Making Math Work:

K-8 BLENDED LEARNING

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WHITE PAPER

In an increasingly competitive world, our schools must move into high-performance mode, and leverage technology to advance education—just as we have used it to advance business.

INTRODUCTION

Educators now have the power to boost student engagement and achievement with an exciting innovation: blended learning. While blended learning leverages technology, it's not about technology per se—rather, it is a way to personalize learning for students, so teachers can give students what they need, when they need it, particularly in core subjects like math.

Why do we need to make this shift? The World Economic Forum ranks the U.S. an unacceptable 48th out of 133 developed and developing nations in math and science instruction. In an increasingly competitive world, our schools must move into high-performance mode, and leverage technology to advance education— just as we have used it to advance business. With lower device costs, increasing availability of Internet access, and engaging and sophisticated adaptive learning software systems and tools, it is easier than it has ever been to integrate blended learning into our schools. Teachers can become more productive and student accomplishment can be accelerated to more fully prepare our children for college, successful careers, and flourishing lives.

In this white paper, we explore why and how educators can address the prospects of blended learning: 1) Why Blended Learning? 2) 10 Key Decisions and 3) Phases of Development and Implementation Issues.

Making the shift to an online environment for a portion of the elementary school day can make teachers more productive and accelerate student accomplishment so more of our children can leave school fully prepared for college and successful careers.
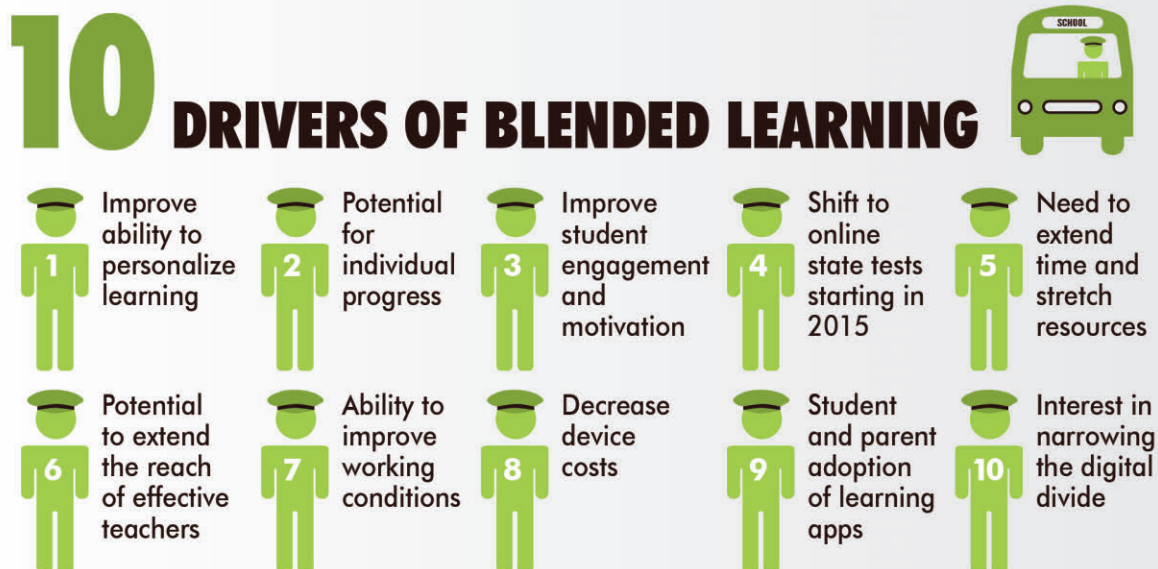
PART I: WHY BLENDED LEARNING?

Blended learning is a formal education program that has students learning for a portion of their time through online delivery of content and instruction, with some element of student control over time, place, and pace. Supervision and tutoring then takes place part of the time in a classroom or brick-and-mortar location away from home.

Effective teachers have always differentiated instruction and incorporated multimodal learning in their classrooms. In the past, this type of teaching required intensive preparation and manual data crunching. Now, blended learning offers next-generation, technology-assisted, data-driven opportunities to help educators meet teaching challenges and make learning a more personalized experience for students.

Meet Challenges. Student populations in many schools come from diverse backgrounds, experience disruption from frequent relocation, and face learning challenges because of lack of access to early education and preparation. Most troubling, the U.S. has a high and increasing percentage of children growing up in poverty.[1] The National Center for Children in Poverty estimates that in 2011 about 45 percent (32.4 million) of U.S. children grew up in low-income families, and 22 percent (16.1 million) live in poor families. They also suggest that "poverty can impede children's ability to learn and contribute to social, emotional, and behavioral problems." Although black, American Indian, and Hispanic children are in a disproportionately low income bracket, whites comprise the largest group of all low-income

Blended Learning Benefits

• Meet the challenges of higher standards and smaller budgets

• Boost engagement and personalize student learning

• Improve teaching conditions and career opportunities

Source:DigitalLearningNow.com

children, and Hispanics make up the largest group of poor children under 18 years old.[2] All of these millions of children will need additional support to bridge achievement gaps.

