistent with those current values.

4. Complexity

The tipping point of blended learning in relation to complexity refers to how difficult it will be for teachers to understand and use effectively. Previous research around educational technology shows that it is often not optimally used. Professional development will be a key component

of reducing the complexity of blended learning and maximizing potential.

5. Observability

An innovation that cannot be observed will likely fail to go beyond early adopters. It is crucial for teachers to be able to observe teachers embracing and using blended learning. Finding innovators and early adopters that can model best-blended learning practices will be critical when looking at the adoption curve of blended learning. Setting up a peer observation program or something similar to the ID2ID program can help relate the initiative to classroom practice.

So is blended learning at a tipping point? According to Web Courseworks, blended learning in some capacity has passed that tipping point. Technology has fostered an environment where this type of learning is possible. In K-12 environments, blended learning is much more common than online learning. Blended learning is less dependent on policy than fully online learning. While informal blended learning has indeed reached a tipping point, a formalized definition and program focused on blended learning has yet to occur. ■



A Community Approach to Literacy

Using Blended Learning to Build a Stronger School-to-Home Connection

By extending blended learning from school to home, Oak Grove Elementary School in Florida nearly tripled the number of elementary students reading at grade level in just six months by emphasizing a growth mindset and adopting a blended learning approach with Istation Reading.

With over 90 percent of students living in poverty and more than half of families not speaking English, neither Oak Grove nor its students' parents were easily able to support reading at home. Administrators made it

their mission to get parents interested in using Istation's computer-adaptive instruction at home. So they set out to see how many families would commit.

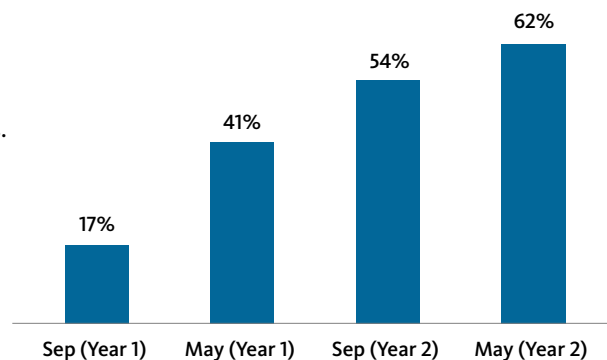
In the first year, about 30 percent of Oak Grove's families used Istation at home. The following year, the school expanded the program and saw more than 665 students log in to Istation off campus, accumulating more than one million minutes of adaptive, interactive instruction. The number of students reading at grade level grew 15 percent in just six months.

For families without a computer or Internet at home, Oak Grove worked with local Boys and Girls Clubs, daycare centers, libraries, and after-school programs to provide access to Istation off campus. Additionally, the school began opening its own computer labs at 7 a.m. for families to come in early and use Istation. Campus leadership noticed that students were starting out a little higher every year and then climbing even higher.

Oak Grove implemented Istation's blended learning essentials with initiatives and

incentives designed to drive fidelity. From goal setting and progress monitoring to data-driven conferences with parents using Istation's personalized data profiles, school leaders have seen 100 percent buy-in from the staff. They've also seen a noticeable increase in enthusiasm from struggling readers. Even parents are now more engaged in what their kids are doing and learning and are interested in learning more about what to expect as their children learn to read.

First Year – Lower Grades Only
Students reading at grade level
NEARLY TRIPLED in six months.



Second Year – All Grades
15% CAMPUS-WIDE GROWTH of students
reading at grade level within six months.

■ Assessed Reading at Grade Level

**Break through with blended learning
with this FREE e-book from Istation!**

info.istation.com/blended



See How Blended Learning Works for English Learners

Native American School Adopts a Mixed Approach

Preserving the Shoshone-Bannock language and culture is a primary goal at Chief Tahgee Elementary Academy (CTEA).

