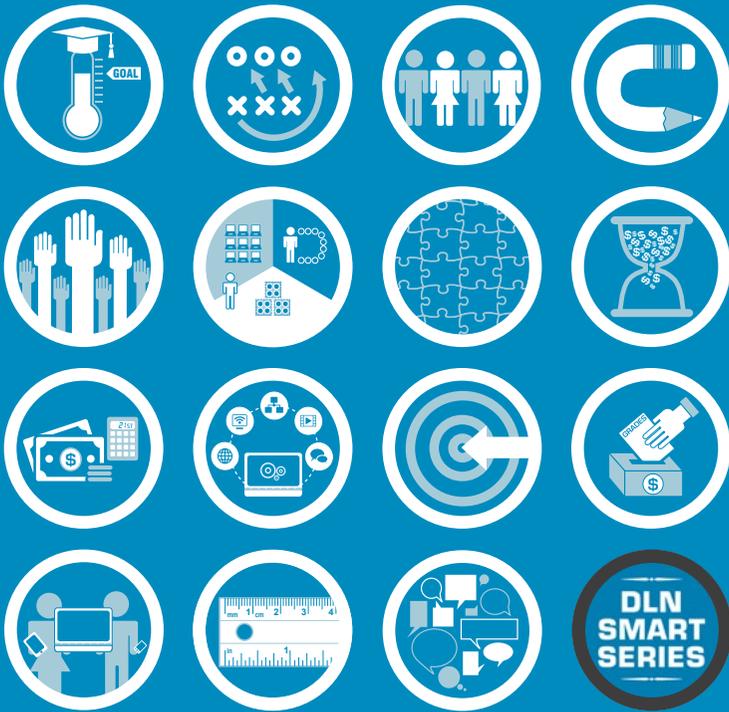


NAVIGATING THE DIGITAL SHIFT



Implementation Strategies for Blended and Online Learning

John Bailey, Carri Schneider, Tom Vander Ark

With Contributions from:

*Samuel Casey Carter, Lisa Duty, Scott Ellis, Bryan Hassel,
Emily Ayscue Hassel, Nathan Martin, Daniel Owens, Susan
Patrick, Beth Rabbitt, Chris Sturgis, and Alex Terman*

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This is a collection of interactive papers that provides specific guidance regarding the adoption of Common Core State Standards and the shift to personal digital learning.

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Welcome

Jeb Bush, Governor of Florida from 1999-2007 and Chairman of the Foundation for Excellence in Education:

If we expect students to rise to the challenges of higher expectations, we must give them the opportunity to succeed and supply the support necessary to achieve these high marks. True long-lasting academic gains only come when we stop underestimating students and equip them for success. Crucial to equipping each student for the 21st Century, is bringing the benefits and potential of digital learning to every classroom.

When I convened the Digital Learning Council with Governor Bob Wise in 2010, the goal was to help lay out a roadmap to bring digital learning to every classroom. We wanted a clear path to integrating current and future technological innovations into each and every classroom. With the help of over 100 of the brightest minds in the United States, we developed the 10 Elements of Digital Learning and helped provide principles which have guided policy-makers at the state and national level over the last three years. Digital Learning Now! promotes these elements. Working with states, we've released 2011 & 2012 Report Cards, measuring the progress of state policies towards these elements. With over 700 digital learning bills considered in 2012—151 of those passing—momentum continues to build across the United States.

Blended and online learning offer a new universe of content, opportunity and differentiated instruction truly placing the student at the center of the learning experience. As states pass laws advancing digital learning, the implementation of this transformative shift is the real work which cannot be overlooked. Big change starts with small steps. This new e-book, “Navigating the Digital Shift: Implementation Strategies for Blended and Online Learning,” provides policymakers and education leaders the tools they need to use digital learning as a catalyst for improved student achievement.

Comprised of the DLN Smart Series white papers, the strategies and topics in this e-book reflect the changing political and educational environment. The book starts by digging deep into the strategies necessary to implement blended learning, providing case studies, research and the type of how-to guidance so that this transformative model creates new opportunities for both students and teachers. Teachers should understand that blended learning can improve their profession and make them more effective each and every day. But this is just

the start of the shift as a truly personalized environment for students doesn't end with blended learning. We have to get the funding right for this new normal and ensure that online courses and new models of learning are funded in a way that promotes quality and enables next generation approaches to education. Student data shouldn't be trapped in a school's dusty filing cabinet; it should be carried with a student as easy as their backpack. This book explores the benefits of a portable student records and the importance of privacy and security safeguards of sensitive data. In today's economy, what you know is more important than where you go which is why competency-based models of education are so vitally important. One chapter explores how to facilitate the shift to awarding credit based on the demonstrated achievement by knowledge rather than seat time. Above all else, we have to set the record straight, discredit myths about blended and online learning and make sure that policy decisions and the future of our children is based off facts, not scare tactics.

Capturing the promise of digital learning is not a one step process; it requires clear vision and hard work. Be bold in your reform and share with us your lessons learned and stories of success. Whether brick and mortar or virtual, as you work to build classrooms which empower students and equip them to achieve their full potential, treat this e-book as a blueprint for your journey. Our students and your children deserve it.

Foreword

Dr. Mark Edwards, Mooresville Graded School District Superintendent & AASA 2013 Superintendent of the Year

I always pay careful attention to the work and leadership of Digital Learning Now! and Getting Smart. The DLN Smart Series provides meaningful, practical, and poignant advice as well as commentary regarding the move to college and career ready standards associated with the shift to personal online learning and digital resources. By putting the series together into one ebook, these organizations have addressed the key implementation challenges of these inter-related shifts in one great resource. I highly recommend this resource to all district and school leaders!

Stacey Childress, Deputy Director of Education, Bill & Melinda Gates Foundation

As we've seen with responses to the [Next Generation Learning Challenges](#), the road forward holds the promise of more personalized learning for students and better tools, conditions and career options for teachers. Next-gen learning opportunities will only scale with thoughtful public policies in place-- particularly at the state level. The Digital Learning Now! Smart Series explored the big policy questions of the day and offered sensible advice for state and local policy makers. The update to the Blended Learning Implementation Guide is a useful contribution to the field. The path forward is an exciting one; it will be more productive if we continue the sort of dialog advanced by the Smart Series.

Alex Hernandez, Partner, Charter School Growth Fund

Personalized learning is not a buzzword or the reform du jour. It's real for the six-year-old who enters first grade reading chapter books and for the student sitting next to her that is still sorting out her letter sounds. Do they each have a chance to fall so deeply in love with reading that they walk into walls with their noses buried in their books? Or are these children simply unlucky - far enough from the mythical "middle" that neither of them get the support they really need. Personalized learning is real for the high school teacher whose geometry students have an eight year grade level spread in math ability. Does the teacher try to keep the pack together, doggedly moving the entire class through the same sequence of prescribed content. Or does she ensure every student makes significant growth from their individual starting points? Personalization matters

to the parent whose child is losing his passion for learning because he is not appropriately challenged. In the words of his well-meaning father, “If you can just hang on for a couple more years of high school, I promise you will really love college.” To which the youngster replied, “Shouldn’t we just have a chance to like high school?”

The opportunity of our generation is to use all the advances we have made in teaching and learning, assessment, cognitive science, technology, etc. to create schools that offer each child the instruction and support they need, when they need it. This simple, yet beautiful ideal harkens back to the one-room schoolhouse, where teachers guided students of many different ages and abilities so each could realize their individual potential. Over a century later, the idea of personalized learning is embraced by a majority of families yet elusive to find in practice. The good news is a new generation of educators are designing schools that challenge, inspire and support students more than we ever thought possible. The Digital Learning Now! Smart Series is a trusted guide on our quest for better ways to learn.

Deborah A. Gist, Rhode Island Commissioner of Elementary and Secondary Education

Over the past decade, our world and our expectations have changed dramatically. The skills our students need to succeed are significantly different today from what students needed to know and be able to do just 10 years ago. To prepare our students for success in the 21st century, we need to rethink learning, rethink schools, and take advantage of all of the resources available to us. One step in transforming education is ensuring that all schools are ready to embrace and use technology – not merely as a tool, a resource, or an add-on but as an essential element in the process of teaching and learning. The Digital Learning Now! Smart Series continues to be an invaluable resource that will help educators re-imagine what our schools can look like and what our students can accomplish.

Susan Patrick, President & CEO, iNACOL

I am excited for the transformation in education and avalanche of next generation learning because of what it portends for the future of kids. Blended and online learning have the potential to boost equity, improve access to educational opportunity, and dramatically improve achievement. Personalizing learning is a goal for every teacher and, soon, each student will have the opportunity to access transformed, student-centered learning environments supported by the best digital tools for individualizing how and when they learn – engaging and accelerating toward success in today’s globalized, mobile, connected society.



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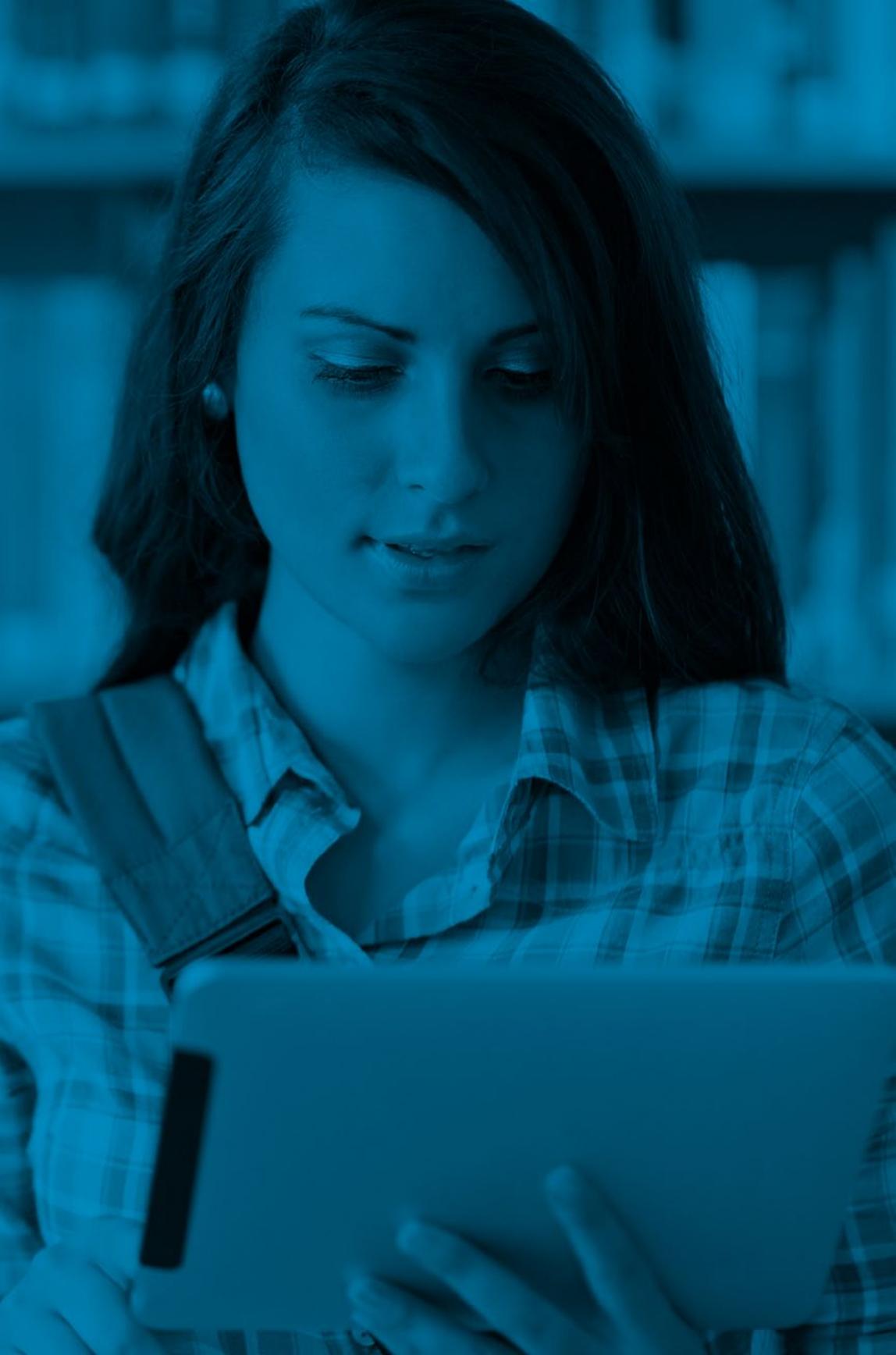
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SECTION ONE:
The Shift to Blended Learning



Introduction: From Personalization to Policy

by John Bailey, Carri Schneider & Tom Vander Ark

“We continually underestimate children. Setting high standards and demanding results drives student academic gains...It will take some adjustment, but our kids will rise to the challenge of these new standards if we give them the opportunity and tools to do it.”¹

-- Jeb Bush, Governor of Florida from 1999-2007 and Chairman of the Foundation for Excellence in Education

Our nation’s schools stand at an important “inflection point” in the history of education. Taken together, the implementation of common college and career standards, the shift to next generation assessments, the availability of affordable devices, and the growing number of high-quality digital instructional tools create an unprecedented opportunity to fundamentally shift the education system to personalize learning around the individual needs of every student.

Over the last year, [Digital Learning Now!](#) worked in association with [Getting Smart](#) to produce the [DLN Smart Series](#) - a collection of eight white papers that explored implementation challenges at the intersection of digital learning and the Common Core State Standards. The papers brought together additional experts from [iNACOL](#), [CompetencyWorks](#), [The Learning Accelerator](#), and [Public Impact](#) to shine a light on the key issues and challenges at crossroads created by these overlapping opportunities. This book -- “*Navigating the Digital Shift: Implementation Strategies for Blended and Online Learning*” -- is the collection of these updated papers.

The U.S. Department of Education’s [National Education Technology Plan](#) calls for “an alternative to the one-size-fits-all model of teaching and learning.” Championing personalized learning, the report goes on to explain, “Personalization refers to instruction that is paced to learning needs [i.e., individualized], tailored to learning preferences [i.e., differentiated], and tailored to the specific interests of different learners. In an environment that is fully personalized, the learning objectives and content as well as the method and pace may all vary.”²

In highly personalized environments, blended and online learning will be central strategies that benefit all students. As we see the proliferation of new learning models, an increasing number of students will use online learning as part of their learning trajectories.

As we discussed in [Getting Ready for Online Assessment](#), the next generation of online assessment for common college and career ready expectations in 2015 creates a good pivot point for the shift to digital instructional materials and blended learning models. The shift to personalized digital learning is not just another district initiative. It is a fundamental redesign of instructional models with the goal of accelerating learning toward college and career readiness. It is a large-scale opportunity to develop schools that are more productive for students and teachers by personalizing education, ensuring that the right resources and interventions reach the right students at the right time. It is an opportunity to improve careers and conditions for teachers.

To explore these opportunities in more detail, this ebook is organized into two sections. The first section is an updated version of the Blended Learning Implementation Guide. The second section consists of a collection of policy papers that offer advice on the policy implications that are generated by the shift to personalized, online and blended learning. These papers include:

[“Blended Learning Implementation Guide 2.0”](#)

[“Improving Conditions & Careers: How Blended Learning Can Improve The Teaching Profession”](#)

[“Data Backpacks: Portable Records & Learner Profiles”](#)

[“The Shift From Cohorts To Competency”](#)

[“Funding Students, Options, And Achievement”](#)

[“Online Learning: Myths, Reality & Promise”](#)

From classrooms to legislatures, advocates for personalized learning are recognizing that digital learning has the potential to advance educational opportunities for all students and to deliver on the promise of personalization — at scale. Together, the Guide and the policy chapters offer a set of resources to inform the shift to personalized, digital learning in any classroom, school, district, or state.

SECTION ONE: THE SHIFT TO BLENDED LEARNING

The Blended Learning Implementation Guide 2.0

See *[“Blended Learning Implementation Guide 2.0”](#)* of this book.

The opportunity set presented by the intersection of digital learning and the Common Core often manifests as a shift to blended learning - defined by the [Clayton Christensen Institute for Disruptive Innovation](#) (formerly Innosight Institute) as “a formal education program in which a student learns at least in part through the online delivery of content and instruction, with some element of student control over time, place, path and/or pace,” and “at least in part at a supervised brick-and-mortar location away from home.”³

A set of case studies from FSG concluded, “Blended learning has arrived in K–12 education. Over the past few years, technology has grown to influence nearly every aspect of the U.S. education system.”⁴

In February 2013, co-authors from Digital Learning Now!, Getting Smart, and The Learning Accelerator put their collective expertise and experience together and launched [The Blended Learning Implementation Guide: Version 1.0](#). We released the original version with an invitation to schools and districts to download the Guide, take it back to their communities, put it to use and let us know how to improve it.

We updated the Guide based on feedback from the field and updates in the sector in order to launch [The Blended Learning Implementation Guide: Version 2.0](#). The Guide serves as the foundation for the ebook. It is our hope that the Guide will continue to grow and evolve to serve the needs of anyone – from practitioners to policymakers – who has an interest in expanding student access to high-quality educational opportunities with blended learning.

Blended learning means rethinking how class is structured, how time is used, and how limited resources are allocated. Compared to high-access environments, which simply provide devices for every student, blended learning includes an intentional shift to online instructional delivery for a portion of the day in order to boost learning and productivity. Productivity in this sense includes improvements to teacher access to data and its potential to inform instruction. Greater student productivity includes less time wasted on skills already mastered. Increased learning opportunities and improved student outcomes enhances overall system productivity.

The Guide is for educational leaders who are ready to seize this opportunity and shift to blended learning. Implementing blended learning is a complex project that changes roles, structures, schedules, staffing patterns, and budgets. It requires frequent and online learning experiences for staff. Dedicated, competent program management staff members are required to link departments

that haven't always worked closely together, manage budgets, identify issues, and facilitate a resolution process. This implementation Guide is designed to help leaders create the conditions for success in planning, implementing, and evaluating their blended learning efforts.

SECTION TWO: POLICY IMPLICATIONS OF PERSONALIZED, DIGITAL LEARNING

We are at a critical moment in time. Although no one has yet realized a full-scale solution to unlock the potential of personal digital learning that DLN describes in the [10 Elements of High Quality Digital Learning](#), we have discovered a rich field of “point solutions” that address singular aspects of the overall needs.

Our policy papers hope to move the field from point solutions to policy solutions to scaled solutions.

The policy issues addressed in this section have implications for students, teachers, schools, districts, and the system as a whole. Tackling the range of challenges will require collaborative involvement from everyone, ranging from state leaders and policymakers to developers and industry leaders, in addition to representatives from education agencies, advocacy organizations, and funders.

Improving Conditions & Careers

See [*“Improving Conditions & Careers: How Blended Learning Can Improve The Teaching Profession”*](#) of this book.

According to the 2013 [MetLife Survey of the American Teacher: Challenges for School Leadership](#), teacher satisfaction has declined to the lowest level in 25 years.³ This is not surprising, given the fact that today's teachers face mounting pressures, fiscal constraints, increased populations of high-need students and an ever-rising bar of expectations.

The next generation of higher standards and student assessments creates an unprecedented national opportunity to reimagine and reinvigorate the teaching profession.

[Public Impact](#)'s Bryan Hassel and Emily Ayscue Hassel act as co-authors in this chapter, which serves to inform educators, leaders, educational stakeholders, policymakers and influencers. The authors present a vision of blended learning that offers better teaching conditions and enables better career opportunities. In addition to confronting misconceptions about blended learning, the authors advocate for thoughtful policies that will allow teachers to create personalized learning experiences and facilitate the deeper learning necessary to master higher standards.

In the section on improved teaching conditions, the authors assert that blended learning environments can create more and better opportunities for teacher collaboration, enable differentiated staffing and boost meaningful professional development opportunities. When blended learning tears down the walls of a traditional classroom, teachers have more opportunities to collaborate with one another and to put their individual talents to work in differentiated staffing models. Teaching in online and blended environments necessitates the development of new skillsets. Professional learning to develop these skills will be improved in a blended environment where the principles of individualized, competency-based progressions can be applied to teacher professional development. With sophisticated data systems, teachers have a flood of expanded and enhanced student data at their fingertips — improving efficiency and cutting down on time spent with routine tasks and record-keeping. Time saved from the thoughtful implementation of technology can be reinvested working with students, collaborating with other teachers and developing the new roles discussed in the next section.

Drawing on work from Public Impact’s [Opportunity Culture](#) initiative, the authors explain how shifts to online and blended learning create an expanded set of career options for teachers. By leveraging technology, schools can extend the reach of great teachers to impact more learners, while simultaneously improving the teachers’ experiences as empowered professionals. Specifically, the paper explores three ways in which digital learning creates these opportunities:

- The implementation of blended learning to “extend the reach” of in-person excellent teachers to more students and to teaching peers;
- The ability to teach remotely, allowing great teachers to reach students anywhere and to have more flexible careers; and
- The opportunity for “boundless instruction” and expanded impact through online sharing of teacher-created content.

Building on the DLN [10 Elements of High Quality Digital Learning](#), the chapter ends with a discussion of policy enablers for blended learning. These include funding, evaluation, pay/career options, operations, dramatic change levers and performance incentives. Addressing these areas is necessary to eliminate existing policy barriers and increase the odds that blended-learning innovations will result in better teaching and learning.

Data Backpacks: Portable Records & Learner Profiles

See *“Data Backpacks: Portable Records & Learner Profiles”* of this book.

What if students instead came to each course or classroom with a digital backpack of data about their learning levels, preferences, motivations, and personal accomplishments? How would this improve each teacher’s ability to tailor learning to meet the needs of individual students? What if parents and students could easily access their child’s records to share the information with afterschool providers? How would all of the personalization this affords add up to deeper learning and improved college and career readiness?

Data Backpacks: Portable Records & Learner Profiles asks these questions and reveals some key problems with the current system:

- The current official transcript does not provide enough information for teachers to personalize learning from the first day of school.
- Customized learning requires an enhanced and expanded Learner Profile.
- Parents and teachers should have the ability to protect privacy and empower multiple providers to use and contribute to a Learner Profile.

This chapter provides two recommendations for addressing the inadequacies of today’s student records in order to power personalization from day one, at every step, for every student.

The Data Backpack is an expanded common electronic student record: an official transcript that follows students through every transition—grade to grade and school to school. The Backpack includes traditional transcript data such as demographic information, state testing data, and supplementary student supports. However, it would also include additional information in order to represent a more holistic picture of student achievement—such as a gradebook of standards-based performance data and a portfolio of personal bests—and better capture the student’s progression at any moment in time. This enhanced data would provide a context for attendance and behavior patterns, supplementary support services, grades, and other performance information such as proficiency scores and learning gains. Since this data would follow students to each new learning experience, learning could be tailored to meet their individual needs from the first lesson rather than the extra time teachers must spend diagnosing student needs and abilities.

The Learner Profile builds on the “official transcript” of the Data Backpack to provide additional clues to unlock learner needs, preferences, and potential. While each student’s Data Backpack would be populated by a set of common elements for all students at a new minimum level, the components of each student’s Learner Profile could be customized based on student needs,

platform data requirements, and family decisions. In addition to standard achievement data, Learner Profiles should contain expanded achievement information, student goal statements, badges and other recognitions, and a college/career readiness tracker. Students would contribute a full portfolio of work, complemented by teacher narratives on student assets and challenges. The Profile could also include non-cognitive variables that impact achievements, as well as an “early warning system,” self-management skills, behavior/character education, and a record of community service.

When learning is personalized to meet the needs of individual learners, everyone wins. Taken together, the Data Backpack and the Learner Profile can power personalization and protect privacy. The Data Backpack ensures that personalized learning begins on Day One. The Learner Profile powers a personalized pathway toward college and career readiness. Customized learning, informed by enhanced and expanded student data, will boost motivation and achievement—keeping more students on track for college and career readiness.

The Shift from Cohorts to Competency

See “[The Shift From Cohorts To Competency](#)” of this book.

Getting a driver’s license requires passing a test and a driving demonstration – a competency-based system utilizing multiple forms of assessment. Professional certifications for doctors, accountants, and lawyers rely on test-based demonstrations of competence.

Promotion policies that require students to read before moving to fourth grade are an attempt to ensure that students are ready to succeed; such policies are an early effort to make the old cohort system more competency based. Credit recovery courses and academies are competency based. Some rely exclusively on low-level end-of-course multiple-choice quizzes, which are an example of instructional models in which students move at their own pace and progress by demonstrating competence.

We can all think of examples – from professional licensure to video games – in which we must “show what we know” to demonstrate achievement. Why, then, should the education system be any different? Moving to a competency-based system is the logical evolution from the outdated factory model to one that can personalize learning and serve the needs of each individual student. For the future doctor entering medical school or the future pilot logging flight hours, a system based on competency also has the best potential to improve college and career readiness. Yet today’s current system holds back students who could be excelling and moves students on who aren’t ready.

[CompetencyWorks](#), whose Chris Sturgis acted as a co-author in this chapter, defines competency education as a system of education, often referred to as proficiency or mastery based, in which students advance upon mastery. Competencies include explicit, measurable, transferable learning objectives that empower students. Assessment is meaningful and serves as a positive learning experience for students. Students receive timely, differentiated support tailored to their individual learning needs. Learning outcomes include the application and creation of knowledge, along with the development of important skills and dispositions.

This chapter explores how competency education has the potential to connect learning to students' passions and interests, drawing them toward higher-order thinking and, therefore, deeper learning. And while technology is not a necessary component of competency education per se, advances in educational technology have made it possible to bring competency education to scale through an ever-expanding set of tools that can personalize and customize learning. The authors contend that without leveraging technology and discovering new ways to use time and resources differently, we will fail to achieve the goals of college- and career-ready standards like the Common Core. Shifting to competency education is an important step in this process.

After reviewing the basic tenets of competency education, the authors discuss the ways in which the shift from cohorts to competency can improve student achievement and school performance. The most frequently asked questions related to competency-based learning are also answered. The chapter provides an in-depth exploration of the issues related to the overall shift to competency education for education leaders and decision makers. Specifically, the authors describe 10 new capabilities of a competency-based system and 10 design choices to inform the necessary changes. The chapter ends with a discussion of state policies that support competency education.

Funding Students, Options & Achievement

See "[Funding Students, Options, And Achievement](#)" of this book.

Today's school finance system was not created with the flexibility needed to support the wave of educational innovations discussed in this book's pages. Innovations such as online learning and competency-based education hold the potential to personalize and customize learning and extend equitable student access to high-quality learning options. Students are increasingly seeking alternatives to traditional, factory-model schooling by replacing or supplementing traditional courses with online and blended options. Teachers are increasingly harnessing the power to technology to offer students more personalized instruction that creates more opportunities for deeper learning.

Unfortunately, today's school finance system has a chilling effect on educational innovation since the unit of funding is the instructional institution and not the individual student. Until a new funding system based on students replaces that which is currently based on institutions, even the most potentially revolutionary educational models will remain inaccessible to the student body at large. Its suppressing effect on innovation is just one of the many problems with today's current finance system. Decades of layering on attempted fixes to a broken system have only created a funding structure that is fraught with a growing list of problems.

Today's Broken School Finance System:

- *Stifles innovation;*
- *Locks in outdated delivery models;*
- *Restricts universal student access to diverse, high-quality learning opportunities; and*
- *Ignores the relationship between spending and student outcomes.*

Building on existing policy examples at the state and local level, this chapter offers a set of design principles that will aid policymakers as they reorient the system around students. With these design principles at the core, a student-centered finance system will recognize diverse student needs, allow dollars to follow students to high-quality online and blended learning options, create mechanisms for ensuring quality, and foster educational innovation.

The authors contend that a full system redesign is needed and suggest that policymaker priority should be to unlock dollars and attach them to students through a weighted, flexible, portable, and performance-based system:

- Funding should reflect individual student needs by attaching “weights” to student funding amounts based on factors that affect the cost of educating certain students, such as poverty, special needs, ELL/LEP, or gifted.
- A flexible finance system does not restrict funds or designate them for particular uses such as salaries, and thus creates more school-level autonomy.
- The principle of portability ensures that dollars can follow students to the school or course that best suits their individual needs—including fractional funding for full-time or part-time options.
- To ensure quality, a performance-based system creates incentives tied to student outcomes that reward performance and completion. Options include attaching a portion of provider payment and/or eligibility to student achievement data.

Beginning with the Fordham Institute’s 10 recommendations in the landmark report [Fund the Child: Tackling Inequity and Antiquity in School Finance](#), this chapter offers additional recommendations for school finance redesign include thoughts on state and district collaboration, as well as how to create space for innovation rather than imposing a centrally-mandated agenda.

Online Learning: Myths, Reality & Promise

See “[Online Learning: Myths, Reality & Promise](#)” of this book.

Despite growth in online learning opportunities — from a range that includes school districts to private providers — organizations such as the International Association for K–12 Online Learning (iNACOL) continue to confront myths about what online learning is and is not. Left unchallenged, these myths stand to block student access to a growing pool of high-quality online opportunities. Fortunately, as online learning options grow, so too does the body of evidence that replaces outdated myths with a more realistic picture of student and teacher experiences with online learning.

“Online Learning: Myths, Reality & Promise” challenges current myths and replaces them with realities that will advance the field of online learning. In doing so, the authors - joined by iNACOL’s Susan Patrick - are candid about the strengths of online learning and offer recommendations on aspects that need additional attention to further strengthen it.

The chapter’s sections on myths and realities confronts misconceptions about what online learning means for students, teachers and the system as a whole. Key topics include:

- The range of students served by online learning;
- The power of personalized online learning;
- The daily experiences of online learners and teachers;
- The role of technology; and
- Evidence in support of online learning.

Student success stories and teacher profiles are woven throughout this chapter to show “the faces of online learning.” In addition to countering individual misconceptions with myth-busting evidence to the contrary, this section of the chapter also reveals additional realities about online learning, acknowledges its challenges and identifies areas of opportunity that can lead to additional improvements across the sector.

Building on the DLN policy framework, the recommendations section highlights state policy priorities necessary to support online learning. Recommendation areas include offering informed choices and setting an agenda for research and development.

Across the country, schools are implementing college and career readiness standards, preparing for the next generation of assessments, seeking ways to improve efficiency and productivity, exploring the potential of technology and expanding student access to high-quality learning opportunities. With thoughtful implementation and an acknowledgement of its challenges, the shift to online learning has the potential to aid stakeholders across the system in taking on these interrelated challenges. Furthermore, online learning can deliver on the promise of personalized learning to all students in a way that up to now has not been possible.

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Blended Learning Implementation Guide 2.0

by John Bailey & Nathan Martin (Digital Learning Now!); Carri Schneider & Tom Vander Ark (Getting Smart); Lisa Duty, Scott Ellis, Daniel Owens, & Beth Rabbitt, and Alex Terman (The Learning Accelerator)

Introduction

Blended learning, according to the Clayton Christensen Institute for Disruptive Innovation (formerly Innosight Institute) is “a formal education program in which a student learns at least in part through online delivery of content and instruction with some element of student control over time, place, path and/or pace.”¹ Blended learning is different from fully online learning environments, because students learn “at least in part at a supervised brick-and-mortar location away from home.” We add to that broad definition a statement of intent: Blended learning is a shift to an online delivery for a portion of the day to make students, teachers, and schools more productive, both academically and financially.

The [National Education Technology Plan](#) of 2010 acknowledged the challenges of raising college- and career-ready standards without a significant investment of new funding and what Secretary Duncan called “the new normal”—a need to achieve more with less. The aftermath of the Great Recession makes it unlikely that most states will significantly increase education spending, yet there is widespread agreement that college and career readiness rates, particularly for low-income students, must increase.

In a [related speech](#), Secretary Duncan attacked the basic system architecture as “a century-old factory model—the wrong model for 21st century.” He recognized the potential for “transformational productivity” and the potential for technology to be a “force multiplier.”

Promising early results from initial adoptions of personalized learning technologies and blended learning models suggest that schools can be organized in ways that produce higher levels of achievement for students and improved working conditions for teachers. This guide is an effort to help schools, districts, and networks unlock the potential of blended learning by developing and executing effective plans. In fact, there are several rigorous studies validating the effectiveness of blended learning models raising student improvement.

The blended learning intervention [Read180](#) has several studies that met the rigorous What Works Clearinghouse standards that found [positive effects on comprehension and general literacy achievement for adolescent learners](#). Another four-year U.S. Department of Education evaluation of adolescent literacy programs showed that students in Newark, N.J., Springfield/Chicopee, Mass., and the Ohio State Department of Youth Services who used Read180 also significantly outperformed [other students](#). A [U.S. Department of Education meta analysis](#) found that students in fully online post-secondary courses outperformed those in face-to-face courses, and those blended courses outperformed the fully online students.

In 2007, the U.S. Department of Education awarded a \$6 million grant to RAND Corporation to study the effectiveness of Carnegie Learning Curricula and Cognitive Tutor in a blended learning model. The initial findings, released in 2013, showed that students experienced an eight-percentile improvement over the control group in math scores in the second year of implementation. That jump equates to a 20 to 30 point improvement on the SAT math section. If the curriculum was applied and a similar increase resulted, the given school would see an improvement equivalent to moving from a “failing” status to an “average” rating.

To understand more about the fundamentals of blended learning, watch Education Elements’ [The Basics of Blended Learning](#). Publicly available on YouTube.

BLENDED LEARNING IS...

a formal education program in which a student learns at least in part through online delivery of content and instruction with some element of student control over time, place, path, and/or pace

at least in part at a supervised brick-and-mortar location away from home

A shift to online delivery for a portion of the day to make students, teachers and schools more productive. Learning in multiple modalities yields more and better data that creates an integrated and customizable learning experience.

See [“Exhibit: Definitions and Terminology”](#) to clearly understand the different types of learning.

10 Drivers of Blended Learning

- *Improved ability to personalize learning.*
- *Potential for individual progress.*
- *Improved student engagement and motivation.*
- *Shift to online state tests starting in 2015.*
- *Need to extend time and stretch resources.*
- *Potential to extend the reach of effective teachers.*
- *Ability to improve working conditions.*
- *Decreased device costs.*
- *Student and parent adoption of learning apps.*
- *Interest in narrowing the digital divide.*

State Policy Matters

The first wave of [DLN Smart Series](#) papers from Digital Learning Now! was released from August 2012 through July 2013. The series of eight white papers addressed implementation challenges at the intersection of digital learning and the CCSS, with an emphasis on policy implications. The papers are a great source of additional information on policy matters raised in this guide including competency education, school funding, student data, and online learning myths.

State policy can accelerate reforms that support blended learning models or it can inhibit the adoption of these models. Relevant policies include support for online learning, teacher certification and seat-time requirements, and funding mechanisms. Policymakers need to ensure that these policies provide schools with the room to test innovative models that may collide with outdated policies.

In [A Better Blend: A Vision for Boosting Student Outcomes with Digital Learning](#), Public Impact explains how state policy changes could enable and incentivize better blended learning by combining high-quality digital learning and excellent teaching. The report identifies the following areas that state policymakers must address in order to enable and incentivize “a better blend”:

- **Funding** that is flexible and weighted by student need, so that schools may invest in the people and technology that best advance their students’ learning.
- **People** policies that let schools hire, develop, deploy, pay, advance, and retain excellent teachers and collaborative teaching teams to reach every student with excellent teachers.
- **Accountability**, using increasingly better measures, that drives teaching and technology excellence and improvement, so that excellent teachers and their teams get credit for using blended learning to help more students, and schools have powerful incentives for a better blend.
- **Technology and student data** that are available for all students, allowing differentiated instruction for all students without regard to their economic circumstances.

- **Timing and scalability**, including implementing a better blend from the start in new and turnaround-attempt schools—when schools often have more freedoms to implement new staffing models that do not over-rely on the limited supply of outstanding school leaders. This also includes helping new schools develop systems for scale, and giving excellent new schools incentives to grow.

For example, many states have restrictive teacher certification requirements. Some have class-size restrictions that make it hard to use differentiated staffing strategies; others impose “line-of-sight” restrictions that inhibit teaming. These policies were designed for a teacher lecturing in front of a class, not blended learning environments in which students work on personalized lessons on computers, engage in small-group work, and receive more one-on-one time with teachers and paraprofessionals.

Many blended learning models promote competency-based learning, giving students the flexibility to earn credit when they can demonstrate that they have mastered the material. (This [clever comparison of competency education to Kung Fu](#) is a useful starting point for understanding mastery-based progressions.) However, most states have seat-time requirements that keep individual students from moving ahead at their own pace. Instead, credit is awarded based not on mastery but simply on time spent in school. Year-end grade level testing may also pose challenges for competency-based environments by not providing students with multiple opportunities throughout the year to demonstrate mastery and advance to higher-level work.

Most states fund school districts rather than students—funding does not follow students to a potential portfolio of providers serving courses and other educational services. Funding in most states does not provide incentives that reward completion and achievement.

Another policy link is school improvement and accountability. It is often easiest to gain funding and flexibility (e.g., school improvement grants and waivers) for low-performing schools. However, building and executing a blended learning turnaround requires strong and experienced leadership.

Digital Learning Now!, a state policy framework, advocates for policies that advance high-quality blended and online learning.

Most state policies	Digital Learning Now! Policies
Print instructional materials	Predominantly digital materials
Seat time requirements	No seat time requirements
Only local options	Full-time & part-time access to online learning
Year end summative exams	On demand end-of-course exams
District funding	Weighted portable student funding
Limited device & broadband access	Ubiquitous device & broadband access

Room To Grow

In the broadest sense, any learning sequence that combines multiple modalities is blended. However, this guide considers a narrower definition that includes an intentional shift to an online environment for a portion of the day to boost learning and operational productivity. This is accomplished by creating a school experience that works better for students and teachers and ultimately yields increased learning opportunities and improved student outcomes.

Strategies that may be productive, but don't yet realize the full potential of blended learning include:

- Classrooms that have some computers with digital curricula.
- Teachers who are experimenting with flipped classroom strategies.
- Schools that have a computer lab for classes to use.
- Computer purchases that improve device access ratios.

These strategies may be beneficial, but if they do not change instructional practices, schedules, relationships, and resource allocations, they are not considered blended learning for the purposes of this guide.

Creating and supporting the opportunity for secondary students to take online courses (advanced, credit recovery, and options) is considered blended learning in this guide because it may require a new use of space, time, and resources. It also includes a shift in delivery that may be more productive for the student and the school.

The Implementation Guide

The audience for this blended learning implementation guide is school, district, and network leaders ready to build and implement a blended learning plan. The guide will also be useful for state policymakers who want to gain an understanding of the transition schools will experience in the coming years.

BLENDING LEARNING IMPLEMENTATION DECISIONS



For more information, watch [Technology Revolution: Carpe Diem & Blended Learning](#) from EdNation. Footage from EdNation used with permission, available on the [Digital Learning Now! Video Library](#).

CREATING CONDITIONS FOR SUCCESS

The shift to blended learning is multifaceted. It requires a lot of support-building before and communication during implementation. If the shift to blended learning feels like “just another district initiative,” it is doomed to failure. This section discusses building support for a blended learning initiative and funding the shift.

“NEA believes that the increasing use of technology in the classroom will transform the role of educators allowing the educational process to become ever more student centered. This latest transformation is not novel, but part of the continuing evolution of our education system. Educators, as professionals working in the best interests of their students, will continue to adjust and adapt their instructional practice and use of digital technology/tools to meet the needs and enhance the learning of their students.” Source: [NEA Policy Statement on Digital Learning](#)



Defining Academic Goals

The difference between blended learning and just adding computers to the way schools have always operated is that there is a regular and intentional change in delivery to boost learning and leverage teacher talent.

To build support for a blended learning initiative, start by analyzing student data and tapping into staff knowledge about the student population to connect the shift to blended learning with overall district goals. Aim to improve college and career readiness by employing technology to create more personalized, deeper learning opportunities.

Before investing in devices, it is important to first define the educational vision and goals for digital learning. This will drive the content and device decisions necessary to execute on the vision. Key questions for the defining the educational vision and goals include:

- Enterprise or portfolio approach – coherence at the classroom, school, or system level?
- What kind of blended learning model or models will be implemented?
- How much of the school day will students spend interacting with digital content?

With thoughtful and well-developed models, educational leaders can determine a plan for investing in digital learning and meet multiple goals simultaneously—expanding student access to devices, enriching curriculum with new content and delivery methods, preparing for the shift to online assessments, and making sound financial investments in the future of education.

The “[Rethink: Planning and Designing For K–12 Next Generation Learning](#)” is a great toolkit developed by Next Generation Learning Challenges (NGLC) and the International Association for K-12 Online Learning (iNACOL) for K-12 district, charter, and school leaders to use in the very early stages of conceptualizing and designing a next generation learning program, initiative, or whole school. The toolkit is not prescriptive. Instead, it offers a framework for helping educators to determine their own goals in “blended, personalized, competency-based learning.”

The goal statements from [Danville Schools](#), a small district south of Lexington, Kentucky, provide a good example:

- **Powerful learning experiences:** Every Danville student will consistently experience classroom work and activities that are meaningful, engaging, and relevant, connecting to students’ interests and/or previous knowledge.
- **Global preparedness:** Every Danville student will be immersed each day in learning opportunities intentionally designed to develop skills such as critical thinking, problem solving, teamwork, and data analysis, enabling them to compete globally.
- **Growth for all:** Every Danville student, regardless of starting point, will achieve at least one year of academic progress in reading and mathematics each school year.
- **Excellence in communication:** Every Danville student will be provided regular and multiple opportunities to demonstrate learning through verbal and written communications, visual and performing arts, and the use of multiple forms of technology.
- **An informed and involved community:** The Danville Schools will establish effective two-way communication, in various forms, with all stakeholders in the community.

These goals link to, but are not limited by, college- and career-ready expectations. They start with student engagement, imply a focus on communication, focus on growth for all students, and conclude with community connections. Metrics could be applied to each of these areas to create a results dashboard that can become the basis of a report to the community.

Project-specific goals for blended learning implementation should include timeline and milestones, budgets, staff learning goals, infrastructure objectives, and curriculum deployment activities. There is no universal reason for shifting to blended learning. Some schools are using blended learning to create more opportunities for small group instruction, while others hope to meet technology integration goals with blended learning. Staff surveys can help identify goals and critical starting points, including:

- Staff confidence with new learning and productivity tools;
- Early impressions about student engagement and learning; and
- Usefulness of current assessment data.

Goal setting should precede important next steps such as inventorying hardware and widely used applications, testing broadband access, and identifying blended learning programs and strategies.

It's less than a year to the start of the 2014-15, the year most states will implement online assessments linked to higher college- and career-ready standards. Most states will use tests from one of the two large state consortia, PARCC and Smarter Balanced assessments. A handful will work with private vendors to develop their own test. In most cases, results will better inform students, teachers, and policy makers about student preparedness. Preparing for these assessments will require an unprecedented collaborative effort to align instruction to new standards, prepare the community for results and ensure that schools have the necessary technological infrastructure to administer the assessments. PARCC and Smarter Balanced released minimum technology requirements to guide states and districts in improving access and developing an adequate testing environment and plan.

In addition to striving for readiness for the assessments, leaders should prepare for the [instructional shifts](#) that the CCSS and new assessments require. DLN sees the 2014-15 implementation as an important catalyst to expand overall access to technology, shift to digital tools and materials, and move toward personalized learning for all students by this deadline. DLN's [10 Elements of High-Quality Digital Learning](#) and [Roadmap for Reform](#) offer policy advice around the core belief that all students must have equal access to high-quality digital learning opportunities, including both summative and formative digital assessments.

Without a plan for making these broader instructional shifts, we will miss this once-in-a-generation opportunity for systemic improvement that could meaningfully and sustainably address educational equity. If leaders focus instead only on meeting the minimum requirements, schools will suffer from

instructional disruptions to accommodate testing rotations, destructive gaps in student learning experiences between instructional environments and testing environments, missed opportunities to take full advantage of online formative and diagnostic assessments to personalize instruction, and the continued inefficiencies that result from the purchase of outdated equipment and materials.

*The [Blended Learning Budget Toolkit](#) from *Education Elements* provides districts with an overview of the costs of blended learning, a description of the types of funds available to support it, and a series of worksheets for district leaders to determine how they could fund their blended learning efforts.*



Building Support

The first step in building a plan and support for that plan is a readiness assessment. The Friday Institute's [Readiness Rubric](#) is a useful example of tools that can provide a planning baseline.

The issue that has most changed in the last two years is teacher, student, and parent adoption of learning applications. A survey of change readiness should attempt to gain an understanding of the learning applications being used in school and at home. Identifying existing areas of teacher initiative is critical to harnessing teacher leadership as part of a blended learning strategy.

Building support with stakeholders over the course of an adequate planning period will lay the groundwork for development and adoption of blended learning models. As part of the effort to build support, consider launching several small pilots and adapt the plan as issues emerge.⁴

Efforts to build support for blended learning should include eight groups of stakeholders: the superintendent, the school board, teachers, the teachers' union, principals, leadership schools, the community and families. The process of building and maintaining support will be enhanced by continually reminding each group of the overall learning shifts that form the foundation for the shift to blended learning.