At the same time, education budgets in most states are less than they were in 2008[3] and they continue to shrink, even as most states are phasing in mandates for higher college- and career-ready expectations. Schools can't meet bigger challenges and higher expectations by doing the same incrementally better. For example, over the last 20 years, American schools have spent about $60 billion buying computers[4] and according to test scores, it has had little effect. This is because computers have been layered on top of schools-as-usual. Unfortunately, in most settings the results have fallen short of being transformational.

With online assessment scheduled to begin in the 2014–15 school year, schools will be adding even more computers to provide sufficient access to support this directive. How can all this hardware be used to make a real difference and fulfill its original promise? Schools should use the opportunity to create productive, student-centered learning environments that incorporate next-generation and best-of-class software—elements intrinsic to blended learning.

Personalize Learning. Learning software, designed to individualize the learning experience, has been used for a variety of educational purposes and is foundational to effective blended learning.

Military and corporate trainers blend online learning and onsite training with powerful results. Many Generation Y kids—the Millennials—were raised on shrink-wrapped CD software learning games. These early learning games pointed to the promise of personalization, but the dot-com bust dampened investment in education technology for more than a decade. However, for the past 20 years, online learning has been picking up steam. In a 2011 research study, 65 percent of college students reported taking at least one online class.[5]

Revolutionary changes that began with business applications are now integrated into educational tools. Predictive analytics, like those in use by Amazon.com, is a primary example. Cheaper devices, tablets, and mobile technology, evermore powerful application development platforms, and cloud-based distribution have set the stage for a new generation of improved, personalized learning.

With exciting new innovations such as the DreamBox Intelligent Adaptive Learning™ technology, it is far easier to create cost-effective, student-centered environments. Engaging content, instant feedback, and calibrated challenges boost engagement and motivation.

Now, blended learning offers next-generation, technology-assisted, data-driven opportunities to help educators meet teaching challenges and make learning a more personalized experience for the student.

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Mobile technology, flipped classroom strategies, and online opportunities are extending learning time and powering personal anytime, anywhere learning.

Strengthen Teaching. New tools and school models are equipping teachers with useful data that helps to shape interventions and learning pathways. Personalized learning technology is being used to create more autonomous learning time for students, and affords additional time for teachers to work with individuals and small groups.
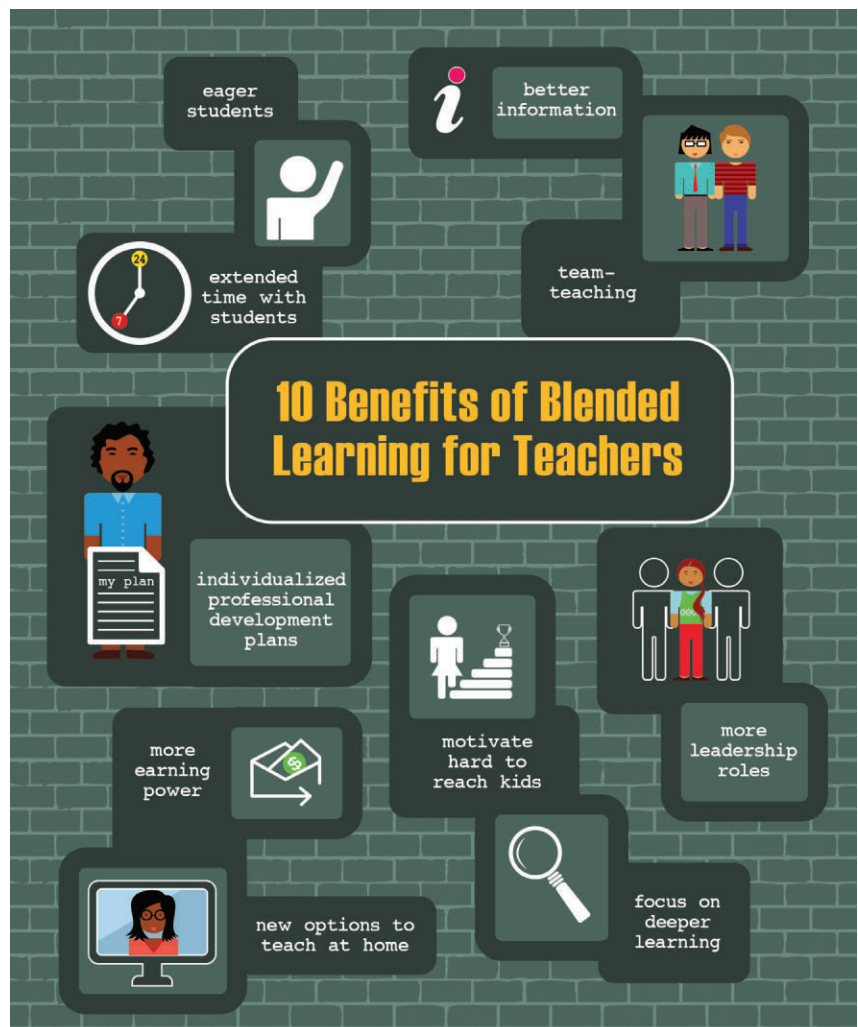
Blended learning takes a team. Blended strategies are used effectively by thousands of individual teachers, but the real power of technology is leveraged by teams of teachers to shift the focus from time-to-learning, to create competency-based environments where students progress when they show what they know. Using the information gathered from online tools, tutoring and tasks can be shared to make the most of available resources and speed learning.