Along with preparing to meet the challenges of today's society, CTEA students learn to speak, read, and write in English and in Shoshone, one of their native languages.

The leadership at CTEA believes in blended learning and how it shapes a student. CTEA made the decision to use the flipped classroom strategy along with Istation's reading and math software to build this school's curriculum.

They used Istation's scope and sequence to determine the school's curriculum schedule. Students spent an average

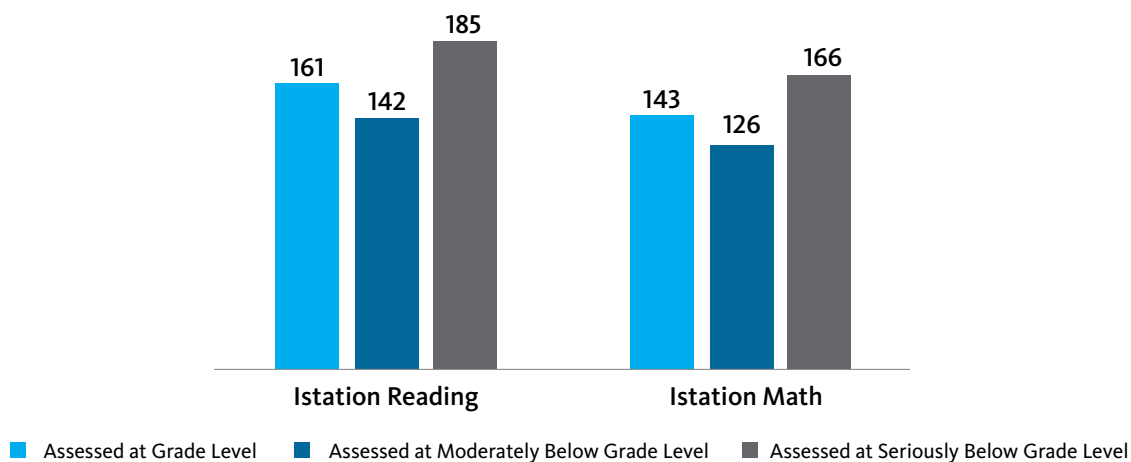
of 182 minutes per month on Istation's reading and math instruction. Usage at the school continued to grow throughout the year.

Because Internet access is limited for students and their families, they use Istation Reading and Math in the school's computer lab. After students' sessions on Istation, their teachers deliver

in-person instruction to reinforce what they learned.

"With other programs, we were getting half the product for double the price," one school leader said. Istation provides the school with what they need, and they say the partnership that comes along with it is like nothing else out there.

Monthly Average Minutes Each Active Student Used Istation Instruction



**Break through with blended learning
with this FREE e-book from Istation!**

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COMMENTARY

Published February 22, 2017, in Education Week's Vander Ark on Innovation Blog

18 Tips for Making Blended Learning More Student-Centered

By Tom Vander Ark

The historic shift from print to digital offers transformational opportunity in education but efforts to “integrate technology” into our schools can leave untouched many historical challenges—inconsistent engagement, low levels of motivation and few chances to build agency and collaboration skills.

Schools seeking to boost motivation, engagement, agency and collaboration are adding student-centered learning strategies to their blended learning plan. Following are 18 tips from leading schools and providers.

Work Around The Edges

Flipping a traditional school to more student-centered learning experiences is challenging. As a large traditional school, the Singapore American School (SAS) faculty decided to begin their transformation by working around the edges.