- **Superintendent leadership:** The superintendent and cabinet members should express support for blended learning in weekly staff communications and model mobile technology leadership in meetings and on school visits.

- **Board support:** School boards should conduct a board work-study on the Christensen Institute report [Classifying Blended Learning](#) and visit (at least virtually) leading blended learning models.
- **Principal support:** Build principal support by supporting a professional blended learning experience like Abeo's [Innovative Principal Network](#).
- **Teacher/staff support:** Build teacher and staff support by finding and featuring flipped classroom examples as a good starting point. Visit with every school's faculty to learn what's working, find leaders, and identify priorities. Create ways to leverage and showcase teacher leadership. Engage technology directors and teacher support staff.
- **Union support:** Build union support by reviewing [Opportunity Culture](#) models, discussing differentiated staffing and the potential for improved working conditions and career opportunities.
- **Leadership schools/programs:** Larger districts should develop a network of leadership schools like [NYC iZone](#). Build a local philanthropic partnership using the [Next Generation Learning Challenges](#) criteria for new and conversion schools.
- **Community engagement and support:** Launch a community conversation. Visit Rotary, Kiwanis, and Chamber of Commerce meetings. Ask members what they are [excited about and what they are concerned](#) about to identify issues that need to be addressed.
- **Student & family support:** Find ways to include students and their families, from early vision work through implementation and ongoing continuous improvement phases.



Funding the Shift

Developing the budget capacity to improve student access to technology, implement new models, and train staff may seem daunting. Across the various blended learning approaches, there is a broad range of costs per student and costs per school.

Comprehensive Financial Planning for Blended Learning

School systems must develop a multi-year financial plan that encompasses all cost categories and provides a clear path for financial sustainability. Underinvestment in key areas such as professional development or systems integration could undermine success. Additionally, if the digital learning initiative isn't designed for financial sustainability, it will be at great risk of being underfunded or eliminated once startup-funding sources (such as foundation grants or RTT funds) are exhausted.

	Implications For:		
	DEVICES	HUMAN CAPITAL	FACILITIES
Station Rotation	Up to 3:1 device ratio may be sufficient, depending on group size and how much time is spent online	May require para-professionals to support one or more learning stations	Minimal—retains traditional classroom structure
Lab Rotation	Up to 3:1 device ratio may be sufficient, depending on rotation schedule and group size	May require para-professionals to support students in the lab	Retains classrooms, but significant investments may be required to create learning labs
Individual Rotation/Flex	Works best in a 1:1 environment	Significant flexibility to develop innovative staffing models	Breaks down traditional classroom structure; significant investments to create new learning environments
A la Carte/Self-Blend	Works best in a 1:1 environment, especially at the high school level	Varies depending on implementation, amount of time spent online and on site	Reduces demand for classroom space; may need to create lab or “cyber-lounge”
Enhanced Virtual	Requires a 1:1 environment	Varies depending on implementation, amount of time spent on site	Greatly reduced demand for classroom space

Key Cost Drivers

The choice of educational model is a key driver for many cost categories (see previous “Implications For” table). For example, some models do not require a 1:1 device ratio, while others work best in a 1:1 environment.

A comprehensive financial plan should include cost estimates for each of the following categories:

- **Infrastructure** – what is the current state of broadband access, wired and wireless networking, availability of sufficient power, and classroom configurations?

- **Timing** - will the entire school or school system implement digital learning at once, or will there be a multi-year phase-in period? Some models lend themselves more to a phased approach (station rotation).
- **Devices** – what technology assets (hardware, software, etc.) are already in place that can be leveraged? What quantities of additional devices will be required, and how often will they need to be replaced?
- **LMS and Systems Integration** - how will digital content and assessment data be integrated into existing data and assessment systems? Will the district need to invest in a new Learning Management System?
- **Digital Content** – what is the planned mix of open education resources (OER) vs. “packaged” digital curricula? Open resources may be low-cost or free, but additional resources may be required for curation.
- **Human Capital** – will the models being implemented require hiring of new staff, or changes in existing staffing or compensation? Will additional IT support resource be required?
- **Professional Development** – what training will be needed for teachers and instructional leaders? Will PD be delivered internally or through external providers?
- **Project Management** – who will be responsible for managing the project of implementing digital learning? Will outside consulting support be required?
- **Communications and Evaluation** – what resources will be required to communicate with various stakeholders regarding the plan, and to evaluate and report progress during and after implementation?

Funding Sources

- Federal funds (E-Rate, RTTT, RTT-D, Title I Part A, Title I Set-Asides, Title I School Improvement Grants, Title II Part A, IDEA)
- State and local funds, facilities bonds, tech levy
- Philanthropy: corporate and foundation grants, Next Generation Learning Challenges, local donors
- Leasing

Leasing/Financing Strategies

Districts are not well equipped to make productivity-enhancing capital expenditures. They can float a long-term bond to build or remodel a school, but there’s often no facility for making short-lived asset purchases like technology. Some wealthier districts can add a technology levy, but most schools and districts make piecemeal use of grants, programmatic funding, and end-of-year surpluses. Erratic purchasing patterns lead to different computer and software combinations with no plan for regular updating.

Another method for reducing the up-front financial burden is to lease or finance purchases of devices. Districts can often leverage their low cost of capital to finance device purchases at very low interest rates. Leasing offers the opportunity to manage an asset category like instructional technology more rationally. The Consortium for School Networking (CoSN) suggests that leasing be considered as a means for sustaining refresh schedules—and shifting from every six or seven years to every three or four years.⁵

Leasing levels out the annual expenditure of student and teacher laptops. It's usually easier for a district to include a regular lease payment in an annual budget than to plan for large expenditures every four years. Leasing adds a finance charge, which increases the total costs. However, the benefits of hardware/software standardization may offset the higher cost of leasing.

Overall, plummeting device prices and open software resources are making the shift to digital much more affordable. Today's devices are available for around \$500 and utilize open resources. The combination is more powerful than loaded laptops costing \$1,500 just three years ago—and they are available to lease for about \$20 per month.

Schools considering the 1:1 use of \$500 laptops can make the full shift using leasing or phase in a purchase plan over three years. A district that has the discipline to phase in a technology plan and manage an annual refresh program will save money by purchasing rather than leasing. On the other hand, leasing can facilitate whole-school or district-wide implementation and certainty on the refresh schedule.

With leasing, it is important to predict whether the equipment will be purchased or returned at the end of the lease. It will be cheaper to accept a “fair market value” buyout at the end of the lease, but if parents are likely to buy laptops it is often better to have a defined purchase price to avoid confusion. If a district is considering leasing, it's always a good idea to compare rates, lease terms, fees, and options available from various banks, equipment vendors, and leasing companies.

Reallocation Opportunities

Absent major increases in school funding, most school systems will be faced with the challenge of finding room in their existing budgets for increased technology investments and other costs related to digital learning. Assuming major infrastructure needs are funded through school bonds and E-Rate (probably the only viable avenues to fund multi-million dollar infrastructure requirements), this need not be a difficult exercise.

Digital learning allows schools to realize many areas of cost savings, especially when moving to a 1:1 environment in which many traditional spending areas will naturally decrease (paper, copier lease/operating costs, textbooks, manual data entry, etc.).

While the cost for 1:1 implementation can vary widely based on purchasing decisions, research from Project RED formed the basis for the FCC report that determined that switching to devices from traditional tools like printed textbooks could save schools as much as \$3 billion a year.⁶ This figure was based upon an assumption of a \$250 device estimate, amortized over four years.

A careful assessment of current technology assets and spending patterns may also help districts find ways to allocate resources more effectively. For example, a school may have several underutilized computers in each classroom that can be combined into a centralized learning lab that will be used non-stop throughout the school day. In addition, expensive investments in productivity software and local file and mail servers can now be replaced with free or low cost cloud-based services.

Since labor is the single largest line item in most school budgets, a small increase in the student-teacher ratio can have a major impact on financial sustainability. Many districts have chosen to gradually adjust staffing ratios (without layoffs, given there is a baseline rate of annual staff attrition) to fund increased investments in technology and digital learning. This is easier to do in districts with increasing enrollment, and is easier with new schools than with conversions.

Grants can help. Look for grants from national programs like [NGLC](#). State Race-to-the-Top funds and other state grants may be available. Engage local foundations. [DigitalWish](#) has supported 30,000 classrooms and has resources for building high-access environments. E-Rate may be a source of funding for improved broadband and internal connections.

While it is tempting, avoid using long-term construction bonds to fund computers—you'll be paying for them for 30 years! Where they are available, renewable technology levies are a more sustainable source of additional funding.

Start or join a state conversation. Encourage state contributions to improved access, professional development, and new school grants.

A bring-your-own-device (BYOD) policy can also augment school-provided devices to create a high-access environment. Schools should provide at least enough devices to support their state's assessment program.

In addition to devices and training, it is important for districts and networks to plan and budget for program management capacity. Find a capable internal project manager. Add external capacity if necessary. Schedule regular meetings with senior leadership. Plan for weekly stakeholder communication.

Strategies for Boosting Affordability

- *Phasing in changes over three years can make the transition manageable and allows the district to capture savings that help pay for additional phases.*
- *Shifting to online instructional materials may offer savings, particularly if open education resources are incorporated.*
- *A transition to online and blended professional development is another source of savings.*
- *Project RED enumerates numerous reductions in a list of possible savings.*
- *Review software usage and data integration methods. Leverage open education resource solutions when appropriate and that can integrate with provider software with your student data systems so that student accounts are automatically maintained without costing district IT time and resources. Reduce investments in products that are not being used by all schools.*
- *Title I funds can be used for computers, instructional software licenses, and professional development intended to improve a school's instructional model. These funds can become even more flexible when districts implement school-wide programs in schools where at least 40% of students are low income.*
- *Districts should maximize #-rate funding for all eligible services.*
- *Leverage School Improvement Grant funding.*
- *For computer and tablets that go home with students, a user fee of \$50 can cover the cost of insurance.*
- *Consider leasing as an option not only for faster implementation but also to build in a recurring budget to regularly refresh the equipment.*
- *Use Summer School to pilot innovations before you deploy them throughout the year. Companies may be willing to give away their software free during the summer in order to win your business during the year. If you're trying to figure out what works, there is no substitute for trying it out with real students and teachers.*

PLANNING

Implementing blended learning requires a good plan. A good plan answers important questions about how decisions will be made in six key areas:

- Strategy and timeline
- School models
- Platform and content
- Device
- Staffing and development plans
- Improvement and impact measurement



Strategy and Timeline

It is too hard to plan five years out. A one- or two-year plan is too short. For most schools and districts, a three-year timeframe is just right. With the pace of change, big budgets for custom development and commitments longer than a couple years are not prudent.

New Common Core online assessments begin in the 2014-15 school year for most states. This milestone provides an opportune calendar for the shift to digital instructional materials, allowing two or three years to phase in a high-access environment (a computer or tablet for every student).

Enterprise Approach or Portfolio. For many districts, the most important decision will be whether to build a common district plan or encourage schools to develop their own plans. An organization-wide approach to information technology—the same devices running on the same systems across an organization—is often called an “enterprise approach.” The educational equivalent is a district that uses the same curriculum, same staffing strategy, same student supports, same schedule, and same device across the district. A frequently cited high-performance example is Mooresville Graded School District, North Carolina—the home of the 2013 Superintendent of the Year, Mark Edwards. Mooresville is in the bottom 20% in terms of dollars spent (\$7,415.89 per student/per year) but is third in test scores and second in graduation rates in the state.⁶ An enterprise approach can feel like a series of top-down directives, but Edwards has developed a collaborative culture that values teacher engagement.

The alternative to the enterprise approach is a portfolio of different school models; districts like New York, New Orleans, and Denver have taken this approach. Alex Hernandez of [Charter Growth Fund](#) says a portfolio strategy is “the most fertile ground for educational innovation.”⁹

The need to take a portfolio approach may be driven by size as well as differential performance. In a big district where some schools perform well and others struggle, the district should differentiate its approach, providing directive assistance to some schools that need additional support and autonomy for high-performing schools. Depending on the district strategy, principals can be empowered to make key development decisions. Districts can encourage schools to adopt promising models or join existing networks.

Paul Hill, Founder of the Center for Reinventing Public Education, has written extensively about the [portfolio approach](#) and created a network of districts deploying similar strategies. “The strategy, built around [7 key components](#), creates diverse options for families in disadvantaged neighborhoods by opening new high-performing, autonomous schools; giving all schools control of budgeting and hiring; and holding schools accountable to common performance standards.”¹⁰

Turnaround. Turnaround is both a strategy itself as well as circumstances under which a school would develop a blended learning strategy. A three-year plan for a portfolio district should integrate improvement and blended learning strategies and phases of improved access. There are a growing number of choices for districts looking for improvement partners with blended models.¹¹

The [Education Achievement Authority \(EAA\) of Michigan](#) is a statewide improvement district (modeled after the [Louisiana RSD](#)). Chancellor John Covington, building on work he started in Kansas City, Missouri, is leading development of a blended competency-based turnaround model using a model platform, [Agilix Buzz](#), from the makers of [BrainHoney](#). The personalized learning system helps “students map their learning paths, make choices and decisions around progression and pacing, conduct self-assessments, and learn to understand the consequences of their decisions,” and the system tracks it all. A 210-day year provides extra learning time.¹²

[Generation Schools Network](#), working in Denver’s West High, is deploying a combination of restructuring and personalization: a long day and year, big blocks of time that reduce teacher loads, and half-class mini-lab rotations. They use open and proprietary digital content sources and [JumpRope](#) to track competencies.

[Horry City Schools](#), South Carolina, is turning around a middle school with a “blended core academic curriculum and a carefully constructed system of supports.” It is a competency-based model that both accelerates academic gains and develops students’ lifelong skills and dispositions. “One hundred students will move among the four Learning Team classrooms based on their personalized learning plans, constructed around each student’s aspirations, learning preferences, and demonstrated proficiency.”¹³

While flipped classroom strategies do not mean the full potential of blended learning, adopting “flipped” practices can act as a catalyst for an overall shift to blended learning. Greg Green credits [the flipped classroom strategy with turning around his failing school](#): “Two years ago our failure rate was 61.2 percent; after just one quarter [using a flipped model], the schoolwide failure rate dropped to just below 10 percent.” [Clintondale High School](#) came off the struggling schools list. “The flipped class model has allowed us to give students access to the best possible materials, resources and education.”⁴

Pearson has incorporated blended learning strategies into its [Schoolwide Improvement Model](#).

Teacher leadership. Whether you take an enterprise or portfolio approach (or a mix of the two), another big strategy question is how to leverage teacher leadership. With the introduction of tablets and the many free applications available for them, many teachers have blended their own classrooms. It is important to leverage these early movers. Recognizing their work is a good place to start.

Given that a percentage of teachers and students have made the shift to digital learning, the question is how to incorporate their leadership in school and district plans. The first step is a good survey of tools and strategies so you know what is going on.

Next, use incentives and supports to turn pockets of promising strategies into productive school models. Districts can also create supports and incentives for schoolwide adoption of popular platforms and applications (e.g., a school where 20 of 30 teachers use [Edmodo](#) could quickly become a schoolwide model). In doing so, look for ways to connect schools with similar models and strategies through a new or existing network of support.

Phase or plunge? Districts and schools need to decide whether to plunge in all at once or phase in improved access and new school models over three years. Schools like [North Carolina’s Rocky Mount Prep](#) point to both the benefits and challenges of making a full K-12 transition at once.

Improving computer access for most grades in a year may require a special levy or a financing option like leasing. The benefit to this approach is that it quickly eliminates inequities. The downside is that it costs more and will force more unprepared teachers to adopt new models and practices before they are ready.

Multiple pilot projects can be used to test deployments and demonstrate new learning environments. It is helpful to have a local blended learning environment that teachers and parents can visit.

Components of a Portfolio Strategy

- *Good options and choices for all families: District should ensure quality options through student assignment policies and improved options.*
- *School autonomy: School leaders should have as much autonomy as possible and should be held accountable for results.*
- *Pupil-based funding for all schools: Funds should follow students to schools.*
- *Talent-seeking strategy: National recruiting and local talent development should aim to identify and support the best teachers, administrators, and support staff.*
- *Sources of support for schools: District should identify a diverse set of providers to support schools.*
- *Performance-based accountability for schools: Accountability systems should be designed to ensure that effective schools get replicated, struggling schools get support, and chronically low-performing schools are closed.*
- *Extensive public engagement: Portfolio strategy creates significant change for all stakeholders and, as a result, requires high engagement from the community as well as internal stakeholders.*

(Source: [Center for Reinventing Public Education](#))

To the existing school of thought on portfolio strategy, the evolution of blended learning suggests three additions:

- *Add blended learning to school improvement strategies.*
- *Open new blended schools.*
- *Add online options so students can blend their own learning.*

For information on how to achieve a goal of “career and college readiness” through an effective use of technology and digital learning, see [Project 24](#) launched by the [Alliance for Excellence in Education](#).

See “[Exhibit: Financing a Successful 1:1 Digital Initiative by Dr. Mark Edwards, Superintendent, Mooresville Graded School District](#)” for more information.



School & Instructional Models

Blended learning models intentionally integrate technology to boost learning and leverage talent; they don't just layer technology on top of business as usual. Leaders need to help the community weigh the pros and cons of different online options and devices and find ways to extend the reach of the most effective teachers and build support systems for teachers that need support. Education leaders should guide conversations that determine the best model or portfolio of models for their school community.

There are two primary types of blended learning models: rotation and flex. Students in rotation models transition from face-to-face instruction to online learning in classroom centers or a computer lab. Rotation models are common at the elementary level. In this category, Christensen Institute includes: station rotation, lab rotation, flipped classroom, and individual rotation.

Flex schools have a digital curriculum that may be supplemented with projects, tutoring, and small-group instruction. Students often work independently and move at their own speed. Flex models are most common in high schools.

Most districts and many states are expanding access to part-time online courses, especially for hard to staff upper division courses and electives. Christensen Institute calls this an a la carte model.

John Danner, founder of a leading network of blended learning schools through [Rocketship Education](#), warns that it will become harder and less useful to categorize models by inputs. He urges focus on three key metrics: ratio of students to teachers (a key cost variable), the amount of autonomous online time per day (a key replication variable), and—most importantly—student performance. “The attitude should be that whatever lets you maximize those metrics is good.”¹⁵

Where states and districts allow, secondary students are blending their own learning. According to iNACOL, [about two million](#) U.S. students take online courses to supplement traditional offerings. Some seek college credit opportunities, while others are recovering a missed credit. Scott Benson, Senior Program Officer for Next Generation Learning Models at the Bill & Melinda Gates Foundation, said, “Students are blending their own learning

everywhere with informal learning. The key distinctions are (1) who delivers it (formal system or not) and (2) whether or not students can receive credit for proficiency/mastery.”

5 Interactions of A Robust Blended Learning Model

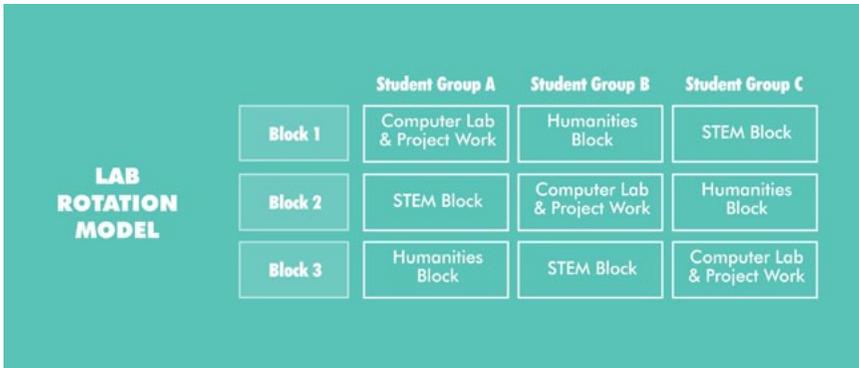
- *Student-to-Student Interaction*
- *Student-to-Teacher Interaction*
- *Student-to-Community Interaction*
- *Student-to-Material Interaction*
- *Student-to-Technology Interaction*

(Source: TeachThought.com)

Rotation Models

Providing [an inside view of blended integration at Rocketship Education](#), the top public school system in California for low-income elementary students, Charlie Bufalino notes, “The three pillars of our model are: parent and community engagement, rich professional development for our teachers and school leaders, and individualized learning for our students.”¹⁶ To promote individualized learning, Rocketship’s original structure placed students in a Learning Lab for two hours per day using adaptive software including [Dreambox](#), [ST Math](#), and [i-Ready](#). In an effort to improve the integration between the classroom and the Learning Lab, the model has changed from a lab rotation to a classroom rotation model.¹⁷ According to a recent profile of Rocketship by Public Impact, “[Rocketship’s] leaders wanted to fix a disconnect they saw between what happened in the lab versus the classroom by bringing the online work closer to the teachers, giving them more control over the digital learning students experienced and letting them integrate it more into their teaching, to further individualize the teaching.”¹⁸ The profile goes on to explain how in a few classrooms across different grade levels, Rocketship is testing more open, flexible classroom spaces where the computers are in large classrooms with multiple teachers and groups of students, allowing teachers to personalize instruction across multiple subject areas and modalities.

Like [Rocketship](#), some Chicago elementary schools have used a computer lab to extend their day using engaging and adaptive skill-building software. In addition to Rocketship, more than 1,400 elementary schools use ST Math from [MIND Research Institute](#) in a lab rotation model. READ180 is a blended reading-intervention program with a long history that serves more than a million students. The program leverages adaptive technology to individualize reading instruction for students in grades 4–12 and provides teachers with data for differentiation.



[Carpe Diem](#) secondary students rotate between teacher-led workshops and an individual workstation powered by [EdGenuity](#). Founder and director Rick Ogsten says, “Rather than nursing students to passing grades, teachers here act as doctors creating surgical interventions or as personal trainers extending and deepening learning.”⁹

The three [KIPP schools in Chicago](#) have converted to blended learning. KIPP plans six K-8 schools serving 5,000 students by the end of the decade. KIPP Chicago opened College Prep Middle School last year with a learning lab featuring i-Ready, [LearnZillion](#), and [Wowzers](#) on Edmodo and [Chromebooks](#) with [Eduvant](#) dashboards. This example shows how a school can use student learning goals to drive purchasing decisions in order to produce a learning environment in which multiple solutions come together to serve instructional goals.

Many elementary teachers use multimodal centers. Powered by the growth in tablet computing, the classroom rotation model of blended learning builds on that practice.

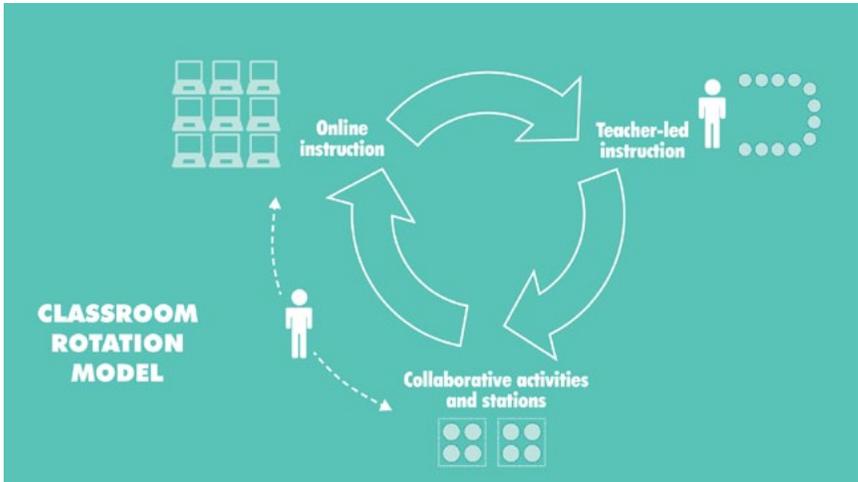
When faced with a much smaller budget than he was used to, Mike Kerr opened [KIPP Empower](#) in Los Angeles with a classroom rotation model that used computer stations to keep reading groups to no more than 14 students.

At [School of One](#), powered by [New Classrooms](#), teachers are able to teach small-group lessons to students when they are ready for that lesson in their preferred modality. This is all possible with the application of a computer algorithm, some use of asynchronous activities, and dynamic scheduling. Blended learning changes the nature of instruction—both face-to-face and online—and should improve, not reduce, the quality of human interaction. Rocketship, KIPP Empower, and School of One are examples of lab, station, and individual rotation models.

The following NGLC-awarded models incorporate project-based learning in blended environments:

- [Da Vinci](#): “Project based learning underpins Da Vinci’s model and much thought has been put into designing engaging and enriching activities . . . Projects will be planned by teams that may include Da Vinci faculty, industry experts, college faculty and students.”
- [Aspire’s](#) middle school instructional model in Tennessee will be STEM focused and move from a rotation environment to a one-to-one, project-based environment. (See [Aspire’s Blended Learning Handbook](#) for more information on their key implementation lessons.)
- [Summit](#) will debut a new learning model in 2013 “with a robust, custom-built LMS, continuous student access to content and assessments, and an Intersession program that regularly offers all students intensive, hands-on opportunities to apply their skills and knowledge, explore their passions and interests, investigate careers, and learn outside the school walls.”
- [Intrinsic](#) students at the Chicago network will “move fluidly between individualized adaptive digital content, multimedia content, small group instruction, seminars, and group and independent project work.”

While blended strategies introduce more opportunities for individualization, most rotational models rely primarily on cohort-based matriculation.



Flex Models

More common at the secondary level, flex models feature 1:1 technology access, instructional delivery primarily online, and competency-based progressions. Learning online is often augmented by small-group instruction, projects, and individual tutoring.

- [iPrep Academy](#) is a Miami-Dade school operating on a flex model powered by [Florida Virtual Schools](#). Students move at their own pace and augment online work with projects, tutoring, and work-based learning.²⁰
- [AdvancePath](#) is a national network of dropout-prevention academies that allow over-aged and under-credited students to catch up. Students move at their own pace using Apex software. Teachers provide one-on-one and small-group tutoring.²¹
- [Flex Public Schools](#), powered by K12, combines online courses with onsite support and guidance.²²
- [Nexus](#), a flex-plus model from Connections, features success coaches, personalized instruction, and personal fitness.²³
- [USC Hybrid High](#) is open up to 12 hours a day, 7 days a week, and 310 days a year. The model allows for personalized and mastery-based learning and provides significant out-of-school learning opportunities and an advisory structure for social-emotional supports. Students spend about half their time engaged in self-paced Apex courseware and the other half on “challenge-based projects, internships, dual-credit courses, and community service.”²⁴
- [Schools For the Future](#), uses a mastery approach combining a personalized instructional model and “intensive staffing with strategies to address social-emotional development with ‘wraparound’ services like tutors and various technologies to support the diverse learning needs of students who are two or more years behind academically when they enter high school.”²⁵

There are [many reasons for districts to add flex models](#). They can leverage local assets, address specific needs, and provide flexible and cost-effective options for students. Perhaps most importantly, flex models provide site-visit opportunities where staff members can experience competency-based blended learning with innovative staffing and scheduling.

All of the models previously highlighted are first generation. Implementing blended learning should be treated as a research and development project. [Blended networks profiled by FSG](#) found that “blended learning is less about implementing a static model than it is about using a model as a starting point for ongoing iteration and improvement.” FSG notes key variables that have proven important: integrating data from face-to-face and online instruction and planning student movement carefully to maximize instructional minutes.

A recent report from the Lexington Institute profiles Oakland (CA) Unified School District’s Blended Learning Pilot, Rocketship Education; Summit Public Schools; and Carpe Diem Schools.²⁶ The report highlights these schools as four instructional models that take blended learning to the next level by striving for “digital differentiated learning” in which “each and every student’s learning is individualized and adaptive.” The report explains “digital differentiated learning” consists of but is not limited to:

- The use of online or computer-based content and assessment tools combined with individual or small group instruction, with opportunities for both remediation and enrichment on a continuous basis.
- Individual student comprehension and subject mastery serve as a baseline for differentiated instruction.
- The creation of learning objectives, aligned with state standards, for individual students across academic subjects as defined by content mastery, not by grade level or age.
- The delivery of content and assessments based on student learning objectives and initiative, with guidance from teachers.
- The regular incorporation of data assessing individual students’ progress toward learning objectives to customize delivery of instructional content and assessments.

The program takes place, at least in part, at a supervised, brick-and-mortar location away from a student’s home.

The [Michael & Susan Dell Foundation](#) published a set of case studies to “contribute to the evidence base of blended learning’s potential to impact student outcomes.” The case studies feature many of the schools highlighted in this Guide including Rocketship, Summit Public Schools, and KIPP LA. The case studies and related materials provide a useful resource for schools that are just beginning the implementation of a blended learning program and wish to learn from the lessons of pioneer models.

To observe two great examples of blended learning environments, watch 1) “[Blended Learning For Alliance School Transformation](#)” video from Art Simon Productions on Vimeo; 2) “[Inside Kipp Empower](#)” video made publicly available on YouTube.



Platform and Content

Device and platform choices will limit the types of instructional resources and services available to teachers and students. Conversely, choosing based on content may limit platform and device options. As a result, this section deals with both.

Next-generation learning platforms will have 10 features:

- *Single sign-on & SIS integration*
- *Knowledge maps aligned with Common Core State Standards (CCSS)*
- *Open and proprietary content organized by level, subject, theme, modality*
- *Standards-aligned assessments and performance tasks*
- *Achievement reporting and recognition systems (e.g., badges and data visualization tools)*
- *Standards-aligned gradebook and competency-tracking systems capturing computer-scored and teacher-observed items*
- *Comprehensive learner profiles including portfolios of student work*
- *Recommendation engines that consider learning level and best learning modality*
- *App-rich social learning platforms supporting teacher and student productivity*
- *Service economy including student, teacher, and school services*

For specific information on how to select content for blended learning classrooms, see [Education Elements' useful infographic](#). For information on developments in the educational technology market, see [New Schools Venture Fund EdTech Market Map](#).

Platforms

While the market is dynamic, current platform choices can be frustrating. On the one hand, there are easy to manage and monitor learning management systems (LMS) built to support a system of unitary courseware. On the other hand, there are tablets and exciting mobile learning applications without single sign-on, reporting, and management capabilities.

Choices are quickly improving. By the beginning of the 2014–15 school year, there will be several platforms that offer big content libraries, comprehensive learner profiles, smart recommendation engines, many productivity tools, and an array of support services.

This feature set can be predicted based on nine vectors pointing in this direction. For demonstration purposes, a few examples are shared to illustrate each:

- Learning management systems incorporating learning objects and learner profiles (e.g., [BrainHoney](#), [EdGenuity](#), [Desire2Learn](#)).²⁷
- Social learning platforms adding functionality (e.g., [Edmodo](#), [Schoology](#))
- Blended learning platforms (e.g., [Education Elements](#), [Buzz](#), [Vschoolz](#))
- Instructional improvement systems (e.g., [Silverback Learning](#), [Home Base](#), the Instructional Improvement System in North Carolina)
- Online learning providers (e.g., [Apex](#), [Connections](#), [Florida Virtual Schools](#), [K12](#))
- Adaptive content providers (e.g., [Dreambox](#), [i-Ready](#), [Reasoning Mind](#))
- Assessment and data platforms (e.g., [Assistments](#), [Wireless Generation](#), [MasteryConnect](#), [Naiku](#))
- Grade-level collections and tablet bundles (e.g., [GooruLearning](#), [PowerMyLearning](#), [Amplify](#))
- Federated identity and access management (e.g., [Clever](#), [myCampus](#))

Given the complexity of choices, schools, districts, and networks should:

- Start with learning goals and blended models first, decide on platform and content second, and choose devices third.
- Demand integration of student information systems (SIS) and learning platforms with single sign-on for students and easy grouping for teachers. Make sure your solutions are using the same kind of service.
- Avoid custom development and long-term contracts.
- Avoid platforms that don't support multiple content vendors and teacher-developed content.
- Prioritize standards-based gradebook and reporting functionalities—they should provide actionable information and the tools to manage a competency-based learning environment.

Content

Over the last few years, there has been an explosion of digital learning resources. With the shift from print to digital, there is also a shift from flat, sequential content to adaptive, engaging learning experiences—from text to learning services.

This section considers premium (paid) content, open content, and teacher-developed content.

Premium Content

While there is growing use of open and teacher-developed content, there are a number of good reasons for considering premium content (and, more broadly, subscription learning services), particularly as part of a blended model:

- Sequences of engaging standards-aligned units promote autonomous study.
- Smart content with embedded assessments including simulations and games provide instant feedback and promote persistence.
- Support for adaptive instruction combining adaptive assessment and targeted instruction.

As learner profiles, tagging systems, and recommendation engines become more sophisticated, customized progressions will address individual learning needs and preferences.

Premium content will increasingly come bundled with related services, including assessment, analytics, and reporting. Emblematic of this shift, Pearson has combined its content and assessment groups into a single business unit. The lesson is, don't think of assessment just as something that happens after and separate from instructional resources. Assessment and immediate feedback can be integrated into learning experiences.

Teacher-Developed Content

Most blended models discussed thus far have been engineered by networks with the expectation of high-fidelity implementation. Nevertheless, there is an entirely different philosophy based on harnessing the power of the Internet to enable teachers to play a fundamentally different role in the process, one separate from a district-driven implementation. With improved ability to record and share lectures, teacher-created content and flipped classroom strategies are becoming more common. Teachers are sharing resources and lessons on a growing number of sites, including Edmodo, BetterLesson, TeachersPayTeachers, ShareMyLesson, and WeAreTeachers. There is a related movement toward provisioning a “teacher wallet” for purchasing content and related services.

Where these practices reinforce the individual practitioner model, they are not blended learning. They are part of an empowered and data-driven team. They may be transformational. But issues of quality, alignment, and scale need to be addressed.

It is also worth considering existing sources before producing content. It doesn't make much sense for new teachers to produce videos on the Harlem Renaissance, for example, when there is great content from the [Library of Congress](#), [universities](#), the [History Channel](#), and many other open sites. On the other hand, teams of teachers sharing lessons that leverage open resources may be extremely productive.

See [“Exhibit: Ten Ways To Save Money on EdTech”](#) for more information on selecting the right technology.



Device Acquisition

With the advent of Common Core Assessments, device acquisition has become a greater priority for schools across the nation. Current trends favor the mobility of laptops and tablets, though larger screens and processing power of desktops can be preferable for tasks like video and multimedia production. [PARCC](#) and [Smarter Balanced](#) assessments will support a 10-inch (not 7-inch) tablet, but also require a physical keyboard.²⁸

A primary criterion for administrators selecting devices should be Common Core compliance, and there is a wide array of variables to be considered in making the right choice. Devices are a tool for delivering instruction and not an instructional solution. With that in mind, key elements such as curriculum, content, and instructional delivery should all play a part in program design. The device that is chosen should be able to deliver the elected design at the best value.

Device Planning

Assessing the current status of your technology, as well as future technology needs, is a helpful exercise in planning for devices. A better understanding of costs, usage, and repair rates will develop a clearer picture of how technology is currently being utilized, which can help guide future operation. Combining this information with a needs assessment can provide powerful data in helping to choose the right device. A needs assessment goes beyond common ratios like student-to-device and is meant to develop a deeper understanding of the types of skills and outputs the devices are meant to promote. Questions similar to the two below will serve as a good starting point in determining need:

- What sorts of outputs do I expect students to produce on the devices?
- What types of tools and resources will our devices need to deliver in order to facilitate production?

Beyond the technology assessment, there are a few other major considerations:

- Lease or Purchase? Leasing generally allows for a smaller upfront expense, but a greater overall cost that is divided over the life of the device. Leasing also allows for more flexibility in switching devices once the lease has expired. Purchasing devices allows for greater flexibility in how devices are used and maintained but involves a large capital commitment upfront.
- Does a warranty make sense? Warranties can add significant costs to a device purchase. Some schools see tremendous value in outsourcing most device issues, while others are set up to support hardware issues internally.
- Will you charge a user fee? A user fee of about \$50 is common to cover insurance and can usually be paid in installments for those who need payment assistance. Some districts cover the cost for low-income families that request assistance.
- Do you have an acceptable use policy? Technology can deliver vast resources to our students, but also has the ability to do harm. As such, an acceptable use policy is incredibly important.

Purchasing and Beyond

Devices should be considered an investment and not just an expenditure. Devices purchased today could still be enabling instruction five years from now. With this in mind, it is important to look beyond device price and understand the total cost of ownership over multiple years. Total cost of ownership involves direct costs, including: hardware, peripherals, operating systems and software (e.g., anti-virus, filtering), and installation and maintenance labor. Indirect costs such as financial and operation implementation support, professional development, direct support, and indirect support, (staff helping each other figure out the new systems), can also factor into total cost of ownership. Devices that appear to be the lowest price at purchase could end up costing significantly more in the long run.

Growing budgetary constraints require schools do more with less, and device purchasing is no exception. Understanding technology needs and total cost of ownership, when coupled with best-practices in purchasing, will facilitate acquiring the right device at the right price:

- Bundling: Manufacturers that discount devices may try to increase revenue by selling additional products and services. Purchase only what is needed; nothing more.
- Due diligence: Sourcing deals from multiple vendors increases competition and usually leads to discounts. A few extra hours of time could save thousands of dollars.

- **Contract purchasing:** Many pre-approved vendor contracts already exist at the state level and through consortia. These can be a great time-saver in managing procurement, but generally contract prices are set whether schools purchase one or one million units so be sure to negotiate beyond the listed price, if possible.
- **Aggregate purchasing:** Communicate with other school systems to see if the same device is being purchased; larger volumes can lead to larger discounts. Even single schools can save by making one or two bigger purchases per year instead of several small purchases spread throughout.

Device acquisition should be viewed as a recurring action and not a one-time event. Student and staff buy-in is essential for ensuring proper implementation. Continuing to track usage and monitor what works and what falls short will help greatly in deciding future purchases.

Bring Your Own Device

Bring-Your-Own-Device (BYOD) is another method of promoting device-enabled learning with lower costs, but also lower capabilities. As noted in [Funding the Shift](#), 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. 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 BYOD policies that improve access by building on the existing resource of student-owned devices.

BYOD will improve student access, but it will not necessarily close the digital divide without a good plan. To ensure that every student has a device, BYOD should be combined with school-provided devices available for checkout and take-home use (with a parent-signed acceptable use form). BYOD schools with wide income disparities should seek to reduce any stigma associated with a school-provided device and should promote periods of group work and peer-to-peer learning. Security and cyber-bullying policies should be clearly spelled out in acceptable use guidelines as well.

BYOD should be used to create a high-access environment—a three-screen day that includes a mobile device, a production device, and a large sharing/editing screen. Schools should purchase at least enough devices to support state online assessment on a reasonable schedule and support the baseline instructional needs of the school.



Staffing

Blended learning is a team sport. By creating an intentional shift to an online environment for a portion of the day, teachers can create more time to work together and, where most beneficial, create one-on-one and small-group learning experiences.

The blended staffing models outlined at [Opportunity Culture](#) extend the reach of effective teachers. The staffing models are designed to improve student performance as well as working conditions and career options for teachers. They may improve sustainability but could take several years to implement fully. New staffing patterns can be phased in along with improved student access to technology.

Each of the [blended school networks profiled by FSG](#) has implemented or is considering implementing a more differentiated ‘ladder’ of staffing that includes master and apprentice teachers alongside instructional aides and lab monitors. For example, KIPP Empower, an elementary classroom-rotation model has developed a three-tiered staffing model with Lead Teachers, Intervention Specialists, and Instructional Assistants who work together to deliver different types of instruction to small groups of students in a variety of settings.

Differentiated staffing includes several levels, from paraprofessional to master teacher. Differentiated teams provide a high-support environment for new teachers and use technology to leverage the talent and experience of skilled and effective teachers.

One of Public Impact’s models is focused on what the organization calls “[role specialization](#).” The goal of this model is to focus excellent teachers’ time on the instructional roles that are the most challenging and critical for student success and on high-value non-instructional work related to student outcomes. In addition, focusing excellent teachers’ time on the instructional roles in which each excels may magnify their effectiveness. Public Impact’s [multi-classroom leadership model](#) is one in which school-based or remote instructional teams report to an excellent teacher.

[Summit Public Schools](#) has a skill-based teacher development system focused on what teachers need to know and be able to do to accelerate student achievement. Demonstrated expertise across seven dimensions of the Summit continuum places teachers on one of four levels: basic, proficient, highly proficient, and expert. The measured dimensions of teaching include assessment, content, curriculum, instruction, knowing learners and learning (e.g., special ed, ELL), leadership, and mentoring.²⁹

[Cornerstone Charter Health High School](#) in Detroit did away with classrooms and grade levels; “pods” of 75 students work in a large open space. Teacher teams include individuals filling three differentiated roles:

- Relevance Managers provide direct instruction and support students in the design and evaluation of real world projects and internships.
- Rigor Managers oversee online coursework, providing support and setting standards for mastery.
- Success Coaches work to help students make the transition to college and career, providing practical advice as students consider life after graduation.³⁰

The [Alpha Public School](#) blended middle school approach centers on self-contained classrooms where teachers deliver instruction in all core content areas. One teacher stays with a class of 34 students throughout the day and throughout the year. During each lesson, a master teacher works with 17 students, engaging them through small group instruction and activities in one section of the room while the rest of the class works through online content at individual computers.

Newark’s Touchstone is another good example of differentiated roles. Teachers at Touchstone have a career path that goes from Associate Teacher to Master Teacher; Master Teachers can earn up to \$100k. Each Master Teacher is responsible for all students in a core content area and has teaching responsibilities, as well as training and developing other teachers. From a reach-extension perspective, one benefit of this is that all students have access to and learn from a master teacher in every core content area.

FSG notes that in addition to the general characteristics of great teaching, working in a blended environment requires additional competencies in data analysis and classroom management.

In addition to differentiated or specialized roles, many blended models utilize distributed staffing strategies. Distributed staffing—usually providing part-time services delivered at a distance—are useful in hard-to-staff areas, such as special needs and advanced courses.

A good blended learning plan includes a comprehensive approach to teacher development combining schoolwide and individual learning opportunities. Each staff member should have an individual development plan (like those available for free on [Bloomboard](#)) with access to a variety of just-in-time resources.



Improvement And Impact Measurement

In order to measure impact effectively and implement good continuous improvement plans, districts should address these elements from the beginning of the planning process. Program leaders should talk with key stakeholders about how the progress and success of the implementation will be measured, by whom, and when. This kind of input is essential in the planning process and can enable the necessary processes and data gathering to be designed from the beginning. If a third party will be involved in measuring the program's effectiveness and impact on student learning, that party should also be involved in the design process. (Note: there is more information on guiding the measurement process in the "Improve" section of this guide.)

IMPLEMENTATION

There are four critical implementation issues that all require a solid initial plan and ongoing flexible adjustments during implementation: infrastructure, integration, professional development, and support. It is important to keep in mind that the overall goal of a shift to blended learning is at its core about teaching, learning, and design – and not about hardware and software.



Infrastructure

Issues behind the scenes that could limit progress if not properly provisioned include broadband access, power, networking equipment, and facilities. It may take time to make changes and upgrades, so districts need to plan ahead. Often underestimated, this is the critical starting point that enables digital learning!

Broadband

Any school or school district that is serious about being prepared for online assessments and digital learning needs to place broadband infrastructure at the top of their checklist. Your broadband bandwidth will dictate the quantity of students that can get online and the quality of their individual connections.

The State Education Technology Directors Association (SETDA) has drawn attention to the [Broadband Imperative](#). Currently, SETDA recommends 100 megabits per second (Mbps) for every thousand students, with a goal of expanding this to one gigabit per second (Gbps) in five years.³¹ [EdElements](#) notes that “Providers recommend as high as 25 Mbps/100 concurrent users.” Of course, you’ll also want to ensure that your WAN and internal connections can handle your bandwidth goals as well. It’s important to assess broadband performance coming into the district, for each school, in each classroom.

[EducationSuperHighway](#) is a nonprofit organization that is helping school districts improve their broadband access. Schools can test their broadband speed on their site (www.schoolspeedtest.org).

Remember that any increase in the number of connected devices—including via BYOD initiatives—will increase broadband requirements. See the [COSN Broadband Knowledge Center](#) for more advice. Your broadband needs will change very quickly as more of your students come online. Design for three years ahead, not just today.

Networking Equipment & Ongoing Management

Ongoing management of the network is a key driver of complexity and cost. Look for scalable networking solutions. It may be possible to aggregate service at the district, county, or education service agency. The ongoing maintenance and software issue of network management can be critical in terms of functionality, staffing, expertise, and cost. Districts should address wireless access points as well.

Technology changes rapidly, so routers from even a few years ago may not be sufficient.

Power

Do not underestimate the challenges of providing sufficient power to the classroom. Most classrooms are not set up for 25 laptops, and daisy-chained extension cords are dangerous and not scalable. Portable charging carts may be part of the solution. Sometimes buildings themselves will need to be upgraded or altered to safely provide the required power.