Like students, teachers also benefit from individual learning plans with blended delivery. A combination of scheduled team-based learning, an online professional learning network, and a library of just-in-time resources can support teacher learning in ways that are efficient and effective.

Blended learning also makes it possible to easily access specialists at a distance. For example, the use of online speech therapists is becoming increasingly common. It is likely that distributed workforce strategies will become more broadly used to connect students to special needs experts and to expand access to advanced courses. This will allow some specialists to work anytime, anywhere.

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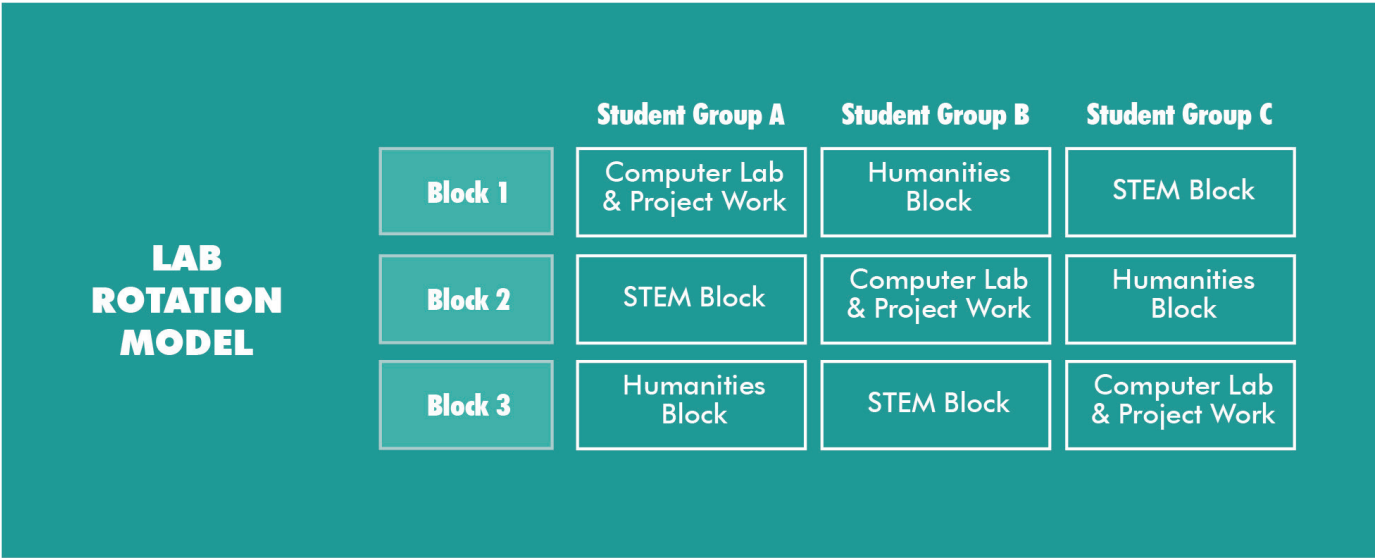

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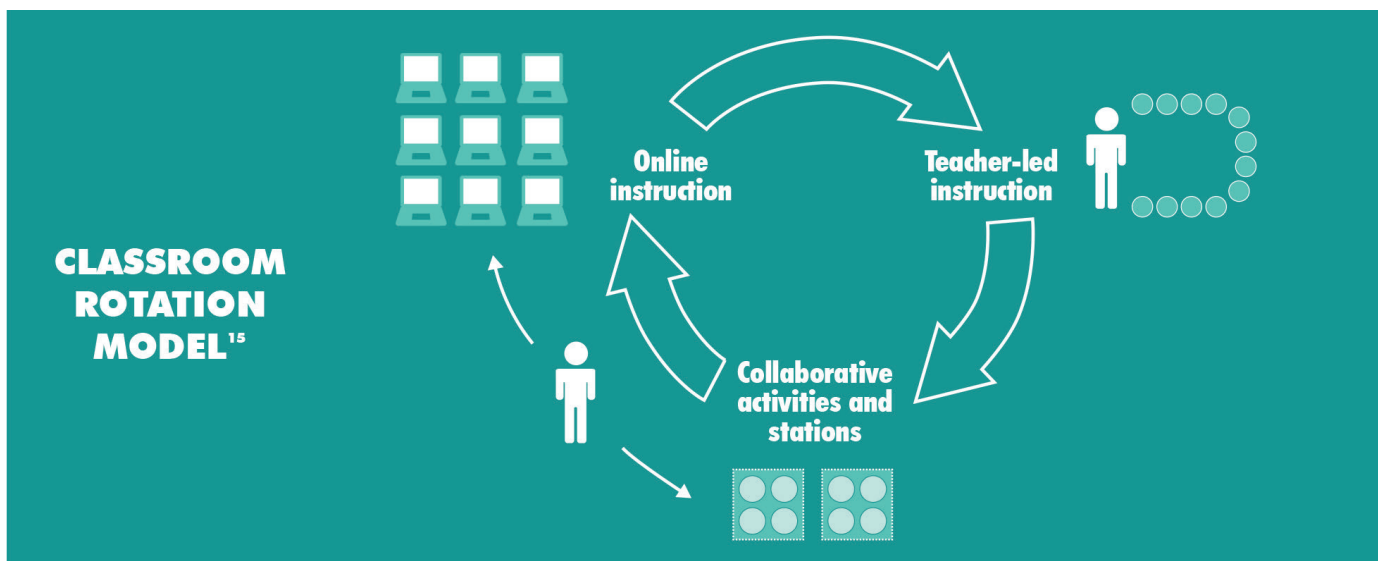
PART II: TEN IMPORTANT DECISIONS