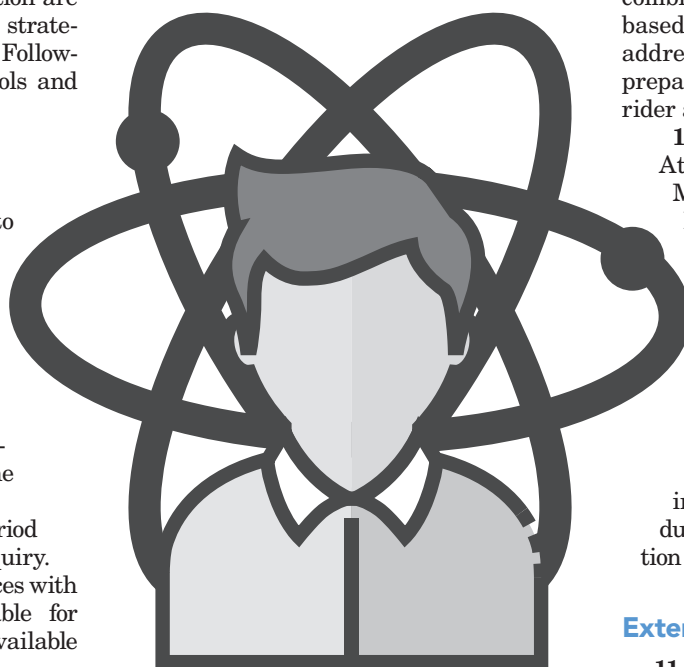
Examples of launching student-centered change by starting on the edges include:

- 1. Genius Hour:** A weekly period where students guide their own inquiry.
- 2. Makerspace:** Dedicated spaces with materials and equipment available for student-directed production, and available during scheduled and free time.
- 3. Applied STEM:** Freshman in a dual language STEM class in El Paso speak English one week, Spanish the next while designing bridges and race cars in WhiteBoxLearning, a CAD program that supports design with short physics lessons. Students can pressure test their bridge and drag race their cars before building models using jigsaws and 3D printers.
- 4. Upper division courses:** Replace some AP classes with student-driven research projects. At Singapore American School these are called Catalyst projects.
- 5. Add microschoools:** Kettle Moraine School District opened a small elementary and three small high schools (two teachers

and 40 students) to introduce blended, interdisciplinary, and competency-based learning.

Voice & Choice

Within core academic offerings periodic efforts can be made to give students more options about what they study and what they produce.



6. Values-based culture: DSST starts each day with a morning meeting to celebrate and reinforce shared values. Students meet with their advisory daily and hold a goal setting meeting weekly. Beacon Schools, another Denver network, provides feedback on character strengths every day.

7. Add projects: Giving students some optionality about the focus of a project and the final product. At Katherine Smith Elementary in San Jose, whole classes are often involved in developing driving questions, project teams then further refine their investigation with specific goals and deliverables. Well-developed

project plans and rubric-based assessment combine these interest-based explorations with standards-based outcomes.

8. Add challenges: Digital Promise advocates for using attacking real community challenges (like #GlobalGoals) to frame project-based learning.

9. Combine personalized and project-based learning: A growing number of districts and networks are combining blended learning and project-based learning in thoughtful ways. This addresses historical challenges of weak preparation for challenging PBL (free rider and swiss cheese).

10. Practice design thinking:

At Design Tech High School in San Mateo and the Denver School of Innovation and Sustainable Development, design thinking strategies are used across the curriculum to help students practice empathy, imagine better futures, and prototype solutions. At Olin College, students use design thinking in every class starting day one.

Design thinking strategies can be introduced in an afterschool program, during an intercession or in preparation for service learning.

Extensions

11. Portfolios: Curating a portfolio of quality work products helps students chart their own progress and take ownership of their learning. At Mukilteo Elementary (north of Seattle), the year culminates with a family picnic and portfolio review.

12. Project mentors: Educurious provides project-based curriculum supported by industry mentors.

13. Work-based learning: Helping students select and shape community-based learning including work, service or civic activities can be a great way to develop student agency and boost career readiness. Every Friday, students at Quest Early College High School (north of Houston) spend learning in the community.

Path & Pace

14. Adaptive learning: By adding 90 minutes a week of adaptive learning (e.g., i-Ready or Dreambox) to K-8 blends provides diagnostic data and personalized learning to accelerate progress.