Facilities

Some implementations of blended learning will lead to changes to facilities. For example, upgrades in broadband or power may require structural changes to buildings. Schools that shift to larger student groupings may need larger classroom spaces with different configurations. Changes in facilities can be extremely expensive, and this work can uncover unanticipated problems and expense (e.g., asbestos) that can significantly affect schedule and budget. Districts should be mindful of these potential impacts and assess the magnitude before making structural changes.

Other Hardware & Software

Depending on the instruction model, other accessories may be necessary. It's important to consider the installation and upgrade process required for each.

- Laptop carts to house and power laptops
- Interactive whiteboards
- Headphones to enable students to receive audio
- Security devices and antivirus software
- Cables



Integration

Integrating information systems is critical to making blended learning work efficiently. Integration of instructional applications with a student information system is most critical. Teachers need to be able to quickly generate a class list in a new application. Students need single sign-on. Machine scored, content-embedded, and teacher-observed assessments should be easily entered into a standards-based gradebook. Teachers, students, and parents should have access to an integrated reporting system.

Solutions in this area are still emerging, and should improve significantly in the coming years. Key challenges early adopters are facing at this point include:

- Provisioning accounts for students. Schools talk about the challenge of keeping student lists accurate, making it easy to add students, and having this be something that can be done once for the whole system. The solution to this problem is integration between the learning software and the district's Student Information System (SIS). When this integration is in place, as soon as student enrollment and demographic records are updated in the SIS, they are automatically updated in third party learning software as well. This type of integration saves hundreds of hours of school personnel time over the course of a school year. Federated identity and access management is provided by applications like Clever and platforms like Edmodo free for schools.
- Synthesis and visualization of data about student learning. While some of this is coming, and is being done in different ways in different programs, there is no integrated solution, which makes it extremely complex and burdensome for teachers.

Broadband Action Steps for Districts

- *Assess your current broadband performance (for instance, take EducationSuperHighway's SchoolSpeedTest). Conducting a district audit can clarify differences across schools and identify patterns or systemic issues. Ideally, test each school site 10+ times at various days, times and locations.*
- *Determine what your district can currently offer in terms of blended learning with its current broadband performance. Divide your broadband bandwidth at a school site by the number of students at the site.*
- *Define your desired model and blended learning offering and determine the required bandwidth.*
- *Make sure all parts of your network support your broadband bandwidth goal, including Internet access, WAN, routers and wireless access points.*
- *Obtain funding support from the E-Rate program or other upgrade sources. All private or public schools are eligible for E-Rate funding.*



Professional Development

Blended learning professional development extends far beyond simply showing teachers how to use new tools in their classrooms. In planning to implement a blended learning program, district and school leaders should consider the following planning dimensions to prepare all staff—instructional and non—for deep changes in the nature of teaching and learning.

Who: Target Participants

Transitioning to blended learning is a system-wide effort. Professional development should be targeted at helping all stakeholders understand and engage effectively in changing roles, even to ones that did not previously exist.

Key school- and district-level participants should include but not be limited to:

- Teachers
- Teacher Leaders
- Instructional Coaches
- Paraprofessionals and Aides
- Program and Implementation Managers
- School Leaders/Principals
- Deans and Student Support Staff
- Regional and Deputy Academic Superintendents
- Technology Professionals
- Procurement and Financial Services Professionals

What: Content and Competency Areas

Leaders need to educate staff about how the switch to blended learning will require them to work together in new ways. Professional development content should be targeted at helping them understand key challenges in the new model to design and implement solutions. While these challenges will depend on the design of the blended learning approach (for example, a lab-rotation versus flex approach within the local context), staff will likely need to know how to:

- Design and manage learning in environments where students thrive.
- Differentiate resources and supports for individualized learning plans.
- Integrate new tools as well as keep up with ongoing innovation and new technologies.
- Get and provide customized support.
- Access and use real-time data to drive planning and interventions.
- Manage change.
- Communicate with diverse stakeholder groups (board, community, parents) about new approaches.
- Evaluate and procure/develop new tools and strategies.

In addition to helping staff understand the vision and change needed through content education, leaders will also need to provide structured development opportunities to build up the competencies that support success in implementation. In talking to blended learning practitioners and experts across the country, [The Learning Accelerator](#) (TLA) found that the vast majority (approximately 80%) of the competencies staff need to develop are the same as in more traditional learning environments; however, because of blended learning's focus on resource flexibility, mastery-based learning, personalization, and effective data use, there are some competency areas that are of higher emphasis and importance.

Figure: The Learning Accelerator’s Blended Learning Educator Competencies Framework



Given this, TLA developed a blended learning competency framework that identifies four essential competency areas—mindsets, qualities, adaptive skills, and technical skills—that are linked to successful implementation. The areas include:

- **Mindsets:** Mindsets include the core values or beliefs that guide an individual’s thinking, behaviors, and actions, and that align with goals of educational change and mission. In blended learning, practitioners need to understand, adopt, and commit to mindsets that help them shift from traditional, fixed mentalities about staff and student learning to ones that encourage a focus on individualized learning and mastery. Core mindset competencies can include developing an awareness of the new adult role (as some put it, from “sage on the stage to guide on the side”), a vision for equity that focuses on outcomes, a growth-orientation for students and self, and urgency for change.
- **Qualities:** Qualities are those personal characteristics and patterns of behavior that help staff make the transition to new ways of teaching and learning. These qualities, like grit, flexibility, and transparency, need to be coached, reinforced, and developed over time.
- **Adaptive Skills:** Adaptive skillsets are generalizable, transferable skills that apply across roles and subject areas. These skills are complex; they help practitioners tackle new tasks or develop solutions in situations that require organizational learning and innovation. In blended learning, where much of the staff role is diagnosing and developing strategies to

meet the needs of individual students within new classroom models, adaptive skills that are particularly important include collaboration, goal setting, and problem solving. Leaders can help personnel master these skills through modeling, coaching, and reflective practice.

- **Technical Skills:** Technical skillsets are domain-specific expertise that educators use to execute against the known tasks in their jobs. This “know-how” will vary by role. For teachers in blended settings, they include mastery of data practices, instructional strategies and tools, classroom/student management, and technology integration. Professional development in technical areas can be acquired and mastered through instruction, training, and practice.

TLA has found that support across these competency areas can often be uneven, so leaders need to make sure the development approach adequately addresses all areas. Many districts and schools tend to emphasize the development of technical skills (particularly technology training) and underemphasize other areas of competence (changing mindset, qualities, and adaptive skills). District and school leaders should begin planning with an up-front assessment of existing staff strengths and growth in these competency areas to prioritize support and strategy.

Finally, leaders must be sure to integrate new expectations for content knowledge and competencies into districts’ strategic human capital management systems. Tools used to guide staff selection, placement, and development—including teacher evaluations and classroom walkthrough assessments—should align coherently with the instructional vision. Examples of new rubrics being put to use in blended learning schools include the LoTiConnection’s [H.E.A.T. Framework](#) and the [Arizona Technology Integration Matrix](#).

When: Timing for Support

Another planning dimension leaders should consider is how professional development resources should be utilized over time. Implementing blended learning, like any significant change in school practice, will require both initial up-front investments in support to engage and align staff around the vision and challenge as well as longer term ongoing investments to ensure that staff continue to grow and master the new instructional design.

Initial investments require the allocation of resources and time for training before and during early stages of implementation. If possible, leaders should engage staff during summer planning before the start of the year (if not earlier), as well as during shared development time and new staff induction. They should also allocate additional on-site resources to help teachers with technology trouble-shooting and instructional coaching during the school year.

Over time, after major initial changes are taken up and adopted by staff, districts will need to shift resources to longer-term staff collaboration and reflection. Staff should be given time to work together to identify lessons learned, share practices, and identify areas for further improvement and innovation.

How: Modalities for Training

While more traditional forms of development—one-day seminars or training sessions, in-person observation and coaching, on-site professional learning communities—may be appropriate given content and target audience, leaders should also consider other forms of development that allow for greater customization as well as for staff to gain experience “blending” their own learning using a combination of online and offline.

Given this, leaders should identify, or encourage staff to explore, a variety of non-traditional resources. Blended development approaches could include the following (Note: specific products and examples are provided for illustrative, not recommendation, purposes):

- Blended professional development providers (such as [Ed Tech Leaders Online](#), [Alvo Institute](#), and the [Highlander Institute](#))
- Online platforms that individualize development plans and allow staff to search for and find specific professional development content and resources on-demand (for example, such as [Bloomboard](#), [Sanderling](#), [TeachBoost](#), and [PD360](#))
- Online learning networks and professional learning communities (either created internally through in-district social networks or national communities and platforms like [edWeb](#), Edmodo, [Twitter](#), and [Ning](#))
- Remote mentoring and coaching (such has been piloted in the New Teacher Center’s [e-Mentoring for Student Success program](#))
- Online coursework, including Massive Open Online Courses (MOOCs) (such as the Friday Institute’s [MOOC-ED](#) program, [Coursera’s professional development](#) courses, or the [Sloan-C Blended Mastery Series](#))



Tech Support

New access devices (laptops and tablets) are easier to manage and update than they were a decade ago, but the increased number and type of devices requires planning, a commitment of resources, and a commitment to service on a daily basis.

Experts in school tech support recommend publishing a short list of devices the district agrees to support and building or buying a thick layer of do-it-yourself online and phone support resources. Maine and Mooresville purchased a layer of online and phone tech support with the devices. Denise Shorey of [CoSN](#) said she’s seeing more leasing deals that include support and insurance.

In addition to online support, districts and schools with loads of less than 1:500 devices should hire tech support specialists. [SETDA](#) Executive Director Doug Levin warns policymakers not to “confound instructional tech coaches—focused on helping teachers to use tech well—with tech support, the folks who fix the stuff that breaks.”

Many district IT departments are essentially “maintenance” for devices and networks. Strategic IT is very different and districts need to make sure they have that capacity.

Students, especially secondary students, should be formally engaged in tech support roles, which can provide valuable work, service, and leadership experiences for young people. For twenty years, [Generation Yes](#) has been structuring and supporting active student roles in supporting their instructional technology.

Finally, if the district encourages students to bring their own devices, it should be made clear in the acceptable use policy that the district doesn’t provide tech support for parent- or student-purchased devices.



Implementation Support

Implementation of a blended learning environment is a complex task. Many processes, tools, and trainings need to be pulled together to enable teachers and students to thrive in classrooms. This challenging, time-intensive work requires dedicated attention, resources, and specific skills.

A program management office should have an individual assigned to providing and monitoring implementation support—technology, instruction, staff development, and communication.

Districts should consider making at least one program manager in charge of the entire implementation and accountable for its success. This requires clear authority, accountability, and a skill and experience set that is quite specialized and may be rare in districts. The support of the superintendent and influence with key stakeholders (principals, teachers, IT staff) are also critical: these individuals need to have sponsorship from the very top and have the authority and influence to be successful.

The implementation role will change over time, as the effort moves from the planning phase through implementation to support. The number of people working on the project, and their time commitment and roles, will evolve. Do not expect that implementation will be complete when the initiative is launched at the beginning of the year. In cases where there is a phased rollout over a number of years, it may be a bit more complex, since the first schools will be out of planning and implementation and moving toward support while the next waves will still be in planning and implementation (although they should be able to leverage the lessons from the initial wave). Be sure to allocate sufficient project management resources for this work.

Implementation and the supporting project management may require more resources than districts expect. [FSG found](#) that “technology infrastructure needed to support blended learning requires more time and resources than originally expected.” The implementation is also part of a broader culture change for schools and should be considered in this context. [FirstLine](#), for example, cites the school’s positive culture as the most important driver of its success.

As the program matures and the school successfully completes its work in implementation, the focus can shift from implementation to assessment of impact.



Culture

Culture remains key to creating and sustaining high performing schools. It can easily translate to greater or lesser productivity—and more or less effective teachers—in the classroom. Yet, culture is one of those things that all organizations say is important, but it is easily ignored or forgotten in the daily grind of running a business, non-profit, or school district.³³ While a great culture won’t supplant the operations and policies required of blended models, it is an important determinant of success. Following are 10 key ingredients of a high performance culture:

- **Values:** “We’re a values first organization,” said Bill Kurtz, CEO of [DSST Public Schools](#). “Each human being strives to be fully known and affirmed for who they are, and to contribute something significant to the human story. Character starts with the adults.” That means core value commitments, modeling, 360-degree evaluations, and celebrations.³⁴ Blogger Susan Lucille Davis says time, trust, and connections are what teachers want most.³⁴
- **Equity:** Good schools engage all students—not just honor students—in powerful learning experiences; they develop academic mindsets scaffolded by strong supports. According to principal Stephen Mahoney, “The accomplishments of [Springfield Renaissance School](#)’s students prove that a child’s zip code does not determine his or her destiny.”
- **Innovation:** Schools will need to build cultures of “failing forward, faster” undergirded by next-gen human capital development. “We’re committed to lean startup strategies,” said Diane Tavenner, CEO of [Summit Public Schools](#). In support of what Tavenner calls, “Build, measure, learn cycles,” each course, grade level, and school team receives a weekly data packet in Google Drive for ease of visualization, including student demographics, progress in courses, and assessment results. Course teams from all six Summit schools meet weekly via videoconference.

- **Good habits.** [Launch Expeditionary Learning Charter School](#) starts the day with Crew, a 30 minute advisory period where they practice and talk about the shared Habits of Heart and Mind central to the Launch culture: accountability, craftsmanship, wonder, mindfulness, and compassion. The Habits are integrated into the culture and every learning experience at Launch.³⁵
- **Care:** Mooresville, North Carolina receives attention for their successful “digital convergence,” but culture is the secret sauce. “Schools with a sense of spirit thrive,” said superintendent Mark Edwards. “Tech plans will collapse without a strong cultural foundations.” Edwards, whose enthusiasm is infectious, says, “The works starts with love and care for students.” They use [Capturing Kid’s Heart](#), a professional development (PD) program from the [Flippen Group](#) that has infected the language of the district.³⁶
- **Big questions:** “We want people to be perplexed—to embrace the paradox of starting new schools,” said High Tech High founder Larry Rosenstock. Great schools, like DSST Public Schools, incorporate this “perplexity” into the curriculum that, according to teacher Jim Stephens, “requires empathy, ideation, and prototyping before they can arrive at a solution—they learn that they can solve any problem, in or out of school, with this approach.”
- **Support:** New employees in Mooresville are paired with a mentor. Tech facilitators at each school focus on needs of new employees. One teacher said, “The best part of the PD was having a Tech Facilitator at my beck and call.”³⁷
- **Collaboration:** [Rocketship Education](#) teachers receive an average of 250-300 hours of professional development each year.³⁸ New teachers learn all the tools that students use, CEO Preston Smith said, “Time is also spent on data analysis, real-time coaching, co-teaching with school leaders, collaborating with our Individualized Learning Specialists and special education teachers, and integrating our online programs into instruction.”
- **Mastery:** “Culture is incredibly important. Success [Academy] teachers are positive, enthusiastic, and believe in kids,” Eva Moskowitz of Success Academy explains. “We have a culture of daily mastery—we believe children should intellectually struggle with challenging content and the teachers should insist on mastery.”³⁹
- **Execution:** “If we’re really going to meet the needs of children every hour, every minute, it takes executional competence to deliver at that high level—it’s much more profound than most people realize—it requires enormous execution talents,” said Moskowitz.

Education reformers talk a lot about breaking the old “factory model” of schooling, but factory mentalities are more likely to usurp or stall blended leaning without attention to a re-engineered culture.



Communication

Effective communications with a broad range of stakeholders is essential throughout the entire process. Stakeholders include school leaders, teachers, parents, community members, and students.

MaryEllen Elia, superintendent of the [Hillsborough County Public Schools](#), said, “We are strong implementers because we listen to people; we meet constantly to get feedback and are very involved in the community.”⁴⁰ Relationships with employee groups are very strong. “Employees feel loyalty to the district, the schools and the kids,” said Elia. “We are problem solvers, we work through issues before they get to be a big a deal,”

Start a routine blended-learning email blast to establish at least monthly communication. Houston superintendent Terry Grier sends out a weekly blast and posts a blog. They include updates on the district’s big blended initiative, [PowerUp](#).

If the district doesn’t have a staff advisory group, the shift to blended learning is a good time to develop one. Build a community advisory committee of influential parents and business leaders. It may be worth developing an edtech committee that includes community experts.

Communications should be explicitly addressed at particular phases of implementation:

- Initial consideration of blended learning plans
- Program definition and decision making
- Implementation, including regular updates
- Measuring and sharing impact

“The future world will be video driven. It might not be “live action” video. It might just be a text message that’s now layered over a background image,” said Adam Renfro of North Carolina Virtual. “Communications will become robust data packages that better ‘reach’ their audience and stick with them after the communication is complete.” Renfro suggests leaders should be sophisticated users of video communication and fully incorporate it into blended learning environments.⁴¹

Implementation Success Factors

After thoughtfully considering the six decision points (strategy, model, platform, device, staff development, impact measurement), five steps will improve the likelihood of successful implementation:

- Hold a kick off meeting: Clarify goals, responsibilities, timeline, and budget.
- Create clear program management responsibilities: Assess whether there is an individual on the staff with the required skills and experience in complex program management to be successful.
- Set up a program management office: Link academics, tech, finance, and communications and maintain management team involvement and support.
- Stay flexible: Update your plans based on feedback and opportunity.
- Stick with it. This will be a multi-year process, leading to the transformation of teaching and learning in your schools. It will take time and there will be many bumps in the process. Be persistent!

CONTINUOUS IMPROVEMENT

Continuous improvement is a critical part of any effective organization, and it is particularly important when innovation is happening. Ongoing learning and improvement should be a central part of the mindset of teachers and administrators implementing blended learning.

It is important to assess implementation at each step by asking key questions:

- Is it working? Why or why not? How do we know?
- How could we improve it next year?
- Are teachers pleased with the implementation?
- Do teachers believe student learning has been positively impacted?
- Are more students engaged in deeper learning experiences?

Schools working with blended learning need to review data and iterate on a regular basis; otherwise, the initiative may bog down, lose support, and not reach its potential.

The FSG [profile of Summit Public Schools](#) notes, “Leaders have encouraged the faculty to experiment with new blended learning ideas and suggest improvements to Summit’s approach.”

The [Alliance for College Ready](#) “promotes ongoing innovation through an action research process in which staff search for problems in the model, take action against them, and learn from the many refinements made along the way,” says FSG.

“Blended learning is changing how schools are designed and how students learn across the country. Yet despite an influx of interest, capital, and new learning models, the movement has just scratched the surface of how technology can help students succeed in school and beyond,” concludes FSG.

The employment of a continuous improvement process is key to forming high quality blended learning models and scaling them over time. Design-Development-Research is just one method schools and districts can use to develop and test blended learning innovations in such a way as to quickly foster alignment and coordination of supports for improving teaching and learning.

The strategy, in brief, relies on collaboration and continuous feedback loops among practitioners, researchers, or others to make timely, coherent adjustments to models. Hypotheses about how a particular blended model will work are formed and tested in the classroom under normal conditions. Teachers look for what works well, identify persistent problems, register any surprises they experience, and develop and try out solutions to improve the model in iterative fashion. Feedback can be collected through a variety of means, including real-time dialogue, weekly surveys, interviews, and data derived from the learning systems. The feedback, data, and learning from each cycle (rapid-testing weekly

cycles, more formative monthly cycles, and 90-day deeper learning cycles, for instance) is applied to continuously improve the model.

[Researchers Penuel, Fishman, Cheng, and Sabelli](#) note that teachers' adaptations of models at the classroom level, not leaderships' plans, largely determine a model's effectiveness. Even the best of models "on paper" require iteration to meet the demands of reality. The quality of blended offerings will mature, but implementation problems will almost certainly persist—especially as models go to scale due to the adaptations teachers make and the variations in environments. The collaborative nature of design research firmly positions practitioners as co-designers of solutions to problems that could impede the evolution of high quality (in this instance) blended models.

Capture Lessons Learned

The program management team should be charged with leading regular reflection on what is working, what's not, and what lessons have been learned. Since blended learning is so new and increasing numbers of districts are starting to innovate and implement, this is now particularly critical. These lessons need to be documented so they can be shared across the organization, applied in future years, and shared with others across the country to advance the learning of the field.

Relevant questions include:

- What worked better than expected?
- What has been more challenging than expected?
- What promising practices have we identified?
- Have we achieved expected savings?
- What can we do differently and better?
- How and at what intervals will the lessons be documented?
- Who should lessons be shared with?
- How can we be proactive about standardizing information for better sharing and use over time?



Measure Impact

It will take time to gather accurate, meaningful data about the impact of the initiative on student learning, so set appropriate expectations with stakeholders. Managing expectations may be difficult—there is often pressure to show results immediately, which is unrealistic. Instead, pursue a progressive series of assessments: activities, processes, and then outcomes.

Start by assessing activities:

- How many classes and schools are going blended, and how is this increasing over time?
- How many students are in blended classes and how many teachers are changing their practice?
- How many online resources are being used by teachers and students?
How many PD opportunities for teachers?

Then move on to processes:

- Are we able to consistently and repeatedly implement blended learning for specific subjects and grades?
- Are we able to effectively scale the work to increasing numbers of classrooms and schools?
- Do we have sufficient clarity about our work that we can execute it smoothly and effectively every year?
- Once significant progress has been made in defining processes and implementing them consistently with fidelity, start measuring outcomes:
- How are students responding to blended learning? Engagement? Excitement? Interest level?
- How are teachers responding? Are they excited? Do they feel like they are having more impact with students? Are they feeling supported?

Begin measuring impact on student learning once the implementation is stable and all processes are working; otherwise the driver of low impact will be unclear: is it because blended learning “isn’t working” for some reason, or because it is not being implemented effectively?

Cultivate Future Innovation

While effective implementation of blended learning will offer significant improvements in learning for students, it is not the end state; rather, it should be viewed as a step in the ongoing process of innovation in education. Once districts have effectively implemented blended learning, they should think about what's next. Creation of a culture of ongoing innovation is an essential part of the American education system in the 21st century, and implementing blended learning is a great step in this direction. Educators should keep these questions and processes in mind:

Assess opportunities for future innovation:

- What new problems have arisen that need to be solved?
- What opportunities have become apparent that could be seized?
- What processes will be used to identify these problems and opportunities?

Define processes for conducting innovation:

- Who will do the work of creating innovations, testing them, and documenting lessons?
- What resources will be applied to this work?
- How will innovations be incorporated into ongoing processes over time?

What type of research should we be doing on Blended Learning?⁴²

- *Better growth measures.*
- *Better gradebooks and profiles.*
- *Profiles of current successful models.*
- *Research on existing technology uses.*
- *Classroom trials.*
- *Research & Development.*
- *Policy research.*



Multiyear Budget

Develop and monitor a multiyear budget by phase, by account, and by school. Determine a metric for financial success (e.g., sustainability on public dollars within three years). Track progress toward financial sustainability, and make adjustments as necessary to reach targets.

Districts should research the work of others and learn from their budgets—the structure, the process, and the figures themselves.

Closely track the work of current firms who are conducting research on blended learning and financial sustainability such as [Afton Partners' work with EDUCAUSE](#) and the [Center on Reinventing Public Education's](#) 18-month analysis of NGLC winners.

CONCLUSION

Blended learning is more than electronic textbooks and productivity tools. It means inventing or adopting new learning environments that work better for students and teachers. Blended learning implies a shift to an online environment for a portion of the student day. It means giving students more control over the pace, path, time, and place of learning.

Implementation of blended learning is about bringing to life fundamental shifts in teaching and learning. The goal is to personalize learning using modern technology and expand learning opportunities in the context of the Common Core and other emerging standards and technology requirements. School and district leaders need to lead a community conversation that results in decisions on strategy, model, platform, device, and staffing.

Blended learning is a good complement to the next generation of assessments. This shift to online assessment creates the opportunity for better data to inform short-term instruction and long-term accountability efforts. Because they are designed around the CCSS, they will better measure achievement against internationally benchmarked standards for college and career readiness. But there is another prospect available: using next-generation assessments as a pivot point to expand access to technology, shift to digital instructional materials and tools, and move toward personalized learning opportunities for all students. New tests create a timeline. The combination of digital content and digital assessment provides more than sufficient rationale (benefits and savings) to support an increase in improved access to technology.

Implementing blended learning is a complex program of work requiring integrated plans around teaching and learning, information technology, finance, human capital, and communications. A phased-in plan requires professional management and the commitment of school and district leadership. A commitment to measurement and improvement suggests that plans will be adjusted as lessons are learned and new tools are developed.

Blended learning is in its early days. Districts across the country are just beginning to explore it and assess its transformative potential. Similarly, this document is just a start. Over the coming months, this implementation guide will be updated based on lessons learned by districts and practitioners across the

country. Several additional detailed papers on topics such as elementary models, secondary models, blended math, and blended humanities are in the planning stages. Over the coming years, this body of documentation and emerging research will enable districts across the country to develop and implement models of blended learning, offering students everywhere the promise of a better education.

The entire [Digital Learning Now! Smart Series](#) is available online. This specific chapter has been modified from the original Smart Series whitepaper [Blended Learning Implementation Guide 2.0](#). Also available is the “How to Implement Blended Learning: Version 2.0” infographic ([PDF format](#) or [JPG format](#)), relevant to both the whitepaper and this chapter.

EXHIBITS

Exhibit: Definitions and Terminology

Terms such as “online learning,” “blended learning,” “personalized learning,” “customized learning,” and “competency-based learning” are flooding our educational dialogue, and they are often used interchangeably. The ideas are related, but they are not the same. It’s important to understand the differences.

Blended learning is “a formal education program in which a student learns at least in part through the online delivery of content and instruction, with some element of student control over time, place, path, and/or pace, and at least in part at a supervised brick-and-mortar location away from home” (Source: [Clayton Christensen Institute for Disruptive Innovation, formerly Innosight Institute](#)). Compared to high-access environments, which simply provide devices for students, blended learning includes an intentional shift to online instructional delivery for a portion of the day in order to boost student, teacher, and school productivity. As [Opportunity Culture](#) outlines, that implies new school models, staffing structures, schedules, and resource allocation pattern. While 1 to 1 initiatives add computers to schools, blended learning changes everything.

Online learning is teacher-led education that takes place over the Internet using a web-based educational delivery system that includes software to provide a structured learning environment. The teacher and student are usually separated geographically, and classes may be delivered synchronously (communication in which participants interact in real time, such as online video) or asynchronously

(communication separated by time, such as email or online discussion forums). It may be accessed from multiple settings (in school or out of school buildings) (Source: [Keeping Pace](#)).

Personalized learning is paced to student needs, tailored to learning preferences, and customized to the specific interests of different learners. Technology gives students opportunities to take ownership of their learning (Source: [National Education Technology Plan](#)).

Customized learning is informed by enhanced and expanded student data, which is applied to boost motivation and achievement, keeping more students on track for college and career readiness (see [Data Backpacks: Portable Records and Learner Profiles](#)). We use the term “customized learning” to refer to an expanded and enhanced version of personalization focused on individual student pathways driven by interests and best learning modalities. As adaptive learning becomes more sophisticated, learner profiles will be able to recommend experiences likely to result in learning and persistence.

Competency-based learning is a system of education, often referred to as proficiency or mastery based, in which students advance based on demonstration of mastery. Competencies include explicit, measurable, transferable learning objectives that empower students. Assessment is meaningful and serves as a positive learning experience for students. Students receive timely, differentiated support based on their individual learning needs. Learning outcomes include the application and creation of knowledge, along with the development of important skills and dispositions (Source: [CompetencyWorks](#)).

Digital learning, as used by [Digital Learning Now!](#) and others, refers to all of the above--full and part time access to online and blended learning.

Exhibit: Financing a Successful 1:1 Digital Initiative by Dr. Mark Edwards, Superintendent, Mooresville Graded School District

1:1 digital initiatives have the ability to transform an educational system. Without a well-planned financial strategy, however, most 1:1 initiatives will fail. When planning to fund this type of major endeavor, decision makers must consider three integral parts: 1) infrastructure and network, 2) computer purchase or lease, and 3) software.

First, a strong infrastructure and network must be present to handle the computers and ultimately the software that will be utilized in the educational environment. Each district will have a certain amount of infrastructure already in place to provide the usual and customary services. Additional components consist of wired or wireless networking as well as the servers necessary to support the

computers and software. Funds for this aspect of a 1:1 initiative can be provided from current expense accounts, capital outlay accounts, new construction accounts, or grants.

There are also a variety of options available for funding the computer purchase / lease program and needed software. These funds could also come from a current expense account, capital outlay account, new construction account, grants, or programmatic state and federal funds.

During the planning phase of a 1:1 initiative, the amount of capital needed may seem unfeasible. As you begin the process of implementing the initiative, however, you will find spending for items such as textbooks, workbooks, maps, globes, calculators, and reference books will decrease as these items will all be part of the digital world that all students will have access to. Also, do not forget to look at specific program resources, such as for CTE or Exceptional Children, when determining funds that may be available to support the program. Finally, there are many grants available that you may be eligible for; however, review grant applications carefully to ensure they don't fund a specific type or brand of equipment used that may be different from that being used by your system.

While it may be hard to wrap your mind around the cost of such an initiative, the cost can easily be reduced to a format that makes it more readily understood and accepted. Take the total cost for each computer and divide it by the useful life (three to four years). Divide this number by the 220 days the computer is available to the student for unlimited use. This figure—your daily cost—is much more manageable.

<i>Laptop and Student Software Total Cost</i>	<i>\$800</i>
<i>Life Cycle</i>	<i>4 years</i>
<i>Annual Cost</i>	<i>\$200 (\$800 / 4 years)</i>
<i>School Days</i>	<i>220</i>
<i>Daily Cost per Student</i>	<i>\$.091 (\$200 / 220 days)</i>

As you can see, for less than \$1.00 per day, you can provide your students with 21st-century tools that will produce improvements in attendance, test scores, and student engagement. That is PRICELESS!

Another aspect of a 1:1 initiative that will need to be addressed is staffing. With a 1:1 initiative, technology staffing will need to be increased; however, a much larger digital program can be managed with even a small increase in staffing. Each school will need a help desk with a person who can manage day-to-day issues with the laptops including minor repairs. The help desk position can be funded through the elimination of other positions that will no longer be needed once the laptops are distributed, such as a computer lab position.

With any technology, repairs will need to be made. Funding for needed repairs comes from the insurance fee charged to students. Mooresville Graded School District chose to be self-insured rather than purchase a policy for repairs. While the insurance fee is minimal, it is effective since the financial commitment puts some responsibility on the student to take care of the machine. While every student is charged the insurance fee to pick up his or her laptop, the district understands that the insurance fee may place an undue burden on some families. Therefore, the Mooresville Graded School District Foundation for Excellence in Education has established an annual fundraiser to provide the funds needed to support those families.

Exhibit: Ten Ways To Save Money on EdTech

[Rob Waldron](#), CEO of [Curriculum Associates](#), offers this list of the 10 steps edtech decision makers need to follow to be sure they are choosing correctly for their staff and students.

- **First, know what you own already.** You need to know what you need. Before buying anything, do an audit and take inventory of what you already have.
- **Ask one simple question: What is the product being hired to do?** This question, asked by Harvard professor Clay Christensen, should guide many of your internal conversations and serve as a focal point in the buying process.
- **Your district's tech needs are not as different as you may think: don't blow your budget on customizations.** Highly customized products are usually unnecessary and expensive. Most schools need products that help with the Common Core, have instruction linked to assessments, provide tools grounded in solid and reliable data that enable better decision making, include programs that work seamlessly together to create blended and differentiated learning environments, and are backed by a reputable company that provides high quality, ongoing service and support.
- **The quality of service you receive matters as much, if not more, than the product.** You should discuss service at length during the buying process, including account management, data migration, roster sign-on, and the product road map.

- **Implementation, Implementation, Implementation.** *Correct implementation by the entire staff is crucial to the success of any program. Everyone - district leaders, teachers, curriculum coordinators, IT staff - needs to understand what the product is, how it will be used, and what the objectives are.*
- **The data must be easily shareable.** *The technology you buy must be capable of seamless integration across multiple areas of need and multiple programs.*
- **Force vendors to make apples-to-apples comparisons.** *When you narrow your vendor pool to 3-5 providers, demand that their presentations be based on a common standard of your choosing (e.g. finding the area of the circle) and/or specific data questions. This will allow you to compare different approaches to the very same learning outcomes or data needs and find the one that is the best fit for you and your district. In addition, when you ask about results in other schools, make sure vendors are providing you with data from districts of a similar size and make-up to yours. Make them get specific!*
- **Ask for a money-back guarantee and pricing assurance.** *Set a policy that all curriculum vendors who do business in your district must give you an unconditional money-back guarantee.*
- **Know your ongoing costs.** *You must calculate the total cost of ownership (TCO) for your purchase in advance. Make sure you fully understand the ongoing costs for licensing, training, IT support, and troubleshooting before finishing the deal.*
- **Ask for references.** *Ask for five or six references of a similar size district.*

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SECTION TWO:
Policy Matters



Improving Conditions & Careers: How Blended Learning Can Improve The Teaching Profession

by John Bailey, Bryan Hassel, Emily Ayscue Hassel, Carri Schneider, and Tom Vander Ark

INTRODUCTION: A PROFESSION IN TRANSITION

For the past 29 years, MetLife has surveyed teachers on a range of issues in education with the intent of giving educators a voice with leaders and policymakers. [The 2013 MetLife Survey of the American Teacher: Challenges for School Leadership](#) focuses on the responsibilities and challenges that educators and leaders face as they transition to Common Core standards and the next generation of instructional leadership. Key findings from this year’s survey reveal some important revelations about the current state of the teaching profession:

- “Teacher satisfaction has declined 23 percentage points since 2008, from 62% to 39% very satisfied, including five percentage points since last year, to the lowest level in 25 years.”
- “Less satisfied teachers were more likely to be located in schools that had declines in professional development (21% vs. 14%) and in time for collaboration with other teachers (29% vs. 16%) in the last 12 months.”
- “Innovative teachers are defining ‘hybrid teaching roles’ that keep them part-time in the classroom combined with other roles of service and leadership in education — ‘teacherpreneurs’ in the phrase coined by one group of teacher leaders, in their vision of the future of their profession. These opportunities are envisioned as new pathways for leadership and as ways to strengthen the profession, job satisfaction, and retention of effective teachers.”

Beginning with the current demands on the teaching profession and moving through the evolution that is unfolding, this chapter makes the case that the shift to blended learning offers the potential to improve teaching conditions and improve career opportunities, while simultaneously confronting current misconceptions and advocating for thoughtful policies.

After an overview of the current demands on the teaching profession and shift to personalized, blended learning, the first section ends with a review of expanded and redefined teaching roles. The next section focuses on improvements in teaching conditions — including peer collaboration, differentiated staffing and improved professional development opportunities. Next, the chapter moves into the potential impacts of blended learning on career opportunities and pay by reviewing enhanced access to a variety of roles and career options and the opportunity for teachers to earn more, within existing budgets.

Building on the Digital Learning Now! (DLN) framework, the final section includes a discussion of policy implications and recommendations to create the policy space for realizing the potential improvements to teaching conditions and careers as more and more schools transition to personalized, blended learning.

Current Demands on the Teaching Profession

Teaching has always been a challenging profession, but the challenges have only grown over the last several years. Teachers who make it over the “five year hump” face the mounting pressure of a maturing standards movement, now two decades old, that has been reinvigorated by the implementation of Common Core State Standards (CCSS), Race to the Top state and district grants, and the next generation of student assessments. The CCSS are also introducing new [shifts](#) in instruction and what teachers are expected to cover over a year. The bar for teachers continues to rise to match the rising expectations for students. Student poverty and classroom diversity have increased. School budgets have shrunk. And teachers face new evaluation systems introduced through various state reforms and Race to the Top.

Attracting and retaining the best and brightest to become educators remains a problem in the face of the increasingly attractive pull of other professions that offer better opportunities for advancement, compensation and career diversity. Finding and keeping excellent teachers is difficult in any circumstance, but even more so in contexts where great teaching is needed most. The MetLife survey determined that “more principals find it challenging to maintain an adequate supply of effective teachers in urban schools (60% vs. 43% in suburban schools and 44% in rural schools) and in schools with two-thirds or more low-income students (58% vs. 37% in schools with one-third or fewer).”²

Innovations in teaching and learning, supported by thoughtful and purposeful technology implementation, can ease the burden on teachers caught in the middle of a seismic wave of educational change. The confluence of higher expectations and the potential of learning innovations to help achieve them creates an opportunity set for:

- Personalizing learning for students;
- Extending the reach of great teachers to more students, for more pay, within budget;
- Creating more productive school models that work better for students and teachers;
- Increasing the attractiveness of the teaching profession to high-caliber candidates, and retaining them; and
- Improving teacher morale, a key factor of overall school climate and culture.

In order to create an overall climate that is supportive of broader shifts to CCSS and new models of teaching and learning, teachers must feel empowered, involved and supported. Teachers will rise up to meet the challenges they face if they recognize the potential of these shifts to dramatically improve their conditions and careers.

Shift to Personalized Learning

There's a groundswell of interest in innovations that help teachers and students meet higher expectations. The bridge between where each student starts and the land of higher learning standards is personalized learning. The National Education Technology Plan explains that personalized learning "is paced to student needs, tailored to learning preferences, and customized to the specific interests of different learners."³

Blended learning offers the potential to bring personalized learning to scale.

According to the Clayton Christensen Institute for Disruptive Innovation, blended learning is "a formal education program in which a student learns at least in part through online delivery of content and instruction with some element of student control over time, place, path and/or pace."⁴ In the [Blended Learning Implementation Guide 2.0](#), DLN adds to this definition a statement of intent, noting that "blended learning is a shift to online delivery for a portion of the day to make students, teachers and schools more productive, both academically and financially."⁵

A shift to blended learning can benefit both teachers and students. Each group benefits from the ability to personalize learning, increase student engagement, access better student data, customize content, support diverse learning modalities and vary delivery methods. School networks such as Rocketship Education, Carpe Diem and KIPP Empower have achieved strong student results by blending digital learning with a focus on excellent teaching.

As schools and districts explore the potential of blended learning to improve student outcomes, meet economic challenges, and better prepare students for the next generation of college and career readiness standards and assessments, stakeholders across the system would be wise to invest as much energy in exploring the evolution in the nature of teaching as they are in exploring the evolution in the nature of learning.

Without complementary shifts in the conditions and careers of teachers, it will be difficult, if not impossible, to bring personalized, blended learning to scale in order to reach every student in every classroom.

Redefined Teaching Roles

Decreased device costs, increased digital content and overall access to “anytime, anywhere” connectivity is redefining roles for all information-based professionals — doctors, lawyers, accountants and teachers.

The [Alliance for Excellent Education](#) recognizes the changing role for teachers in the [Online Learning Imperative](#), asserting that “as both the knowledge and technological means of accessing it explode in the twenty-first century, the role of the teacher also changes. . . . No longer are teachers the sole repository of content in classrooms; in the world of Wikis, open-source learning and online and virtual courses teachers also serve as guides, facilitators, and collaborators in students’ interactive educational experience.”⁶

The [Clayton Christensen Institute for Disruptive Innovation](#) notes that online and blended learning will allow teachers to be more creative and to focus on outputs rather than on regulating inputs.⁷ In their advice to districts regarding the Race to the Top-District competition, focused on personalized learning, Innosight advised, “Thinking through potential team-teaching models, new and differentiated teaching roles, models that extend the impact of great teachers, and innovative leadership that can spur personalized learning is imperative. For example, in new schooling models, some teachers may be content experts, others mentors or learning coaches, and still others non-academic mentors.”⁸

Truly understanding the potential of blended learning leads to the realization that teachers become even more important in a personalized learning environment.⁹ This realization, that teaching matters now more than ever, undergirds the [“Opportunity Culture” work of Public Impact](#), which explores how schools can extend the reach of excellent teachers using job redesign and technology and, in doing so, lead to better conditions and careers for teachers.

IMPROVING TEACHING CONDITIONS

In a recent Education Week Teacher Spotlight, Josh Woodward shared his personal journey from a traditional classroom to a blended one.¹⁰ He explained, “After some deep soul-searching, I came to the realization that, despite such success-affirming indicators, including glowing performance evaluations and a comfortable paycheck, at the end of the day I did not view teaching as a true profession. I despised feeling like, despite my best efforts, I was having little impact in my school beyond the four walls of my classroom.” Josh’s story embodies the struggle many educators face with the current demands on the teaching profession. Like Josh, a growing number of teachers are seeing blended learning as “a path to a sustainable career for teachers who are looking for a change of pace from a traditional school environment to one that values autonomy, mastery, and purpose.”

Blended learning can improve teacher collaboration, enable differentiated staffing and boost meaningful professional development opportunities.

12 Ways Technology Impacts Teaching

- *Content delivery*
- *Information abundance (vetting, sorting)*
- *Assessment*
- *Personalization*
- *Motivation/engagement*
- *Insights from data*
- *New student roles*
- *Collaboration*
- *Extended time*
- *Scheduling & grouping*
- *Mobile and social learning*
- *Community/communication*

Teaching Is a Team Sport

In “Education Technology Success Stories” from the Brookings Institution, the authors conclude with a call for abandoning what they call the “egg crate approach to education.”¹¹ This approach divides classrooms like egg crates divide eggs — with teachers each occupying their own cell and rarely interacting with one another. Blended learning offers an opportunity to change this.

Blended learning has the potential to tear down the traditional four walls of a classroom, extending learning beyond the standard content from textbooks and the limited resources of the individual classroom teacher. Instead, teachers

in blended environments can benefit from reduced isolation and more support as they form professional learning communities both online and on-site. Coupling blended learning with shifts to competency-based education, teachers can stop viewing students as “my kids” and instead regard the outcomes of “our kids” as the joint responsibility of all of the adults in the learning ecosystem.

Shifts to blended learning environments can also yield efficiencies in saved time and resources that can ultimately be reinvested to positively impact teachers. For example, employing adaptive learning technologies and smart recommendation engines will reduce teacher time needed to determine and maintain differentiated instruction. Putting technology to work to create and structure expanded student records, like those described in the [Data Backpacks and Learner Profiles](#) report, will lead to more and better data about student progress. As schools move to more collaborative and blended learning environments, thoughtful attention to developing systems for managing the flood of data will be crucial to ensure highly effective team teaching.

Differentiated Staffing

Digital and blended learning can also improve teaching by helping schools do what most other professional organizations do: differentiate roles in order to make the best use of each professional’s time and create professional development machines while delivering the best service. We return to this topic more fully in our discussion below of “Enhanced Access to a Variety of Roles and Career Advancement Opportunities.” Differentiated roles can help improve teaching conditions by enabling teachers to use their strengths while developing toward the highest standard on the team — enhancing students’ learning immediately — and by providing the time and student data for differentiated teams to collaborate. Even without digital tools, many teachers would likely be better off teaching in differentiated teams, and a blended learning environment can change everything for differentiated teams.

Digital learning helps by freeing up role-differentiated teachers to allow them time to collaborate and learn from each other and by summarizing student progress and instructional needs for the larger number of students served by teams. Students can spend age-appropriate portions of the school day learning digitally, perhaps supervised by paraprofessionals. During that time, teachers can play a range of roles: leading teacher teams, working with specific groups of students, analyzing student data, planning what’s next for students and so on — collaboratively. The freed time and summarized student data afforded by digital learning makes role differentiation much more feasible and likely to lead to teacher improvement than in environments where teachers spend almost all their time alone with whole classes of students.

Improved Professional Development

Digital learning can help teachers develop professionally, because it frees time and provides summarized student data for teaching teams to plan instruction collaboratively. This allows good teachers to learn from great ones by working together daily to produce student-learning outcomes that meet the best team teachers' standards of excellence. Without digital learning, schools have struggled to find time for daily, job-embedded professional development, which research has shown to improve student learning.¹²

Personalized Learning for Teachers

The world's leading organizations have used blended learning strategies to support human resource development for two decades. The military has intelligently blended social learning, online learning and on-the-job learning from experts to engineer rapid pathways to mastery.¹³ In 2011, 77 percent of companies reported increasing or planning to increase the amount of online training.¹⁴

As schools consider blended and personalized learning options for students, they should do the same for teachers. A dynamic, engaging blended learning model should replace the old "sit-and-get" staff-wide model of professional development. Key ingredients of an improved system would include an expert teacher in charge of each teacher's development; team-based learning activities; and just-in-time online, customizable resources — all built upon a personalized, professional learning plan. Every teacher should have an individual learning plan with access to online resources that address three questions: How do I improve my teaching tomorrow? What do I need to learn to develop as a teacher? How do I reach my career goals? A team and a team leader or mentor should support short-term learning goals. Medium-term (2-3 year) goals should be part of a competency-based progression where teachers have the opportunity to demonstrate skill and the ability to boost achievement.