Adopting blended learning is a major endeavor and deep cultural shift that requires support and buy-in from all parties before implementation, since it is more than just "another district initiative."

1. Goals. The first conversation should not be about devices or application; the most important question to answer is about student learning goals. Schools interested in provoking deeper learning can use technology to empower students to take on roles as journalists, producers, scientists, historians, problem-solvers, and project managers.[6]

The question of goals and roles is particularly important in light of Common Core State Standards (CCSS). Hold a community conversation about the kind of student work that these new expectations require—particularly reading with comprehension, and writing with inference and evidence (a task not easy to do on most tablets). Having a clear picture of the work you want students to know will best guide the next nine decisions.

2. Elementary School Models. There are two rotation models that are most effective at the elementary school level. Unlike traditional "face-to-face" teaching, both of these models integrate technology into core instructional time, with greater personal attention given to students than in purely online environments. In both models, teachers take advantage of data gathered from online programs. The data helps develop a deeper understanding of each student's prior knowledge for whole-class instruction, enables strategic selection of students for small group instruction, and identifies when one-on-one tutoring is needed.

There are two basic models to choose from: one with a computer lab separate from the classroom, and one with in-classroom computing devices.

In the lab rotation model, student groups alternate between traditional classroom instruction and online instruction in a computer or learning lab on a set schedule of learning blocks, where online instruction is followed by smaller group tutoring based on learning levels. In this environment, students may be monitored as they work by an instructional aide rather than certified teacher.

LAB ROTATION MODEL		Student Group A	Student Group B	Student Group C
	Block 1	Computer Lab & Project Work	Humanities Block	STEM Block
	Block 2	STEM Block	Computer Lab & Project Work	Humanities Block
	Block 3	Humanities Block	STEM Block	Computer Lab & Project Work

Source: DigitalLearningNow.com

CLASSROOM ROTATION MODEL[15]

Online instruction → Teacher-led instruction → Collaborative activities and stations

Source:DigitalLearningNow.com

The classroom rotation model sections off portions of the classroom for different learning activities. Empowering autonomous student learning frees teachers to work with small groups of students who—based on data and observation—have been seen to need additional tutoring. A combination of certified teachers, apprentice teachers, and instructional aides can supervise the classroom environment.

Comparison of Elementary Blended Learning Models

	LAB ROTATION	CLASSROOM ROTATION
BENEFITS	• Frees up teacher time • Leverages software costs	• Link to core instruction • Potential for full curriculum blend
DRAWBACKS	• May have weak link to core instruction • Limits tech use across curriculum	• May be more difficult to extract staffing productivity

Phasing in plans over three years is a sensible timeframe for most elementary schools.

3. Entry Point. Start with a survey of the software applications that teachers and students currently use. A review of tools and practices should reveal a clear entry point for phasing in additional components of a blended model. As you gauge where you are and where you want to go, it is critical that school communities leverage teacher leadership. As a model, a survey such as the Friday Institute's Readiness Rubric can help create a planning baseline.[7]

Another useful strategy for determining a blended learning entry point is to perform a needs assessment. If, for example, students move in and out of the school frequently because of family relocation, or a large percentage of students are below grade level, starting with an adaptive learning system will most likely be the preferred choice.

Whether starting with a few early grades and rolling up, or starting with one strand such as math, phasing in plans over a three-year period is a sensible timeframe for most elementary schools.

4. Content. After goal-setting and considering the various blended models, it's time to investigate platform and content options. There is an expanding array of open content options worth investigating including Curriki, Gooru, and PowerMyLearning, and at the secondary level, Hippocampus, CK-12, and Khan Academy.

If you're going to pay for instructional materials, look for smart content: engaging, standards-aligned materials with embedded assessments. There are high-quality products that combine adaptive assessment with targeted instruction. The curriculum has standards alignments and reporting to show progress against CCSS, Texas Essential Knowledge and Skills, State of Virginia Mathematics Standards of Learning, Western and Northern Canadian Protocol, and Ontario Curriculum. To deepen student understanding, the DreamBox curriculum aligns with the Standards for Mathematical Practice.