Columbus Mississippi schools use an adaptive learning platform to take advantage of adaptive learning across the curriculum.

15. Place-based education: Take advantage of geography to create authentic, meaningful and engaging personalized learning for students. According to a new report, place-based education is an immersive learning experience that places students in local heritage, cultures, landscapes, opportunities and experiences.

16. Travel-based learning: Democracy Prep Public Schools founder Seth Andrew spoke with us about how their students visit five continents before graduation in. University Academy leadership shares the same belief in the importance of students participating in international travel.

17. Competency-based education: Competency-based systems ask students to show what they know through frequent performance tasks. Students progress based on demonstrated mastery. They receive more support when and where it is required.

18. Interest-based learning: All of these strategies have the benefit of boosting the quotient of interest-based learning where students are in the driver's seat. Artful teachers can guide student investigations and co-construct projects packed with literacy and problem-solving. ■

18

COMMENTARY

Published June 17, 2016, in Education Week's Finding Common Ground Blog

7 Ways to Break Bad Blended Learning

By Weston Kieschnick

What does it take to push a teacher beyond the threshold of the ordinary?

What is it that turns an educator into an innovator?

I've been privileged to participate in thousands of full-length classroom observations and coaching sessions with teachers as they transform the learning landscape across the country.

It is a gift.

In that time I've been able to co-learn with teachers as they work to masterfully integrate things like Google Apps for Education. I nurture teachers as they leverage innovative methodologies and tools so students can solve problems and cultivate new content for international consumption. I witness children who have never owned a computer, work with teachers and peers to create 3D holographic images and 3D printed materials within the confines of their school. Day after day, I marvel at the learning transformation that is underway.

Sadly I also witness an all too common tragedy consuming blended learning initiatives across the country. As quickly as devices arrive in classrooms, some educators abandon them almost immediately in favor of the traditional pedagogies of their past. Often, not for the sake of student achievement, but for the sake of teacher comfort.

That being said, teachers shouldn't shoulder the blame for this. Devices are being distributed with little to no pedagogical training. When we roll out devices and expect technology alone to transform teaching and learning, we observe individual success in the midst of systemic failure.

That is to say, early adopters and pockets of already masterful teachers will, through grit and determination, find

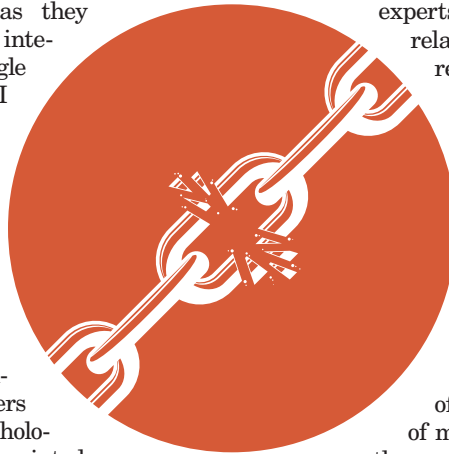
ways to use tech to transform their own classrooms. Systemically however, little will change for the majority of students in the school or district. So what is it then? What is it that separates transformative teachers, schools, and districts from those stuck in the routines of the past? My observations and conversations with the country's best blended teachers have uncovered the following commonalities:

Relationships - Blended experts are all about relationships. They recognize that digital tools are vehicles for achievement and engagement, but they will never substitute for the necessary bonds between teachers and students. As such, they seek new ways to use technology as a means of increasing the number of meaningful interactions they can have with students during the school day and beyond.

Technology is remarkable, and with it we can accomplish amazing feats. However, tech will never be more impactful than a teacher's relationships with, and expectations of, his or her students.

Design methodologies - The best of the best leverage transformative design methodologies and utilize research-based models and frameworks to promote success. In addition to models like SAMR, profoundly impactful blended teachers will also use elements like the Digital Learning Matrix and the Rigor and Relevance Framework to design and self-assess their instruction. These blended innovators are not content to jam technology into antiquated lesson design frames. They utilize more progressive tools to achieve success.