[Summit Public Schools](#), a charter management organization operating four schools in the Bay Area, has a smart teacher development and compensation system that can serve as a useful model. Their competency-based system is focused on what teachers need to know and be able to do to accelerate student achievement, and it is closely linked to an extensive professional development program. Every teacher has a Personalized Educator plan detailing areas for growth linked to 40 days of professional development. As Summit transitions to blended schools, teacher professional growth remains a priority.

New Skillsets

Teaching in online and blended environments will demand new skillsets such as curating and evaluating content, analyzing data, managing tech-rich learning environments and more. The increased professional learning demands on teachers will be softened by new forms of collaborative professional learning, as explained above. Schools that are making the shift to the CCSS and new forms of delivery have the enormous asset of on-site and online access to top talent within the existing teacher workforce. State and local leaders can and should take a cue from states like Tennessee, which trained more than 700 teacher “navigators” to act as professional resources in the transition to CCSS, and create mechanisms to capture the energy and expertise of teachers who are already succeeding in blended classrooms to help develop the new skillsets of the remaining teachers in the workforce.¹⁵

After an entire K-12 transition to blended learning last summer, [Rocky Mount Prep](#), east of Raleigh, North Carolina, offers a great case study.¹⁶ The transition to a blended elementary model was relatively smooth, and they are already seeing strong academic gains. However, transitioning the high school to a rotation blend has been more of a challenge. The transition was a challenge for students used to a traditional schedule and even more challenging for teachers no longer responsible for primary content delivery.¹⁷

The fact that teaching roles and the skillsets needed to succeed in blended models are so different suggests that preparation and development could become more model-centric. Teaching in a project-based blend (e.g., [New Tech Network](#), [Edvisions](#), [Big Picture](#)) is very different from teaching in a STEM blend (e.g., [Metro](#), [DSST](#)) or a self-paced dropout recovery academy (e.g., [AdvancePath](#), [Ombudsman](#)). While there are model differences, we can generally say that next-generation models will require less delivery and more analysis; less whole-group work and more small-group instruction; less isolation and more collaboration.

As teachers set out to gain proficiency with new skillsets, they now have available to them a growing field of remote video-based teacher assessment and professional development options that include a number of companies and projects that make good use of smart phones, web-based technology, and data analysis. Among these are [BloomBoard](#), which offers teachers and administrators a free and flexible system for teacher observation and assessment that enables personalized feedback and offers professional development videos. Bloomboard’s free services are supported by premium services it offers, such as third-party professional development content, professional development hosting software, and data visualization tools. “Talent,” a product from [Torsch](#) is an online video repository and social network for teachers and schools. The Talent smartphone app simplifies video recording and uploading, while Talent’s private social network system allows teachers to share videos with students, teachers

and supervisors. Talent allows teachers to provide differentiated instruction to students, and to give and receive feedback from colleagues. [Edthena](#) offers video-based teacher observation, assessment, and coaching. Teachers record themselves while teaching and upload the videos to Edthena where other users can watch and give feedback. Peers can review each other's teaching as part of a networked improvement community, or expert coaches can view videos and provide teachers with coaching remotely. [Smarter Cookie](#) allows teachers and administrators to upload videos and share them with selected users, who can provide feedback linked to specific points in the video. Teachers can review feedback, which is sorted into "Glow" (praise) and "Grow" (suggestions).

IMPROVING CAREER OPPORTUNITIES & PAY

As the "[School Model Snapshots](#)" [graphic illustrates in Opportunity Culture's Teacher Pay & Career Advancement - A Leader's Guide to Sustainably Funded Excellence](#), there are many ways in which shifts to online and blended learning can facilitate improvements in career opportunities for teachers. These opportunities, discussed more fully over the next several pages, leverage technology to extend the reach of great teachers to impact more learners, enabling teachers to earn more and advance in their careers without leaving teaching.

Enhanced Access to a Variety of Roles and Career Advancement Opportunities

Far from "replacing a teacher with a laptop," digital and blended learning can create a host of opportunities for teachers who want career advancement while continuing to teach.

Here, we focus on three ways in which digital learning is opening up new opportunities for teachers. First, the use of blended learning within brick and mortar schools can "extend the reach" of in-person excellent teachers both to more students and to teaching peers in collaborative or teacher-led teams.

Second, the ability to teach remotely makes possible a whole range of new employment opportunities for teachers, transforming teaching into a more flexible career like other professions.

Finally, the digital age opens up opportunities for teachers to affect students and other teachers "boundlessly," expanding their impact outside of the classroom by creating video and smart software for students and other teachers based on their insights and practices.¹⁸

Through its Opportunity Culture initiative, Public Impact published a set of school models using elements from each of these categories. Each model lets great teachers reach more students, for more pay, within budget, while enabling all teachers to develop and giving great teachers more authority and credit for helping more students. All of the models allow paying all teachers more, while freeing time for great teachers to help good teachers produce excellent outcomes, too.

Extending In-Person Teachers' Reach

Blended learning makes it possible for schools to employ “Time-Technology Swaps” — using digital learning to free a portion of a teacher’s time to reach more students (working with one group of students while another group works digitally) and to work with peers as mentors, coaches or group leaders.

Through the swaps, teachers gain time to reach more students, plan lessons and collaborate with other teachers. Students learn basic knowledge and skills online; the best versions of digital instruction are much more personalized than undifferentiated whole-group instruction, reflecting the mastery of each student. This allows students who are ahead to pursue advanced instruction, while students who are struggling in general or in a specific unit can repeat a lesson and complete additional practice until they understand.

Teachers can reduce the whole-group portions of their instruction that leave some students behind and other students bored. Instead, in-person teachers — who remain fully accountable for their students’ outcomes — can use the data from digital instruction to follow up with individual or small-group instruction and work on higher-order thinking skills.

Obtaining these benefits for both teachers and students does not mean placing students in front of a screen for hours on end: Students can spend as little as an hour a day on digital learning, with adults supervising them and stepping in when needed to offer personalized support.

Rotation models. Many schools use such swaps, such as California-based Rocketship Education, whose students spend about 25 percent of their time in a learning lab using self-paced digital instruction and live tutoring monitored by paraprofessionals. By freeing teachers’ time, Rocketship enables three teachers to reach 100 students in rotating 25-student classes, rather than the 75 students they would reach without this setup. The best math teacher of the three teaches math to all 100 students. Rocketship is currently revisiting this approach to make even better use of teacher and digital time, but this early iteration of their staffing model has already achieved very strong results with students, with cities across the country now wooing Rocketship to expand in their jurisdictions.”

KIPP Empower, a K-8 charter school in Los Angeles, also rotates students through computer-based adaptive-learning programs, small teacher-led groups and individualized work with teachers. This has allowed KIPP to increase the number of students reached by each teacher from 20 to 28, but work on core subjects with just 14 or 15 students at a time in the small groups.²⁰

Flex models. Another set of schools, such as Summit Public Schools and Touchstone Merit Prep, use what is called a “flex” model in which students work digitally for a more significant part of the day. With students spending more time on self-paced learning, fewer teachers are needed to educate a given number of students, enabling the schools to extend learning opportunities and pay teachers more.

Leadership models. The digital portion of instruction also lets the in-person teachers work in teams, by providing daily time for teams to plan instruction collaboratively and by summarizing student learning data for the larger numbers of students served by the team. When a team is led by an excellent teacher who has leadership skills — what we call Multi-Classroom Leadership — the rest of the team can learn from that teacher’s planning and instructional skills. A team can reach “pods” consisting of many more students than the excellent teacher could teach alone. When paraprofessionals are included on these teams, all teachers can earn more, and the teacher-leaders can earn substantially more.

The 2013 MetLife teacher survey underscores the fact that many teachers today yearn to play a key part in the leadership of their schools. The survey revealed that while most teachers do not want to become principals, more than half are interested in hybrid roles combining teaching with other responsibilities.²¹ Teachers at Touchstone Education’s Merit Prep, for example, proceed on a career path from associate teacher (novice) to master teacher. At the master teacher level, teachers can earn up to \$100,000 a year. Master teachers take responsibility for all students in a content area, teach the most difficult parts of the curriculum, and train and develop other teachers. As a result, all students have access to the methods and materials of a master teacher in every core content area.

Blended learning helps make this kind of hands-on leadership possible in two ways. First, teachers can use the time freed when students are working digitally to meet together and plan, to engage in professional development, and to observe each other teaching and provide feedback. This kind of embedded, collaborative development, long supported by research and pined after by many teachers, has been elusive because of a lack of time — time now made available via blended learning. Second, digital learning software can provide teaching teams and their multi-classroom leaders with a stream of actionable data on students. Without that, the prospect of a single teacher taking responsibility for a large pod of students would be nearly unthinkable.

Between Time-Technology Swaps and Multi-Classroom Leadership, it is possible for schools to organize themselves so that nearly all students, rather than a lucky few, have an excellent teacher in charge of their learning. Teachers gain the opportunity to take on new, advanced roles in which they have more impact, without leaving the classroom, and for sustainably higher pay.

Remotely Located Teachers

Teachers can interact directly with students and be fully accountable for students' outcomes without being in the same classroom — or even the same state — using digital tools. Schools that face shortages of qualified teachers, overall or in some subjects, may use this model to connect students with excellent teachers via webcams and online whiteboards, for example. Remotely located teachers can reach more students without increasing class sizes because they will be freed from administrative duties and noninstructional tasks, which may be overseen by on-site paraprofessionals, and because students spend a portion of their day learning basic skills online, as in the Time-Technology Swaps described above.

While not the first choice for most schools, models that enable remotely located teachers to reach students anywhere may be far superior to letting students learn online without adequate academic supervision and support. Students in rural areas, students who have failed in traditional classrooms where social issues are distracting, and those who need very advanced or unusual courses stand to benefit most from this model.

Remote instruction may be synchronous — students and teachers interacting in real time — or asynchronous. Synchronous instruction may use webcams, whiteboards, videoconferences, texting or even phone calls. As technology improves, these interactions will feel more natural and less remote, with smoother videoconferencing, or three-dimensional holograms of teachers or “immersive” online environments such as students may already experience in games.

Asynchronous instruction still requires teachers to interact with students, but at times convenient for each, through online feedback on assignments, e-mail and discussion boards. Many teachers already use these methods to supplement traditional instruction, but without the financial, reach or personal benefits of all-remote teaching.

In addition to freeing teachers' time to reach more students for higher pay, working remotely opens up a range of new professional opportunities:

- Teachers can choose where to live, and continue teaching the same students even if they must move midyear. Rural areas, especially, struggle to attract enough teachers to provide great instruction to all students. Remote instruction makes it possible for teachers to live where they want, educating students anywhere.

- Teachers can choose their work setting. Teachers can work from home, or groups of teachers may come together to a shared office, as in other professions. Teachers may also combine traditional in-person teaching jobs and remote teaching, as some online teachers do today via the Alabama Virtual Academy and others. For some teachers, these new possibilities are a great fit. “Shifting to teaching online was like being a new teacher all over again,” says remote teacher Lindsay Woods. But after a few years, “she loves the flexibility and time at home with her son.”²²
- Teachers can choose their hours. Because remotely located teachers may be teaching students on opposite coasts, they have flexibility in their hours, whether full- or part-time, without reducing the number of students taught.
- Teachers can individualize instruction. Remotely located teachers can provide more individual attention than many students get with in-person teachers. Distance may actually make focusing on one student at a time easier, because teachers are not distracted by typical duties of an on-site teacher. Innosight Institute’s profile of Riverside Virtual School, for example, reports, “Overall, teachers say that they interact more with students as online teachers than when they are teaching a face-to-face course. Students also report having higher levels of engagement.”²³
- Teachers can specialize in their best methods of teaching: Teachers may excel at engaging presentations, small-group tutoring or analytic discussions, and remote teaching allows them to focus on these skills and reach more students without the distractions of on-site, noninstructional duties.
- Teachers can manage other remotely located teachers. An excellent teacher good at managing or coaching others could continue teaching remotely while leading teams of other teachers, extending the excellent teacher’s reach by having others use his or her methods and holding him or her accountable for the results of the teachers’ students.

While we focus here on teachers, it is worth noting that remote connections also open opportunities for other kinds of educators, such as the remote speech therapists working for organizations such as [PresenceLearning](#).²⁴

“Boundless” Instruction

Even with asynchronous remote teaching, teachers can reach only so many students in the course of a day. But today, anyone on the planet with a broadband connection can now access engaging content and some of the best teachers in the world. With boundless instruction, teachers combine technology with their best skills to reach potentially unlimited numbers of students, predominantly these days in three ways:

- **“Mediagenic” superinstructors:** Terrific teachers of content can become nationally known stars through video lessons broadcast over the Internet. Think of Sal Khan and his Khan Academy, the most well-known today. As of February 2013, the site’s videos on math, science and other subjects have been watched more than 240 million times, and more than 1 billion of its math problems have been completed (a rate of more than 2 million per day).²⁵ Universities including Stanford, MIT and Carnegie Mellon have quickly jumped into offering “massive open online courses” (MOOCs). And initiatives such as LearnZillion collect top teachers’ video micro-lessons tied to new Common Core standards, keeping the ones data prove to have the biggest impact. Internationally, companies like South Korea’s MegaStudy have already propelled some teachers to seven-figure salaries with these models.²⁶ Over time, students will be able to learn about every topic from the very best worldwide at explaining that subject.
- **Application and organization architects:** Teachers eager to extend their reach may also find opportunities through digital learning to create or help design software applications that guide students through lessons, letting them master content and move on without direct teacher interaction. Current examples include the teacher-created Virtual ChemLab, through which students in a virtual environment undertake simulated chemistry experiments, used by more than 150,000 students per year; veteran English teacher Jeff Scheur’s NoRedInk, which helps students learn grammar; Quest to Learn schools in New York and Chicago, where teachers collaborate with video game designers from the Institute of Play to create game-based curricula, games, and other learning materials that can be used within its schools and boundlessly; and Leadership Public Schools in California with its “distributed incubation,” enabling its own teachers to create digital content for use across the school network.²⁷
- **Inspiring other teachers:** By blogging, tweeting or otherwise tapping the power of digital distribution, teachers can now inspire and influence their peers on a much larger scale. As veteran teacher Susan Lucille Davis writes, “We grow together as professionals and as human beings even as we design our professional learning in a way that is meaningful and personal.”²⁸ The countless examples include Vicki Davis, AKA @CoolCatTeacher, who reaches thousands of teachers with her blog and Twitter feed. New services like [BetterLesson](#) offer a place for educators to connect and share curriculum and lesson plans. [The Teaching Channel](#) offers hundreds of exemplar videos of effective CCSS instruction and other teaching strategies. [Teachers Pay Teachers](#) is an open marketplace where educators can produce digital materials to buy and sell.

The Opportunity to Earn More, Within Current Budgets

In other professions, such as law and medicine, the last few decades have seen enormous technological progress that has changed the nature of work in those fields. These advances have been driven by professionals themselves, who realized that technology could enhance their “productivity” and work quality, enabling them to have more and better impact, and earn more for doing so, within their work hours.

Teaching could follow the same path with the implementation of digital and blended learning. As described above, one critical feature of digital learning is its potential to free teachers’ time. By using digital learning to free teachers’ time, schools can realize economic savings that can make it possible to pay teachers more for reaching more students. In the previous section, we described Rocketship Education’s model, in which three teachers — rather than the more typical four — take responsibility for four elementary classes of students by having students spend a small portion of the school day in digital instruction. Even after accounting for the costs of digital learning and the personnel needed to monitor it, the model yields savings that enable the schools to pay teachers 20 percent above the local salary schedule, without special, temporary grants.³⁹

This is just one way that schools could reorganize roles to yield savings that paid teachers more. If schools also grouped teachers into teams led by excellent teachers, Public Impact modeling suggests that teacher-leaders could earn 67 - 130 percent above today’s pay scale. It is possible that all teachers in a school could be paid more of out of the savings made possible by creative reorganization, using digital learning combined with new teacher roles to change how teaching and learning works.³⁹

Many teachers understandably worry that the savings yielded by a shift to digital and blended learning will not accrue to them. Instead, it will go to other priorities or be used to reduce education spending. We would urge policymakers to resist those temptations. If a good part of the savings from digital learning flowed to teachers, imagine the positive dynamic that would result. Excellent teachers would have strong incentives to integrate digital learning into their practice in ways that extended their reach to more students, enabling them to earn more.

In addition, imagine if to maintain their expanded reach and pay, teachers had to continue producing high levels of growth for students, directly or by leading teams. Then, teachers would demand better and better quality in digital learning products, discarding ineffective software and flocking to applications that helped their students learn the most, engaged them the most fully and gave teachers the most actionable data. Teachers would become the same drivers of high-quality, productivity-enhancing technology that doctors, lawyers and other

professionals are within their fields. Moreover, teachers would begin demanding the same high quality among entering teachers: when all teachers can earn more by producing excellent outcomes in teams using blended learning, every teacher has a strong incentive to demand better technology, teaching peers and school models that enable the best use of all.

Blended learning could enhance the power of successful existing programs that offer career opportunities and higher pay to excellent teachers, such as TeachPlus's [T3 initiative](#) and the National Institute for Excellence in Teaching's [TAP System](#). Integrating blended learning could help solve two age-old challenges facing programs like these. First, it could help schools gain teacher team planning and development time during the school day while students are engaged in digital instruction, facilitating the kind of teacher leadership and collaboration that is a hallmark of these initiatives. Second, blended learning could create cost savings to pay for career advancement without temporary grants, making these programs financially sustainable and scalable.

POLICY IMPLICATIONS

So far, this chapter has made the case that blended learning can offer better teaching conditions and enable better career opportunities and pay for teachers, while confronting misconceptions along the way. Advocating for thoughtful policies is an important next step in realizing the potential of blended learning to make due on these promises.

High Quality Digital Learning: The 10 Elements

In 2010, DLN was formed to conduct a rapid policy development process that resulted in [The 10 Elements of High Quality Digital Learning](#). The forward-leaning state policy framework suggests an environment in which students and teachers have expanded options. The recommended multiple provider environment provides expanded employment options for teachers, including alternative environments and schedules. The 10 Elements recommend that states provide alternative certification routes, reciprocity across state lines and the ability for multi-location instruction. It is also recommended that states ensure that teachers have professional development or training to better utilize technology and before teaching an online or blended learning course.

Policy Enablers for Blended Learning

Implementing DLN’s Element recommendations would lay a strong groundwork for effective teaching using blended and digital learning. Policymakers intent on using digital learning to transform teaching conditions and career opportunities as described in this report can consider an additional set of policies designed to remove barriers and incentivize innovation. Those policies fall into several categories:”

- **Funding.** Provide funding in flexible lump sums that can enable optimal combinations of teachers, other staff and technology. Funding should be commensurate to the challenges faced by the enrolled student body and should be flexible enough to support innovation. (For more on this topic see “[Funding Students, Options and Achievement](#)” from DLN.)
- **Evaluation.** Amend teacher evaluation systems to enable new models (such as teams and teacher-leaders serving multiple “classrooms” of students). A lead teacher can take responsibility for the outcomes of the whole pod of students served by a team, but the team still needs methods to evaluate team members’ contributions to student learning and provide team members with rich feedback about their practice. Improve growth measures so they truly capture individual student progress in all grades and subjects, at the unit and course level. Enhance observation rubrics to reflect new and different practices shown by research to be valuable in a blended learning environment.
- **Pay and career options.** Reform pay scales to direct the savings from blended learning to pay teachers more. Allow or incentivize districts and schools to create technology-enabled advanced teacher roles in which excellent teachers can earn more for reaching more students.
- **Operations.** Amend simplistic class-size restrictions or limits on the use of paraprofessionals that restrict schools’ ability to differentiate staff roles and use time in the school day differently to meet students’ needs.
- **Timing & scalability.** To allow more rapid adoption of careers- and conditions-change digital learning, enable start-up of new schools and turnaround attempts in struggling schools to use blended learning designs that personalize learning for students while offering teachers new opportunities. Scale up successful efforts while shutting down those that do not work.
- **Performance incentives.** Consider a variety of incentives with the power to induce school and district leaders to make big changes needed to capitalize on blended learning’s potential to transform teaching. Create competitive preferences for blended learning models that transform teaching as part of existing grant programs.

CONCLUSION

Reflecting on his personal journey from a traditional to a blended classroom, Josh Woodward explained, “Blended learning is not about replacing teachers with machines. Rather, it is about leveraging technology to provide students and teachers with immediate feedback, holding each individual student accountable for his or her academic success, and personalizing coursework to best meet students exactly where they are.” He continued, “This point is absolutely critical: Without highly effective teachers and instruction, a blended-learning model cannot be successful or sustainable.”³²

We agree with Josh, and with the countless teachers like him who are feeling frustrated, disempowered and unfulfilled by their current careers, that blended learning can reinvigorate the teaching profession.

In this chapter, we have explored how the shift to blended learning facilitates the opportunity to create better conditions and career options for teachers. We have confronted misconceptions and advocated for thoughtful policies to remove existing policy barriers and to incentivize the continued proliferation of educational innovation.

The shift to the next generation of standards and assessments, increased accessibility to high-quality digital content, and the pressures of “new normal” economy have created an unprecedented national opportunity to call the key components of our antiquated, factory model of education into question. Outdated notions of teaching and learning that lock students and teachers into one-size-fits-all experiences no longer serve the college and career needs of the 21st century.

As the nation pauses in this moment of time to reflect how learning innovations can positively impact the daily experiences and outcomes for students, equal reflection must consider how conditions and careers can improve for teachers. These innovations can also be applied to improve the lives of teachers, attracting and retaining the best teaching talent in a time when great teaching is needed most.

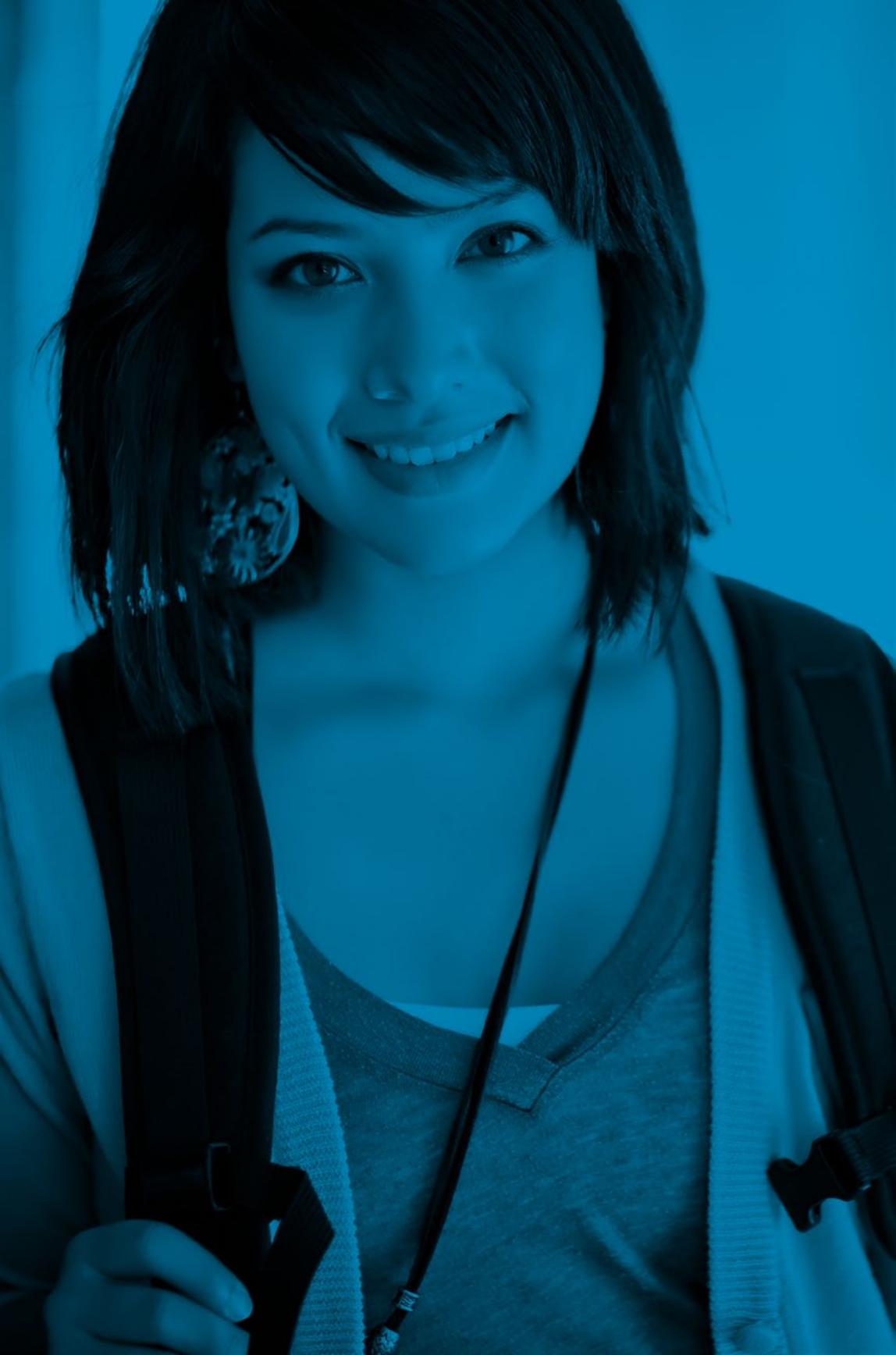
The entire [Digital Learning Now! Smart Series](#) is available online. This specific chapter has been modified from the original [Smart Series whitepaper](#) and its [Executive Summary](#). Also available is the “Blended Learning and the Teaching Profession” infographic, ([PDF format](#) or [JPG format](#)), relevant to both the whitepaper and this chapter.

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Data Backpacks: Portable Records & Learner Profiles

by John Bailey, Samuel Casey Carter, Carri Schneider, and Tom Vander Ark

INTRODUCTION

This fall, approximately 55 million students walked into the classrooms of more than 7 million teachers in America’s Pre-K through 12 classrooms.¹ In most cases, the students showed up on day one knowing little more about their teachers than the name on the classroom door. Unfortunately, teachers also have little access to much useful information about their incoming students.

Sometimes more information flows within a school as students move grade to grade, but often data and information is trapped within silos in a patchwork of paper and electronic systems. For districts with high student mobility rates and at transition points for all students in the system, this results in inaccurate instructional decisions and duplicative instruction—and contributes to students falling further behind. It can take weeks, if not months, for teachers to ascertain the individual strengths and weaknesses of each student in order to offer of the appropriate instruction to meet the unique needs of each learner.

What if students instead came to each course or classroom with a backpack of information—loaded with data about their learning preferences, motivations, personal accomplishments, and an expanded record of their achievement over time? How would this “Data Backpack” and “Learner Profile” improve each teacher’s ability to tailor learning to meet the needs of individual students? What if parents and students could access and customize this record to serve their own needs? How would all of the personalization this affords add up to deeper learning and improved college and career readiness?

Coupled with more widely affordable devices and a plethora of educational tools and apps, the shift to Common Core State Standards and the new online assessments further necessitate a robust plan for organizing, analyzing, presenting, and comparing student data in a way that is most useful to students, teachers, and families. Without a robust plan for expanding our notions of transcripts, student records, and Learner Profiles, we won’t be able to make the most of the opportunities for truly personalized learning that these shifts present.

Current Benchmarks

Student records are currently guided by a complex patchwork of state and federal laws and regulations that specify what must be collected and reported—and under what conditions the data can be shared. More data is generally available about students at the classroom and school level; only a small portion is reported to the district. Even smaller portions of these records are reported to the state and federal departments of education. Often, different data is needed for different uses or reasons. While some data is needed to inform daily instructional decisions, a state may require other data, such as student enrollment, to calculate funding payments or for accountability purposes.

[The Data Quality Campaign](#) (DQC) is a national advocacy group launched in 2005 to improve the availability and use of high-quality education data.² DQC supports state policymakers and other key leaders in promoting the development and effective use of statewide longitudinal data systems. As part of this effort, DQC has identified [10 Essential Elements of Statewide Longitudinal Data Systems](#) and [10 State Actions to Support Effective Data Use](#), which serve as roadmaps for states that are building enhanced data systems. A core component of this work is enhancing state collection of basic transcript data such as enrollment, demographic, programmatic, test score, and grade information. Taken together, these recommendations represent a minimum level of information that could travel with each student.

While these efforts have helped improve state systems, more has to be done to help districts enhance their systems to better inform instruction, target limited resources and interventions, and improve state and federal data collection.

Most district-based systems contain basic demographic information and possibly some academic performance indicators. While this type of standard data might tell the teacher something about the student, it reveals very little about the learner.

The growth in the use of new technology-based platforms has highlighted the fragility of these student data systems, the lack of interoperability among them, and the lost opportunities for deeper personalized learning experiences.

Recommendation for State-Level Student Data

- *Grade Level*
- *Attendance Information*
- *Special Program Status (Special education, Title I, Gifted/Talented, ESL, etc.*
- *Academic Growth from Year to Year (“Value-Added” Data)*
- *Course Completions*
- *End-of-Course Grades*
- *Test Performance Data*

Student Data Problems

This paper addresses three related problems with the current state of student data collection and dissemination:

- **The current official transcripts do not provide enough information to allow teachers to personalize learning from the first day of school.** Students arrive into each new grade or school with little or no information, requiring every teacher to essentially start from scratch to build an understanding of each student’s needs and capabilities. Most information is summative in nature and gives teachers little insight into the learner’s individual strengths and weaknesses over time.
- **Customized learning requires an enhanced and expanded Learner Profile.** Learner Profiles are needed for differentiated instruction at the most basic level, particularly for systematic methods such as Response to Intervention (RTI). However, next-generation adaptive platforms enhance instructional practice with smart recommendation engines that are based on a comprehensive profile of each student. This expanded Learner Profile must represent a holistic view of the student’s unique learning preferences, such as his or her best learning modality (such as, “does the student learn best through visual representations in some cases and with hands-on learning in others?”) and learning environment (such as, “does the student perform better in small-group or whole-class settings?”).
- **The system must balance the need for access to student data with privacy management tools that empower families.** Parents who wish to access their children’s student records are often met with complicated systems of forms, fees, and long waits. The current system is not set up to accommodate easy access to student data, and parents have little or no control over the information that is collected or shared about their students. There is no mechanism for parents to grant access to (and accept contributions from) multiple providers. Empowering parents with control over these records is an important consideration.

What do teachers wish they knew about new students?

- *In what environment do they learn best?*
- *Are they meeting the standards in key areas like math, reading and writing?*
- *What goals have they identified for themselves?*
- *What level of support do they have at home? Do they participate in any community programs or organizations?*
- *Do they do best when working alone or with peers?*

- *What are their outside interests that I can use to motivate learning?*
- *Is there anything in their learning history that I should flag for follow-up or special attention?*
- *What did other teachers note about their strengths and challenges?*

Big Data in Education

The flood of data is coming. There's more of it, and it's coming from lots of new and different sources.

Using data to guide decisions is certainly nothing new. We are moving from a time of data poverty, in which data-driven decision making relied primarily on a single high-stakes assessment score, to a time of data abundance, in which it is collected frequently throughout the day. What's more, today's education system is data rich but information poor. There is already a tremendous amount of data produced through homework, essays, quizzes, assessments, projects, grades, teacher observations, tutoring sessions, and student portfolios. However, much of this resides in a paper format; even if it is captured electronically, it is usually trapped within different applications and does not contribute to an overall individual record. Next-generation digital tools, services, platforms, and systems now give us the opportunity to collect and classify information down to the individual keystrokes of comparable students in parallel situations. We are just beginning to understand how these data can inform our understanding of the learners in our care.

The tools within this new technology-rich, personalized world of learning will both produce and consume data that can be analyzed to tailor each student's experience. The personal educational experience of each student will be further enhanced by ongoing and authentic assessments that are integrated seamlessly into the lesson, customized task lists that are driven by smart recommendation engines, social learning on a global scale, progress based on demonstrated mastery, and achievement recognition systems that certify attainment—all of which are made possible by advances in educational technology and learning sciences.

What can education learn from healthcare?

The U.S. healthcare and education systems are remarkably similar in some key ways. Both sectors deal with sensitive personal information and have laws to govern privacy protections regarding data—The Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy Rule and the Family Educational Rights and Privacy Act (FERPA). As education leaders consider big data strategies, it may be helpful to explore how the health-care sector has struggled with the same questions, particularly the move to electronic health records (EHR).

However, the healthcare sector is further ahead in both conceptualizing and implementing portable, personal EHRs than education. EHRs enjoy strong bipartisan support due to their ability to drive savings in healthcare while also reducing medical errors and improving healthcare quality. Fueling the rapid adoption of EHRs is \$20 billion in America Recovery and Reinvestment Act funds that established a “Meaningful Use” adoption initiative. Under the program, physicians are eligible to receive a Medicare or Medicaid bonus payment if they not only adopt EHRs that meet certain technical and privacy standards but also demonstrate that they are “meaningfully using” these technologies based on adopted use and reporting standards. These financial “carrots” end in 2015, at which point a “stick” of financial penalties kicks in for physicians who do not meaningfully use EHRs.

The education sector could benefit from a similar approach that focuses on creating a more robust portable electronic student education record. Educators would have instant access to the student’s entire education history, including the interactions and experiences with outside specialists - be it a tutor, a speech therapist, or a student’s online AP teacher. And just as EHRs help facilitate better coordination of care among physicians and specialists, so too could an electronic student record facilitate better coordination of instruction among all of the adults and professionals that a student comes across in their academic careers. What can education learn from health-care?

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For more information, watch Health IT's video [Electronic Health Record Movement](#).

THE POTENTIAL OF CUSTOMIZED LEARNING

Personalized learning has long been an aspiration of education technology.³ National education technology plans, going back to the Clinton Administration and following through to the U.S. Department of Education's 2010 plan entitled "Transforming American Learning: Powered by Technology," all highlight the potential for technology to improve student learning, accelerate and expand effective practices, and boost data as a teaching guide.⁴ This current Ed Tech Plan issues a call to action for American schools to leverage learning sciences and modern technology to "create engaging, relevant, and personalized learning experiences for all learners that mirror students' daily lives and the reality of their futures." Further:

The model of learning described in [the nation's EdTech plan] calls for engaging and empowering learning experiences for all learners. The model asks that we focus what and how we teach to match what people need to know, how they learn, where and when they will learn, and who needs to learn. It brings state-of-the-art technology into learning to enable, motivate, and inspire all students, regardless of background, languages, or disabilities, to achieve. It leverages the power of technology to provide personalized learning and to enable continuous and lifelong learning.⁵

Achieving this vision has proven to be elusive. In early iterations, the technology overpromised results and often failed to deliver. New platforms with the algorithms and digital content necessary to deliver customized learning have only recently emerged. Schools struggled with adjusting their classroom models and instructional practices to take advantage of new technologies. And the majority of funding streams at the state and federal levels reinforced old models

of learning. Only recently has the U.S. Department of Education restructured funding streams to support new models through programs such as Race to the Top District and the Investing in Innovation Fund.

Digital Learning

We know that every student should have equal access to personalized learning, and we believe this will not be possible without access to personal digital learning opportunities.

[Digital Learning Now's 10 Elements of High Quality Digital Learning](#) is a state policy framework for the future of education based on the premise that all students have a right to a high-quality education, which in the 21st century must include digital learning.⁶ The framework stems from the belief that all students are digital learners and should have access to quality learning experiences that are unbounded by geography or artificial policy constraints.

Developed in 2010 with input from more than 100 experts, the framework was extended in 2011 to include a [Roadmap for Reform](#) that provides tangible steps toward systemic change.⁷ Specific recommendations for state policymakers include:

- States should ensure local and state data systems (and related applications) are updated and robust enough to inform longitudinal management decisions, accountability, and instruction;
- States should ensure a digital formative assessment system;
- States must hold school and individual providers accountable for achievement and growth;
- States should evaluate the quality of content and courses predominantly on student learning data; and
- States must require students to demonstrate competency on a standardized assessment in order to advance.

Personalized Learning

When learning is customized to the needs of individual learners, everyone wins. Much of the guesswork is removed from teaching, and limited resources like time and money can be funneled to more efficient and proven strategies. Teachers can focus on helping students take the next step down their individual learning paths, rather than wasting time trying to figure out where they are each beginning. Rather than being forced to “teach to the middle” on a predetermined path, teachers will have the tools to differentiate learning seamlessly, without adding more to an already overflowing plate.

New types of data can inform instruction and educational choices. Teachers can use metadata such as keystroke information, how much time students spend on each question, and what types of activities generate the most success to inform their understanding of each student’s motivation and to form a comprehensive Learner Profile that will drive sophisticated recommendation engines and produce customized task lists of learning opportunities for each of their students across both content and context. Perhaps most importantly, this type of non-standard data can provide clues that indicate which types of learning experiences are most likely to encourage the most student persistence and so drive student success.

[For more information on personalized learning, watch Digital Learning Now!’s The Power of Digital Learning - Customized Education video. Publicly available on YouTube.](#)

Current Efforts

Although no one has yet realized a full-scale solution that can truly unlock the potential of personal digital learning that Digital Learning Now! first described, a number of current efforts are tackling some key components of the problem as we see it. These various efforts address different parts of the overall education data problem—some are looking for ways to expand the information that is collected, some are seeking to integrate information that is currently available, while others are providing new solutions for data analysis and presentation. In order to realize big data’s true potential to impact learning, however, these efforts must come together in a unified way to address what might be called both the “what” and the “how” of personalized learning.

Learning Analytics

Traditionally, school systems and state departments of education have focused on building and enhancing data warehouses and student information systems. These technologies allowed for data to be collected, stored, and reported in rudimentary ways. Implementation challenges included identifying data owners who were responsible for updating elements, reducing duplicative reporting requirements, and producing data runs for compliance purposes.

As these systems improved and it became easier to collect data, a new field emerged around learning analytics, which focused more on analyzing data for trends, forecasting possible outcomes, and producing more actionable reports.

New personalized learning recommendation engines are now emerging that use the same science that drives Amazon’s shopping recommendations or Netflix’s suggested movies. Pandora and Spotify can create customized music playlists based on previous selections, but the magic in the user experience is in discovering whole new worlds of music that we never knew existed—now revealed to us by hidden analytics tied to the previous experiences of millions of other users. It only stands to reason that student learning could also be a personally tailored experience based upon a shared understanding of how similarly situated students learned a new skill or concept most effectively. At their best, these kinds of recommendations would be matched to student-level archives of information collected over years of building digital student profiles based on the individual successes and failures of each student.

Pioneers such as [Scholastic’s Read180](#) intervention, [Wireless Generation, New Classrooms](#), and [Education Elements](#) already provide blended learning solutions that harness technology’s potential to create a new degree of customized learning within a school setting. Tools from [Knewton](#) and [Alleyoop](#) also deploy smart engines and real-time analytics to guide what material students are presented in various situations. Stanford’s [H-STAR](#) Institute is developing a 5-year plan for learner analytics, with the goal to bootstrap a national data ecosystem. Over time, tools will capture a growing set of student records that will become a new map of optimal learning paths to better inform instruction.

All of this is very good, but none of it is nearly enough.

The flood of new data that is coming—potentially pouring in every moment of the day from billions of continually connected devices—first requires a strategy with the power, flexibility, and comprehensive internal architecture of the data system to make a whole array of personalized learning variables interoperable. If our future technologies are to identify and recommend singular learning paths based on a continuously expanding matrix of content characteristics (to include at least factors of learning preferences, learning environment, and student motivation), then we need to work today to define that data taxonomy that will promote sound engineering to the same degree it invites continuous innovation.

Point Solutions for Student Data

Enabling the next generation of personalized learning will require us to collect more robust and significantly enhanced student records. Taken together, these records should form the foundation of new district data systems. Nowhere near the rich variety of data envisioned here is currently captured and tied to a unique student record, since a uniformly categorized and shared set of student information does not yet exist. While some progress is being made in this area of “shared data standards,” current efforts to date are more like “point solutions” that solve a single legacy issue. What is needed is a comprehensive student record of the kind described below and a safe, secure, flexible, and transparent technical infrastructure that adapts to the rich variety of digital data that is now pouring in from multiple instructional settings and across various aspects of the teaching and learning process.

One way to quickly see the limitations of our current environment is to imagine a whole universe of rich instructional content tied to smart assessment tools that could be seamlessly processed in four ways for every individual student, regardless of setting: (1) analyzed into unique component parts, (2) synthesized into multiple potential learning objects, (3) orchestrated across multiple learning paths, and (4) curated into singular personalized learning portfolios. Systems that are sufficiently flexible to adapt to these demands, while catering both to the unique needs of individual users and to the internal integrity of very specific content objects, are absolutely essential to the future of personalized learning.

Realizing this vision, however, requires both a more comprehensive student record and a more robust technical infrastructure than exists today. There has never been more momentum towards building the infrastructure to support this vision, thanks to the Common Core State Standards, Race to the Top, and the requirement to digitize statewide summative assessments by 2014. Yet this same momentum is creating a rush to implementation that today looks more likely to support the status quo of industrial age learning than to enable truly transformative innovation. If each state continues to duplicate the efforts of others, embed industrial era assumptions in their technology implementations, or create incompatible systems that at their core cause friction against the adoption of innovations in personalized learning at scale, we will never achieve the future envisioned here.

Therefore, just as with the current state of learning analytics, we applaud much of what is being done, yet remain singularly dissatisfied with the industry’s failure to agree to a shared strategy.

RECOMMENDATIONS

There is a two-part solution to push the field one step closer to realizing this goal: creating a “Data Backpack” that follows each student along every transition throughout their education and developing an expanded “Learner Profile” that will power personalization and protect privacy. Inherent in these two new components is the recognition of questions regarding the “what” and the “how” of educational data; both are needed to synthesize the student records necessary to personalize learning.

The Student “Data Backpack”

The official transcript information that a teacher receives about a new student, either on the first day of school or in the middle of the school year, often reveals little more about the learner than his/her name, gender, race, age, and standardized test score history. Teachers are faced with the overwhelming task of spending weeks evaluating what works best for each individual student, often through inefficient trial and error methods that frustrate both teachers and students—and all of this information is lost the moment the student transitions to another teacher or grade level.

State and school district leaders should explore establishing a new minimum—a student “Data Backpack” that forms a new official transcript that can unlock the potential to personalize learning by giving students, parents, and teachers access to a greater quality and quantity of information. When coupled with conventional transcript records regarding demographics, special program status, and attendance history, the Data Backpack would form the foundation for personal digital learning across traditional, online, and blended learning settings. This would differ from a traditional data warehouse in key ways. While a data warehouse houses student information, the Data Backpack is our description of the new minimum standard for official student transcripts.

Each student’s Data Backpack would move seamlessly from course to course, classroom to classroom, grade to grade, school to school, and across learning experiences of every kind, including afterschool and enrichment programs. This universally transferable set of information would function as a “super gradebook” for teachers and house standards-based achievement information (tagged in correlation with CCSS subskills for example). While current transcripts do not reveal a student’s ranking along a continuum of learning objectives, the “super gradebook” would not only contain summative data from standardized achievement tests, but thousands of formative observations (gathered both from teachers and computer-based learning experiences). As a lifelong archive of achievements, the Data Backpack would also allow for collections of demonstrated competency, such as a portfolio of personal bests and proudly stored artifacts of learning such as essays or projects.

Each student's Data Backpack would be formed from both teacher-entered and computer-generated entries. Data from participation in digital learning experiences such as games, apps, and programs could be set to automatically enter student data into a pre-determined template to house information that would be most useful to teachers, parents, and students. Overall, the Data Backpack would function as the "read-only" portion of the student record, as it would only contain artifacts from pre-approved and certified sources.

A student portfolio of this kind would be used in many contexts and across many layers of the technology architecture. Properly used, it could seamlessly inform parents, students, and educators of student progress; provide insight for curriculum, content, and application development; inform scholars regarding the effectiveness of individual interventions; and advance the state of education science.

An Expanded Learner Profile

Each student's Data Backpack would be complemented by an expanded "Learner Profile" that could be easily accessed and managed by the various teachers, tutors, and education providers that come in contact with a student. It would simultaneously function as a way to track student progress and preferences and to gather data to evaluate content, courses, interventions, and teachers. The expanded Learner Profile would move beyond the limitations of today's paper transcript to track and measure factors that affect learning which have, until recently, been nearly impossible to efficiently gauge. With recent advances in technology inside and outside the field of education, we can now gather and evaluate student data related to learning patterns, preferences, and the types of learning experiences that produce the most effective outcomes for each student.

In contrast to the Backpack, which would function as the "read-only" portion of the student record, the broader Learner Profile would be more open to contributions from multiple providers and sources.

The expanded Learner Profile will also need to remain flexible to allow for integration with new achievement recognition systems such as learning badges and data visualization strategies. As these systems become more widely recognized and adopted, they will increasingly become the new standard for communicating demonstrated achievement and will move to the standard Data Backpack. There are a number of technological tools to facilitate the development of an online portfolio that will form an archive of student work over time. Part of that record could be constantly updating "personal bests," for example of a piece of writing or a project. One option would be to include the "personal best" artifact as one element of every student's new minimum Data Backpack and to archive personal bests and other work samples in the deeper Learner Profile. Students, teachers, and parents could all be a part of the

decision to choose work samples. In order to prevent the Learner Profile from becoming a disorganized assembly of artifacts, we propose a common system of predetermined categories that will help facilitate improved comparability across classrooms and schools.