There are several blended learning platforms that provide single sign-on, unified reporting, and competency tracking. Two blended platforms that provide access to multiple content sources are EdElements and Buzz; they have good competency tracking and reporting systems, and both help teachers organize blended instruction based on real-time results.

It's important to integrate core and supplemental content into a single coherent instructional program. A platform that supports personalization aids in this integration with:

- Standards-based units of instruction and/or playlists that facilitate student choice

- Standards-based grade books that incorporate experience-embedded assessments as well as teacher observations

- Suggested groupings and instructional strategies

- Unified reporting system that tracks pacin

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5. Access Devices. Once a clear academic plan—including goals, instructional models, platform, and content—has been established, it's time to shop for student access devices. Hundreds of schools, because they have skipped the important initial steps, are buying tablets with no idea what to do with them. With clear goals, a picture of the work you want students to do, and a plan to put smart content to work, your school can make solid device decisions.

Most new lab rotation models are deploying large-screen all-in-one desktop computers. Classroom rotation models typically use laptops or netbooks (be careful to match screen size and resolution requirements to your selected content). A web device like a Chromebook is an affordable choice that is easy to manage.

By the spring of 2015, schools should provide enough computer access to support administration of online assessment. For guidelines from state testing consortia, information can be found at PARCC, and Smarter Balanced. For many schools, online assessment will require additional hardware. However, the consortia are attempting to make accommodations, and guidelines only reflect minimums, which are not the ideal for learning environments. Getting Ready for Online Assessment by Digital Learning Now! (DLN) recommends that schools should make testing environments as close to learning environments as possible. The report also recommends that schools incorporate tools that link adaptive assessment to instructional units to give students regular CCSS-aligned feedback and instruction.

"Students come to school every day with smartphones, tablets, e-readers, iPods, laptops, and more, but they are often forced to keep these tools in their pockets, backpacks, and lockers—or risk disciplinary action," notes the DLN paper Funding the Shift. "Forward-thinking teachers and school leaders are realizing that student tech tools should be seen as assets rather than liabilities, and they are leveraging these devices with bring-your-own-device (BYOD) and bring-your-own-technology (BYOT) policies that improve access by building on the existing resource of student-owned devices."

BYOD practice should be additive to what's required for testing; it should be over and above a basic commitment to equitable access. BYOD can create a high-access environment—a three screen day that includes a mobile consumption

. . . look for smart content: engaging, standards-aligned materials with embedded assessments.

device, a production device, and a large screen for sharing. Review Funding the Shift for examples of Acceptable Use policies.

6. Staffing. The DLN "Blended Learning & The Teaching Profession" infographic states, "Blended learning can create new career opportunities and improved conditions for teachers. As student roles evolve within a more personalized, tech-rich learning environment, teacher roles should evolve accordingly."

One of the advantages of blended learning and the use of software with a strong, built-in curriculum is that in both the lab rotation and classroom rotation models, it creates the opportunity to use paraprofessionals to assist students and free teacher time.

Public Impact has outlined a variety of strategies to extend the reach of effective teachers using technology and to create an Opportunity Culture. Most of the strategies require grade-span or school-wide collaboration. They create a differentiated staffing model that allows multiple entry points, strong support for new teachers, and a career ladder of leadership opportunities.

7. Staff Development. Personalized learning is for teachers as well. Team-based learning can be augmented by social and online learning. Almost two million teachers use the social learning platform Edmodo, and many join or create a professional learning network (PLN) to help meet daily challenges and advance their practice. Many blended schools use an online professional development platform such as PD360, Bloomboard, or Knowledge Delivery Systems.

8. Building Support. Given all the changes in student and teacher experience in a blended environment, it is important to start community conversations early. Host multiple dialogs to build stakeholder support over a six-month planning process. Consider launching several small pilots to learn and demonstrate, and adjust the plan to incorporate stakeholder feedback and pilot results.[8]

Implementing blended learning requires tight integration of academic, technology, safety and security, and financial strands—you simply cannot communicate enough.

9. Timeline. Schools need to decide whether to implement their blended learning plan all at once or phase it in over two or three years. Phases could either be by grade level (e.g., primary and then intermediate) or subject (e.g., lab rotation deployment of adaptive math instruction).

Improving computer access in all grades may require a grant, technology levy, or financing options such as leasing. The benefit to this approach is that it quickly addresses needs and eliminates inequities. However, it may cost more and force unprepared teachers to adopt new models and practices before they are ready.[9]

For most schools, a three-year plan provides enough time to make budget substitutions, phase in staffing changes, and prepare all staff members for successful deployment.

10. Funding. The Cornerstone Public Charter Schools opened a K–9 campus in August of 2012 with three different blended learning models under one roof. The implementation costs were almost $1,000 per student for devices, training, and support. Cornerstone benefited

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from a Next Generation Learning Challenge. The K–2, 3–8, and high school blends were designed to be sustainable on the roughly $7,000 per pupil in state funding they receive. As noted in Funding the Shift, providing laptops for all students in Mooresville, North Carolina cost about $250 per student per year, including all related costs. They phased in the plan over four years, taking advantage of some grant funding, but self-funding most of it with substitutions and cost savings. For more information and funding ideas, read Superintendent Mark Edwards' book, Every Child, Every Day.