Right tool - High flyers select the right tool for the job. Too often the excitement around technology leads educators to



throw every digital tool they encounter at the wall in hopes that something will “stick”. Exceptional blended teachers don’t use every tool they can think of moderately well. They use a handful of tools masterfully. Once they feel a sense of confidence and competency with a tool, they add another to their repertoire and build a digital toolbox with pace and purpose.

Instructional strategies - Those at the pinnacle utilize the research of John Hattie to meld high effect size instructional strategies with blended models of instruction. Being a master of blended pedagogy means retaining the instructional strategies that positively impact student achievement and utilizing digital tools to expand the reach and

improve the efficiency of those strategies.

Curate content - The greats reach beyond technology as a tool to research and report. They provide opportunities for students to cultivate new content, solve problems, create new products, and ask provocative questions. It’s no longer enough to consume. Success means developing a student’s ability to intelligently consume digital content and apply the subsequent knowledge to real world scenarios.

Collaboration - Masterful blended teachers don’t let a lesson go by without providing students the opportunity to engage in meaningful ways with tech tools, digital content, their peers, and the teacher. Classrooms should never be

places where kids stare silently at screens. They should be platforms for meaningful engagement with a variety of human and digital resources.

District support - The best only become the best because they have school and district leadership that allows them to do so. Innovation cannot thrive in cultures of stagnation and resistance. Expertise emerges in environments where failure in the service of progress is not something to be feared. It is encouraged, it is welcomed, it is expected. Systemic success lives where support, communication, shared decision making, and tech are omnipresent. ■

Weston Kieschnick is a Senior Fellow at the International Center for Leadership in Education.

COMMENTARY

Published June 5, 2016, in Education Week’s Vander Ark on Innovation Blog

Key to Blended Learning: Data-Informed Small Groups

By Tom Vander Ark

Common questions we hear about how to implement blended learning:

- How do we find time for small group instruction?
- How do you break up a big block?
- How do we leverage teacher talent?
- How do we use data to create groups?

Visiting three Bay Area school visits with some blended learning experts helped provide some answers to these questions and more.

Oakland USD

Redwood Heights Elementary in the Oakland Unified School District, has worked over the past couple of years to support innovation pilot classrooms. One of eight pilot sites, Redwood is a part of the Rogers Family Foundation goal to support at least 3,000 high quality, innovative, personalized, student-centered seats in Oakland by 2020.

Principal Cynthia Bagby-Ellison is a proponent of small group instruction and values the time technology swap that

blended learning makes possible. She also expressed that she feels much of their success so far has been due to a great deal

of teacher and student agency. Teachers had a great deal of say in what the pilots were in each classroom, so they created something that is truly theirs and that works for them (as a result, it is currently a collection of blended classrooms more than a single blended school model).

Students in pilot classrooms transition seamlessly from small group instruction to computer-based stations. A certain portion of a student’s day is spent in each of the different stations, depending on the given task or learning goal for that student.

In one classroom, groups were gathered on the carpet and having a math



talk about adding two-digit numbers; and in another were in a mini-lesson about a topic several students needed review in.

We saw students working in pairs to solve math problems and providing each other feedback about different ways they went about solving them.

Students were working together to tackle a playlist of “Have-To’s” and then move onto a choice activity. Part of a playlist might include an individualized program that progresses according to student readiness, such as ST Math.

We also visited Urban Promise Academy, a middle school in Fruitvale south of the airport. Like Redwood, a \$350,000 grant sponsored implemented several blended learning pilots. The sixth grade team was selected to join Summit Basecamp and is benefiting from the Personalized Learning Plan (PLP) platform and training. It will be extended to seventh grade next year and become a whole school model.