The Learner Profile would evolve to meet students' needs over the course of their educational careers. For instance, as the student approaches later grades, the profile could grow to include a college and career readiness tracker with data visualization tools to support the achievement of key milestones along the way.

An additional option for expanding the Learner Profile would be to include non-cognitive variables that impact learning. Monitoring factors like persistence, psychological health, and resilience could create an “early warning system” that could trigger further evaluation and intervention. A recent [report from the Brookings Institution](#) reveals that schools in 16 states are using data mining techniques to identify at-risk students.* America’s Promise and Johns Hopkins University have also highlighted how readily accessible data can serve as an early warning indicator for student dropouts.*

Tools—such as those employed by Charlotte-Mecklenburg County, North Carolina and Arizona State’s eAdvisor System—use prediction models based on factors such as truancy, disciplinary problems, changes in course performance, overall grades, and more to signal when students fall “off track” or exhibit “at-risk” behavior. This data could be further combined with information gleaned from other informal learning settings, club activities, athletics, and the arts—or merged with descriptions of various skills and behaviors that teachers observe based on more closely working with students, such as their study habits, personal character traits, and interactions that unlock their deepest individual interests. In the end, it is neither utopian nor Orwellian to suggest that any information collected from participation in any activity at all (e.g., Boys & Girls Clubs, mentorship programs, outside tutoring) could only further bolster the Learner Profile’s ability to present a holistic picture of the student across every stage in a lifetime of learning. But to work well, the Learner Profile has to be properly designed.

What questions does a parent have about his/her child’s education?

- *Is he/she on track to graduate high school? Is he/she on track to attend college?*
- *Are there areas where my child is really thriving or showing advanced aptitude that I can use to further motivate him/her?*
- *How is my child achieving compared to his/her peers?*
- *Are there any areas where my child is struggling? What resources exist for me to help him/her at home in the exact areas where she is weak?*
- *What type of learning environment seems to work best for my student?*
- *How can I become more involved in helping my child to succeed to his/her fullest potential in school?*

For more information, watch the Department of Education, Office of Educational Technology’s [MyData Personal Learning Profile](#) video. Publicly available on YouTube.

For more information, see “[Recommendations to Power Learning](#)” in the Appendices for Chapter 4.

Privacy Management Tools

When it comes to student records, control and transparency are equally important considerations and raise important questions regarding privacy and information sharing. Privacy management tools must be an element of the shift to expanded student records and profiles, in order to protect students and empower families and help better meet the goals of the Family Educational Rights and Privacy Act (FERPA) and state privacy laws. Key questions include:

- What limits are placed on a school’s ability to disclose data in education records to third parties without parents’ consent?
- How can parents and students more easily access all education records directly related to them?
- What is the process for challenging, correcting, or appealing inaccurate or misleading data?

Many states have student record privacy or confidentiality laws that affirm or extend FERPA. While no state may have a law more lenient than FERPA, some states may impose greater restrictions on the types of data that can be collected, how it is stored, and under what conditions it can be released.

This is about more than just complying with federal and state regulations; it is about protecting sensitive student information and privacy rights as a core design principle in developing enhanced student records.

Empowered Choices

While the contents of each student’s Data Backpack would be populated by a set of common elements for all students at a new minimum level, the components of each student’s Learner Profile could be customized based on family decisions.

The [MyData](#) initiative is a joint project between the U.S. Department of Education and the White House Office of Science and Technology Policy (OSTP) to encourage schools and digital learning providers that host student data to allow students and parents to easily download their own data in order to create a personal learning profile that they can keep with them throughout their learning career.

This approach offers a first step to parents and students to easily export their data and potentially share it with other services and providers. Supporting the exporting of data will require different providers to use uniform protocols

for granting access to and authorizing any transmission of the official record in a way that is safe, secure, and respects the privacy of all concerned. From a technical standpoint, the [SIF Association](#) is a nonprofit organization with 3,200 members that have come together to create a set of rules and definitions that enable software programs from different companies to share information. In addition to ensuring that programs within a school or district are able to share data without requiring each vendor to learn and support the intricacies of other vendors' applications, it is critically important to anticipate the needs of individual students and parents so that a single student record like the Student Data Backpack could be accessed and used by individual students and their families as they choose. This is simply not possible today.

When it comes to educational data, awareness is important, but it is possible to go one step further by creating processes within the system that engage and empower families. This type of engagement could include options for parents and students to get involved with collaborative goal setting throughout the school year and systems that alert parents when students are exhibiting declining effort or achievement.¹⁰ In order to facilitate meaningful family involvement in student record management, the data must be displayed in a user-friendly format and be matched with specific tools and actions. Careful attention must be paid to presenting users with data that serves their individual needs in a format that is customizable and adaptive. While parents might want to have access to comprehensive profiles, they will most likely be interested in real-time information that they can use to guide involvement right now.

Privacy management is a critical aspect of making these records more easily available to students and parents. In addition to standard privacy controls such as encryption for sensitive information and user authentication, the new records will include a Facebook-like set of privacy management tools that let parents determine what data gets shared, and with whom. Parents could determine, for instance, if they were comfortable with sharing information about their child's profile with outside community organizations, institutions of higher education, or tutors. The key design principle must be to give users the tools to control what is shared with whom in a way that is easy to understand and allows the parent and student to know when information is disclosed and to whom.

Proper training of students and parents will be essential to guide them to make the best decisions regarding data and information sharing. Teachers and administrators will also need thorough professional development to learn more about interpreting these new and varied data sources—and to become well versed in the legal issues surrounding student privacy and data management. Training will also help lessen the potential for tracking students based on a set of differentiated expectations, rather than properly using data to differentiate and personalize instruction in a way that sets high expectations for all learners.

IMPLEMENTATION CONSIDERATIONS & CHALLENGES

The transition from the current official student record to a more comprehensive and holistic Data Backpack and Learner Profile will not be without its challenges. After addressing basic questions around FERPA, state and local regulations, and other legal issues such as varied definitions of what constitutes a student record, there are a number of agenda-setting “big questions” that will need the focused attention of leaders across all aspects of the system. Tackling these challenges will also require collaborative involvement from all parties, ranging from state leaders and policymakers to developers and industry leaders, in addition to representatives from education agencies, advocacy organizations, and funders.

Our research has generated a list of implementation challenges in these categories:“

Borders and Boundaries

The Data Backpack and Learner Profile must be operational for a wide range of stakeholders—from students and parents to teachers and administrators, as well as course providers and service providers. State and local leaders, in collaboration with the private sector and federal government, need to determine to what extent information from external providers and informal learning opportunities will become a part of each student’s record, in addition to the overall question of “ownership” of the components of the official transcript. While issues of quality are of course important, being too strict about allowing information about students generated from learning experiences that fall outside the standard school day could be detrimental. Many kids are blending their own learning down to the course level, and the new transcript must allow for information to be accumulated from multiple sources, platforms, and providers.

Technical and Translational Issues

Systems such as predictive algorithms and smart engines already exist at scale in fields outside of education. As technology evolves, existing privacy and information-sharing policies have also evolved to accommodate new opportunities offered by technology while still protecting sensitive information. The biggest challenge to education is to “translate” the relevant functionality from various systems in fields like health, supply chain management, library science, and ecommerce into the field of education. Once translated, additional issues that fall under this category include system design and maintenance and determining protocols for coding, organizing, and sharing information.

Collaboration Concerns

Researchers from the Brookings Institution note that the most significant obstacle to overcome is building a common data-sharing network and explaining how current systems are disconnected from one another, with separate systems for academics, discipline, attendance, etc.¹²

This problem is further complicated by the fact that data is collected outside the traditional school system, by external providers and online applications, that could provide useful information for the schools to expand and inform student records. Without system integration and shared data formatting, comparability is lost and important learning trends go unrevealed. The lack of a common system can also force providers with innovative solutions to go straight to students outside traditional school hours, because it's too difficult to work within school districts with diverse systems.

For example, a common system for tagging the Common Core State Standards into microstandards will be necessary to build a common comprehensive Learner Profile with improved comparability from grade to grade and state to state. This raises questions about proprietary information and incentives to share what many industry leaders consider intellectual property. Standards databases, like the Achievement Standards Network, will allow translation between Common Core states and other states.

These are issues that will need further investigation as solutions are generated, since there will be some data points (testing, for example) that are common enough to cross systems, while others may be unique to the needs of individual users and providers and would only clutter and muddy the student backpack and profile elements that are intended to guide instruction.

Unintended Consequences

The move to an expanded system of student record keeping is not without its risks. If the data collected are not valid, rich, and properly used, the expanded profile could have the opposite effect of narrowing the educational experience, rather than enhancing it. There's certainly an important difference between differentiated instruction and differential expectations. In addition to maintaining a keen awareness of the potential for lowered expectations, the system must also guard against potential threats like privacy exploitation, cheating, and misrepresentation. As we move beyond measures of basic skills to formulate a more comprehensive overall profile of student learning, we must be careful not to generate unintended consequences.

Current Legislative Efforts

Robyn Bagley, Parents for Choice in Education, saw the first draft of this paper and knew Utah's existing data system infrastructure gave them a big head start on a portable record. She talked to a champion of education technology policy and personalized learning, Senator Jerry Stevenson who agreed to sponsor a bill. Together they were able to knock out this groundbreaking legislation in one session, placing Utah schools one step closer to tailoring education to the individual needs of the student by providing those closest to them with access to meaningful data.

The Student Achievement Backpack bill, Utah Senate Bill 82, was signed into law in March 2013. It provides for access by a student's parent/guardian or school/district to the electronic record. The bill gives schools until June 30, 2017 to fully incorporate the expanded record into their student information system.

When fully implemented, The Student Achievement Backpack will use cloud-based technology to create a common Student Record Store. The one-stop collection of student information will provide a comprehensive view of a student's progress and achievement and enable parents, teachers and administrators to diagnose the student's needs and abilities immediately in order to tailor their learning experience.

Student Achievement Backpack Data will include course taking, instructors and grades; formative, interim, and summative computer adaptive assessments state assessments and growth scores; and writing samples.

CONCLUSION

The potential for achievement and participation data to personalize learning and improve educational outcomes in the United States is vast. In this paper we have described how the rich concept of a Student Data Backpack, paired with a more comprehensive Learner Profile, could greatly improve educational decisions, increase access to more focused and relevant instruction, motivate students to learn in new ways, and boost achievement.

Strong leadership, broad collaboration, and a commitment to innovation that does not sacrifice privacy are essential to getting this right. But it is also true that a new era is already upon us; too much time has already been wasted, and too many resources squandered. Digital natives are in our classrooms today, and we must build new systems that can work together to support the smarter evolution of our educational system into one that better personalizes instruction and expands the total opportunity for all of us to learn.

In summary, we believe there is a threefold challenge before us: a definitional challenge, a legal challenge, and a technical challenge. Together we need to answer the following questions: (1) What kind of data are we talking about? (2) What legal guidance is required for custodians and users of the data? And (3) How do we safely and securely move the data in ways that both maintain its integrity and make it maximally useful?

The majority of this paper has concentrated on the definitional challenge. We have described the power and potential of the Student Data Backpack and Learner Profile not just to inform the imagination, but to invite a more rigorous and systematic definition of what exactly constitutes each of these and what exactly must be built to bring them into being. We do not believe that we have completed that assignment here—there is still much work left to be done. To take but one example from these pages to demonstrate how our recommendations are not yet actionable, consider how a gradebook full of achievement data would follow a child. Today almost all assessment data is course/content, platform, district, or state specific. For this information to meet our minimum requirement that it be analyzed into component parts and then curated into singular personalized learning portfolios, would require at least (1) a universally recognized micro-tagging strategy and 2) a common record format that makes it easy to export/import this kind of data. Getting this done is an absolutely necessary first step that has yet to be successfully executed by a cross-industry working group with the expertise to make it happen.

Privacy is a real issue that must be protected as these systems evolve. However, much of what is described in this paper can be done within the bounds of FERPA and other privacy laws already on the books.

Finally, it is important to note that the primary barrier to the widespread use of these enhanced records is organizational, not technical. Analytic and personalization tools have advanced in other areas, particularly in consumer services. There are also important lessons to learn from how the healthcare sector is deploying safe, secure electronic medical records to every American within the next five years. The main challenge for implementing the Student Data Backpack and Learner Profile is pulling these piecemeal initiatives into a comprehensive effort driven by state and district leaders.

More than anything else, it is absolutely essential that we work together across all 50 states and all 15,000 school districts to outline the specifications of a new universal standard for the Student Data Backpack and Learner Profile. An adoption campaign, not less substantial than the DQC of the last decade, will be required to gain widespread agreement on the specifications of a new universal standard for the Student Data Backpack and Learner Profile. Working together we can craft an approach that will allow for the safe, secure, and nearly instant communication of student data in a myriad of settings across a myriad of users to support deeper, richer, and more informed learning experiences to improve educational outcomes for all. This is what we are calling for.

To be successful, each constituency in the “digital learning landscape” not only has to be engaged, but also has to work hard to arrive at a solution that addresses the needs of all the other parties in question. Federal and state governments together with vendors and school districts need to take action in tandem to work towards a single solution that meets everyone’s needs at once.

In order to get there as quickly as possible, the following next steps are recommended as immediate action items that we can put in place now:

- States should use state transcripts to advance the Student Data Backpack recommendations, incorporate the expanded records into their longitudinal data systems, facilitate in state transfer of grade book data, and accelerate the adoption of important standards such as Ed-Fi, SIF, and the work underway by the SLC.
- State and federal funding streams should encourage the adoption of robust, enhanced student records. State and federal policies related to the adoption of electronic medical records provides a useful model. IEPs may also offer a starting point given the need to coordinate education services among multiple providers, support parental decisions, and enable better state and federal reporting.
- Districts should build these same data interoperability and industry standards into new RFPs for instructional resources, online services, and data systems and create pilot projects around expanded learner profiles.
- Private sector solution providers should embrace emerging standards.

Working together, we can execute an action plan to design and develop the cross-industry adoption of a safe, secure, flexible, and transparent universal standard. How this data is stored, who is the official steward of it, and the actual data structure itself will all be defined so that participants in the teaching and learning process can all benefit from the power of the Student Data Backpack and Learner Profile to usher in a new era of personalized learning.

The entire [Digital Learning Now! Smart Series](#) is available online. This specific chapter has been modified from the original [Smart Series whitepaper](#) and its [Executive Summary](#). Also available is the “Powering Personalization” infographic ([PDF format](#) or [JPG format](#)), relevant to both the whitepaper and this chapter.

EXHIBITS

Exhibit: Student Profiles

Personalized Learning - Tyler's Story

Tyler has always struggled in math. His parents have run out of ways to help him at home and his teachers have grown frustrated by his behavior problems during class. When Tyler's family moved to a new town after his mom found a new job, he was placed in Mrs. Putter's classroom. On Tyler's first day, Mrs. Putter spent some one-on-one time introducing Tyler to his tablet computer and helping him create his profile. Tyler answered some simple questions and then chose from a list of pre-installed apps for the afternoon's independent work time. While he was working, Mrs. Putter used her laptop's screenshare feature to watch Tyler work through his chosen online activities. As she switched windows to view another student working, Mrs. Putter's sidebar alerted her that Tyler had incorrectly answered 4 of the 5 questions on comparing fractions, so she dragged and dropped his name into the small-group instruction block from 3:00-3:30 for the students struggling with similar concepts. Tyler received a meeting invitation in his classroom inbox and an instant message from his teacher. The meeting would take place in the school cafeteria, where Mrs. Putter planned to use items from the kitchen to demonstrate comparing fractions, since she had learned from Tyler's earlier online survey that he wanted to be a chef when he grew up. That evening when Tyler got home, his parents invited him to help prepare dinner using a recipe that required measuring and comparing fractions that was sent to them automatically as a follow-up activity based on his work in class. As the year went on, Mrs. Putter learned more and more about Tyler, thanks to the technology that powered his digital learning experiences. She learned what types of problems he was most likely to skip, and that he preferred fiction to illustrate difficult concepts. She learned he was motivated by competitive games and would persist longer at tasks if there was a clear path to recognizing his completion. Although Tyler's math scores began to improve almost immediately, the program was set up to notify Tyler's parents and teachers if he triggered any of the "early warning indicators" in the system, such as missed questions. When this happened, Mrs. Putter was able to add descriptions to his Learner Profile based on what she had learned about through her personal interactions with him, and observations with his peers, to augment the computer-generated data to help focus the interventions on the methods most likely to tap into Tyler's motivations and interests.

An Expanded Learner Profile - Madeline's Story

Madeline was a third grader assigned to Mrs. Moore's class when she moved into Forest Lane School District in 2009. The week before school started, Mrs. Moore reviewed the cumulative files of her 25 incoming students. She was especially eager to review the files of Madeline and the three other students new to the district this year. As she thumbed through Madeline's file, she discovered that Madeline was a Caucasian female student with a March birthday. She missed four days of school last year, and her parents' names were Jill and Steven. A review of Madeline's grades from elementary school to date revealed "Satisfactory" in all subjects, and her standardized test scores showed she was performing on grade level.

Madeline was a seventh grader assigned to Mr. Miner's class when she moved again in 2013. Over the summer, Mr. Miner reviewed the online records of the students coming into his new class on his tablet. Mr. Miner was in his tenth year of teaching, and particularly loved teaching seventh graders since they began each year with a fresh start in a new building in his district. He also knew it could be a challenging time for students who were experiencing big social and emotional changes, and he understood the importance of finding ways to connect with each of them individually. As Mr. Miner reviewed the learning profiles of the students in his class, he used data visualization tools to get a quick overview of the students' abilities and found out right away that all but two students had already mastered the standards in the first math unit. He noticed that a new student, Madeline, had already mastered the majority of the standards for the seventh grade curriculum, and he flagged her advanced level work and sent her profile to the guidance counselor for a gifted evaluation. As he flipped through each student's Learner Profile, he was able to start building a picture of each of them. Combined with the narrative descriptions from past teachers and examples of personal best work, the expanded achievement data gave Mr. Miner an advanced understanding of the strengths and weaknesses of his class as a whole and of each individual student in his class—all before Mr. Miner or any of his students stepped a foot into the classroom. Madeline was eager to meet Mr. Miner, who had already emailed her over the summer to introduce himself and ask her about her passion for horses that was revealed in her profile. School was always a pretty boring place for Madeline, but she was amazed to find that her work was engaging and interesting—and almost immediately. Each morning Madeline eagerly opened her "playlist" to find options for the day's activities. She knew that as she mastered something, she could move onto what was next, rather than having to sit and wait for something that challenged her. And she couldn't wait to get started.

ENDNOTES

1. U.S. National Center for Education Statistics, as cited in the Statistical Abstract of the United States: 2011 (Tables 215 and 615). <http://www.census.gov/compendia/statab/>
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3. For example, the USDOE 2004 EdTech plan also referenced data, personalized learning, and competency-based learning. See Toward A New Golden Age In American Education. <http://www2.ed.gov/about/offices/list/os/technology/plan/2004/plan.pdf>
4. U.S. Department of Education Office of Educational Technology. Transforming American Learning: Powered by Technology, 2010. <http://www.ed.gov/sites/default/files/netp2010.pdf>
5. Ibid.
6. Digital Learning Now! website. <http://digitallearningnow.com/>
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10. For example, Pearson’s PowerSchool has an “easy goal” tool: <http://www.pearsonschoolsystems.com/pdf/throwsheets/pearson-partner-samegoal.pdf>
11. This list was generated from numerous interviewers and conversations. Please see the Acknowledgements section for a list of participants.
12. West, 2012.



The Shift From Cohorts To Competency

by John Bailey, Carri Schneider, Chris Sturgis, and Tom Vander Ark

INTRODUCTION

A new era is upon us. We all know that the one-size-fits-all, conveyor belt model of education that tracks students into different life trajectories fails too many kids and leaves too many graduates unprepared to compete for jobs in the 21st century. But something is changing. Across the nation, states and districts are no longer satisfied with low achievement and attainment. Maine, New Hampshire, and Oregon have established a new direction for policy. Districts across the country are transforming their schools. Charters are using their capacity for innovation to break free of the time-based system. A new consensus is emerging. Together, we are calling for the creation of a customized education system that prepares all students for lifelong learning, including the important steps of college and career readiness. We call it personalization.

The current factory model of schooling – with its time-based, bell-curved grading system – will undermine all of our efforts to personalize education. No matter what standards we use, no matter the innovation, a conveyor belt model limits student achievement in two fundamental ways.

- **It holds back students who could be excelling.** Advanced placement, dual enrollment, and early college have created opportunities for students to progress beyond the limits of the K-12 system, but this only happens in the final years of high school. Students are held back to the pre-defined pace of their age-based cohorts throughout their elementary and middle school years. We've handcuffed our children and ourselves.
- **It moves on students who aren't ready.** Students who don't get what they need are moved along, grade to grade, with bigger gaps in their learning each year until they no longer see a future in school for themselves or graduate with a meaningless diploma. Many who are retained still don't get what they need. Credits driven by seat time put over-aged, under-credited students at risk of aging out of the system.

We don't need to spend any more time trying to understand what is wrong with the traditional system. It's not working. The question is, what are we going to replace it with? We have a new model: competency education.¹

We've all experienced competency education in one way or another – whether it is progressing upon mastery to the next level in a video game, getting a driver's license after a written test and a demonstration of driving abilities, or trusting our doctor because we know he or she had to advance through multiple levels of building and applying knowledge to get his or her license.

Competency education requires schools to organize teaching at the levels of skills students bring into the classroom. Transparent learning targets, meaningful assessments, and embedded supports catalyze student motivation and ensure that students reach proficiency before moving onto the next unit or course. Districts that have committed to competency education have seen the results. Chugach School District in Alaska, one of the first districts to embrace competency education, transformed its schools – within five years, average student achievement on the California Achievement Test rose from the bottom quartile to the 72nd percentile. The percentage of students participating in college entrance exams rose from 0% to more than 70% by 2000. And, not only have the students benefited; but, during the same time, the teacher turnover rate dropped from 55% to 12%.² Within three years of implementation [Adams 50](#) went from having one-third of their schools labeled by the state as turnaround schools to zero. During that same time, the percentage that was considered to be the highest performing schools jumped from 11% to 40%.³ [Lindsay Unified](#), in the Central Valley of California, is showing early indicators that they are also on the way to higher achieving schools. Proficiency rates in English Language Arts for 9th graders increased from 29% in 2009 to 41% in 2012.⁴

Competency education is advancing quickly from coast to coast. Oregon enabled proficiency-based learning over a decade ago. [Maine has set a statewide course towards personalized, proficiency-based education](#), with a quarter of its districts already transforming their K-12 systems. New Hampshire established a competency-based diploma that requires students to demonstrate proficiency in all of their high school courses. Two-thirds of states have opened the door by offering credit flexibility through seat-time waivers. ⁵

Competency-based environments connect learning to students' passions and interests, drawing them toward higher-order thinking and, therefore, deeper learning. Competency education drives students beyond just knowledge and understanding. Students demonstrate proficiency by applying, analyzing, evaluating, and creating new knowledge.

Competency education does not depend on technology. However, technological advancements in information management systems and in online and blended learning have removed the excuse that competency education is too difficult to scale. It's simply not true that personalized instruction for every student is too demanding and time consuming in today's classroom. With the digital tools at hand, we are now able to flip the education system to competency

education. A management information system that can track student progress and blended learning, to allow students to take as much time as they need, is all that is required for competency education to thrive. In fact, it is only through a competency-based system that we will finally be able to see the benefits of digital learning for our children and communities.

In considering competency education in this chapter, it is important to remember that we have yet to see a fully developed district or school model, because the current policies and practices are constraining what is possible. What is now called competency education must be considered an early innovation for what we will be seeing three, five, or 10 years from now. This chapter first provides an overview of the competency education framework and three related case studies. Next it explores how innovation can be unleashed in a competency education environment. We close the chapter with a look at the policy alignment that is needed to support a personalized competency education system.

A PRIMER ON COMPETENCY EDUCATION

Competency education always starts with knowing the student and where he or she is on the learning progression. Doing it right requires a demonstrated proficiency on a common pathway, or learning progression, toward college- and career-ready expectations, but it unlocks the power of personalization by letting every student take a unique path and pace. Students get the time they need to really understand the standards, and they have the opportunity to demonstrate what they know on a regular basis. These periodic demonstrations of knowledge and skills inform their progress and matriculation, versus our current system that simply groups and advances students according to their age. These ongoing assessments and periodic demonstrations of student knowledge and skills create a [portable record and learner profile](#).⁶

Show What You Know

Learning progressions are typically made up of standards, while competencies are similar to, but different from, standards. As Rose Colby explains, “Competency implies much more than content and skills. By its very definition, competency requires that a student be able to transfer content and skill in a particular setting.” In short, students in a competency-based system progress when they show what they know.⁷

What is Competency Education?

[CompetencyWorks](#) is an online community devoted to advancing the field, which is sponsored by the International Association for K-12 Online Learning, the American Youth Policy Forum, Jobs for the Future, and the National Governors Association. CompetencyWorks defines competency education as:

- Students advance upon mastery,
- Competencies include explicit, measurable, transferable learning objectives that empower students,
- Assessment is meaningful and serves as a positive learning experience for students,
- Students receive timely, differentiated support based on their individual learning needs, and
- Learning outcomes emphasize competencies including the application and creation of knowledge, along with the development of important skills and dispositions.

Competency education is rooted in core concepts and lessons learned from other reforms that have developed over the past 50 years – Bloom’s instructional approaches, Essential Schools, standards-based education, and youth development, among others, are woven into a new framework. The development of competency education is decades long. Technology is unleashing it by generating demand for online and blended learning and enabling a powerful information system infrastructure. Until recently, it would have been impractical to suggest that competency education could reach every student without the personalization that technology now affords. The tools now exist to tailor instruction to individual student needs, collect and report student data down to each individual learning progression, and manage data-driven environments.

The main difference in competency education from the traditional time-based system is the focus on students learning to specific competencies; the amount of time and types of resources vary as needed. Accommodations can be made for students who enter courses with differentiated skills by adjusting to their needs and interests. A more holistic approach to development is often associated with competency education, or as Stanford University’s Carol Dweck would say, a growth mindset.

The rapid expansion and increasing interest in competency education is being driven by a confluence of forces. More rigorous college- and career-ready standards, such as the CCSS, will generate shifts in instruction as teachers cover fewer topics but in a deeper fashion. Competency systems can help with this transition by adjusting and adding time and resources as necessary. Improvements in personalized learning and information systems have made it easier to pinpoint student needs and vary instructional approaches and

interventions. The growth in online learning has created new options for many students and has demonstrated the opportunities and benefits of self-pacing when covering coursework. But it has also become clear that most students thrive in a mixed modality environment that is both personalized to their needs and supported by different ways of providing instruction, content, resources, interventions, and extra assistance.

How Does Competency Education Improve Student Achievement and School Performance?

It's important to remember that competency education is a structure, a framework. What schools do with this framework makes a big difference for student achievement. If you apply less rigorous standards, you will get less achievement. If you don't use meaningful assessments to provide feedback, students won't be able to learn from their mistakes. If you don't pay attention to the cost effectiveness of interventions, you may find yourself with operations that aren't producing learning gains for all students.

Meet Students Where They Are: Competency education always starts where the students are. The first step is always to understand what skills students have developed, where there are gaps or weaknesses, and where they are excelling. Schools may group or regroup to organize teaching resources to help students move forward. They may use online and blended learning to respond to wide levels of differentiation. Schools then monitor and track student progress along a pre-developed curricular learning progression such as the CCSS. Students are never simply passed along to the next teacher or given a grade D that symbolizes that they didn't learn what they needed to learn.

Progress Upon Mastery: Competency education requires (and allows) students to progress upon mastery, which has three important implications:

- **Investing in Proficiency:** Schools continue to invest in students – by offering extra time, interventions, and alternative methods of learning – until they have reached proficiency and are ready to move on to the next learning target. It's that simple: all students progress and reach proficiency before moving on. For our underserved students who have borne the burden of our factory model, this promises to produce enormous learning gains as they get the help they need, when they need it. This doesn't mean that all learning is linear or within one domain. Schools can organize their curriculums based on interdisciplinary or clustered learning targets, with the understanding that students will need to become proficient in them. Some schools distinguish between learning targets that are the backbone of future competencies within a domain and those that students need to be familiar with (but not necessarily proficient in) to advance.

- **Accelerating Learning:** Competency education creates the opportunity for accelerated learning for students with large gaps in their education, or those who are over-aged and under-credited, as well as for high-flying students who have strong interests within domains. It creates opportunities for students to stay focused on the core competencies of a course, advancing as quickly as they can, which means they may be learning at 1.25, 1.50 or even 2 times the expected “teacher pace.” We can currently see this primarily in highly self-paced, competency-based schools such as Boston Day and Evening Academy or Florida Virtual School. However, even in core district operations such as [Hall-Dale Middle School](#), a school in Maine’s Cohort for Customized Learning, there are examples of students moving ahead of the teacher pace in an age-based cohort. At [Muscatine School District](#) in Iowa, research found that 3% of students in a competency-based environment accelerated beyond the teacher pace.⁹
- **Removing the Ceiling on Achievement:** There are only a handful of examples where we can see the implications of how competency education can remove the constraining ceiling on achievement. At competency-based online schools such as Florida Virtual School, FLVS (where legislation enabled the school to be competency based) and Virtual Learning Academy (operating within New Hampshire, where high school credits are competency based) we can begin to see the practices of open entry/open exit that allow students to advance more quickly than the Carnegie unit allocates for completing the course. At competency-based elementary schools, it is easy to imagine that blended learning will allow some students to advance well beyond their age-based expectation when they have family-based knowledge, interest, or aptitude in a specific domain. Thus, we are likely to see students begin to take some middle school courses in elementary school, high school courses in middle school, and college courses early in their high school careers.

Student Motivation and Engagement: Competency education requires transparency about the competencies, learning targets, rubrics, and student progress. This transparency is the special ingredient that allows students to own their own learning, which can be transformed into higher levels of motivation and engagement. Personalization provides greater opportunities for student voice and choice. Of course not all students will be motivated and engaged all the time. However, the expectations for many of the dispositions needed to be successful in school are also transparent, and can facilitate dialogue with students to help them mature.

Unique Pathways: The combination of competency-based and blended learning environments makes it possible to customize every student’s learning experience. Blended learning allows students to vary their rate, time, location, and path. Instead of being widgets on the conveyor belt, not knowing why they are there or what it all means, students become the co-designers of their education.

Educational Continuity: Across the country, low-income families transfer in and out of schools in search of safety, high performance schools, housing, and jobs. As families break apart under these pressures, some students become homeless, are placed in child welfare, or end up in juvenile justice systems. This high mobility in low-income communities impacts students and challenges schools. If portability is built into the competency education system, students will be able to carry their own learning history and progression. With online learning, they may even be able to continue learning while their lives are in upheaval.

Cost Effectiveness: Competency education may eventually generate overall cost savings. (Remember, the time-based system does not even consider cost effectiveness. It’s all about inputs). The first step is to improve cost effectiveness with a deeper understanding of the resources it takes to provide adequate intervention and opportunities to help low-income students and other underserved students become college/career ready. There should certainly be cost savings for state budgets and families if more students can tuck a few college courses under their belt by the time they leave K-12. Districts and schools benefit if students can focus on competency recovery, like at New Hampshire’s Virtual Learning Academy Charter School.

If states and districts work to streamline the K-12 and higher education systems so that 6th grade students can do 8th grade-level courses, 8th graders can do 10th grade, and 10th graders have access to any college-level courses, we should be able to generate some savings and help families reduce the cost of higher education. Cost effectiveness will also increase with these changes, especially if they give schools more scheduling flexibility to provide more time for students to become proficient, rather than using clumsy and expensive interventions like summer school and retention.

Unleashing Innovation: One of the major contributions of competency education is the role it can play in unleashing greater benefits from other innovations. First, allowing students to progress upon mastery means we can finally take advantage of online and blended learning. Students can accelerate the rate of their learning to catch up with (or move beyond) teacher pace. Students can advance in some disciplines and not in others. Students doing upper-level courses will become a norm. Second, competency education, with its clear learning progressions and rubrics, allows us to make sense of the explosion of digital tools and mobile learning applications. With better data,

we will be able to measure which learning experiences work best for students with a particular profile. The viral adoption of learning apps has already made the system more dynamic and responsive. We are only at the beginning of understanding what online and blended learning can enable, as it is constrained by the traditional time-based system.

As we build up more content and common tagging language that allows us to quickly find appropriate options for students, personalization and choice will expand, which will reinforce student motivation and engagement. In the next section we will look at this in greater detail.

For more comparison of students, see [Exhibit: Trevor and Tyler: A Competency Tale](#)

For examples of how digital learning can enhance competency based learning, see [Exhibit: Unleashing The Possible - Competency Education and Next-Generation Learning](#).

Frequently Asked Questions

Listening to the critiques of competency education is important, as it helps us think through unintended consequences and increase our sensitivity to flawed implementation that is likely to produce poor results. Below are a number of questions and concerns that have been raised.

How can a teacher cover all the standards if some students are going to need more time?

In the traditional system teachers are responsible for “covering the curriculum,” whereas in competency education they are responsible for students reaching proficiency in applying the competencies that drive the curriculum. A competency system requires a focus on priority outcomes, at least some use of supplemental and asynchronous digital instruction, and an increased level of student ownership of expectations, learning, and progress. If students’ needs are too great, the school leadership and teachers will need to provide adequate resources, interventions, and student support so that a single teacher is not responsible for doing everything for their students. For example, competency-based schools embed support into the school day and calendar with transition times for students who are behind pace. It’s likely we will begin to see school calendars and schedules change so that students who need extra help can continue learning throughout the year. When it comes down to it, what’s more important: students learning or covering the curriculum?

Will this mean a lot more testing?

One of the fears about competency education is that it will result in a “factory model on steroids” with students trudging along lock-stepped and bubble tested every step of the way. But competency education is about making sure students learn; the key ingredient is constant and ongoing feedback to both teachers and students. This approach doesn’t mean more testing per se, but rather authentic assessments that come in all shapes and forms, such as regular demonstrations of learning-like projects, simulations, reports, and presentations. Also, with more game-based and adaptive learning, assessment is getting pushed into the background in favor of more data gathering and fewer tasks that feel like testing. Think feedback rather than grading students using tests, and you’ll start to see the power of competency education. Bob Lenz, Co-founder of [Envision Schools](#), explains, “Once we have defined the outcomes, we must create the assessments to evaluate students’ mastery of these deeper outcomes. A simple bubble test will not suffice. Assessing deeper learning requires performance – we assess collaboration by observing collaborative work and through student reflection on their ability to collaborate. In this way, we move from assessment of student learning to assessment as student learning.”¹⁰ The challenge is ensuring the right assessment tools are used at the appropriate times to accurately measure student mastery.

How should states approach the potential funding issues that may arise through early graduation?

Students in a competency-based system will get the time they need to become college or career ready, or be able to graduate early or use the extra time to earn college credit while in high school. Competency-based approaches offer new opportunities to recognize and reward schools that are able to help students complete their work faster or advance students to college-level work. School systems could be rewarded for any savings that might be generated with students completing early and also allowed to reinvest dollars to provide supports for students who are struggling.

Does competency require little steps and avoiding big challenges?

Some critics are concerned that competency-based learning assumes that linear one-step-at-a-time learning is always best. That’s not the case at competency-based networks including Big Picture, Edvisions, or Expeditionary Learning. Many schools create interdisciplinary opportunities for students to develop and apply skills. At [Hybrid High](#), students have greater flexibility and access to staff with extended school hours. It’s important to remember that students who are struggling or have experienced years of academic failure find

small units empowering. They experience success and build confidence that they can be a “good” student. [Making Mastery Work](#) said, “Many students find competency education more motivating and engaging than traditional approaches. The chance to progress at one’s own pace is particularly important to struggling students.”¹¹

Is competency education the same as standards-based education?

Similar to standards-based learning, competency education focuses on outputs rather than inputs. The big difference is competency education understands that trying to get students to the same outcome with the same instruction, within the same amount of time, is impossible. We’ve tried to do outcomes-based and standards-based learning in our current time-based system, but without systemic changes, students are still shackled to their cohort and do not have the ability to take more or less time as needed. Not only do we want to get students to become proficient on the same set of standards, we want to lift the ceiling off the K-12 system and let students soar. Digital tools also let us respond to students at both ends of the spectrum to make sure they are getting the help they need when they need it. Competency-based learning frameworks should be seen as a way to help all students master the expectations outlined in college- and career-ready standards such as the CCSS.

Do the CCSS and a competency-based system impose order and progression at the expense of meaningful, exciting learning?

It depends on how the CCSS is implemented. If you implement it in a rigid, boring way that’s what you will get. Competency education actually provides opportunities for teachers to personalize instruction. Students should have some choices when it comes to how they show what they know. It is possible to build achievement recognition systems that creatively combine big challenges with progressions through standards. The authors have observed in competency-based environments a high level of transparency about learning targets, students working at their own pace and building evidence of their learning, teachers organizing themselves to enable students to get what they need, and a high level of collaboration. Next-generation platforms will make it easier to mix big and small challenges and manage competency-based progress and matriculation. [Making Mastery Work](#) acknowledged, “The biggest logistical challenge to creating competency-based initiatives is the lack of high-quality data and technological tools to assess and monitor student progress that are tailored to each initiative’s specific approach.”¹²

Could competency education lower expectations?

One concern is that personalized learning may lead to personalized expectations that could be lower than what is expected of standards, graduation requirements, or what is needed to succeed in college or career. That's a well-intentioned concern, but it should be impossible as long as there is a commitment to rigorous standards and a valid and reliable assessment system. A competency-tracking system that follows students will allow teachers to personalize instruction from day one and will set high expectations for all students. There are some important elements to pay attention to in competency education to make sure it works for all students. First, pacing matters. Self-paced does not mean any pace. Schools and teachers need to offer timely, differentiated support when a student is showing signs of slipping behind. Second, students enter a school and classroom with different skills. If it is a relatively narrow differentiation, the goal should be to accelerate their learning to get them caught up with the other children. Once behind shouldn't mean always behind. The toughest challenge we will face exposing the current practice of letting students with significant skill gaps flounder in courses, giving them C's and D's and passing them onto the next course. In competency education, this practice is eliminated. The result is that competency educators are struggling with how to respond to students with elementary-level skills who are unable to become proficient in high school courses within a semester or even two. This isn't a by-product of competency education. It's the solution to America's crisis in achievement.

Will competency education decrease the achievement gap?

Competency education is designed to close the preparation gap with significant increases in the proportion of students that will complete high school and be better prepared for college and careers. Improving proficiency for our low-income and minority students is a critical step for our country, given the tremendous demographic shift we are undergoing. Once the ceiling is taken off the K-12 system and students are allowed to accelerate their learning, it is likely that higher-performing students will do even better. So in the short term, as we come to understand the types of rich learning experiences that are needed to support traditionally underserved students, all students will do better, but the achievement gap may not be dramatically reduced by shifting to competency-based learning alone. In addition, since competency-based systems focus attention on students struggling with concepts, extra supports or interventions can be assigned to help students catch up.

Where do we start?

The most important thing is to make sure your team embraces a “[growth mindset](#).” Competency education won’t work if you think some students are smart and others are not. The next thing to do is get your feet wet – standards-based grading is a good way to engage educators in reflecting on the traditional system and getting used to operating with greater transparency with students on what they need to do in order to succeed. Blended learning will also open the door to what it means for students to have adequate time to succeed and explore multi-age groupings, pacing, and personalization. Expanding district capacity to serve over-age and under-credited students is a great opportunity to implement a competency-based school or Flex Academy such as [Boston Day and Evening Academy](#), [Diploma Plus](#), or [Advance Path](#). Or create innovation space through piloting that starts to challenge the agricultural calendar. Policymakers waive seat-time requirements and other outdated regulations that interfere with competency-based models. See how more opportunities for students to get the time and help they need can be embedded into the school calendar with daily time for students to get help during the school day, trimesters with flex-blocks on either side, intersessions, and next-generation learning. Consider joining a network such as the [Reinventing Schools Coalition](#) in order to learn from your peers and stay on the cutting edge.

THE SHIFT TO COMPETENCY EDUCATION

Over the past three years, states have opened up innovation space for competency education. Maine and New Hampshire have developed statewide policies to establish expectations for competency-based diplomas, Oregon has piloted models to build capacity, and another 33 states have provided either credit flexibility or waivers.⁹ However, eliminating seat time is not enough. Districts, schools, and teachers are left to navigate two systems, using resources that might otherwise go towards teaching and learning. Higher education, scholarship programs, families, and students are left trying to navigate systems that are no longer using common language within transcripts or out-of-date methods of determining academic success. Flipping the systems will require us to align policies, operations, and practices around the core elements of a competency education model.

We are humbled by the creativity necessary to shake off the time-based practices and fully align the system around learning. We propose the following 10 elements of a competency-based system without knowing all the answers or exactly what it might look like.

10 New Capabilities of a Competency-Aligned System

Competency education isn't just a modification or enhancement of the time-based system. It is a complete re-engineering around an equity-focused, high-achieving, continuously improving, customized education system. This re-engineering will create new capabilities, which will require re-tooling policies, building organizational capacity, and managing the re-alignment process. It will take time to understand what it really means to have all students progressing in their learning.



1: Set College- and Career-Ready Expectations:

Competency education is explicit in its expectations for students to demonstrate college- and career-ready knowledge, skills, and dispositions.¹⁴ In addition to traditional expectations and measures (credits, grades, test scores), competency systems focus on applying skills and incorporating broader demonstrations of dispositions that correlated with success in college, careers, and citizenship including agency, initiative, resilience, and adaptability. Competency schools separate the academic competencies from the dispositions needed for success in college and careers. Portfolios and learner profiles built as a result of a competency system will allow young people to communicate to potential employers and institutions of further and higher learning what they know and can do.

The alignment process between a K-12 competency-based system and post-secondary institutions such as college, training providers, union apprenticeships, and employers is a two-way conversation with post-secondary institutions that need to make some adjustments in order to make competency-based diplomas meaningful. Higher education will need to be clear about the skills needed for admission without remediation so that students can demonstrate those competencies during high school. Furthermore, admissions processes need to recognize that the traditional GPA, and its time-rooted value, has a very different meaning in a competency-based environment. The pressures on the cost of higher education may push it towards competency-based models that could enhance alignment with the K-12 system.

Employers will need to move beyond their use of educational achievement (such as a B.A.) as a proxy for skills. It would be helpful if they also began to use competencies that are valued in the workplace as a mechanism for recruitment and hiring, as is being explored in [New Options](#) in New Mexico.

Competency education isn't a silver bullet. Just like in today's traditional system, if the standards (and proficiency of those standards) are not upheld, the system will not produce results. Competency education's transparency makes it much easier to discuss "what good looks like" within and across schools. Yet states, districts, and schools will need to put into place teams that are responsible for ongoing spot checking to make sure proficiency in one school is the same as proficiency in another.

2: Measure Learning Gains: Do we really know how long it takes students to learn something?

Or how long it takes students from concentrated areas of poverty or parents with less than a high school degree with limited exposure to the world to meet college- and career-ready standards? As we move forward with competency education, research will be invaluable in helping us understand the median amount of time across all income levels to become proficient in the standards

outlined in the CCSS. Data about student learning is now being generated by adaptive software systems that provide insights into the different trajectories students take over time to master a concept. Over the next decade, if not sooner, we should have a better idea of how to organize units of learning, at least within domains that can serve as benchmarks to guide pacing, monitor student achievement, and evaluate school performance.

One of the most important concepts that we will have to fully define and build into the system is pacing – the process of keeping students on the track to college and career readiness. Pacing will require a different meaning at different ages, especially for students who have gaps in their learning. A student entering first grade without any of the readiness skills – such as knowing the alphabet, colors, and numbers – will be behind what would be expected within the first level or grade of school. Schools will work with families to plan a trajectory to help them catch up within a reasonable amount of time, such as two years.

Keeping students on pace is a function of student motivation, effectiveness of the adaptive instruction, and support and opportunities. Competency education innovators embed the first set of supports into the daily operation of the school so that every student has the chance to get extra help the very day they are challenged by material. Federal programs, state policies, and district operations will need to be aligned to provide schools with as much flexibility as possible so that timely, tailored support can be provided to students. We must also open our minds and policies to the idea that sometimes support may consist of enriching opportunities that help students build up “non-cognitive” skills, see real-world application of skills, or broaden their horizons and spark their curiosity. It is only through ongoing continuous improvement and attention to cost effectiveness that we are going to truly understand the right mix of supports and opportunities to help all students achieve.