Tablets cost less and now have more acceptable battery life, but are less useful for production-type work. Other than special purpose bundles they often lack management tools and require the purchase of individual applications.

PART III: PHASES OF DEVELOPMENT

Figure 1 shows typical phases of development—from beginner to advanced—across nine dimensions.

Beginners make common mistakes that should be kept in mind:

- Buying devices without a plan. Stop, have a community conversation and develop a plan.

- Layering technology on top of school-as-usual. Phase in a student-centered learning environment.

- Introducing powerful tools such as adaptive instruction but not using the data to adjust core instruction. Move toward a competency-based environment by creating performance groups and aligning core and supplemental instruction.

Tips to Boost Affordability

1. Stop buying print/go paperless; shift to online instructional materials
2. Use as much open content as possible
3. Shift to mostly online professional development
4. Use Title 1 funds
5. Maximize E-rate
6. Leverage grant funding
7. Charge user fee of at least $50
8. Phase in over three years
9. Consider leasing

Blended learning tools and models offer the potential of improved achievement, but powerful relationships, effective teaching, and ethical leadership will always be crucial to great elementary schools.

- Implementing without a strong plan for blended learning. Don't buy software if you can't afford the training, or, make sure to take advantage of programs like DreamBox that are easy to integrate and provide comprehensive customer support.

- Michigan's Educational Achievement Authority (EAA) has quickly developed an advanced deployment with a vision of student-centered learning and a well-conceived blended learning model. But it's worth noting that the step-function improvement in results that will be widely evident at most EAA schools at the end of the year will be a result of a coherent system that includes:

- High expectations and a powerful performance-based culture

- Performance-based, year-round employment and a long student day and year.

- Pedagogical vision of a student-centered show-what-you-know learning system

- Student and teacher access to digital learning resources

- Effective learning practices and coaching in every classroom every day

- Relentless community engagement and outreach

Blended learning tools and models offer the potential of improved achievement, but powerful relationships, effective teaching, and ethical leadership will always be key to great elementary schools.

	BEGINNER	EMERGING	PROFICIENT	ADVANCED
SCALE	Individual teachers	Teams	School	System
EXTENDED REACH	Individual effort	Role/subject specialization (1)	Multiple classroom leadership (2)	Multi-Combination reach models (3)
INTEGRATION	Unaligned supplement	Aligned supplement	Blended core instruction	Blend supports deeper learning
ASSESSMENT	Benchmark & summative assessment	Adaptive assessment	Multiple assessments	Embedded & authentic assessment
PACING & PATH	Varied pacing	Adaptive instruction	Flexibility in pace, path, time, place	Customized pathways
USE OF DATA	Unused data	Data informs instruction	Data guides	Recommended sequences
STUDENT PROGRESS	Cohort progress	Extended time accommodations	Competency-based progression	Competency- based, dynamic groups
DEVICE ACCESS	Lab rotation	Class rotation	1:1 access	3 screen day (4)
BUDGET IMPLICATIONS	Costs more	Cost neutral	Costs less	Network can self-fund growth

Figure 1

SOURCES:

(1) Public Impact. (2013). Redesigning Schools to Extend Teachers' Reach. Accessed from http://opportunityculture.org/reach/#table

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(4) **Getting Smart (2013).** The 3 Screen Day: Equity & Opportunity with BYOD. Accessed from http://gettingsmart.com/2012/01/the-3-screen-day-equity-opportunity-with-byod/

CONCLUSION

More than just a combination of electronic textbooks and productivity tools, blended learning means adopting new learning environments that work better for both students and teachers. It requires a shift to an online environment for part of the day, and giving students more control over the pace, path, time, and place of learning. Implementation requires a complete program with integrated plans around teaching and learning, information technology, finance, human capital, and communications.
Blended learning is in its early days, with districts across the county just beginning to explore its transformative potential. Over the coming years, accumulated documentation and research will enable elementary schools to develop and implement the models presented here or those that are more refined, offering students everywhere the promise of a better education and brighter future.

ELEMENTARY SCHOOL IMPLEMENTATIONS: DREAMBOX-DRIVEN SUCCESS STORIES

ROCKY MOUNT PREPARATORY SCHOOL Rocky Mount, North Carolina

Situation

Rocky Mount Preparatory School is a public K–12 charter school serving suburban Rocky Mount, North Carolina. As a Title I institution, many of its 1,107 students face challenges, and a year ago, most of its elementary students were below grade level in math. "Just to illustrate the lack of background knowledge," shared Angela Langley, Dean of Math, "some of our kindergarten students don't know their numbers or the alphabet." After reviewing many options, it was decided that a blended learning approach that would leverage both the Singapore Method and a supplemental online learning solution would work best. Singapore Math is a teaching model in which instructional time is saved by not re-teaching concepts from previous semesters. While this means that most students can quickly make great gains, those who have skill gaps run the risk of falling further behind, making it imperative to find a way to accelerate achievement gap closure. The school selected DreamBox Learning as its online learning solution.