Alpha Public Schools

Founded by John Glover in 2011, Alpha Public Schools aims to prepare students in low-income communities with the knowledge, skills and character traits they will need to succeed in college and career. The Alpha team focuses on five key areas:

- **Strong relationships:** Students develop strong ongoing relationships with their teacher who work closely with parents to educate and engage them as advocates for their child’s education.
- **Personalized learning training:** Quality development and leadership opportunities.
- **Smart technology:** Alpha leverages iXL, Newsela, Khan Academy, Discovery, BrainPop, and Reading Smart ESL and MAPS.
- **Family college readiness:** Students and teachers create, monitor and accomplish individualized learning goals.
- **Computer science & design:** Computer science is not just an elective, students all have the opportunity to engage in at least one computer science course.
- **Career preparation:** High expectation, opportunities for collaboration and job awareness are embedded in the school experience

Cindy Avitia High School is collocated with another charter school in the back lot of Overfelt High School in San Jose. While the humble modular settings limit flex-



ibility and integration opportunities, we saw great examples of blended learning.

Most of the high school classrooms shared a blended learning model featuring five stations.

Students in freshman Computer Science were actively discussing their computer science project with their teacher while three other groups worked independently.

Our freshman tour guide didn’t think a career in coding was for her but was glad to have had the exposure.

Students were using Google Docs to write in Spanish about what they thought of the book *Caramelo*.

Lessons

Both schools, while implementing their own version of blended learning, utilize some form of a station approach and a focus on small-group instruction as part of their solutions to these commonly asked questions. Principals from each school emphasized the importance of being versatile in the approach, but staying set on the vision of blended learning experiences for all students.

Jin-Soo Huh, Alpha’s Personalized Learning Manager, offered a few lessons learned about making the most of blended learning station rotation models:

- **Practice routines.** Stations only work if you are maximizing time in the stations. Make sure to get the transitions crisp so valuable instructional time is not lost.
- **Regroup often.** This is especially true if you have homogenous groups.

Make sure to use assessments to re-group students often so they do not develop fixed mindsets around their abilities. You do not want students to think they are in the “dumb group” or the “smart group.”

- **Personalize the stations.** If students are doing the exact same activity at each station and the teacher is doing the exact same lesson with little modifications, it is probably easier and arguably more effective to just do whole group instruction. Adaptive online programs help take the planning burden off of teachers so students are able to get targeted practice.
- **Data matters.** Teachers are getting a ton of data from their in person interaction in small groups, online programs, and assessments. This can be overwhelming. Streamline this data by providing clear targets that students should be aiming for and give teachers and students feedback on their progress to these goals. This could be through data walls, progress reports, conferences and more!

Greg Klein, Senior Director of Innovation and Learning at the Rogers Family Foundation, has been working with Redwood in the implementation of blended approach and also provided some valuable insights:

- **Build student choice and agency over time.** As needed, start with choices within a single station, and grow towards choices in each station. Eventually students can then make choices about which station to attend and for

how long, and they can articulate how their choices lead to them accomplishing larger tasks and goals.

- **Ask students to be accountable for their work.** Support students to create their own station routines and means to stay on track with their own work.
- **Ask students to be a part of the decision-making process.** Care deeply about the various large deep tasks you want each student to be able to complete, and loosen up on the path any particular student takes to get to mastery. Ultimately, beginning of the year stations should yield to personalized pathways.

In contrast, Grant-Beacon Middle School in Denver uses subject specific models: station rotation in math, project-based learning in social studies, and a flex model in ELA. A group of next-generation networks are developing models combining personalized and project-based learning.

The most challenging aspect of station rotation models is the often forgotten third part of the Christensen definition: “modalities along each student’s learning path within a course or subject are connected to provide an integrated learning experience.” Redwood Heights, Urban Promise, and Alpha teachers used data from adaptive computer-based stations to dynamically group students for small group teacher instruction to create a coherent and effective learner experience. ■

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