In a competency education system, students should only take summative assessments when they have been able to demonstrate that they are proficient in the standards and/or curriculum. In addition, summative assessments should be administered several times throughout the year to give students multiple opportunities to demonstrate mastery.

3: Know Students:

Competency-based systems will know far more about their students than traditional forms of education. A competency-tracking system gathers much more achievement data than traditional grading systems, and much of it is in the form of authentic student performances. In [Data Backpacks](#), the authors described comprehensive learner profiles. It will soon be easier to gather achievement data and related keystrokes that will build a motivational profile to help identify the kinds of experiences that produce persistence and performance for individual students.

In addition to the Carnegie unit, attendance is one of the essential metrics upon which the entire education system is based. Attendance is important in competency education as an indicator of a lifelong competency, but is not directly related to academics. As information systems develop that show student learning progressions, districts and states can then monitor student participation and progress rather than attendance.

4: Create Responsive Learning Opportunities:

The current approach and its accountability system are designed around a linear path to high school graduation. The competency-based model will need to have the capacity to respond to students with gaps in their education, students with high mobility, students taking a leave of absence from school and returning a year or two later, and students who want to advance more quickly – either continuing onto college-level courses while in high school or graduating from high school in less than four years. This responsiveness may include creating more capacity for open entry/exit in courses, more modularized units of learning than semester-long courses, creating transition time before and after courses, allowing students to advance in some domains and not others (even beyond their school’s offerings), and an unlimited ability to take college courses in high school.

Competency-based systems will provide 24/7/365 access to a variety of engaging, standards-aligned, open, and proprietary learning experiences (i.e., instructional materials) and full- and part-time online learning opportunities.

5: Benchmark Effectiveness:

Competency education will benefit from ongoing improvement structures that provide continuous feedback on: how schools are doing, how traditionally underserved students are achieving, how schools compare to each other, and which districts and schools are not implementing competency education effectively.

In the input-focused time-based system, we know how much we spend on education but we don’t look at cost effectiveness, because it isn’t designed to be effective. In a competency-based system, we will want to establish mechanisms that allow us to understand cost effectiveness, given that we are trying to produce the highest achievement gains possible. There will never be a single best way to educate students, especially as digital innovations continue and our country adjusts in response to the global economy, demographic changes, and other forces. But we can have healthy discussion based on cost effectiveness that takes the starting points of students in schools and courses into consideration.

Competency-based systems create the potential for vendor payments based on success. An early example of this approach is [New Classrooms](#) (inventors of [School of One](#)), which pays some content providers based on use. Competency-based systems have the potential to pay for return on investment to the learning experience level.

6: Allow for Flexibility in Time and Resources:

[Next Generation Schools](#), and many of the competency education innovators, have opened the door to understanding that the solution may not be more time but a different use of time. Does the teaching staff all need to be in school and working at the same time? Do all the students? Can schools run year-round, with students participating to the degree required to stay on pace? Can more modularized courses be designed so that students can enter schools and courses smoothly with less disruption to their education and the classroom? Can there be flex times at the beginning of a course for students with gaps to build up their skills and at the end of a course for students who need some extra time to build up the evidence of their learning? It will take time to deconstruct our reliance on the agricultural calendar and establish school operations that are based on the flexibility of a competency-based, blended world.

We'll need tools that allow districts and schools to manage their budgets with greater flexibility to meet students' needs. For example, [New Classrooms](#) uses a smart recommendation engine and dynamic scheduling to manage resources effectively. New funding policies, no longer dependent on specific hours of instruction, may make this easier. [Digital Learning Now!](#) recommends weighted funding to match student risk factors. As we gain evidence about the costs of helping low-income students succeed in college- and career-ready standards, we can shape weighted funding that will support extended learning times for students who need it.

7: View Teaching as a Team Sport:

Schools must start by understanding where students are on their learning progression rather than placing them in an age-based classroom, in order to break away from traditional ideas about how schools operate. Teachers describe it as no longer thinking about “my kids,” but “our kids.” Teachers work together, across classrooms, grouping and regrouping students according to where they need help. If there is a large group of students stuck on the same concepts, the best math teacher might be pulled out for intensive tutoring.

Teaching in a competency system emphasizes the facilitation of learning. Competencies are held to the same expectations, but how students reach those competencies can vary. Teachers increasingly take on the roles of co-designing curricular tasks that are engaging to students, developing adaptive instruction that provides rapid feedback and supplemental instruction as needed, and

effectively using student data to ensure all students are advancing in their learning. Digital tools and information technology are critically important to help teachers focus on student learning. Competency systems, especially those with a strong blended curriculum, will enable differentiated (different levels) and distributed staffing (different locations) models that extend the reach of great teachers, support new teachers, and provide compelling career opportunities for experienced educators.

The dynamics of professional development will be dramatically altered. There is currently a lot of “teacher talk” about student progress, what proficiency looks like, and revising competencies and rubrics to be as powerful as possible to help engage students in learning. Professional development is often realized through peers working together and sharing their expertise; when they find themselves stuck, they organize the type of coaching they need to expand and enhance their teaching toolbox.

Inevitably, policies related to teacher certification, evaluation, and compensation policies will need to be revisited. One of the interesting challenges that competency education innovators complain about is that teachers are certified to teach in specific age-based schools and are limited in their response when students advance to higher levels of the domains or need help at lower levels. This limitation will pose challenges for students who are way behind or ahead. Online learning may resolve portions of this problem, but certification policies will eventually need to be revised.

8: Offer Students Coaching and Support in a Personalized Environment:

Most competency systems will have more options regarding how to learn and how to demonstrate competence against a set of academic standards. Competency systems foster student ownership and can take advantage of asynchronous (teacher independent) learning experiences. With greater personalization and increased degrees of freedom comes formal strategies to provide coaching and guidance.

Competency-based schools such as [Kunskapsskolan](#), the personalized Swedish school network, use a learning coach model to work with students and families. Other schools use advisory structures or invest in daily activities to keep students focused and accelerate their maturation as an independent learner.

Personalization can also mean investing in partnerships. New Hampshire has established statewide policy for students to build and demonstrate skills in [extended learning opportunities](#). Schools that value real-world experiences such as internships and service-based learning, like those in the [Big Picture](#), [Expeditionary Learning](#), and [Diploma Plus](#) networks, invest in community relationships and student preparation.

9: Sustain a High-Access Environment:

Although it is not essential, technology is the engine behind the rapid responsiveness to students, personalization, and accelerated learning that is needed to bring competency education to scale. Districts and schools should offer educators the tools they need to stay on top of student learning and progress, provide meaningful feedback, and manage multiple forms of assessments. Students will need access to adaptive software to supplement their learning and internet access devices with multimedia producers.

To take full advantage of competency education, high-access environments will need to be available at home, within the community, and at school. Schools should work with local governments and providers to expand home and community access, so that learning does not stop at the end of the school day.

See [Funding the Shift to Digital Learning: Three Strategies for Funding Sustainable High-Access Environments](#) for funding guidance from those who have successfully made an affordable digital conversion.

10: Provide Funding That Supports Options and Innovation:

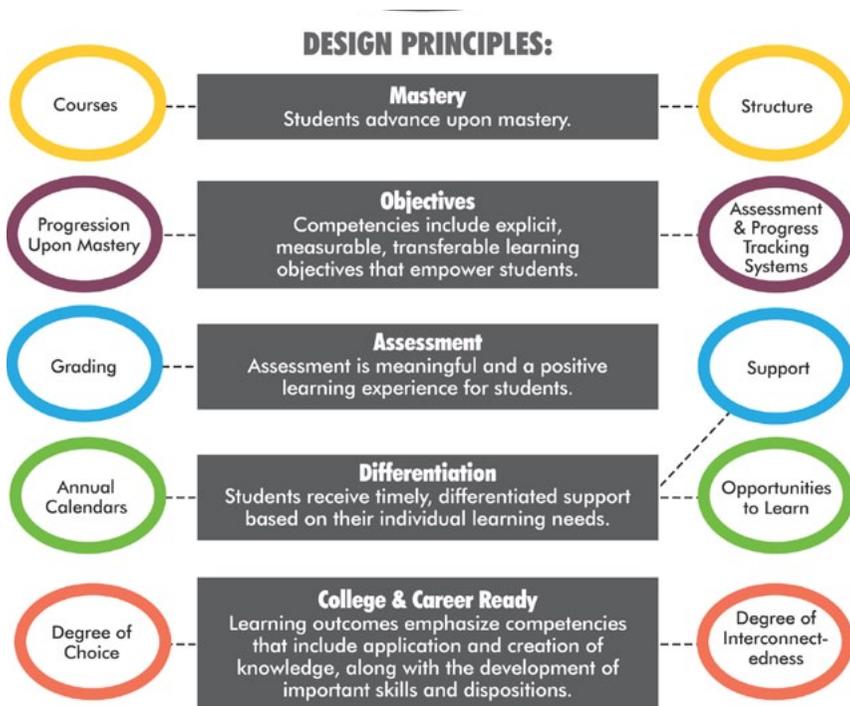
Equal doses of creativity and commitment to equity will be needed to align funding around competency education. Weighted funding will certainly be required based on the true costs of educating underserved populations within a personalized, 24/7, competency-based model. Districts and schools need adequate funding for their unique functions while providing flexible financing so students can take the courses they want from the providers of their choice. Funding needs to encourage schools to accelerate learning while eliminating disincentives for achievement and graduation. First and foremost, states and districts need to immediately eliminate barriers to personalization and adequate learning time and experiment with incentives that encourage (or at least no longer discourage) acceleration.

For more information on funding, see the [Digital Learning Now!](#) recommendations:

- Weighted funding that provides more funds for students who bring more risk factors to school and provisions more time and more options,
- Portable funding that follows the student to the best learning option, and
- Performance-based funding that creates incentives for completion and achievement.

10 Design Choices

There is no single right way to do competency education. Even with the constraint of operating in the traditional time-based policy context, there is a great deal of variation in the design choices that districts and schools are making as they shift to competency education. Furthermore, there is much room for realigning resources around learning that is so far untapped. Below are a few of the design choices that schools are making to organize students, educators, and resources to support student progression through the K-12 system. We take the liberty to propose other design choices that may develop as we become more accustomed to thinking beyond the traditional system.



1: Structure

The traditional system uses age-based grades to create cohorts of students that flow through the system. Schools are generally organized into K-6 (although sometimes K-8), -8, 9-12, and post-secondary. This division is primarily based on child and adolescent development issues. There is now greater fluidity between high school and college with AP, dual enrollment, and early college. Competency-based schools focus on optimizing learning and performance rather than age.

- [Casco Bay High School](#) uses grade-based cohorts to enhance a learning community formed among students working together over four years.
- [Adams 50](#) has maintained elementary, middle, and high schools with 12 levels to indicate where students are on the learning progression.
- [Diploma Plus](#) uses three performance levels – the Foundation Phase, the Presentation Phase, and the Plus Phase – which provide greater opportunity as students build foundational skills and demonstrate maturity.
- [San Francisco Flex](#) is an online high school that provides onsite support. Each student can decide what courses to work on and moves at their own pace.
- As part of the statewide improvement capacity, the [Education Achievement Authority](#) of Michigan is implementing a student-centered model that organizes students by instructional level rather than age and grade level, and lets them progress via mastery rather than seat time.
- [Cornerstone Charter School](#) in Detroit replaced individual classrooms and instructors for core content areas. Students work in “pods” of 75 students with individual cubicles that allow them to focus on personalized online content. They gather in open spaces for small groups, projects, and direct instruction as needed.
- At the [Alliance Technology and Math Science High School](#) in Los Angeles, 48 students rotate through three stations within core subject classes: teacher-led, online, and collaborative instruction.

2: Grading

The grading philosophy is one of the most important decisions, as it defines how students understand what is needed to be successful, but it’s really the promotion policy that is most important. When students are allowed to progress with C’s and D’s, it typically indicates that they haven’t mastered the content. Districts have learned that it is very important to invest in helping parents, communities, and colleges understand new grading systems and the decisions and interventions triggered by the grades.

- [Spaulding High School](#) in Rochester, New Hampshire uses Not Yet Competent, Competent, Beyond Competent, and Advanced.
- [Kennebec Intra-District Schools](#) in Maine uses a 0-4 grading scale; all students are expected to reach at least 3 on all learning targets before they progress.
- In [Federal Way, Washington](#), students must pass the course or class with a grade of C or better in order to advance to the next level or grade. Extra credit activities that have no relation to the standards do not impact the grade.
- [AdvancePath](#), a national dropout prevention network, requires students to complete units and courses at 80% or better to move on.

3: Support

The traditional instructional model provides support when students are already failing. Students can go for weeks at the beginning of a course without getting extra help. Homework and tests may come back with a grade but no helpful feedback, and often by the time it is returned the teacher has moved on to other material. Students may be required to go to summer school or be retained for an entire year without individualized plans that help them become proficient. The good news is that we have already seen schools begin to adopt competency-based approaches, particularly with early reading programs that leverage teams of teachers, classroom aides, and literacy coaches to provide differentiated instruction with frequent diagnostic assessments that measure student skills. This same approach can be enhanced using modern technology tools to even better personalize instruction and ensure students are receiving the right supports and interventions in real time.

In competency education, schools organize resources to keep students on their learning edge.¹⁵ Knowing that all students will struggle at some point, they embed time for extra help.

- At Messalonskee Middle School in Maine, students have Learning Goal Time embedded in every school day to work on whatever topic they need help with.
- Boston Day and Evening Academy is designed around transitions. Transfer windows allow students two weeks to complete all work if they want to progress to the next course.
- At Bronx Arena High school for over-aged and under-credited young people, the staff supports learners by building relationships, social skills, family support, and life skills. Students demonstrate competency through a variety of ways including projects, papers, labs, demonstrations, and tests.

- At [Da Vinci Schools](#), depending on their proficiency level, passion, and needs, each student’s individualized learning plan encompasses targeted interventions and supports to ensure their success.
- At FLVS, teachers call students when they aren’t progressing and provide individual tutoring when necessary.

4: Progressing Upon Mastery

Competency systems use a variety of gateways to manage progress and matriculation. Depending on the flexibility that has been built into the systems, competency education can offer progress within a course or into higher-level courses. Some schools use a myriad of small gateways, while others focus on major demonstrations of learning every two or three years. We have yet to open up the institutional structures that allow students to soar.

- Adaptive software tools allow students to progress in their learning.
- To advance at [Cornerstone Charter School](#) and [Carpe Diem](#), students must be able to show mastery through a system of assessments including standardized tests, data harvested from online activities, and real-world challenges and self-assessments. At Cornerstone, virtual data dashboards provide anytime, anywhere access to student progress. Those dashboards are reviewed weekly with advisors (called “relationship managers”) to help students reflect on their work.
- At [Schools for the Future](#) in Detroit, students move at their own pace toward graduation through four performance levels: Core I, Core 2, Transitions, and Pathways.
- Schools in the National Center for Education and the Economy’s [Excellence for All](#) network use credentialed exams as gateways so that students can take the exams when they are ready, and have multiple opportunities to pass them.

5: Annual Calendars

To create more time for students who need it, many competency systems move toward a year-round calendar. Time between sessions can be used for enrichment or extended learning time.

- [Florida Virtual School](#) serves 400,000 part-time students with year-round rolling enrollment courses.
- Boston Day and Evening Academy creates weeklong intensive sessions to apply learning and for teachers to better assess how students are applying skills.
- [Next Generation Schools](#) stagger teacher vacations to have more time for student learning.
- Many schools use a [balanced calendar](#) that has four sessions of 45 days with 15- to 30-day breaks in between for students to spend on extra practice or enrichment work.

6: Courses

In general, schools are continuing to use the course structure to indicate a unit of learning. The organization of the courses and the degree of modularity may vary based on the school calendar and the degree of importance the school design gives to curricular themes.

- Building upon the Common Core math standards, which are designed to facilitate modular approaches, schools use a block approach in which students are working individually or in small groups in various courses.
- Virtual Learning Academy has shifted from credit recovery to competency recovery.
- Boston Day and Evening Academy uses flexible trimesters.
- The Schools for the Future Curriculum is designed with 30-day modules, shorter mini-courses, and a 30-day progress review cycle.

7: Degree of Choice

Competency education enables more student voice and choice, because the competencies and rubrics are agreed upon ahead of time.

- Schools that have organized themselves around strong themes (such as the International Studies School Network) or schools that are providing the shortest route to a high school diploma (such as Boston Day and Evening Academy) may choose to offer very a well-developed curriculum but fewer course choices.
- Online schools provide choices well beyond what traditional schools can provide.
- Schools can offer students choice within courses as well. In the districts participating in the Maine Cohort for Customized Learning, such as MSAD 15 in Gray-New Gloucester, blended learning offers students the ability to select curricular tasks and options for how they want to demonstrate their learning.

8: Degree of Interconnectedness

Some schools continue to use specific domains to organize their courses, while others turn to interdisciplinary courses and projects.

- [Spaulding High School](#) is organized around the traditional academic disciplines.
- Denver Center for International Studies, a member of the [ISSN](#), uses global education as an organizing theme to shape its curriculum.
- [ACE Leadership](#) uses the context of architecture, construction, and engineering to design projects that are rooted in real-world industry challenges and designed to help students build up their competencies.

9: Opportunities to Learn

There has been an explosion of opportunities for students to learn. The competencies and learning targets that make up learning progressions allow schools to offer a variety of ways to deliver instruction, perform curricular tasks, and demonstrate student learning.

- Open education learning resources include math videos from [Khan Academy](#), free textbooks from [CK12](#), and Massively Open Online Courses (MOOC) from leading universities. It is possible for anyone with a broadband connection to learn almost anything, anywhere.
- [New Hampshire's state policy](#) empowers students to draw on real-world experiences to build skills and demonstrate learning. Teachers validate learning using the same rubrics as they would for classroom-based instruction.
- In dynamic job categories like web design, demonstrated skill can earn a badge from the [P2PU School of Webcraft](#). Portfolios and recommendation systems are also emerging that market similar strategies.
- Adaptive instructional software is becoming more sophisticated, and provides rapid feedback and rich analytics. Blended models, such as [Matchbook Learning](#) and [Rocketship](#) schools, are using adaptive software to provide underserved students opportunities to work at their own pace.
- There are expanding opportunities to learn online or on the job and to earn college credit by taking a test. [Western Governor's University](#) has been offering competency-based credit for 15 years. College Board offers the College Level Examination Program (CLEP), and there are several free [CLEP prep options](#).

With all of the informal and open learning opportunities available, many students will likely learn outside the formal structure of school. Competency-based systems will make it easy to show what they know, earn credit, and move to the next subject. Summative assessments will vary, including performance-based assessment and end-of-course exams. Badge systems are likely to help validate and “credit” students for smaller chunks of learning (i.e., unit size rather than full courses).

10: Assessments and Progress Tracking Systems

Time-based approaches in the current system are oriented toward traditional grading and managing a cohort environment. Competency-based schools need to make strategic decisions about assessment strategies and systems, student information systems that track individual and group progress in achieving proficiency, and reporting/visualization systems. Choices about access devices (i.e., laptops or tablets) will impact systems options.

- Casco Bay High School in Portland, ME upgraded their assessment system for alignment with graduation outcomes to achieve full transparency between students, families, and teachers and to enhance accountability.
- Vergennes Unified High School is working with the [Center for Collaborative Education](#) to build teachers' capacity to design and use performance-based assessments.
- Adams 50 and Lindsay Unified School districts are using the Educate system to monitor student progress, provide feedback to teachers, and enable principals to build staff capacity.
- Michigan's Education Achievement Authority is working in partnership with Agilix to develop [Buzz](#), which monitors student progress and engagement.

These are just a few of the design choices that competency-based innovators will need to make. Each one needs to be made based on how it will ensure that traditionally underserved students will thrive in a competency-based system. As digital tools and information systems develop, it is likely that an entirely new set of techniques and approaches will be required. We are on the edge of an extraordinary time in education.

State Policy that Supports Competency-Based Learning

Almost all of our state policies are time based. We still depend on the centuries-old practice of grouping students by birthday. We start with how many days students need to be in school. We define the instructional hours every student is to receive. We determine credits by seat time. Our challenge is to loosen our minds and deploy our creativity towards establishing policies that focus on student learning.

[Digital Learning Now!](#) has started this process with its list of policy recommendations to create more options and enable competency-based learning. Building on these, we offer state policy leaders a checklist for bringing their states into the 21st century.

Upgrade Graduation and Higher Education Policies

- Every state should have clear proficiency-based diplomas that ensure students are college and career ready.
- Students should be able to access courses in higher education while still in high school.
- Admissions to higher education without remediation need to be transparent, and mechanisms should be in place to allow students to determine where they are on the progression towards being competitive towards admissions.

- Extended graduation rates should be in place and used within the accountability system to ensure that districts and schools continue to serve students who are not yet proficient in college- and career-ready standards.
- Higher education establishes clear, transparent levels of competencies required for admissions so that students can determine how close they are to meeting those competencies.
- Higher education and scholarship programs' upgrade policies should no longer depend on the time-based GPA.

Grading and Assessment

- States should update their grading policies to ensure students have multiple opportunities to take summative assessments; grading can be competency based so that students can update grades based on proficiencies gained.
- State summative assessments should be taken when students are proficient; not before.
- State summative assessments should be available in a timely manner, so that when students are proficient they can take summative assessments.
- States should use a digital formative assessment system.

Expanding Personalization and Accelerating Pacing

- States should establish policy that students entering a new school are assessed according to where they are on their learning progression and receive differentiated supports.
- States should allow students to take online classes full time or part time by the individual course.
- States should require online courses to be based on demonstrated competency.
- States should allow rolling enrollment, year-round.

Increased Flexibility in Operations

- Schools should flexibly manage operations and scheduling as they see fit to enhance their ability to respond to students.
- Teacher certification should be upgraded so that schools have the capacity to provide services to students with substantially lower- and higher-level skills than those of the specific grade levels of the school.

Quality Control, Continuous Improvement, and Accountability

- States should hold school and individual providers accountable for achievement and growth.
- States should evaluate the quality of content and courses predominantly based on student learning data.
- States should ensure that local state data systems and related applications are updated and robust enough to inform longitudinal management decisions, accountability, and instruction.

CONCLUSION

Our optimism about competency education is derived from early examples of personalized learning, systems that extend time and create options, and from schools that require students to show what they know. However, the benefits for fast learners, struggling students, and students that learn differently require a transformation of how American education is organized and managed. Perhaps more challenging than building the new toolset is changing the mindsets – of parents, teachers, and admissions counselors – about grades, grouping, rankings, and progress.

On the transition, [Michael Fullan](#) is convinced that we can and must build “irresistibly engaging” learning experiences for both students and teachers. He proposes “skinny solutions” that are hard to build and easy to implement. Fullan puts the onus on education leaders to make change easier by adding “enjoyable, worthwhile experiences.” Of new schemes, he suggests a high bar: “It must be irresistibly engaging; elegantly efficient (challenging but easy to use); technologically ubiquitous; and steeped in real-life problem solving.”¹⁶

Some of the innovation will occur from new school development, and some from aggressive school improvement efforts. Much of it will come from outside the system. Sal Khan has made a big contribution with his 3,500 videos, but his most important contribution will be in teaching us all what competency-based learning looks like. His knowledge maps, playlists, and badges are laying the groundwork for how the whole system will work by the end of the decade. Credit granting systems based on MOOC’s and informal learning experiences will also influence K-12.

Given the magnitude of the challenge and the high bar that Fullan sets, the authors see three key priorities regarding the transition to competency education.

- **Implementation Challenge:** The biggest implementation challenge is the risk that time-based, tracking practices slip in and undermine the model and that we won't be able to develop meaningful ways to systematize new approaches to managing matriculation based on competence (i.e., funding, reporting, accountability, metrics) quickly enough.
- **Opportunities:** The most exciting opportunity is what lies in store for learning. The explosion of student data will help us better understand unique learners, variations in learning, and how to construct powerful learning progressions and cost effectiveness like never before. Employing digital tools in a competency-based environment will set the stage for anything to be possible for students.
- **Language and Leadership:** In shifting the focus from chronology to competency, leaders need a new language to capture the system's new capabilities and avoid confounding families and communities. This will require a common language about college and career preparation.

Next Steps

To accelerate progress, the following should be aligned with competency education:

- College- and career- ready expectations: Common Core and more that include knowledge, skills, and dispositions,
- Assessments: waivers and accommodations that support competency-based systems,
- Learning platforms: competency-tracking digital tools that make it easy to manage a competency-based environment, and
- Incentives for innovation: incentives for new school development and conversion to systems organized around student achievement.

“There will be a great appetite for the new way,” said Fullan. “Passion, purpose, and the new pedagogy are natural winners because they tap into and activate what is human – doing something intrinsically meaningful and of value to oneself, one's peers, and the world at large.”¹⁷

The opportunity is to build a new system focused on student learning – schools where students learn in the best way possible for them, where there are different ways to learn, where the day and year are extended, and where students show what they know on a regular basis. Next month, this series will take on the implementation challenge in more detail.

The entire [Digital Learning Now! Smart Series](#) is available online. This specific chapter has been modified from the original [Smart Series whitepaper](#) and its [Executive Summary](#). Also available is the “Show What You Know Beats Batch Processing” infographic, ([PDF format](#) or [JPG format](#)), relevant to both the whitepaper and this chapter.

EXHIBITS

Exhibit: Trevor and Tyler: A Competency Tale

Trevor, 8 and Tyler, 10 moved to Lake Park in late September. Having moved frequently, both boys were nervous about being placed in a new classroom, but had come to expect much of the same wherever they landed. School was often boring and uninteresting. But as they walked into the school office with their parents, they could tell right away that something was different. On the wall was a huge poster that read:

Mrs. Garza greeted them and explained that over the next two days the boys would be in orientation with three other new students who were enrolling that week. The boys were surprised. Orientation was fun. They talked a lot with Mrs. Garza about their other schools. She had them write and draw pictures about what they liked to do. They got to pick out books they thought were interesting and then read and talk about them with Mrs. Garza. They spent some time on the computer, on something called [MAPS](#).¹⁸ On Wednesday Mrs. Garza met with their parents. Meeting individually, she showed the boys and their parents on the computer what she called the learning map with levels. She explained that there were 13 levels that the boys would progress through, just like a video game, to get ready for college.

Trevor’s map showed that in math he was on level three, but in reading and writing he was mostly on level one. Mrs. Garza explained that Trevor knew how to do a lot of things on level one like asking and answering questions about details in books and retelling stories. He could also read at level one. To get to level two he needed to work on two things: listening carefully to stories to identify who is telling the story, and comparing and contrasting the adventures and experiences of characters in stories. She said she would like to make a plan to get Trevor to level three over the next year, but it would mean that he would need to practice reading every day during X-block, a special time for students to work on their school work every day. She also said that his new teacher, Mr. Cheng, would help him and he could also practice his reading and comprehension skills on the

computer every day. She asked Trevor, “You told me you didn’t like reading very much. What if we found some books about dragons and monsters, since you like to draw pictures of them so much?”

Tyler’s map was very different. He saw that a lot more of his map was colored in. Mrs. Garza explained that they hoped most students his age would be at level six. In English Language Arts he was almost all filled in, except that he needed more practice in revising his writing. His vocabulary was at level seven, but he needed more practice in using vocabulary from different domains. She told Tyler and his parents that since he loved to read, he could keep moving forward to higher levels. But he would need to spend a lot more time writing, not just reading. In math, Tyler was ready to start level six, but based on the MAPS assessment he seemed to have a few gaps at levels three, four, and five. She asked that for the next few weeks he spend X-block working with his math teacher, Mrs. Sen, and practicing on the computer.

Two months later at the next parent conference, Trevor and Tyler showed their parents evidence of their learning. Trevor showed examples of work from level two in which he compared and contrasted the most important points in two texts on the same topic. Tyler proudly reported he had filled in his math gaps, and that because he could work on the online curriculum during X-block he was now working at level seven. Mrs. Sen explained that Tyler really enjoyed the experience of progressing rapidly. They had decided to see if he would like the experience of exploring other ways to apply his learning. So instead of moving on to level eight later this year, she wanted to work with him on advanced work in level seven, which included creating a video explaining probability.

The boys’ parents had never seen their kids so excited about school. Looking back on all their different experiences in several states, they were amazed at how quickly the new teachers got to know their sons and how smooth the transition was compared to other moves. They had always worried that the multiple moves would negatively impact their sons’ futures, but finally felt confident that they had made the right choice (and one that would last) here in Lake Park.

3 Great Things About Failure

It’s temporary; you learn what not to do next time; and you begin to see what will work. Looks to me like failure is just success in progress.

Exhibit: Unleashing The Possible - Competency Education and Next-Generation Learning

The gains seen in Chugach, Adams 50, and Lindsay have been done primarily without the advantage of digital learning. Competency-based school networks are often high-access environments with basic production tools but weak information management and content delivery tools. This section explores how digital learning can be powerfully applied within a competency-based framework to increase personalization and the rate of learning. As you read this, imagine what will be possible when an array of digital tools is available in a personalized competency education environment. The sky is the limit.

KNOWLEDGE MAPS

Making clear what students need to know (and be able to do) in linked progressions, allowing students to take ownership of their progression. Resources such as [Khan Academy](#) allow students to see the map and make choices about their next steps. [MasteryConnect](#) helps teachers manage formative assessments and stay on top of how students are advancing through state standards.

ADAPTIVE INSTRUCTION

Adaptive assessment with linked instructional units makes it possible to identify learning levels and deliver tailored units of instruction. Products such as [Dreambox](#), [i-Ready](#), [Compass Learning](#), and [Read180](#) can all be used as primary or supplemental instruction to provide students with rapid feedback, self-pacing, and focused attention on their learning.

MEANINGFUL ASSESSMENT

Assessment that provides useful information to students and teachers is a necessary ingredient of competency education. If students don't receive timely feedback on their progress on learning to apply a concept, their learning is slowed or even halted. [Show Evidence](#) is an emerging performance-based assessment system used by some of the schools in the [International Studies Schools Network](#) as well a group of networks sponsored by the [Hewlett Foundation](#).

COMPETENCY-TRACKING SYSTEMS

Competency education generates large amounts of data about student learning. A standards-aligned gradebook that can be customized around a specific progression and/or gateway in competency systems helps students, teachers, and parents focus on where students are and where they are going. These gradebooks are often dynamic, visually displaying progress as students show evidence of their learning. [Edvisions](#) schools use [Project Foundry](#) to track competency

within project-based environments. Adams 50, Lindsay Unified, and many districts in Maine's Cohort for Customized Learning depend on [Educate](#). Teachers in over 25,000 schools use [MasteryConnect](#) to track competencies.

ACHIEVEMENT RECOGNITION SYSTEMS

Competency education opens the door to new ways of recognizing progress, including informal learning opportunities. Competency educators separate academic competencies from habits or lifelong learning competencies such as collaboration, professionalism, and cultural awareness. Specific achievements may be represented by badges or other data visualization strategies. Most badge systems will have linked assessment systems. Simple systems use end-of-unit quizzes. [Khan Academy](#) has badges linked to practice items that track progress through knowledge maps. More robust systems will require multiple forms of assessments, artifacts captured in portfolios, and periodic public demonstrations of learning. [Asia Society's International Studies School Network](#) is developing a Globally Competent Youth Badge System that will give high school students the opportunity to earn badges based on the four domains of global competence.

PLAYLISTS

A growing number of sources provide grade-level resources and enable manual playlists such as [PowerMyLearning](#), [GooruLearning](#), and [CK12](#). [New Classrooms](#) provides customized playlists in middle-grade math based on prior performance. Learner profiles and smart recommendation engines will improve the ability to customize playlists over the next few years.

PROJECT-BASED LEARNING

Creating opportunities for students to delve into standards through project-based learning takes time. New tools such as [Project Foundry](#) and the [Buck Institute](#) are making it easier to construct standards-aligned projects. Echo, the project-based learning management system at [New Tech Network](#), is an early example of how schools will manage student progress. Teachers can even personalize the standards within similar projects so students can build the skill they need based on their learning map.

SELF BLENDS

A robust competency education system will have students advancing beyond traditional grade levels. Furthermore, students wanting to accelerate their rate of learning will be in search of open entrance/open exit courses. Providers like [Florida Virtual](#) and New Hampshire's [Virtual Learning Academy](#) offer rolling enrollment into competency-based courses. Alternatives for over-aged and under-credited students, like [AdvancePath](#) and [SIATech](#), draw on blended learning to allow students to make individual and accelerated progress toward graduation.

In summary, competency systems will make clear what students need to learn and be able to do (maps), options for learning what they need to learn (playlists, projects, and self blends), and how they will show what they know (badges). Next-generation platforms will integrate many of the above features to make customized competency-based pathways for every student manageable.

ENDNOTES

1. Like some districts and states, we use the term competency education, while others refer to proficiency- or performance-based education. The U.S. Department of Education switched to mastery-based education in the 2012 Race to the Top competition. We don't expect a single term to be adopted. What's important is that they all refer to a system in which students progress after meeting expectations.
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Funding Students, Options, And Achievement

by John Bailey, Carri Schneider, and Tom Vander Ark

INTRODUCTION

Funding Students, Options, and Achievement

Like an outdated computer, no amount of tinkering, updating, or adding new applications will fix American school funding; it is “overloaded, can’t run all the programs we have attached to it, and was never designed for things we now most need done.”¹ That’s the conclusion of the most extensive study ever conducted of the patchwork way U.S. schools are funded. The 2008 report from Center for Reinventing Public Education (CRPE), *Facing the Future*, culminated from a six-year investigation. It outlines the problems plaguing the nation’s current school funding system and describes a detailed vision for a new system that places students at the center. The CRPE report provides policymakers and practitioners with a compelling case that justifies the need for a new system. Sadly, five years on, many states are still spending time and resources trying to find upgrades to a system that is quickly becoming even more outdated, given the dramatic innovations now made available to schools. The problem remains – the current system was simply not created with enough flexibility to support today’s educational possibilities.

Problems with the Current System

Many elements of current funding structures assume that every child will attend the full-time traditional school in their neighborhood district. As traditional notions of schooling continue to evolve, policymakers have added on layer after layer of work-arounds which in many cases have only made matters worse. Decades of layering on attempted upgrades to the current broken system have only created a funding structure that is fraught with a growing list of problems. While the list of key problems varies according to the unique perspective each state and district brings to the table, these are the over-arching problems with the existing system:

- It funds input and ignores the relationship between funds and student learning;
- Federal and state input-driven programs drive a large percentage of funding, and do not reward productivity or efficiency;
- Program-based allocations can have the effect of locking in outdated delivery models since current funding models often designate dollars for specific purchase inputs;
- Funding often reflects community wealth rather than the level of need;
- Innovation is not incentivized or supported under the current system;
- Student options are limited by outdated policies built around traditional notions of place-based schooling;
- The way money is currently applied in the system is in contradiction to stated missions of public education (e.g., in some cases more money per student spent on Advanced Placement than remediation);
- New models of digital learning will require a shift in allocation of resources in a way that current models may not permit; and
- Competency-based models of education are often restricted by seat-time-based allocations that make it difficult for students to move at their own pace.

Put simply, the current system funds input-driven programs that are managed by districts and implemented by schools. Such a system precludes many kinds of innovation, including technology, as well as redesigned staffing structures, student choice, and more. There's a new opportunity to align funding with objectives for improved achievement and completion as education is redefined as a "place" to a bundle of student-centered, outcome-driven services.

In this economic climate, a poor connection between spending and outcomes makes the system ripe for redesign. Even with focused attention on outcomes, the lack of attention to improve the relationship between outcomes and spending means these efforts are falling short of sustainable, systemic reform.

Challenges & Opportunities

A confluence of challenges and opportunities presents an unprecedented chance to finally make systemic and sustainable school finance changes.

The "new normal" economy of the last five years has put a strain on state revenue systems with long histories of maintaining the status quo. This adds to another existing problem related to financial sustainability, since costs are growing faster than revenue. Driven by desires to improve efficiency and boost productivity, state systems that tended to undergo major revisions only once or twice a generation suddenly have reason to consider new structures for behemoths like school finance. With mounting financial pressures, states will either slowly erode the system that they do have, or take bolder steps toward

redesign. Given the once-in-a-long-while opportunity to rethink allocation formulas in states, if not addressed now, states may end up locking in a new finance formula that isn't designed for the many advances in digital learning that will inevitably arise over the next two decades.

We stand at a “disruptive moment” in public education. For the first time in recent memory, the system is looking for solutions to problems that it is not used to facing. School districts are realizing that the model they've created is not sustainable and there's real interest at the school district leadership level to explore redesign.

While stakeholders advocate for finance redesign for different reasons, be they efficiency-driven or innovation-driven, everything is predicated on unlocking the money and attaching it to students. Framing the problem in this way keeps students at the center and builds in flexibility to allow the system to continue to evolve – regardless of the innovation.

The implementation of college and career-ready standards and the shift to personal digital learning create a historic opportunity to reshape education finance policy. Coupled with boosts in affordability and accessibility of Internet-access devices and technological innovations in teaching and learning, the time is right to explore how shifts in teaching and learning necessitate complementary shifts in the way public funds are deployed for schooling. There are more instructional options and environments available to students now than at any point in history. If we are going to provide universal access to these myriad options, students and their families need to be supported by a funding structure that enables exploration of these options. School finance expert Paul Hill explains that while today's funding arrangements might not wholly bar the emergence of innovation, they do limit the number of options students have to take courses from a range on international virtual school providers, enroll in hybrid or blended schools, and mix and match courses and other experiences from various providers.·

Funding the Future of Education

The world is changing rapidly. We stand at a unique moment in time when educational innovations offer the potential for customizing educational experiences and extending access in ways that can serve students like never before. A growing number of schools, districts, networks, and states are rising up to meet the potential of new technologies by exploring new forms of teaching and learning that are increasingly online, blended, and competency-based.

It's an exciting time to be a stakeholder in this system. However, for every ground-breaking educational leader and school that is lighting the path to the future of learning, there are countless others who have desires to break free from the factory mold but find themselves limited by barriers constructed by our outdated finance system. Educational innovations led by those who have found

ways to work around the existing system are perpetually relegated to a life as a promising practice, unable to thrive and spread to serve all students at scale. Until a new funding system based on students replaces that which is currently based on staff, programs, and institutions, the most potentially revolutionary educational models will remain inaccessible to the student body at large.

When it comes to educational innovation, it's not enough just to create a promising new solution that has the potential to deliver better outcomes if added to the current educational model. Instead, it's about creating innovations that fit within existing budget constraints when applied at scale. The system can support innovation – but only if these innovations replace or eliminate the need for existing expenditures that have failed to produce results. It will require deep understanding of how money flows and how the overall school finance system works to create budgetary space for innovation. This is a necessary first step in creating a funding structure that supports all children in accessing their best learning options across multiple settings, modalities, and structures.

DESIGN PRINCIPLES OF A STUDENT-BASED FUNDING SYSTEM

The purpose of this chapter is to issue a renewed call to action for state and district policymakers to take advantage of the economic opportunity for financial overhaul and make progress towards the creation of a student-centered school funding system. While most finance discussions to date have focused on state and district audiences as if they are two separate levels, key principles of allocation that make sense going forward would yield the same outcomes, and therefore this chapter addresses these two audiences jointly.

State and district allocation systems should allocate funds equitably on the basis of students, not existing delivery models; promote equitable outcomes and innovation; enable student-centered allocation; empower student choice; and avoid lurching change. In other words, create a funding system that revolves around students and evolves with emerging opportunities. These aims suggest four design principles:

- **Weighted** (reflecting student needs);
- **Flexible** (not restricted by programs or designated for particular uses, like salaries);
- **Portable** (follows student to the best school or course); and
- **Performance-based** (funding creates incentives for performance and completion).

The next four sections outline each of the design elements, provide examples, and identify policy considerations.

The focus of this chapter is on the allocation of funds, not the collection. This does not intend to diminish the importance of the revenue side, however this chapter focuses on the disconnection between spending and outcomes on the allocation side. Once the system is redesigned to distribute funds with a stronger connection between outcomes and dollars, there will be a greater return on investment on the revenue side. By focusing squarely on allocation, we can ensure increased returns on investment in terms of student outcomes when revenue increases.



Weighted

At its core, a funding system should reflect student needs. Currently, spending across districts and states is highly variable and yields poor connections to data on student outcomes.

Roza and Simburg (2013) highlight Denver Public Schools (DPS) as an example of the current broken system in their recent brief on student-based allocation.³ In the DPS example, per-student spending levels at each elementary school within the district varied from \$3,500 to nearly \$6,000 with no sense as to whether the uneven spending reflected uneven student needs or conflicted with it. This raises a big question: are the high-spending schools the ones with the most challenging students, or is this not necessarily the case? This is not a situation isolated to Denver (and pending legislation in Colorado will address this problem there); it's a common occurrence in school districts across the country – from large and urban to small and rural.

A weighted system of funding recognizes that some students bring additional risk factors to school that may require more time and attention.

While the topic of equalization of funding revenue continues to be the center of debate in many states, much progress has been made in this area and policy efforts to address equalization continue. Equalized funding makes up for local shortfalls caused by a small tax base. A system of weighting must be built on an equitable foundation that backfills low tax base districts. Some degree of

equalization is also important as options proliferate and funding becomes more portable. For more than 20 years, states like Washington have made some effort to equalize funding for low tax base districts.⁴

Attaching “weights” to the basic student amount goes a long way toward addressing the problem since funding is based on student need under a weighted student funding (WSF) model. A weighted funding model works by adding funds based on identified student risk factors in order to reflect the higher costs of serving students with those needs.

Factors typically considered include poverty, identified special needs, English-language learner, transiency, at-risk behaviors, prior achievement (including gifted), and vulnerable student populations (homeless, migrant, etc.).

Examples

There are many applications of WSF (also called “fair student funding”) at both the district and state level to act as models for reform in this area.

[Hawaii implemented a WSF](#) formula beginning with the 2006-2007 school year.⁵ Their formula allocates a specific dollar amount for each student enrolled based on “characteristics that impact their learning and achievement.” These characteristics and their weights are determined annually by the Committee on Weights, a group made up of educators (including teachers and school administrators) and community members.

Utah has made recent headlines for Senator Stephenson’s [Weighted Student Funding Bill \(S.B. 110\)](#), which requires school districts to distribute certain revenues to schools in accordance with a WSF formula and gives principals more autonomy to make budgeting decisions at the building level.

In Colorado, a proposed bill seeks to equalize funding across the state’s schools using a detailed formula that includes weighted funding.⁶ [The bill, developed by Senator Mike Johnston](#), includes changes to Colorado’s current funding model such as enrollment-based funding using average daily counts collected four times per year, multi-year averaging of enrollment losses to soften funding cuts, and weighted funding based on numbers of at-risk students and students who are learning English as a non-native language. The proposal would retain district funding for programs such as special education, gifted and talented programs, and transportation. The bill will go into effect for the 2015-2016 school year, although it is dependent on a tax increase up for voter approval this November.

In Georgia, a WSF formula under the Quality Basic Education program funds public schools as well as locally approved and state approved charter schools.⁷ The formula takes into account the number of students enrolled (in “Full-Time Equivalent” units, or 1/6th of a school day), class sizes, the teacher/student ratio, and weights assigned to different FTE categories (such as special education students, gifted and talented students, etc.). Individual schools handle their own local funding.

In March 2010, ERS organized a two-day summit for urban education leaders to explore weighted, student-based funding – resulting in a useful set of resources related to district size, budget, and scope of various weighted student funding systems based on each district’s unique approach. The [case studies](#) provide a useful starting point for leaders interested in making the transition.⁸

[San Francisco’s Unified School District](#) implemented a WSF formula in 2002.⁹ Under this WSF model, the amount is based on the total funds available for the WSF, foundation allocations (equal to salary and benefits for the principal and a clerk), “floor plan funding” (to pay for basic staffing at each school), and a Base Funding Factor adjusted by weighted factors such as grade level, socio-economic status students, special education students, and students learning English as a non-native language. Each school is responsible for developing academic plans, staffing plans, and budgets tailored to their specific needs. The central office is responsible for training, assisting, and monitoring schools. Budget responsibilities, such as equipment, textbooks, and custodial and nutrition staff, are assigned to either individual schools or the central office.

[New York City’s public schools](#) phased in Fair Student Funding (FSF) during the 2007-2008 school year that uses a WSF formula to allocate school funds, but protects schools from receiving less money than they had under the old funding system.¹⁰ Schools in NYC’s Districts 75 and 79 are exempt from the FSF program “due to their highly differentiated instructional models.” Schools use FSF dollars to cover basic instructional needs and are allocated based on the number of students enrolled at that school, weighted by factors such as low income. FSF funds are separate from the Capital Budget Plan that addresses building, maintaining, and equipping schools with “new assets.”