Implementation

To support these math strategies, a new Learning Lab was designed to accommodate 100 students at a time. A rotation schedule was set that gave each elementary student 90-minute intervals of lab time, every school day. An ISTEEP assessment was administered so that each student would have a customized curriculum based on his or her own learning level. DreamBox Learning's effectiveness as an intervention tool for struggling math learners ensured that students did not become frustrated with the new blended learning model. "DreamBox's super-engaging, game-like environment was a natural for the students and they just jumped right in," noted Langley. Even the younger children, who initially needed instruction on computing basics such as using a mouse, needed very little intervention from the teachers during their Learning Lab time. To achieve the learning gains the school was looking for, DreamBox was also made available for home use, and parents were encouraged to participate in and support their child's learning process.

Observations/Results

At the beginning of the 2012 school year, a majority of students entering kindergarten were working below grade level. At mid-year, all of those children were working at or above grade level. Many have moved on to first grade lessons, and some have even accelerated to the second grade curriculum. Measured results for the third graders have exceeded expectations. Langley reported that "When the ISTEEP pre-test was administered at the beginning of the 2012–2013 school year, all of Rocky Mount Prep's third graders were labeled as working below grade level. In a midyear assessment, more than 76 percent were at grade level or above." She sums up the power of DreamBox by saying, "Every child at any level of proficiency stays engaged and keeps on learning."

BRICK AVON ACADEMY AND BRICK PESHINE Newark, New Jersey

Situation

Dominique Lee is the Founder and Director of BRICK (Building Responsible Intelligent Creative Kids). Established in 2009 by Newark teachers who began their careers through the Teach for America Program, BRICK seeks to transform chronically failing schools in Newark's South Ward. In 2010, BRICK partnered with the Newark School District and helmed Newark's first teacher-run schools, an effort that allows faculty to take on leadership roles in managing operations and determining the overall instructional focus.

Implementation

Lee noticed that AVON had high, medium, and low extremes with students—and that meant he needed a solution that would help individualize instruction for each and every student. Finding programs that were cloud and/or Internet based was a must for BRICK, and making sure that student logins were simple and consistent across programs has reduced the amount of time it takes students to get started with content. BRICK chose DreamBox because of its successful track record in improving math as part of blended learning programs that supported individualization, and also because of the proven success Rocketship Education has experienced with its DreamBox driven math programs.

AVON obtained a Student Improvement Grant to be used in implementing a Blended Learning program, and some of that money was used to purchase DreamBox Learning Math. The AVON Blended Learning strategy was to (1) focus on small group instruction, (2) introduce math lessons in ELA Block, and then (3) implement rotation with computers based on the 30/30/30 model:

- 30: Small groups

- 30: Teacher Mediation Center

- 30: On computers for 1 to 1½ hours every day, using self-guided learning

Observations/Results

Lee notes that schools need to view technology as transformational and shift their current teaching practice to take advantage of innovation. AVON teachers are very happy with the ability to individualize learning for their students, and kids are mastering math like never before. They have seen great progress with DreamBox, with increasing proficiency, and with ANET growth across the board.

W. H. ROBINSON SCHOOL Greenville, North Carolina

Situation

W. H. Robinson School in Greenville, North Carolina, searched for an alternative solution to the traditional online math program they were using—they were looking for one that would able to track data and do ongoing predictive work. They found it in DreamBox Learning Math, with its unique ability to gather data to differentiate instruction, its Common Core focus, and its easy access for all students, both at school and at home. Rhonda Sinquefield, Instructional Coach for the school notes, "I really believe that teacher buy-in is the most important factor in our school's implementation success."

Implementation

When Sinquefield's team of teachers wanted to implement math stations in their classrooms that allowed for more personalized learning, adding a program like DreamBox was the solution. When teachers saw the student growth that was attributed to adding adaptive math programs in their classrooms, they appreciated the support blended learning could provide to their instruction.

Using a lab rotation model has proven to be incredibly useful. Teachers schedule a block of time to allow all students to use DreamBox, instead of rotating students through the program with only a few computers in their classrooms. Students work in the school's computer labs up to three times a week, depending on their grade level. In grades K¬–2 some teachers have also been using DreamBox in classroom math stations that allow for small group instruction.

Observations/Results

Sinquefield says, "Schools need to give teachers time to understand programs and technology and show how it will help improve their classrooms." After the first year of implementation data was collected, teachers were impressed with the staggering numbers of students proficient in math. A bonus is that teachers have enjoyed DreamBox as well, because it is so easy to use. Explains Sinquefield, "With DreamBox, it simply teaches the new Common Core math through the program itself. And it's so user-friendly that we haven't had to conduct extensive training sessions—which is very common with other new programs or curricula." Principal Tiffany Vincent is very excited because students are surpassing benchmark scores. She's seen how DreamBox adapts to each student's needs and fills in the gaps through a fun gaming environment, while clearly showing where teachers can step in with additional instruction when necessary, thanks to click-by-click tracking.