Since fiscal year 2009, Baltimore’s public school principals have, under a FSF system, “controlled the majority of school budgets. In exchange for this flexibility and autonomy, schools are held responsible for student achievement.”¹¹ During the 2014 fiscal year, [Boston’s public schools](#) will be in their third year of WSF (having completed a two-year phased rollout of their WSF system).¹² Funds follow individual students to whatever school they choose to attend, and that school then decides how best to spend the money. Per-pupil funding is weighted based on grade level and class size (lower grades need smaller class sizes), poverty, English-language learners, disabilities, emotional impairment, and vocational students. Schools also receive \$200,000 each to pay for core administrative services.

Weighted Student Funding Example

CATEGORY		ENROLLMENT	WEIGHT	PER PUPIL RATE	BUDGET ALLOCATION (\$ X ENROLLMENT)
GRADE	K0 - K1	48	1.80	\$6,585	\$316,080
	K2	46	1.60	\$5,853	\$269,238
	1 - 2	93	1.40	\$5,121	\$476,253
	3 - 5	88	1.30	\$4,755	\$418,440
POVERTY	% of Free & Reduced Lunch	88.1%			
	# of Free & Reduced Lunch Students	243	0.10	\$366	\$88,938
	# Above the District Average	23	0.10	\$366	\$8,418
ENGLISH LANGUAGE LEARNERS	K0 - 5 ELL Students	153	0.05	\$183	\$27,999
STUDENTS WITH DISABILITIES	Low Severity	19	1.00	\$3,658	\$69,502
	Moderate Severity	10	1.40	\$5,121	\$51,210
	High Severity - Autism	21	4.30	\$15,730	\$330,330
SCHOOL FOUNDATION					\$200,000
TOTAL					\$2,256,408

Adapted from Adams Elementary, Boston Public Schools example featured in Education Week webinar on Weighted Student Funding, available at: <http://www.edweek.org/media/studentweightedfunding.pdf>.

Policy Considerations

Providing funding that reflects the actual needs of each individual student makes sense, but implementation is complicated and can be controversial. Setting appropriate weights for each factor is challenging and may require annual adjustments (and negotiation).

How the weighted funding is allocated to schools is also important. A well-intentioned system collapsed under its own weight in Seattle when site-based decision-making became onerous and weakened accountability.¹³

Weighted funding must be provided with flexibility, as a block of funds and principals should have final authority over distribution.

“School budgets should be transparent and there should be hearings for parents to give their say,” according to EdTrust-West.¹⁴



Flexible

Federal funding and portions of state funding come with programmatic restrictions and reporting requirements (e.g., Title I, ELL, Special Education). Districts often hire specialists to manage the programs, leaving schools responsible for implementing an array of disjointed, inflexible programs. The remainder of school budgets is typically distributed by district as a prescribed staffing model that all schools are required to follow. This combination of input-driven, prescriptive, federal, state, and local programmatic funding creates two problems: it creates systemic inequities and it leaves almost no school-level discretionary budget or flexibility.

Inequities arise from the combination of employment contracts (placement and compensation provisions) and prescriptive staffing models. Differences of 200-300% in the cost per class result from veteran teachers who make more than twice as much as new teachers moving to the suburbs, and taking on smaller, specialized classes like Advanced Placement (AP). A small AP class may cost much more per student than a large freshman algebra class and a low-income school may receive much less in real budget dollars than a school serving affluent families. Research from Marguerite Roza found that, in one example, AP courses came at a cost of \$1,660 per pupil, versus \$739 per pupil for regular core courses.¹⁵ These differences are within a school, but it's not hard to imagine much bigger difference across schools and districts. These differences can swamp WSF mechanisms that attempt to differentiate funding by 10-20%.

An understanding of cost variables is key to flexible and equitable funding. As Roza notes, it is critical to compute actual costs using actual (not average) salaries for each class.¹⁶ This exercise points out differences within and between schools. The unit cost analysis makes the case for budgeting based on actual (not average) costs and ensures the intended impact of weighted funding. It allows schools to make informed decisions about priorities.

Programmatic average-cost funding, in addition to creating systemic inequities, reduces a principal's – or as they are often called, “building manager's” – ability to create a coherent instructional program around an intellectual mission. In addition to funding that reflects the needs of enrolled

students, funding must be flexible enough for schools to make improvements and innovations in delivery – particularly important with the recent evolution of blended learning models.

As piloted in Edmonton, a decentralized district budget provides the maximum flexibility to schools.¹⁷ States could consider weighted school-based budgeting – directly funding schools rather than districts – modeled after the UK reform that shifted from Local Education Authority to schools a decade ago.

Beginning with the Education Reform Act of 1988 under the Thatcher government and then successive governments, especially the Blair administration, the UK devolved education budgets to schools. Former Blair aide Sir Michael Barber said, “By 2004 we were delegating close to 90% of the total budget for schools to schools and delegating to each school a budget for three years (assuming constant student numbers), updated annually. Devolution was largely on a per-student basis with extra funding for schools whose students came from low-income backgrounds.”

The downside to decentralized, school-based budgeting is that low-performing schools may not have the leadership in place to use it effectively. A system of earned autonomy, common in [portfolio districts](#), is a strategy for providing strong supports to schools that need it and providing maximum flexibility to schools that have demonstrated the ability to make good use of it.

Examples

Capable leaders and high-capacity schools make good use of flexible budgets. In the late 1990s, Steve Adamowski piloted a differentiated approach in Cincinnati that awarded flexibility to high-performing schools. Tom Payzant made Boston the best-run urban district in the country with a similar approach.

Building on these lessons, three dozen urban districts joined the CRPE [Portfolio District Network](#). Flexibility is one of the seven design principles:

School leaders should be given as much authority as possible to make the right decisions for their school – choosing who is part of their teaching and administrative teams, and having control over their budget and freedom to buy the services their school needs. In exchange, school leaders must work within their budget and be held accountable for results.

High-performing networks including KIPP and Green Dot schools share common design principles across their respective networks, but each school makes use of maximum budget flexibility. That allowed Mike Kerr, with very low funding at KIPP Empower in Los Angeles, to pioneer a classroom rotation blended learning model that produced impressive learning gains.

Policy Considerations

States and districts can promote equity and flexibility by promoting actual cost accounting and budgeting, and requiring transparent reporting.

A Fordham Institute-sponsored project suggests more significant changes to education governance. Like UK reforms, that could include weighted school-based flexible budgets.¹⁸ Pushing budget responsibility to schools could be accompanied by a shift to performance contracting as the state’s primary accountability system. Each school and provider would operate under a performance contract with a three- to five-year term (depending on services), with funding based on the needs of enrolled students (see [7 Ways States & Districts Can Use Authorizing to Boost Quality & Innovation](#)).



Portable

Students today are presented with a growing number of learning options – from full-time traditional, charter, and/or online schools to part-time, supplemental choices across the spectrum. Many assume that as students opt out of or choose to supplement learning from their traditional classrooms that dollars automatically follow them to the option of their choice. However, many states and districts currently lack a system that allows for portable funds to empower student access to the growing diversity of learning environments. Under a portable system, fractional funding follows the student to full- and part-time options and allows for customized learning pathways for each student according to his/her own needs. Paul Hill notes that portable funding is an essential part of an “innovation-friendly” funding system, since the free movement of dollars is allowed in a way that is currently prohibited, and therefore supporting more unconventional forms of instruction.¹⁹

Currently, both literal geographic barriers and structural policy barriers limit family educational options. As Digital Learning Now! recommends, every students should have access to high-quality full and supplemental online learning with access to multiple providers. While this chapter intends to create a new framework for all students in all kinds of schools, this is an even more pressing issue with the growing trend toward online and blended learning. With

the increased range of online learning options cropping up across the country, there is no logistical or financial reason that every American student does not have access to a college-ready curriculum that includes a full range of AP, IB, STEM, and foreign-language courses.

A “Backpack” of Funding

In [School Finance in the Digital-Learning Era](#), school finance expert Paul Hill describes a portable system where each student would have an account that held information about what educational funding sources were available to him/her and the schools or providers where it had been or could be distributed.²⁰ He called this system a “backpack” of funding that would allow each student to carry their dollars to any eligible school or course provider where he/she enrolls, noting that the contents of the funding backpack would be flexible and not restricted to use with a particular course or service. The “backpack” idea is the ultimate in portability, because it would allow students and their families to “shop for the best combination of courses and experiences their backpack funds could cover.” Students could choose to rely on one school or provider for all of their schooling, or choose multiple sources, with funding distributed accordingly. As Hill explains, “This backpack-based funding would impact existing schools’ budgets immediately, creating incentives for schools to avoid losing students to other educational institutions or instructional providers.”

Examples

There are examples from state policy that can help guide policymakers to liberate funds in order to make them more portable.

One of the most exciting recent examples is Louisiana – as highlighted in [Digital Learning Now!’s 2012 Digital Learning Report Cards. Louisiana’s Course Choice](#) program will allow public school students to take classes from a variety of providers beginning with the 2013-2014 school year.²¹ As the DLN Report Card notes, with the Course Choice program, “students can browse and enroll in courses using a state-managed catalog of more than 1,500 courses. It is hoped that this will grow into a ‘marketplace of course options’ that allows students to compare courses based on results, student surveys, and other data points.”²² According to the program’s website, “Students can earn high school and college credits through Course Choice, obtain industry-based certifications, and gain relevant, real-life work experience. Approved course providers include five public school districts, every public college and university in Louisiana, Louisiana-based course providers, and virtual schools.” Students can enroll in any Course Choice class at no cost if they attend a public school rated C, D, or

F, or if their A- or B-rated school does not offer the class they want (such as AP courses or robotics). However, funding for Course Choice is currently uncertain. A State District Judge ruled that the program's funding model (in which public education funding followed individual student by way of vouchers) was unconstitutional, and the case is being appealed.

Utah established a Statewide Online Education Program in 2011, which allows public school students in grades 9-12 to earn credits towards their high school graduation through online courses.³³ Funding for the courses comes from the ordinary per-pupil funding that flows to a student's school district. When that student completes portions of their coursework, corresponding portions of their per-pupil funding are diverted to the district of the online course provider (which may be another Utah school district or charter school). Final payment to the provider is based upon successful completion of the course, or credit earned as defined for all public schools by Utah State Board Rule. Prices for online courses are tiered, with core subjects costing more than non-core subjects. The program allows home-schooled and private-school students through an appropriation of the legislature to participate in the program in year three, being the fall of 2013.

Policy Considerations

Portability is a natural outgrowth of a student-centered funding system, since it is a necessary ingredient in a system that ties funds to student outcomes and not programs. To protect flexibility and portability, federal and state policies should not dictate particular uses of funds or prioritize some student options over others. Funding should not be restricted by programs or designated for particular uses, like salaries, that follow students to the best school or course. This is a core tenant of a system where dollars are unlocked and attached to students.

Policies that support flexibility and portability are particularly important when considering trends toward online, blended, and competency-based learning. For students who are supplementing traditional courses with online learning, funding must follow them to the course level. The same is true for students who are moving at different rates through content and courses.

Currently, both literal geographic barriers and structural policy barriers limit family educational options. As Digital Learning Now! recommends, every students should have access to high-quality full and supplemental online learning with access to multiple providers. While this chapter intends to create a new framework for all students in all kinds of schools, this is an even more pressing issue with the growing trend toward online and blended learning. With the increased range of online learning options cropping up across the country, there is no logistical or financial reason that every American student does not have access to a college-ready curriculum that includes a full range of AP, IB, STEM, and foreign-language courses.



Performance-Based

As the CPRE report suggests, today's finance system is oriented around compliance and institutional needs, rather than around outcomes and the needs of students. The innate disconnect between resources and results is perhaps the most troubling of the deep-seeded flaws in the current patchwork system. To ameliorate this problem, it's necessary to move to a performance-based system that provides incentives for completion and achievement, opens doors to innovation and new models of teaching and learning, and avoids unintended consequences common in current funding models. Stanford's Eric Hanushek recommends a "performance-based funding" system that includes strong accountability, local decision-making, and directly rewarding performance.²⁴

Tying performance to funding and eligibility for continued operation is an essential element in ensuring quality as the field of educational providers expands. This becomes even more important when students have choice down to the course level. The key principle of a performance-based system is that providers retain eligibility based on performance.

Examples

A few key states are making headway with funding structures that incentivize performance. Florida Virtual School (FLVS) supports around 400,000 course enrollments annually and receives funding based on successful completions.²⁵ Similarly, Utah online learning providers receive half of their funding from the state upon successful course completion. Louisiana pays online providers 50% of the tuition when a student enrolls and the rest when the student completes the course. If the student finishes late, the provider is penalized 10% of the total.

It's important to note here that such a large amount withheld can create the unintended consequence of creating a barrier to entry for new providers and cash-strapped districts that cannot afford to float a semester of working capital. These 'half up-front, half on completion' policies may work for part-time online learning but are not generalizable to the entire K-12 system. However, making a small component, say 5%, contingent on successful completion may be

enough to avoid push-out incentives and reward success. A small performance contingency is simply an extension of funding on daily attendance rather than a beginning-of-the-year count.

Governor Pence of Indiana has recommended performance-based funding in his 2014-2014 fiscal year budget.²⁶ Pence's proposal recommends a 1% funding increase for public K-12 schools over the next two years, with the 1% increase during the second year based on performance-related factors such as "school quality, graduation rate, and third grade reading assessment." The proposal also recommends increasing pay for high-performing teachers by adding \$6 million to teacher excellence grants.

Under a proposed plan, Arizona school districts and charter schools would be eligible for performance funding based on achievement and improvement.²⁷ Each component would be measured on a 200-point scale based on the A-F letter grades used by districts and charter schools already. All schools and districts earning a letter grade of C or higher would qualify for achievement funding, while only those that improve on their previous year's score would receive improvement funding. The maximum amount of performance funding per student would be \$500 for achievement and \$500 for improvement. In the first year, the amount would be capped at 20% of the total minus reallocated funds, for a maximum of about \$180 per student. Craig Barrett, chairman of the Arizona Ready Education Council and former retired CEO/Chairman for Intel Corp, called the performance funding model a pretty symbolic effort as a start for reform.

A key component of Florida's formula for improve student achievement was a performance component under the state's A-F grading system.²⁸ The state gives cash awards to schools that earn an A grade or improve a letter grade, such as going from a C to a B. The state awards these bonuses, \$100 per student, directly to schools and the majority of funds are used to provide bonuses to teachers and staff.

There are also examples from higher education worth mentioning. In 2010, Tennessee implemented an aggressive performance-based funding model that controls 100% of state funding for higher education. Tennessee's formula allocates funds based on a series of outcomes related to student persistence and graduation, weighted for low-income and adult students. The formula also considers institutional mission, recognizing that outcomes will look different for a community college than a four-year research university.²⁹

In 2012, Western Governors University and McGraw-Hill Education announced a "pay for performance" agreement that tied McGraw-Hill's payments for their educational content to the performance outcome of WGU students using that content. McGraw-Hill Education will provide WGU with e-books and adaptive learning tools for a significantly discounted flat fee, and

will receive a premium for each students who uses the materials and earns a “B” or higher. The partnership is expected to reduce costs and improve accountability for student success.³⁰

Policy Considerations

Authorizing and contracting: states and districts should make more extensive use of performance contracting for services. They can, in effect, buy a set of desired outcomes for a stated price and set of terms.³¹ Examples of services with specified outcome include:

- Speech therapy services and other special needs services;
- English-language learning and foreign-language instruction;
- Online AP courses in hard-to-staff subjects and limited-enrollment courses;
- Dropout recovery/prevention academies; and
- School turnaround services.

New America Foundation, in a 2012 report, [illustrated how six states](#) make extensive use of performance contracting in higher education.

Removal of current mechanisms: Eliminate unintended consequences of October-count-day funding (Colorado & Ohio), which creates a perverse incentive to push out more challenging students.

Balance incentives and disincentives: DLN recommends that a portion of funding can be withheld to incentivize completion, with as little as 5% contingent upon achievement and completion.

Accountability system ties: DLN also recommends performance-based accountability. Low-performing providers and districts should lose the right to ongoing state funding.

For more information, see [Exhibit: Policy Development FAQs](#).

RECOMMENDATIONS

In a [recent analysis of school finance reform in Ohio](#), Paul Hill identified four criteria for evaluating school finance systems.³² The four-part schematic he described is a useful framework to guide policymakers and educational leaders as they redesign school finance around “the one element of the education system to which [states] should be unconditionally committed – students.”³³

Along the vertical axis, each system can be evaluated – from a rigid system that funds mandates to a flexible system that funds students. The horizontal axis represents a continuum from a system that supports standardization to one that supports innovation and experimentation. Most school finance systems sit firmly in the quadrant marked by standardization and rigidity, whereas state systems need to get to the opposite quadrant where the system prizes flexibility and innovation.

Hill is wise to observe that funding is a great deterrent to innovation. In fact, of all the policy barriers that block student access to educational innovations which can personalize learning, improve outcomes, and prepare more college- and career-ready graduates, funding is the most problematic.

Unfortunately, the school finance structures that stifle access to these innovations often do not get the attention they deserve. It's a messy and complicated problem, but one that needs an unprecedented investment of effort in order to reinvent the system. The opportunity now exists to tackle this problem head-on. The first step to eliminating the massive barrier that currently stands between students and equitable access to a diverse set of high-quality options is reorganizing funding around students, rather than institutions.

In 2006, the Fordham Institute released [Fund the Child: Tackling Inequity and Antiquity in School Finance](#). The landmark report ended with 10 recommendations that serve as a useful framework for guiding states, districts, and policymakers through school finance redesign.³⁴ We believe these recommendations serve as a great starting point for states that are considering ways to unlock dollars and attach them to students through a weighted, flexible and performance-based system. There are additional recommendations to consider.

State and district collaboration: District leaders shouldn't wait for the state to get there; they can restructure funds around students and student types. In fact, in strained financial times, some states are already lumping together some grants and categorical funds to make more flexible, student-based allocations that provide the required flexibility to harness new delivery models, including digital learning. States also play an important role in helping to resolve district-to-school level issues. For example, states could encourage districts to post actual expenditures to schools by line item in order to ensure allocation of funds in the form of real dollars (in accordance with Fordham's recommendations).

Innovation vs. imposition: Imposing a centrally-mandated, controversial agenda doesn't work well, e.g., IN and ID. Moving forward, states should find ways to unlock the system to allow those who are ready to go further, faster, to do so.

10 Recommendations to "Fund the Child" from the Fordham Institute

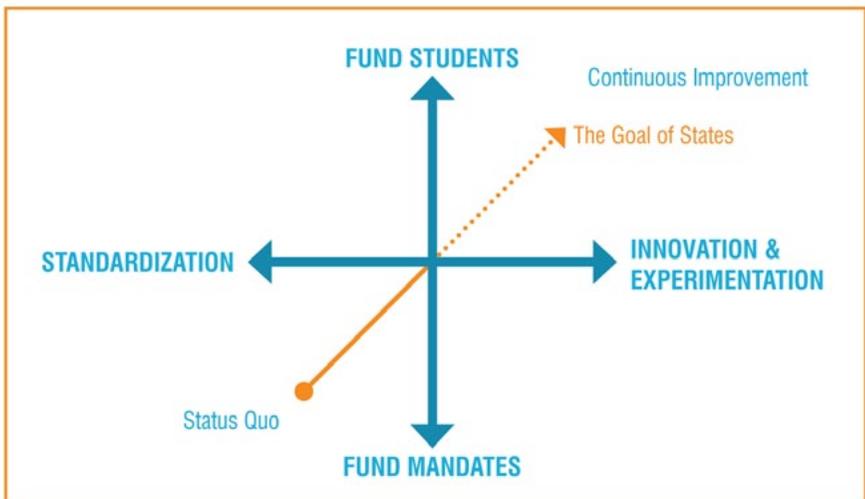
- The vast bulk of funds should follow students based on a system of weights that takes into account the students' educational needs. States should retain centrally only those funds required for essential oversight and investments (such as research and development) that are best handled at the state level;
- States should substantially increase their role in providing school funding to as high a level as possible, keeping in mind state constitutional and political circumstances;
- Districts should allocate state and federal funds according to WSF principles and pass as much of this funding as possible to schools in the form of real dollars (rather than staff allocations or other program-based approaches). Districts should give schools wide budgetary autonomy, and agreements that hinder important areas of school autonomy - such as senior teacher "bumping rights" - should be amended to ensure that schools can direct funds as needed;
- States should present districts with powerful incentives to allocate locally-generated funds according to WSF principles; for example, by using state funds as an incentive;
- States should ensure that public charter schools and other comparable options receive full funding on par with traditional school districts; schools authorized by bodies other than districts should be financed by the state directly, with 100% of the operating dollars provided to districts as well as capital funding;
- States and districts should develop systems that pump out copious, clear, and intelligible information about how funding is being distributed and spent at all levels of the system;
- Districts should limit central spending to essential oversight, services, and research and development investments (such as curriculum design). Schools should be allowed to purchase services (such as food service) elsewhere unless benefits such as economies of scale clearly outweigh the loss of school-level control;
- Federal law should require true equity, based on real salary cost (not average salaries), as a condition for federal funds eligibility. Federal policymakers should make funding contingent upon states and districts following basic principles of WSF;

- Federal funding allocation formulas that favor wealthier states should be amended. The process of calculating per-student Title I allocations among states should be changed so states receive more money if they have low wealth, more money if they have high poverty, and more money for high spending “effort;” and
- Federal policymakers should continue to streamline federal funding to allow school autonomy by minimizing strings attached to funding and allowing schools to combine dollar streams in ways that support their education programs. Schools should be held accountable primarily for outcomes.

(Source: [Fund the Child: Tackling Inequity & Antiquity in School Finance](#), by Thomas B. Fordham Institute.)

For more information, see [Exhibit: It’s Time to Separate Facilities from Operations](#).

Evaluating School Finance Systems



Graphic adapted from: Hill, P. [Steps in the Right Direction: Assessing 'Ohio Achievement Everywhere'— the Kasich Plan](#), Thomas B. Fordham Institute, March 2013."

CONCLUSION

Today's school finance system is fraught with problems that create barriers between students and universal access to high-quality, diverse learning opportunities. Chief among them is the disconnection between spending and learning that is built into our current finance system. In order to break this connection and reorient the system around student needs, the system needs a full reset; not simply another tweak.

Many of the solutions laid out in this chapter are not new. The design principles have been tested in policy and in practice on both the state and district level. What's needed now is a commitment from leaders across federal, state, and local levels to commit to these principles in designing new systems with students at the core.

States and districts today are facing an acute financial problem and they are looking for solutions. Those previously content with layering on patches are now ready to engage in full system redesign as they face the economic realities of today's "new normal."

Fueled by a wave of educational innovation, evidenced by a growing pool of students who are choosing from a diverse slate of learning options and schools that are shifting to new forms of teaching and learning to better address college and career-ready standards, school finance redesign matters now more than ever.

Paul Hill notes that, "A funding system can't cause innovation: It can only interfere with it or let it happen."⁸ However, if states and districts followed the design principles contained herein, this might cease to be the case. A student-centered system – founded on principles of weighed, portable, flexible, and performance-based funding – would go a long way towards ensuring universal student access to innovations in teaching and learning that we are only just beginning to discover.

The entire [Digital Learning Now! Smart Series](#) is available online. This specific chapter has been modified from the original [Smart Series whitepaper](#) and its [Executive Summary](#). Also available is the "Financing the Future of Education" infographic, ([PDF format](#) or [JPG format](#)), relevant to both the whitepaper and this chapter.

EXHIBITS

Exhibit: It's Time to Separate Facilities from Operations

In School Finance in the Digital-Learning Era, school finance expert Paul Hill describes a portable system.³⁶

The way we build, manage, and maintain public school buildings is inefficient and exacerbates some of the biggest challenges in public education. With the recent growth of the public charter school sector, the rise of tech-infused learning models, and the migration of student populations across options and geographies, it's time for us to rethink the relationship between learning programs and public facilities. It's time to decouple the delivery and the ownership of school buildings.

School districts are usually granted two special powers by their state constitution: the right to grant diplomas and the right to levy taxes. Most districts run an annual operating levy that (in most states) augments state funding. Districts periodically propose a tax to build and remodel schools.

There are some old problems with this way of provisioning facilities. Most high poverty communities have limited ability to adequately fund schools. Most districts can only occasionally raise long-term funds and have no reliable way to pay for maintenance and short-term assets like computers.

There are some new problems with the way we provision schools. There are more than 6,000 charter schools nationwide and most of them don't have access to local funding or public facilities. In most urban areas, charters are treated with hostility and can't even access unused or underutilized existing district facilities. The combination results in a huge waste of public facilities and resources. There is a new digital layer of opportunity with expanded full- and part-time online opportunity, and an emerging range of blended models requires a different kind of facility; one that has big, open, flexible spaces (see the [10 design principles of blended learning](#)).

It's time for a new solution. Districts should be required or encouraged to move facilities into a public trust or sell them to a Real Estate Investment Trust (REIT) and lease them back at attractive rates. The trust would ensure that facilities were upgraded, efficient, and available to all public providers. A more flexible provisioning mechanism would benefit the creation of new smaller schools – several of which may share athletic and extra-curricular facilities.

In addition to (weighted, portable, performance-based) operating funding, states should add about 10% for facilities and fixed assets (e.g., \$50 on top of \$500 for a semester credit). The additional funding would allow any authorized school or provider to lease facilities and buy equipment. A small increase in state tax (perhaps a blend of revenues) would be offset by the reduction in local facilities tax.

The basic inequity of locally provisioned facilities and the growing number and type of educational providers suggests that it's time for a new solution. It is time to separate service provision from facilities development and management.

Exhibit: Policy Development FAQs

How do we avoid creating disincentives for student acceleration?

Pay for units of learning, not for periods of time.

How do we promote attendance and persistence?

Reimburse schools on actual daily attendance rather than beginning-of-the-year counts.

How do we promote achievement and completion?

Withhold 5% of funding and make it contingent on achieving standards.

What about students who take more time?

Weighted funding should provide enough additional resources that it supports additional time for students with multiple risk factors.

How can we afford students taking on more than what is considered a full load?

States should contribute funding for students who request more than what is typically considered a full load if the student is on an accelerated diploma pathway because the state will save money when the student graduates early.

How can schools make annual commitments if enrollment could fluctuate?

Options are usually phased in, allowing schools and districts some time to adjust to fluctuating enrollments.

Schools and districts will need to be proactive about developing and marketing options to students and families.

Districts may need to keep slightly higher reserve funds.

What about students and families that make bad and late choices?

Parents and students should attend an in-person meeting before enrolling in a school or program.

Parents and students should pick a school/provider to provide transcript management, guidance, student supports, and access to extra-curricular activities. These services could be allocated about 10% of the total student funding.

Rolling enrollments, featured by Florida Virtual School, would help reduce late enrollments.

What about students who transfer in the middle of courses?

Some funding should be provided to schools/providers up-front based on initial enrollment. Monthly progress payments (based on reported progress) would match revenue with instructional cost.

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Online Learning: Myths, Reality & Promise

by John Bailey, Susan Patrick, Carri Schneider, and Tom Vander Ark

INTRODUCTION

In 2006, the North American Council for Online Learning (NACOL) published [The Top Ten Myths about Virtual Schools](#). Seven years later, NACOL has evolved into the International Association for K–12 Online Learning (iNACOL) reflecting the rapidly growing interest in online learning from around the world. Unfortunately, despite growing acceptance of online and blended learning across both K–12 and higher education, many of the same myths persist despite evidence to the contrary.

MYTH: *Online learning is a small, and completely distinct, alternative to traditional education - students who attend online schools do not attend traditional schools.*

REALITY: *Distance learning, including online learning, has always been a means by which to enhance traditional education. According to the U.S. Department of Education, a majority of school districts currently have students taking classes using distance learning technologies.¹ Nearly 96 percent of all high schools indicate they have students enrolled in a distance education class. And far from restricting these opportunities, nearly 75 percent of these districts plan to expand the number of courses offered to their students.²*

Online learning models build on a long legacy of distance learning technologies. The late Senator Edward Kennedy sponsored the Star Schools Program Assistance Act in 1987 that was signed into law by President Reagan to develop multi-state partnerships for exchanging courses in math, science and foreign languages. School districts also leveraged interactive video teleconferencing units to share teachers and to expand course offerings.

These models could only scale a handful of courses to a limited number of students because the courses were expensive to produce and distribution was expensive due to high-priced telecommunications lines needed for

videoconferencing or time rented from satellite companies. The Internet has dramatically lowered the costs not just for building courses but also for distributing them. As a result, the number of providers has grown exponentially and includes specialized private providers to university systems to school districts to nonprofits. The converging of lower cost technologies to access courses and an explosion of diverse providers means schools will be able to leverage online learning as a way to offer students alternatives, expand course offerings and improve student performance.

Last school year, millions of U.S. K–12 students benefited from online courses — some full time, some part time — offered in school districts and charter schools in all 50 states. Elementary students will likely take some of their secondary and post-secondary courses online. Most teachers will learn online as part of their preparation and professional development.

Online learning is a maturing strategy to provide education options to students and families, improve working conditions and career options for educators and make schools more productive.³

According to [Keeping Pace](#), an annual report on the sector:

Online learning is teacher-led education that takes place over the Internet, with the teacher and student separated geographically, using a web-based educational delivery system that includes software to provide a structured learning environment. It may be synchronous (communication in which participants interact in real time, such as online video) or asynchronous (communication separated by time, such as email or online discussion forums). It may be accessed from multiple settings (in school and/or out of school buildings).

Online learning schools, sometimes called virtual or cyber schools, may offer full- and part-time enrollment depending on state policies. Most school districts report that they are offering or planning to offer online learning options.⁴

Blended learning refers to efforts that incorporate the benefits of online learning into a physical setting. It includes an intentional shift for a portion of the day to an online setting to improve teaching and learning. Digital learning typically refers to both online and blended learning.

Last year, one third of all college students took at least some of their courses online.⁵ With the explosion of massively open online courses (MOOCs) in 2012, postsecondary participation in online learning is likely to accelerate.

Drivers of Online Learning:

Schools and students are embracing online learning due to numerous reasons:

- *Expanding the range of courses available to students beyond what a school or district can offer;*
- *Expanding access to highly effective teachers, particularly in high-need subjects such as math and science;*
- *Affording opportunities for at-risk students, elite athletes and performers, dropouts, migrant youth, pregnant or incarcerated students and students who are homebound due to illness or injury, allowing them to continue their studies outside the classroom;*
- *Providing credit recovery programs for students who have failed courses and/or dropped out of school, allowing them to get back on track to graduate;*
- *Providing continuity of education for highly mobile student populations such as migrant youth; and*
- *Reducing scheduling conflicts by providing more flexible options.*

Why Online Learning Matters

American schools are early in the shift to personal digital learning — a transition that holds the promise of personalized learning, competency-based environments and improved college and career readiness.

Stakeholders across the system are busy implementing Common Core State Standards (CCSS), preparing for the next generation of assessments, seeking ways to improve efficiency and productivity through the thoughtful implementation of technology, extending student access to high-quality learning opportunities and reimagining the teaching profession to serve today's learners. Online learning has the potential to aid school, district, state and national leaders to take on these challenges.

The following are 20 reasons online learning matters:

- Reaches students where, when and how they learn.
- Creates opportunity for quality, personalized learning at scale.⁸
- Removes geographic and budgetary barriers to increasing equity by expanding access to the best available teachers and courses.
- Empowers teachers, students and parents with the choice to teach and learn in the right environment for them.
- Allows students to learn using the same tools they must master to succeed in today's modern workforce in which more and more training is delivered online.
- Levels the playing field so that all children, regardless of where they live, are able to receive the world-class education they deserve.

- Makes it possible to assess students on competency-based mastery of content whenever they are ready to progress versus time-based progress.
- Provides essential data so that states, schools, teachers, students and parents can know where students are — and where they need to be — along the learning path, allowing for trajectory mapping and course correction before problems arise.
- Gives more students access to rigorous college preparatory courses and expands access to college credit options including dual enrollment and every Advanced Placement course.
- Boosts access to a broad array of foreign languages and electives.
- Generates opportunities for innovations in learning platforms, assessments and data to better serve the right content to the right student at the right time.⁹
- Leads to employment alternatives for teachers who are seeking more flexibility or a different role.¹⁰
- Extends the reach of great teachers.¹¹
- Enhances great teaching with continually updated tools and content.
- Improves sustainability of rural schools.¹²
- Has the potential to reduce dropout rates. Sometimes, online courses are the only way for young people with difficult life circumstances to complete high school.
- Enriched online programs with onsite support systems and blended formats offer personalized competency-based learning with strong supports.¹³
- Reduces facilities demands.¹⁴
- Allows for bottom-up adoption of digital content and tech tools by teachers who best know their classroom needs.
- Creates an opportunity to reimagine the very nature of teaching and learning to better serve the needs of all students.

MYTHS

The first online schools were launched in the United States in the mid 1990s. The number grew over the last decade through the expansion of full-time virtual charter schools and school districts experimenting with how to best incorporate online programs. However, online learning options available to most American students continue to face inaccurate and outdated perceptions. The following three sections expose and address myths associated with online learners, teaching and learning, and system and policies.

Myths About Students

MYTH: Online learning is only for motivated and well-supported, tech-savvy students.

There is no typical profile of online learners. For some, it is the best option. For students with chronic health conditions that make attending a physical school difficult, it provides improved educational options. For families that move frequently, it can provide a stable education placement. For many, online learning is the only alternative to a failure experienced in a traditional school setting. Online learning also offers a personalized pathway with more choices for students who feel disengaged in a traditional setting.

A recent report indicated that a significant portion of the new population accessing their online learning platform is high-poverty, high-mobility, over-aged and under-credited students.¹⁵ Some schools are using online learning to engage at-risk student populations. For example, Tucson, Arizona mayor collaborated with Sunnyside Unified School District to create a new initiative using online courses for students who have dropped out of school as an opportunity to return to high school and graduate.¹⁶

MYTH: Online learning is only for high school and college students.

According to Keeping Pace, in the 2012–13 school year, more than 275,000 students were enrolled in full-time online learning schools in grades K–12. In its state-level snapshot on online learning activity, the report shows availability of online learning options to students of all grade levels for both supplemental and full-time courses. Florida and Minnesota stand out as the states with the most supplemental access for elementary students in grades K–5. Middle school students have supplemental access in over half of the country. Full-time access for elementary and middle school students is available in approximately 30 states.¹⁷

As one elementary online teacher said, “For every student, there is a different reason — behavior issues, health conditions or students who are just a little different — but they come alive in this program, and it is a godsend for these families.”¹⁸ Florida Virtual School and Connections Academy formed a partnership to serve students in K–12 with a full curriculum of Common Core State Standards aligned courses. Based on the most recent parent survey, 95 percent of parents agree that the curriculum is high quality; 94 percent of parents agree their children are satisfied, 92 percent of parents would recommend it and 93 percent of parents agree that technology tools improve their child’s learning experience.¹⁹

Furthermore, a growing number of elementary and middle schools are providing blended learning for their students.

MYTH: Online learning can't serve students unless they have constant parent supervision and support.

Online learning can occur from home under parental supervision or from schools or satellite learning centers under staff supervision. It may also be accessed from a classroom, with close teacher supervision, as part of blended learning. High-quality online programs provide personalized instructional support for students. Because high-quality online learning allows for greater student input and choice, students also master an important real-life competency — taking ownership of their learning. As students mature, they are expected to work more autonomously and take more ownership of their own learning. In secondary school, high-quality online providers offer an array of student supports from tutors to guidance counselors to help students complete courses. Often, students have access to their teachers for real-time conversations over the phone or through instant messaging. Technical help desks provide 24-7 help to resolve technology issues.

A new generation of technology platforms is also enhancing student support. For example, [Khan Academy](#) provides coaches, parents and teachers with unprecedented visibility into their students' data. The system helps identify where students are struggling so teachers can proactively reach out to the students who need the most help. Some online learning is focused only on student support. Many programs add on-demand, just-in-time tutoring, such as [Tutor.com](#), to help students stay on track by giving them access to expert tutors whenever they need them.

MYTH: Online learners work in isolation.

Most students say they know their teachers better and report higher levels of personalized attention than they would receive in a traditional classroom.²⁰

High-quality online learning programs can provide a higher degree of interaction and personalization than can a traditional setting in which one teacher must simultaneously provide for the instructional needs of an entire classroom of students.

Students typically have more one-on-one interactions with their teachers and fellow students in online courses, especially when team projects are assigned. Teachers report getting to know their students better, and students who are shy or do not think well “on their feet” tend to contribute more in online environments.²¹

FLVS' live learning sessions allow students to interact with teachers and with their peers. “The Hub” is a resource for students to meet with advisers.²²

MYTH: Online learners have little social interaction.

Today, many high-quality online learning providers utilize social learning, video conferencing and collaborative projects.²³

Interaction is not limited to online. The students who form friendships in real-time online classroom sessions, virtual study groups, clubs, and online activities often meet outside of school.²⁴ Online students maintain meaningful social connections; some are in book clubs, some have “pen pals,” and some participate in community sports and clubs.²⁵ FLVS, for example, offers 19 online clubs, including an honors society, as well as 14 clubs in the full-time online program designed specifically for students in grades K–5.²⁶

Full-time online learners are often active in community-based extracurricular activities. In some states, students are able to participate in extracurricular activities at their local school. Students often engage actively both online and off as they complete assignments and socialize with other students and adults in their schools, at home and in the community.²⁷

Myths About Online Teaching And Learning

MYTH: Online learning is about technology not teaching.

Like traditional schools, teachers drive the quality of online instruction. Most providers offer a significant amount of synchronous instruction. Instructors can be proactive, reach in and identify what kids need, determine who is disengaged and follow best practices to engage them.

MYTH: Online learning is easier.

Just as in the traditional classroom instruction, quality and rigor in online learning will vary based on the teacher and the curriculum. Many students say that online courses are more rigorous because students cannot hide in the back of the class and because demonstrating mastery through work and engagement in discussions is required. Virtual charter schools are typically required to submit their curriculum for review and, like all public online schools and course offerings, demonstrate alignment with state standards. High-quality programs require active student participation and operate in settings under supervision of state-certified teachers, require students take state assessment tests, have attendance policies and have competency-based academic progress requirements in effect.²⁸

MYTH: Students don't receive as much attention because online learning class sizes are larger.

Because online learning is not bound by traditional school schedules and bell schedules, there are more opportunities for students and teachers to interact with each other as needed throughout the day. Students can email or text their teacher at any time to receive one-to-one help and additional instruction. Now

more than ever, advanced technology platforms are helping to serve just the right content to each student. As a result, teachers have more time to spend with students who are struggling or who need some extra assistance. In other words, students actually can receive more attention in online learning courses.²⁹

MYTH: Students spend all of their time on a computer.

In many models, students have plenty of off-line activities. While there is a range depending on the model, some start young students with less than 20 percent of their time on the computer.³⁰ For elementary students, some providers send each learning coach a 100-pound shipment of books, worksheets, training videos, and science materials at the beginning of the year that are used as part of the course.

MYTH: The NCAA won't accept online learning credits.

Just as in traditional school settings, quality of courses and instruction can vary. Quality assurance processes such as the NCAA High School Review Committee's shine a light on this variance. The NCAA allows online courses for high school athletes to be eligible for college as long as they are college preparatory in nature for core courses and exhibit clear characteristics in which the nature of instruction, assessment and interaction (with evidence) are all college preparatory.³¹

MYTH: The military won't accept graduates from online schools.

The FY2012 National Defense Authorization Act (NDAA) requires that any student who receives a diploma from a legally operating secondary school or otherwise completes a program of secondary education in compliance with the education laws of the state in which the person resides, including graduates of online schools, are given the same opportunity to enlist in the U.S. Armed Forces as are students who graduate from brick-and-mortar high schools.³²

Letters to Salman Khan.

These three excerpts from appreciation letters to the creator of Khan Academy show the power of online learning experiences from the student and parent perspective.³³

Student:

"I was always a strong student when it came to math. Making good grades really wasn't a challenge; however, when I entered high school, I failed a couple of tests and lost all my confidence in my abilities to learn. I basically gave up. For a while, I was failing, which is completely unlike me. At the start of second semester, though, I began watching your videos every day and brought my grades up with your help! Now I have a solid A in calculus, and I am at the top of my class again. When my teacher asked how I did it, I

said, “It was really simple. Khan Academy videos helped me learn. I didn’t memorize anything; I honestly just understand now.” Thank you so much Khan Academy. You have really made learning a joy for me again!”

Parent:

“I am the parent of a high-functioning autistic child. The available services at my son’s school could not reach him. He cannot learn in a large group setting, and the small group learning available was way below his skill level. This left him feeling stupid and discouraged. It makes me wonder how many kids are like him. With Khan Academy, his math skills are blossoming, but more importantly, his confidence in his academic abilities is growing by leaps and bounds.”

Student:

“I always wished that I could ‘rewind my teacher’ in class like I am able to do in online learning videos. I love science, but when it comes to math, my brain totally shuts down and goes into ‘sleep mode.’ I am in fifth grade. I have a wonderful teacher, but the information just comes out too fast. Khan Academy has opened a door for me that was almost permanently closed.”

From more information, see [Salman Khan’s TED 2011 Talk video](#).

Myths About Systems And Policies

MYTH: Online schools skim the easiest-to-serve kids.

Most states have enrollment laws that prohibit skimming of the highest-achieving students. Charter school laws in particular require schools to use a lottery if interest exceeds open-enrollment slots. Online learning attracts a range of students — some who are gifted who are seeking to take more advanced subjects and some who have struggled in a traditional setting and are seeking the flexibility and individual attention online learning offers.

MYTH: Online learning is a lot cheaper than brick-and-mortar schools are.

While it is true that online programs do not have some of the same costs associated with physical buildings and transportation, there are other costs that traditional schools do not have. The hardware, online services, and the growing sophistication of technology platforms to deliver courses and content all entail significant costs. In addition, many online programs maintain student-teacher ratios similar to the ratios of traditional schools. For these programs, as with physical schools, a major cost is in teachers and other personnel, and these costs increase in a linear fashion with the increase in the number of students.³⁴

There is also some evidence that online learning can increase productivity — meaning that for the same costs, the same outcomes can be achieved only faster. In some cases, face-to-face instruction can even be cost prohibitive. This is the case in instances in which there is low demand for a course and a district can't justify hiring a teacher to serve a small number of students. In this example, the district could save money by accessing an online course instead.

MYTH: There is no evidence that online learning works.

Online learning models are just like traditional schools — there are effective ones and ineffective ones. As noted in *Keeping Pace*, “Online and blended learning can result in better student outcomes if implemented well, or flat/negative outcomes if implemented poorly.”³⁵

There are 10 years of data to suggest that online learning is effective in secondary and post secondary learning.³⁶ There is ample evidence that builds a compelling case for why online learning is a viable option for many students. For example, the U.S. Department of Education conducted a meta-analysis of evidence-based studies of primarily postsecondary online learning programs and found that “students who took all or part of their class online performed better, on average, than those taking the same course through traditional face-to-face instruction.”³⁷

A randomized controlled study, the “gold standard” of evaluation design that meets the department’s “What Works Clearinghouse” standards, found that students attending high schools that offered a specific online Algebra I course scored higher on the assessment than did those enrolled in a traditional class.³⁸ Even more impressive is that the study also found positive effects on future advanced mathematics course taking: In schools that offered the online Algebra I course, 51 percent of the eligible students went on to participate in an advanced mathematics course sequence by 10th grade, compared with 26 percent of eligible students in control schools.³⁹

As a part of their ongoing efforts for continual improvement, many school districts and charter organizations track student progress in online environments as a metric for the model’s success. Championed blended learning success stories like Rocketship Education, Carpe Diem, School of One, and KIPP Empower show that online learning can yield student achievement results that outpace student peers in traditional settings.⁴⁰ In a recent study, the University of Arkansas evaluated the Arkansas Virtual Academy and found that students attending the online public charter school perform well compared with similar students in other public schools.⁴¹ In Florida, End of Course (EOC) exams are used to evaluate student mastery. Data from FLVS show that part-time FLVS students outperformed the state average by 15 percent in the Achievement Levels 3, 4, and 5 for Algebra I.⁴²

As district adoption of online learning continues to grow, so too does the evidence that online learning offers a way to extend student access to high-quality opportunities.

MYTH: There is no accountability for private vendors.

Online schools are held to the same levels of accountability as traditional schools are. In many states, providers are held to higher standards through performance-based pay. They are only paid the full amount per student once students successfully complete a course — a standard that no traditional school is currently held to, although many school funding experts believe they should be. In addition, online schools that are charters have the ultimate accountability mechanism — they can be shut down just as any poor performing charter school can. School districts or nonprofit charter holders can provide online learning. Both often contract with private providers — both nonprofit and for-profit — for content and instruction. The double accountability of a contract and a charter typically provides significantly more oversight than is present for traditional schools. Providers no matter if they are private, non-profit, or other school districts should be held to high quality standards. If they don't perform, they should not have the continued right to serve students.

MYTH: Online schools don't have to meet the same standards "regular" schools do.

Online schools comply with all the same federal and state laws traditional schools do. They often require additional state oversight including content and course approval. Virtual charters are open to all students by lottery.