CHRISTINA SCHOOL DISTRICT Delaware

Situation

The Christina School District is Delaware's largest public school system, which has 18 elementary schools and offers REACH and Options Programs (Grades K–12), all dedicated to research-based teaching. Delaware teachers are members of professional learning communities (PLCs) that are very data driven and include state mandated data coaches. Laura Brace, Elementary Math Curriculum Specialist for the district, leads the effective use of student data to inform personalized learning plans for students and core instruction time. The district is committed to using blended learning and leveraging technology.

Implementation

Christina School District is an example of using community resources and extended school hours to increase the amount of time students are able to use math blended learning programs supported by DreamBox. In one school, a pilot program was established to allow students to use the computer lab after school. The school planned to accept 35 students and got 60 permission slips back on the first day. The demand from students and parents to extend time on the blended programs was overwhelming. For students who do not have computer access at home, the district has trained staff at Boys & Girls Clubs, and afterschool programs at community centers and libraries to ensure that these students have access to the programs outside of school hours. In keeping with the district's commitment to leveraging innovation, the school district uses a mix of hardware—desktops, laptops, and iPads—and teachers use the Teaching Channel for classroom tutorials and Khan Academy tutorials for supplemental math.

Observations/Results

Teachers appreciate the data and reports that are provided about students' learning and challenges, such as DreamBox's Common Core Standards Report. Teachers use the data to inform small group instruction and core instruction time. DreamBox and its game-like environment have supported greater student engagement in math. "I think the thing that is really cool is that the kids want to play and keep on learning the math," says Brace. This shows in the overall results—Christina School District, using blended learning programs for math, has seen double-digit growth in student test scores.

SULTAN ELEMENTARY Sultan, Washington

Situation

Sultan Elementary is a Tier 1 school that has been in the top five percent of schools in Washington for Math Achievement for the past five years. Even so, Laurel Anderson, Principal at Sultan Elementary, said that student behavior issues had increased the need and desire for adaptive, challenging, and motivating games to increase engagement and achievement. The search began for a math program that would support their blended learning strategy, but that would also appeal to the students.

Implementation

The path to blended learning was mapped out by a designated technology committee, which formed a set of purchase and implementation criteria. Like many schools, Sultan had to overcome several challenges, including the bandwidth concerns, which had held them back from implementing earlier. Sultan purchased optic fiber in summer 2012, which allowed for school-wide Internet and access to cloud-based programs. The committee identified many programs that offered practice and assessments, but not many that offered conceptual math methods and were truly interactive. The committee decided on DreamBox for supplemental math instruction and now uses it for all K–5 students, Tier 2 Intervention, Enrichment, and General classrooms. Sultan Elementary now has strong technology support. They have four whole computer labs and eight computer stations in each classroom. Sultan wants students on DreamBox for at least 60 minutes per week, but many students spend additional time with DreamBox at home.

Observations/Results

Trulie Honegger, a second and third grade teacher, appreciates the Teacher Tools and interactive, highly conceptual manipulatives. Her DreamBox students are working on 3-digit by 3-digit multiplication and partial products—advanced concepts for the grade levels she teaches. "I had been so against using computer 'games' because I didn't feel like I was doing my job," said Honegger. However, once she saw how much thinking and conceptualization students were doing with DreamBox, she realized the power of the program. "In fact, DreamBox has been wonderful for students with ADHD, who now have better engagement." Results have been stellar: At the beginning of the 2013 school year, 43 percent of students were at or above benchmark math scores. By mid-year, after using DreamBox, 70 percent were at or above benchmarks.

RESOURCES

- Blended Learning Implementation Guide

- Blended Learning & The Teaching Profession

- Classifying K–12 Blended Learning (Innosight Institute)

- Clearing the Path: Creating Innovation Space for Serving Over-Age,
   Under-Credited Students in Competency-Based Pathways (iNACOL)

- Deeper Learning

- Digital Learning Now! Smart Series

- DreamBox Blended Learning for Math

- DreamBox Introduction to Blended Learning for Elementary Schools

- DreamBox Partnership for Blended Learning

- Every Child, Every Day: A Digital Conversion Model for Student Achievement

- Funding Students, Options, and Achievements

- How Digital Learning Contributes to Deeper Learning

- A Natural Primer On K–12 Online Learning (iNACOL)

- Public Impact Helping education leaders and policy makers improve student K-12 education

ENDNOTES

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Disclosures:

DreamBox and Digital Learning Now! are Getting Smart Advocacy Partners. Edmodo and Bloomboard are Learn Capital Portfolio companies where Tom is partner.

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LEARNING

DreamBox Learning was founded in 2006 in Bellevue, Washington, and is transforming the way students learn mathematics through its groundbreaking combination of Intelligent Adaptive Learning™, rigorous elementary mathematics curriculum, and motivating learning environment. DreamBox Learning Math is designed to teach and reinforce key mathematical concepts through effective, individualized instruction in an engaging and fun manner, and is aligned with the Common Core State Standards. The platform has won more than 20 top education and technology industry awards and is in use in all 50 states. Learn more about DreamBox Learning at dreambox.com.

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