REALITY

Clearly, a fair amount of myth busting remains necessary to more accurately capture the reality of online learning for students, teachers and the system as a whole. However, just setting the record straight by shattering the most common myths isn't enough. We must also acknowledge the realities as told by the students, teachers, providers and other stakeholders. In doing so, we can determine the strengths within the current online learning ecosystem, begin to identify the challenges that present opportunities for widespread improvement and chart a course for realizing the promise of online learning.

The Reality For Students

In November 2011, the U.S. Department of Education's National Center for Education Statistics (NCES) reported that just over half of districts nationwide (55 percent) had students enrolled in distance education courses in the 2010–2011 school year.⁴³ The most recent report on student access to online learning is the "Keeping Pace with K–12 Online Learning" report that provides a comprehensive annual picture of the current state of access.⁴⁴ According to

“Keeping Pace,” the number of K–12 students currently enrolled across various online education programs is unknown, but estimates are that 5 percent of the total K–12 student population — several million students — is currently enrolled in at least one online course. About 275,000 of these are students attending full-time online schools. While individual schools collect demographic information, such as number of minority or low-income students served, there is no nation-wide source for such data. As of fall 2012, state virtual schools (such as FLVS) existed in 27 states. Thirty-one states plus Washington, D.C. had at least one full-time online school operating statewide. However, the availability of supplemental online courses across states varies, with states offering courses to some or all students in certain grades. No state currently offers supplemental online courses to all students at all grade levels, although Florida’s state law calls for a full range of supplemental and full-time online options to be available to all K–12 students. The report’s “State-level Snapshot of Online Learning Activity” indicates that there are 16 states with full-time online learning available to all students in all three categories — elementary, middle and high school level.⁴⁵

As in traditional school settings, online learning may not be the best learning environment for every student. However, students who have often been unsuccessful or disengaged in a traditional setting may thrive in online schools. According to a report prepared for the U.S. Department of Education, districts monitor student progress in online courses using a number of metrics in addition to final grades, including completion and submission of assignments, interim course grades, attendance reports, log-on activity and time spent online.⁴⁶

In reality, the same challenges traditional schools face with reaching struggling students are the same as those faced by online providers. Students whose parents do not attend information sessions or meet with teachers withdraw at much higher rates. Students who enroll late can struggle to catch up to their peers and fall further behind. In response, providers are exploring ways to provide students with more supports for success. For example, like traditional schools serving struggling students, some online providers use a double block of math for struggling secondary students and supplement coursework with daily online tutoring.⁴⁷ Opportunities to interact with guidance counselors are important components of online learning programs in Florida, Louisiana and other states.

[For more information regarding student perspectives, watch iNACOL’s Virtual School Symposium 2012 Student Panel video. Available on Vimeo.](#)

[For more realities for students, watch Florida Virtual Schools - Student Success Stories video.](#)

Powerful Partnerships in Online Learning

Celebrating its 15th anniversary, Florida Virtual School (FLVS) provides online learning to all 67 Florida school districts, all 50 states, and nearly 70 countries. FLVS serves students from K–12 from public, private, charter and homeschool settings with more than 120 online courses ranging from core academics to credit recovery, electives, foreign language, honors and Advanced Placement. All courses meet or exceed Florida state standards and are currently being aligned to Common Core. FLVS employs more than 125 National Board Certified Teachers, has been the recipient of numerous national and international awards, has garnered praise from the U.S. Department of Education and Southern Regional Education Board, and has earned the highest accreditation rating possible from AdvancED in every category. There are many unique features of FLVS that make it a national exemplar in online learning — including performance-based funding, rolling enrollment and mastery-based learning over seat time.*

FLVS shows the power of district partnerships. Miami Dade School District has embraced a “flex model” (characterized as a small individualized school with an online curriculum) that is powered by FLVS content. The district’s iPrep Academies serve students in grades 9–12 with an accelerated high school curriculum in a non-traditional academic setting that utilizes both face-to-face and online instruction. Throughout Miami Dade schools, students log into FLVS courses from online learning labs inside their schools to supplement the courses taught on campus.* There are learning labs in two-thirds of Dade secondary schools and 314 learning labs across Florida —14,000 students enrolled in 23,000 courses.*

For more information on specific student stories, see [Exhibit: Student Profiles](#).

The Reality For Teachers

One of the most prevalent, inaccurate and destructive myths related to online learning is that technology matters more than teaching does.

iNACOL has been confronting this myth head on since the association’s inception. In its 2006 [Top Ten Myths about Virtual Schools](#), iNACOL stated that the most important part of online teaching and learning is the quality of the teacher providing instruction online, not the technology. iNACOL reported that online learning is “about curriculum and instruction for students. The “medium” is not the message because the student, instructor, content, and learning goals are key. Networks simply make it possible to provide communication, access to extended resources, and use of sound, graphics, video, text, interactivity, and other digital capabilities to strengthen instruction.”

Years later, teachers are still battling this pervasive myth, although there is growing recognition of the reality for online teachers that it isn't an either/or proposition, but instead teachers use online tools to deliver personalized instruction and to individualize learning for students in ways never before possible.

In [Improving Conditions and Careers](#), the authors contend, “As student roles evolve ... to meet the demands of new college and career-ready standards and the next generation of assessments, there is an unprecedented national opportunity to reimagine and reinvigorate the teaching profession.”³¹

Specifically, drawing on the work of Public Impact's Opportunity Culture, the authors explore three ways in which digital learning creates these opportunities:

- “Extending the reach” of in-person excellent teachers to more students and to teaching peers;
- Teaching remotely, allowing great teachers to reach students anywhere and to have more flexible careers; and
- Expanding impact through online sharing of teacher-created content (the opportunity for “boundless instruction”).

Online learning creates new opportunities for teachers and new mechanisms for reaching students. Some providers require teachers to work in a central office, while other teachers have the flexibility to telecommute from home. Teachers report that about half of their time is prescheduled with calls, synchronous instruction, class meetings and other online meetings; the other half is tutoring, coaching, grading work and trouble-shooting. Some online teachers say they have never worked harder, but they love the flexibility, the collaboration and the difference they make for their students.³²

Just as online learning isn't for all students, online teaching isn't for all teachers. However, more teachers are turning to online resources for greater portions of their job. A recent survey of teachers found that a majority report participating in an online class for their own professional development.³³ Most online programs have professional development requirements for their online teachers. In addition, a small number of university teacher preparation programs, nonprofit and for-profit groups, are beginning to develop certificate programs in online teaching and other continuing education options.³⁴

The Realities Of The System

While we've provided evidence that refutes common myths about online learning, there are additional realities of the system that require focused attention to ensure that online learning reaches its full potential.

The 2011 edition of *Keeping Pace* frames the problem like this: “The challenge accepted by many researchers is to change the question from ‘does online learning work?’ to ‘under what conditions does online learning work?’”

Drawing on lessons from the field, it’s important to identify what is working and to be candid about what is not so as to build a robust landscape of high-quality online learning opportunities. As with traditional settings, online learning works well for some kids but not as well for others. As in traditional schools, online learners must be supported by high-quality instruction, rigorous standards and meaningful assessments that guide learning. In the absence of these supports, students in an online environment are often destined to the same gaps in performance and achievement that are so prevalent across K–12 education.

Data from sources ranging from leading national providers to individual school programs reveal that to further strengthen online learning opportunities and ensure maximum benefits to students, the field should consider these issues:

- **Start dates:** Late enrollers are a challenge for most online schools, but most large schools have several start dates and three or four cohorts all with the same end date. The last cohort may not have a full load — maybe just two courses for a short semester.
- **Disengaged students:** Like traditional schools, students who engage generally do well, and kids who don’t flounder. Engagement is even more important than in a traditional model — lack of engagement is directly related to lack of achievement. Fortunately, the technology platforms that enable online learning can monitor student engagement and help flag students who are not as active with their courses as they should be. In an interview for the *New York Times*, Adrian Guardia, a Texas A&M instructor described noticing a student who was apparently doing well based on his quiz grades. But according to CourseSmart’s “engagement index,” the student had opened his textbook only once. “It was one of those ‘aha’ moments,” said Mr. Guardia, who is tracking 70 students in three classes. “Are you really learning if you only open the book the night before the test? I knew I had to reach out to him to discuss his studying habits.”³⁸

While there are clear benefits and opportunities, it is important to acknowledge concerns about the weak performance of some online learning programs and providers. To the extent that some states have experienced weak academic results, they are typically a result of three factors:

- Late enrollment by poorly prepared students;
- Weak operators; and
- Mismatch of programs, assessments and reporting systems.

Strong authorizing, oversight and collection of performance metrics based on student outcomes and growth, rolling enrollment and better information will help address the first two factors. Better and comparable individual student growth measures, entry and exit data on student learning growth and on-demand (or frequently scheduled) systems of assessments for better data will help with the third factor.

For more information on specific teacher perspectives, see [Exhibit: Top Teachers](#).

PROMISE

In *Getting Smart*, Tom Vander Ark noted the three primary advantages of online learning to boost achievement and equity lies in advances in each of these areas.⁵⁶

- **Customization:** adaptive learning (automatically leveled) with individualized pathways;
- **Motivation:** more engaging content with an emphasis on modalities that produce persistence; and
- **Equalization:** 24/7/365 access to quality content and great teachers for all students.

Current trends in K–12 online learning provide evidence that the field is advancing toward solutions that can deliver on the promise of online learning.

Personalized Learning For All

Perhaps the most compelling reason to champion online learning is its potential to keep students at the center of the educational experience through personalized digital learning.

Participants in a [two-day symposium on system redesign for personalized learning](#) identified these top five essential elements central to personalized learning:⁵⁷

- Flexible, Anytime/Everywhere Learning.
- Redefine Teacher Role and Expand “Teacher”.
- Project-Based/Authentic Learning Opportunities.
- Student-Driven Learning Path.
- Mastery/Competency-Based Progression/Pace.

High-quality online learning has the potential to meet these essential elements. The field is beginning to acknowledge this potential.

[The Next Generation Learning Challenge](#), a grant program that will support “breakthrough school models,” lays out the following design principles of personalized learning related to instruction:

- **Student Centered:** Designed to meet the diverse learning needs of each student every day.
- **High Expectations:** Committed to ensuring that every student will meet clearly defined, rigorous standards that will prepare him or her for success in college and career.
- **Self-Pacing and Mastery-Based Credit:** Enables students to move at their own optimal pace and receive credit when they can demonstrate mastery of the material.
- **Blended Instruction:** Optimizes teacher and technology-delivered instruction in group and individual work; we require that at least 25 percent of all students’ core literacy and math learning time be spent using digital content that gives students control over their path and pace.
- **Student Ownership:** Empowers students with skills, information and tools they need to manage their own learning.

Rethinking the design of learning around students has implications for all of education. One exciting implication is the opportunity to create a more coherent educational experience for students. New definitions for coherence, and mechanisms for achieving it, are necessitated by anytime-anywhere, multiple-provider online environments. Creating a coherent experience for students will need to include logical learning progressions along a series of units/courses, supported by a portable electronic student record and learner profile.⁸

Student Access To High-Quality Options

If personalized learning opportunities represent the most important aspect of online learning, increased student access to high-quality options is a close second. Online learning reinvents options for kids because it decouples learning from the restrictions of the physical, traditional environment. With online learning, students are no longer bound to the limitations of their own schools and districts. Similarly, schools and districts are able to serve students who have traditionally been outside of their reach — bringing top teachers and courses to students who wouldn’t otherwise have access to them. With a growing set of online course providers both inside and outside of existing school districts, students benefit from a slate of part-time and full-time options and may select the option that best meets their individual learning goals and needs.

Many states are acknowledging the importance of expanding student access to high-quality options by creating course choice policies that extend student access. Examples include Utah, Georgia, Louisiana, Texas, Pennsylvania and Michigan.

Trends

There are many exciting trends in K–12 education that represent the potential of online learning to personalize instruction and to empower teachers with new tools to engage students. Developments in tools, platforms and content have created fertile ground for “bottom-up” adoption of resources by savvy teachers, students and families that are finding ways to harness the power of online learning.

Districts. The most important trend in K–12 online learning is the speed with which school districts are adopting the strategy to improve the quality and array of options, to control costs and to build sustainability. Research from SREB reveals projects that as many as three-quarters of all public school districts in their member states will offer online options by 2015.⁵⁹ Districts are partnering with external providers and becoming providers themselves.⁶⁰ Recent developments in Philadelphia are indicative of this trend, as evidenced also by large urban districts with virtual schools such as Albuquerque, Denver and Pittsburgh. This fall, the Philadelphia School District will open a new, full-time online school — a program that the district promises “will offer the academic flexibility and customized learning that many students and families demand.”⁶¹ iNACOL’s Susan Patrick notes, “Urban districts are attempting to meet many of the same needs that other online programs are, such as providing options for students who have struggled academically or behaviorally in regular schools.”⁶² Education Week reports that, with a targeted enrollment of between 500 and 1,000 students next year, the [Philadelphia Virtual Academy](#) will meet both parent and student demand with “a customized academic schedule” and “a wider range of educational choices for their children, including college-prep and early-college high school options.”⁶³

Course Choice. As districts introduce online options, more students are gaining the ability to “self blend” their high school experiences. [John Bailey’s recent U.S. House of Representatives testimony](#) outlines how Utah and Louisiana have expanded access to individual online courses. Texas and Michigan recently passed similar legislation, with progress in this area also occurring in Pennsylvania. Legislators and advocates [in Utah] drew upon [Digital Learning Now!’s 10 Elements of High Quality Digital Learning](#) to develop a policy that drives choice to the course level where students can select courses offered by multiple public and private providers throughout the state. The law allows dollars to follow students to the course of their choice. Other states are introducing course choice as well, including Michigan and Texas.

Blended Learning. Online learning content and strategies are appearing in classrooms nationwide, making blended learning one of the biggest trends in online learning. New content and platforms are being developed and tested in blended schools. Digital content is replacing textbooks, and much of it was initially used in formal or informal learning online. Flex academies (online

learning with onsite support) are popping up everywhere.⁶⁴ Students in these environments benefit from access to online learning with all the custodial benefits and support services of being in a traditional school. Online learning also plays an important role in the shift to competency-based and personalized learning environments.

Competency-Based Learning. Allowing students the flexibility to move ahead when they are ready is essential. Students learn in different ways and at different paces. Online learning should be designed to be competency-based in practice, allowing students to move ahead when they demonstrate mastery and to receive extra help when they need it. Policies need to be designed around competency education and student-centered learning, not seat time. Digital learning and technologies can support systems in which students show what they know to progress to the next level through platforms and e-portfolio systems. Individual pacing, differentiated instruction and personalization are inherent in many online models — that’s why [iNACOL](#) is the leading advocate of competency-based learning. (See [CompetencyWorks](#) for many examples.)

Performance-Based Funding. Florida, Utah, and Louisiana base a portion of funding for online learning upon successful completion. In [Bailey’s U.S. House of Representatives testimony](#), he notes that Utah’s law “funds success rather than just seat time. A pay-for-performance element allows online-course providers to receive 50 percent of the state’s per-pupil funds for a given online course up front and the remaining 50 percent only when a student successfully completes the course.” In a recent paper, [Funding Students, Options, and Achievement](#), we recommended that a small portion of funding for all students be used to create incentives for completion and achievement.

College Credit Opportunities. As recently noted, online learning should make it possible for every U.S. high school student to have access to every Advanced Placement course as well as to a range of dual enrollment opportunities.⁶⁵ [Reynoldsburg high school academies](#) (Columbus, Ohio) use MOOCs, online AP and onsite community college courses to expand opportunities to earn college credit.

Parent Groups. It is common for full-time online schools to create or support local communities to provide student and family support and curriculum extensions. There are a handful of parent groups such as the [Treasure Valley Academy Coop](#) in Boise in which parents can share custodial and extracurricular responsibilities. [Arizona Virtual Academy](#) has established numerous community relationships with groups and organizations (YMCAs, and so on) in which full-time or part-time online learning is taking place.

Riverside: Building Schools Around Students.

“Keeping Pace” highlights California’s Riverside Unified School District (RUSD) as “a good example of a district with comprehensive online and blended offerings.” Its online program, the [Riverside Virtual School \(RVS\)](#), supports both a full-time student population and a much larger part-time program that offers self-blending options for students in RUSD and across Southern California. The full-time enrollment this past school year peaked at 162 students, in grades 3–12.⁶⁶ At the same time, 4,500 course enrollments were processed for students taking one or two classes in addition to what they were enrolled in at their home school campus. This includes students from RUSD schools, from partner districts via the California Open Campus (CAOC) and through partnerships with private and international school programs. By way of an example, beginning this year, students in a rural school district in the desert area of California had the opportunity to take foreign languages and Advanced Placement (AP) classes for the first time.

Dr. David Haglund, recently named Assistant Superintendent of K–12 Instructional Support, explains, “Schools need to be responsive to the learning needs of students, even when those run contrary to the existing structures. Our job — or at least what students need us to do — is to build a school around each student.”

For more information on implementation suggestions, see:

[Exhibit: How To Start An Online Learning Program.](#)

[Exhibit: 8 Key Issues When Starting An Online Learning Program.](#)

[Exhibit: Planning For Quality: 4 Focus Areas.](#)

[Exhibit: iNACOL Quality Standard.](#)

RECOMMENDATIONS

The Reality For Students

To provide guidance to state policy makers, DLN was formed in 2010. Two former governors, Jeb Bush and Bob Wise, chaired the policy development process, and 100 national experts were engaged to outline the 10 Elements of High Quality Digital Learning. The framework is a blueprint for state education policy including online learning. Specific recommendations include:

- All students should have full- and part-time access to online learning without caps or barriers and without regard for their previous enrollment status;
- States should support efforts to improve Internet access, both devices and broadband infrastructure;
- Courses should be available on a rolling year-round basis, and end-of-course tests should be available on-demand or frequently scheduled;
- Teachers should have reciprocal and performance-based certification;
- Funding should be weighted, flexible, portable and performance-based;
- States should authorize multiple full- and part-time providers.

The [2012 Digital Learning Report Card](#) reveals that states are making significant progress in advancing reforms that support the 10 Elements, noting that more than 700 bills involving digital learning were considered in 2012 and more than 152 signed into law. Nearly every state enacted a bill that advanced a digital learning policy. (See Appendix B for Digital Learning Legislative Activity in 2011 and 2012.)

Authorizing & Informed Choices

Charter authorizers should require add/drop periods early in each semester. Authorizers could also encourage online learning providers to set multiple start dates or rolling enrollment systems.

Authorizers and/or providers should make counselors available before and during enrollment period to help students and families understand what taking a course is like. Parents should be required to attend a meeting to discuss enrollment and their responsibility for creating a positive learning environment (if the student will be accessing the course from home). For parents of elementary online learners, acting as a child's "learning coach" takes considerable time. Students spend four to six hours on schoolwork each day and need oversight to make sure they remain on task.⁶⁷

Authorizers and providers can provide more information to parents about utilizing online learning. Minnesota's "iseek education" resource offers [What Parents Need to Know about Online Learning](#) and iNACOL offers a [Parent's Guide](#).

State policy makers should balance efforts to inform choices with access to educational options. Efforts to inform can easily become barriers to access.

States should enter into course reciprocity agreements so provider approvals in one state are deemed approved to serve kids in consortia member states. This would ease the approval burden on states and result in increased efficiency in a landscape with an increasing number of online learning opportunities offered from districts and other non-district providers.

Similarly, teacher certification reciprocity agreements among states will extend student access to top teachers while extending career opportunities for teachers. The [NEA's Online Teaching Guide](#) explains, "Policies that impose unreasonable requirements on qualified online teachers actually reduce the richness and quality of learning available to schools and young learners. For example, some jurisdictions have imposed requirements that restrict online learning opportunities to those led by teachers who hold a valid teaching license from a specific state. Such requirements can unduly constrain student and teacher educational opportunities, reduce potential return on enormous investments in technology and connectivity for improved schooling, and reduce options for this most promising strategy for increasing quality educational opportunities for America's students."

States need to collect better data on enrollments, participation rates, completion rates and outcomes, and data should be published in an Open Data Format (using the [White House's Open Data initiative](#) as suggested guidance).

An Agenda For Research & Development

Working with its members, iNACOL recently identified a set of top research needs for the field:

- Influences of policy at national, state and local levels on school design, cost and growth; includes legislation, certification, accreditation and funding models.
- Focus on students and learning regarding what each learner needs in order to succeed.
- Structure and interoperability of student/course/school data systems and reporting to ensure school and program improvement, including instructional feedback and learner support.
- Organizational leadership to foster innovation and a culture of change in online and blended models.
- Teacher preparation and professional development programs to support career-long development of teachers for online and blended teaching.
- Course designs for the range of content demands and student types, including examinations of various pacing, forms of interaction, groupings, etc.

- Examinations of learning assessments aligned with program goals and course objectives, i.e., assess mastery of standards and attain broader competencies needed for career, college and citizenship success; frequency and design of assessments.

To this list, we would add four additional issues that need to be addressed:

- Portable records that follow a student from school to school and grade to grade will improve the ability of providers to personalize learning from day one. (See [Data Backpacks](#) from Digital Learning Now! for more information on portable records.)
- Comprehensive learner profiles and predictive analytics will drive adaptive learning and power customized playlists for each student. (See the [Powering Personalization](#) infographic from Digital Learning Now! for more information on comprehensive learner profiles.)
- Common scales and measures of academic growth will allow comparability across different providers and alignment with state testing systems.*
- Strong data privacy measures will be needed with shared records. Parents will need to manage privacy settings. As more students take more courses online, it will be necessary to improve identity verification and academic integrity.

For more information on specific recommendations, see: [Exhibit: Assuring Quality In Online Learning](#).

CONCLUSION

Online learning is growing because it offers a range of benefits to students, families, teachers and schools. The U.S. Department of Education recently noted nine benefits:”

- Broadening access to quality education, especially for rural schools;
- Engaging students in active learning, based on learning sciences;
- Individualizing and differentiating instruction based on student performance on diagnostic assessments and preferred pace of learning, thereby improving the efficiency with which students move through a learning progression;
- Personalizing learning by building on student interests, which can result in increased student motivation, time on task and ultimately better learning outcomes;
- Making better use of teacher and student time by automating routine tasks and enabling teacher time to focus on high-value activities;

- Increasing the rate of student learning by increasing motivation and helping students grasp concepts and demonstrate competency more efficiently;
- Reducing school-based facilities costs by leveraging home and community spaces in addition to traditional school buildings;
- Reducing salary costs by transferring some educational activities to computers, by increasing teacher-student ratios or by otherwise redesigning processes that allow for more effective use of teacher time; and
- Realizing opportunities for economies of scale through reuse of materials and their large-scale distribution.

The shift to digital learning and the transition to a more student-centered system with broader access to options are inevitable. The decade-long transition will be gradual allowing districts time to adjust and add online and blended learning programs. It's not likely that full-time enrollment in online programs will ever reach 10 percent of the student population. However, it's very likely that most high school students will take some of their courses online before the end of the decade. Educational leaders would be wise to begin planning now for these shifts.

If, as a nation, we are to extend the promise of online learning to every student, we have to do more than dispel the current myths. We have to share the stories of successes and failures. We have to find ways to work together to move beyond point solutions to full-scale, integrated systems that prioritize coherent learning experiences for students. We must have the difficult conversations about implications for the preparation and professional development of teachers. We need to work across sectors to address infrastructure and find ways to make online access affordable and available to all. We have to start with students and what they need most—rather than layer technology on top of the same system. We have to stay true to our mission to expand online learning, not because the adjacent district is doing so, but because we know it is matched to the learning goals for our students. We need to stay bold and be daring, so we don't run the risk of replicating the shortcomings of (often ineffective) traditional models in an online environment. We have to open up policy space for foundational conditions for student-centered, personalized learning through competency-based education. In short, there is much work still to be done.

The entire [Digital Learning Now! Smart Series](#) is available online. This specific chapter has been modified from the original [Smart Series whitepaper](#) and its [Executive Summary](#). Also available is the “How to Start and Online Learning Program” infographic ([PDF format](#) or [JPG format](#)) and “Busting Myths about Online Learning” infographic, ([PDF format](#) or [JPG format](#)), relevant to both the whitepaper and this chapter.

EXHIBITS

Exhibit: Student Profiles

Skylar, Oregon Virtual Academy

Skylar attends Oregon Virtual Academy. Online education works for Skylar and his family because he can work at his own pace. “My parents and I chose online learning because throughout my days in early elementary school (first–third grade), I would finish my studies earlier than most of my classmates,” explains Skylar. “I would get bored and start to become a distraction, whether by talking, drawing or walking around.” At ORVA, Skylar can move on as soon as he is ready or take more time if he needs it. “I like to be challenged.” For Skylar, the best part of online education is the flexibility. “Once Dad and I finish school, we can leave to start our afternoon job teaching Lego Robotics after-school classes at other nearby schools. Plus, I have drama classes every Friday.” The hardest part has been getting used to Dad as a learning coach in addition to parent — and becoming used to the school’s website. “Whenever we tell our friends or family about the virtual school, they almost instantly think I’m locked up in my house all day and that I’m not getting any ‘social development.’” Skylar notes that he gets plenty of time to socialize.

Skylar’s familiarity with computers and discipline help make online education a good fit for him. “I’ve always been able to operate a computer and navigate the Internet extremely well. I get up every morning at 7:00 a.m. to see my mom leave for work, and I then eat breakfast and hang out until 8:30 a.m. sharp, when my dad and I start school.” ORVA also offers Skylar the chance to participate in the virtual school newspaper, in which he can write movie and video game reviews and funny comics. He likes that his lessons correlate with each other: “I can be learning about the Pythagorean Theorem in Math and learning about the time Pythagoras lived and where he lived in my history lessons, all in the same day,” says Skylar. And, of course, he enjoys “going” to school in his pajamas, holding his cat. Skylar has big plans for the future: after high school, he plans to earn a degree related to film, graphic or game design and then get a job at Mojang in Sweden to design games and graphics. Back in Oregon, Skylar wants to start his own Indie game and film studio. “My online school is challenging, and so it helps me absorb more content than I could in a normal ‘brick-and-mortar’ school. It gives me free time to do research on what I want to do, and it gives me time to brainstorm ideas for future movies/games that I’d like to design, direct and produce.” (Source: Personal Communication, Email interview, June 2013)

William, Riverside Virtual School

William, a fourth grader from California, says his past year at Riverside Virtual School was “amazing.” His teachers not only have great personalities but are also great mentors, too. Attending a virtual school has allowed William to have experiences that he couldn’t have had otherwise. In the fall, he went to Montana with his dad’s university geology class to help collect specimens in Glacier National Park, and in the winter, he drove with his mom along California’s coast, stopping to see elephant seals and Hearst Castle. “All year long, I took art classes at the Riverside Art Museum and volunteered at my neighborhood elementary school,” writes William. “I also helped run an art night and a science night at this school.” The RVS campus also offers William “tons of amazing things to do” that he couldn’t have done at a traditional elementary school: an art teacher who spent time teaching him how to use pastels and entered his drawing into an art contest; a monthly visit to the elementary science lab and a science teacher who helped him enter a science fair; and training for the presidential physical fitness test in P.E.

Congratulations to William, who won the elementary division for the Riverside Unified School District’s (all grade-levels, all schools) science and engineering fair.

(Source: Adapted from Personal Communication from student to RVS staff. Used with permission.)

Zach, Florida Virtual School

Zach attends Florida Virtual School from Melbourne Beach, Florida. A budding entrepreneur, Zach likes that online learning allows him to work at his own pace and gives him the flexibility to do all the things he loves — surfing, traveling, being creative and working on Grom Social, his social networking site for kids by kids. His mom chose FLVS for its course options and opportunities for advancement. Zach says the classes are challenging, and he likes his teachers. “I am definitely into technology,” he says, “and I work well in a virtual environment. You have to be self-motivated and organized. It’s also important to have awesome family support.” The hardest part of switching to online school is not seeing his friends who go to traditional schools every day, but the flexibility is worth it. “My future goal is to continue growing Grom Social and I hope to be accepted into Harvard.” (Source: Personal Communication, Email interview, June 2013)

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Congratulations to William, who won the elementary division for the Riverside Unified School District’s (all grade-levels, all schools) science and engineering fair.

(Source: Adapted from Personal Communication from student to RVS staff. Used with permission.)

Logan, Riverside Virtual School

Logan is a sixth grader at Riverside Virtual School and says he’s had a great year. “My experiences at RVS have been the best I’ve had at any school so far. The teachers have been kind, and I felt like I belong here.” At first, Logan missed his friends from his old school, but one of his friends also attends RVS, and he soon made new friends. He’s also able to participate in advanced band and go to band concerts at his old school. “The labs at RVS are excellent,” says Logan. “In P.E., Mr. Hanes gives us fun activities to help us with different sports, such as lacrosse, basketball and tennis. In the science lab, Mrs. McAllister shows us how to make different kinds of boats to see how many coins they can hold before they sink.” Logan is excited to begin seventh grade at RVS next year. (Source: Adapted from a school speech. Used with permission.)

Drew, Ohio Connections Academy

Drew, 16, is a senior in Greenville, Ohio. He attends Ohio Connections Academy, a full-time online school. Drew is a highly competitive Irish dancer (currently ranked #1 in the world, he notes) and the first person of color ever to win a world title or the All Ireland National title. “Without E-schooling, I don’t believe that I would have achieved these accomplishments,” he writes. Online learning

gives Drew the flexibility he needs to train, practice and travel while still receiving an excellent education. “My teachers at OCA are always available to me — just a phone call or email away. They will set up private, live chat lessons where we are able to utilize a white board online so that I can see the work as they walk me through the lesson. Because of the support of the entire staff at OCA, I have been able to maintain a 4.0 grade point average while I chase my dreams. I have recently been accepted into the National Honor Society.” (Source: Adapted from [2/1/2012 Public Testimony to Ohio House of Representatives Education Committee](#))

Michael, Riverside Virtual School

Michael came to Riverside Virtual School at the beginning of his ninth grade year. Up until that point, Michael had been homeschooled. His family chose to come to RVS to ensure he had access to Advanced Placement courses and had the opportunity to play sports with his peers. Michael is a gifted tennis player. His plan was to play tennis, study hard and earn his way into an engineering program in college. Michael graduated this month, with a 4.27 GPA and over \$40,000 in scholarship money toward his mechanical engineering degree at California Baptist University. (Source: Personal Communication, Email interview, June 2013)

Charis, Michigan Virtual Charter Academy

Charis is a ninth grader at Michigan Virtual Charter Academy in DeWitt, Michigan. Her parents decided to try online education for her and her older brother for one year after the loss of their younger brother to cancer. They’ve both been attending MVCA ever since. Charis finds her courses at MVCA more challenging than those at her old school, and she enjoys that. She also likes using technology and is self-motivated, so the online setting works well for her. “For my parents, the most difficult part of making the switch to online learning has been to understand their role as learning coaches for my brother and me.” Charis says the best part of switching to online learning for her has been getting one-on-one help from teachers if she needs it — and her parents like the accountability that is built into her program. She has learned to like math and has particularly enjoyed taking Latin and French. “I’m also very social and enjoy the interaction with my teachers and classmates. I’ve made quite a few new friends!” She adds that online learning is not homeschooling, and she isn’t taught by a computer; she has teachers and classmates. Another big plus for Charis is the flexibility of online learning. “I’m a musician, and online learning has allowed me the time and flexibility I need to focus on my music.”(Source: Personal Communication, Email interview, June 2013)

Faith, Reynoldsburg High School

Faith is a senior at Reynoldsburg High School in Reynoldsburg, Ohio. She is a member of the National Society of High School Scholars and the Reynoldsburg Lady Raiders Track Team and is the executive international learning coordinator of student government. She likes Chinese language and literature, international business and social networking. "Reynoldsburg is a traditional public school that integrates learning technology," explains Faith. After taking three years of in-class French, Faith decided to try one of the new online language courses her school offered. She chose Chinese, and it was "a breath of fresh air!" Online education allows Faith to focus on athletics and other out-of-school activities in addition to her academic studies. Faith found fellow students also taking classes online and enjoys their study company. "[They] are all determined to get through their studies with fewer outside distractions, more useful study materials and more relevant social networking." (Source: Adapted from [2/1/2012 Public Testimony to Ohio House of Representatives Education Committee](#))

Hamilton, ECOT

Hamilton, 15, lives in Columbus, Ohio, and is a full-time online junior in the online high school ECOT. She enjoys sports, dance and music and wants to become a surgeon. She and her sister shifted to online learning because the traditional schools in their district didn't have a good reputation. But Hamilton got more than she bargained for. "Little did I know," she said, "digital learning would open more gateways than I could ever have imagined." Online education provides freedom and flexibility. When she finishes her work, she goes skiing or takes an extra day off to rest. Hamilton likes that her teachers are available all day and that they always remember her name. Students interact a great deal during her classes. "This school is not just for dropouts or for the kids who are struggling." She adds, "It is also for the brilliant students who need more intellectual nourishment." (Source: Adapted from [2/1/2012 Public Testimony to Ohio House of Representatives Education Committee](#))

Jordan, Winton Woods Academy

Jordan is a ninth grader at Winton Woods Academy of Global Studies in Cincinnati, Ohio. "Compared to schools I have been in without much technology, I prefer one with technology because in my experience, the technology has sped up school work, I feel more motivated and it allows variety into a school's curriculum." Jordan's favorite thing about online education is using the Internet to conduct research and communicate with people around the world. (Source: Adapted from [2/1/2012 Public Testimony to Ohio House of Representatives Education Committee](#))

Lauren, K12/Michigan Virtual Academy

Lauren attends K12/Michigan Virtual Academy from her rural district. She had previously attended two different private schools and public school, but the small city has zero funding for gifted and talented programs at the middle school level. “We had many meetings with the principal and were consistently told there was no funding for a child who needed to advance. We were told it would be nearly impossible to accommodate our daughter’s needs,” says Lauren’s mother, Donna. “In our household, education comes first — above everything else. When you make your child’s education the top priority for the whole family, the skills required for online learning fall into place.” Those skills, she adds, including independence in managing the curriculum, focusing on a steady work schedule, the initiative to ask questions and long-term goals — college and beyond. At first, Lauren’s family was reluctant to try online education due to stereotypes it held. Now, Donna says, “If we sound passionate about it, it’s because we are.” The best thing about switching to online learning has been “everything” — from the communication about Lauren’s progress to the accessibility and attention of teachers and the focus on educational goals. Without peer pressure, Lauren has flourished academically. She then flourished as a person, too. “As parents, we felt an enormous relief for her and her future.” Donna says the biggest myth about traditional schools is that the “one-size-fits-all” social environment works for all students. “This is what consistently sold our daughter short. The student who is more introverted, that is a very serious student, who has had academic goals since they were very young — deserves to be served equally. That the student who wants to advance should be allowed to advance and that online learning allows him or her a better chance to grow and develop.” Lauren has local friends, but they don’t share many interests. She shares more interests with her friends online — she trades English lessons for Chinese lessons and has a friend in Puerto Rico. Her plan is to major in political science and join the U.S. Foreign Service following graduating from college. If she obtains an internship with the Foreign Service, she’ll be able to continue studying online. “Without [online learning], there is no way she would be prepared to meet her goals,” says Donna. “It would simply have been impossible.” (Source: Personal Communication, Email interview, June 2013)

Exhibit: Top Teachers

The National Online Teacher of the Year award is presented by the Southern Regional Education Board and iNACOL, the International Association for K–12 Online Learning, to recognize teachers “for excellence through achieving success in an online environment.” Since 2010, school administrators have been nominating their excellent online teachers for the award. Nominees must spend at least 85 percent of their online contract time teaching online, and must have taught online for at least three years. Nominees’ students have proven academic success and recognition from students, parents, administrators and professional peers.

Renee Citlau - National Online Teacher of the Year, 2013

(Anaheim, California) -- Citlau wrote, online learning “expands the school day so that teaching and learning are no longer bound by the constraints of time and location. ... Technology tools help me to differentiate instruction and support student learning. Webinars, mind maps, simulations, threaded discussions, podcasts, videos, and games allow students to learn material in a variety of ways. Through analysis of online assessment data, I modify instruction and develop individualized learning plans for students so that they can learn material at their own pace.”

Leslie Fetzer - National Online Teacher of the Year, 2012

(Holly Springs, North Carolina) -- “Teaching for NCVPS [North Carolina Virtual Public School] allows me to reach students not only in my local community and classroom, but across the state in engaging ways. I am able to create a lesson meant for a single student who is challenged to learn. ... Teaching online gives me the advantage of having a repertoire of tools and media that I can use to reach students. I am limited only by my own imagination. Their learning challenges prompt and inspire me to be more imaginative and more creative, and I am more fulfilled for it.” Fetzer is now Policy Director at NCVPS.

Kristin Kipp - National Online Teacher of the Year, 2011

(Evergreen, Colorado) -- Kristin Kipp is a teacher with Education Frontier, Jefferson County’s 21st Century Virtual Academy. She looks at online education through what she calls her three lenses: how students interact with the course, with her as a teacher and with each other/other students. “One thing that I really value is multiple strings of communication.” With online education, Kipp says, “Everybody’s working on his or her own personalized coursework, so kids really can have a personalized experience with exactly what they need.”

Watch Q&A with Kristin Kipp or her [interview](#) with BlackBoard TV. Check out a [Pearson Foundation’s A Day in the Life, featuring Kristin Kipp](#) or her discussion about online education policy with the [Ohio Digital Learning Task Force \(at the 10-minute mark\)](#).

Teresa Dove - National Online Teacher of the Year, 2010

(Tazewell, Virginia) -- Teresa Dove, the first National Online Teacher of the Year award recipient, lives in Virginia but teaches math online for Florida Virtual School. Dove has said that teaching online allows her to spend much more time working individually with students; spending time with students only during a traditional class period is “not enough, and our kids deserve better.”

Exhibit: How To Start An Online Learning Program

Clarify goals

- *Expand advanced options including AP, dual enrollment, STEM, foreign languages.*
- *Offer students choices and options for courses and services.*
- *Add hard to staff courses.*

Get to know your state policy

- *Check out [iNACOL's Statement of Principles for Model Legislation in States](#).*
- *See Digital Learning Now! [Report Card](#).*
- *Read [Keeping Pace profile](#).*

Hire the best people

- *Hire someone with experience to lead the program*
- *Like traditional delivery, quality depends on great teaching and supports.*

Consider partners

- *Consider open educational resources and sharing openly developed content across schools and districts.*
- *Research high capacity national partners that can provide turnkey support or a buffet of content, assessment and technology tools for starting an online learning program.*

Pick a platform

- *If you don't rely on a partner, you'll need to pick a learning management system (LMS) and content*

Leverage online tools & capacity to blend schools

- *You may be able to use the LMS, formative assessment tools and the catalog of digital content resources in online learning to power blended classrooms.*

Staffing

- *Use [iNACOL National Quality Standards for Online Teaching](#) to evaluate professional development offerings for educators; or use these standards to create professional development and training. Consider partnering with a College of Education for providing a license endorsement for online teaching.*
- *Explore staffing course delivery using distributed teaching models online for hard-to-staff courses.*

Provide guidance on self-blends

- *Consider making an online class a graduation requirement. Most students will be learning online when they leave high school whether it's in the military, corporate training, or college.*
- *Communicate with guidance counselors about new opportunities to learn online. It's important to provide guidance to students starting in eighth grade about the range of courses offered online in high schools.*

Marketing

- *Getting the word out about new learning models is important. What makes your offering distinctive? What supports do you provide for registration, counseling, advising and facilitating courses? Can you offer onsite support—for scheduled times and flexible drop in with one-on-one attention?*

Budget

- *Now it's time to build a budget. You'll need at least six months to plan, hire and train staff; and do some marketing.*
- *Consider reallocation of instructional materials line items for technology hardware, software, content and infrastructure.*
- *The largest budget items are people: educators, administration and support staff to run programs.*

Exhibit: 8 Key Issues When Starting An Online Learning Program

Source: [iNACOL's How to Start an Online Learning Program](#)

- *Funding*
- *Policies*
- *Budget/Staffing*
- *Administrative Systems*
- *Curriculum*
- *Teachers*
- *Students*
- *Quality*

Exhibit: Planning For Quality: 4 Focus Areas

Content

- *Acquisition*
- *Purchase options*
- *OERs*
- *Content quality*
- *District alignment*
- *Linked to student outcomes*

Teaching

- *Instructional standards*
- *Quality PD for current staff*
- *Teacher recruitment & hiring*
- *Teacher evaluation strategies*
- *Teacher support system*

Technology

- *Interoperability*
- *Total Cost of Ownership*
- *Devices*
- *Access*
- *Integration with existing Student Information System (SIS)*

Operations

- *Facilities*
- *Student recruitment*
- *Budget*
- *Program evaluation*
- *Strategic planning*

Source: Evergreen Education Group's [Keeping Pace with K-12 Online & Blended Learning](#).

Exhibit: iNACOL Quality Standard

- [National Quality Standards for Online Courses](#)
- [National Quality Standards for Online Teaching](#)
- [National Quality Standards for Online Programs](#)
- [Measuring Quality from Inputs to Outcomes: Performance Metrics for Online Schools](#)

Exhibit: Assuring Quality In Online Learning

The mission of the International Association for K–12 Online Learning (iNACOL) is “to ensure all students have access to a world-class education and quality online learning opportunities that prepare them for a lifetime of success.” iNACOL publishes standards for online learning, which cover institutions, teaching and learning, support, and evaluation.²⁰ iNACOL has also made available a series of videos introducing its quality standards:

[Online Interaction](#): *Interaction and communication with students in an online educational setting must involve more than recorded lectures and computerized quizzes.*

Collaboration: Opportunities for students to work with each other are essential for online learning.

Differentiation: Online education allows teachers to offer students differentiated instruction that meets their needs: there are multiple paths to the same concepts.

Communication: Teachers need to establish a personal connection and open lines of communication with their students.

Course Structure: Organization of courses should help students stay oriented and on track.

Facilitation: Online courses don't run automatically; good facilitation is necessary, including orienting students new to online learning.

Assessments: Special consideration is required for online assessments to prevent cheating or Googling of answers.

Accommodation: Students with special learning needs will require online teachers to know their students and to know how to accommodate them.

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Conclusion: The Start of an Important Conversation

by John Bailey, Carri Schneider & Tom Vander Ark

The historical shift from print to digital and the adoption of common college and career ready standards are both daunting and promising. Either by itself would be a heavy lift. Together, it is a tremendous amount of change for most schools over the next three years. But these events are complementary. It would be very difficult to help more students reach higher standards by doing things the way we always have.

Blended strategies that leverage great teaching with technology hold the promise of boosting achievement and completion. Competency-based environments and weighted funding systems will create more time and support for students that need it without holding back accelerated students.

Schools don't need to do everything at once but they do need to recognize that there is a new challenge and a new opportunity set. It's time to make a plan to do better.

Advice to State and Districts

1. **Make a plan.** If your state or district does not have a plan to shift to digital learning, today would be the right day to start. Use the Blended Learning Implementation Guide 2.0 as a resource. [Project 24](#) is a useful resource and “an urgent call to action on the need for systemic planning around the effective use of technology and digital learning to achieve the goal of “career and college readiness” for all students.” [SETDA](#) and [COSN](#) have both advised and supported state and district plans.
2. **Boost access.** Most states have or will make the shift to predominantly online assessment in 2014-15. Districts should make testing environments as close to learning environments as possible--ideally, students will take the test on the same device the use everyday for learning. As illustrated in the funding the shift section, districts can afford the shift--it just takes leadership over several years of transition. Focus on test-ready devices (e.g., avoid 7-inch tablets that won't be supported by testing consortia) that have the added benefit of improving the learning experience.

3. **Start with adaptive assessments.** K-8 students should be receiving adaptive feedback and personalized instruction on a regular basis (e.g., 120 minutes per week). Schools should use the data to tailor core instruction to better meet the needs of students that are ahead and behind.
4. **Shift to digital instructional materials.** States and districts should follow Florida's and make a commitment to transition to digital instructional materials by 2015. Where instructional materials are referenced in state law, they should include digital textbooks and content the way [Indiana](#) does. States and districts should provide flexibility with textbook funding and allow it to be used to purchase devices and digital content.
5. **Boost broadband.** Districts should test broadband access against SETDA recommendations. States should ask districts to run the [Technology Readiness Survey, Education Superhighway](#), or [Smarter Balanced's Bandwidth Analyzer](#) to determine current capabilities and identify additional investments required.
6. **Support blends.** Create incentives for adoption of blended school models to improve return on improved access and broadband. Use the [Next General Learning Challenge](#) (NGLC) as a grantmaking template. Chicago and Washington D.C. recently announced NGLC grant programs. See the [Christensen Institute](#) database of school models. See [Opportunity Culture](#) from Public Impact to learn about staffing strategies that leverage teaching with technology.
7. **Expand access to online learning.** As [Digital Learning Now!](#) recommends, states and districts should provide access to full and part time online learning. Like [Louisiana](#), states should facilitate and support course choice.
8. **Require competency.** Require students to show what they know on a regular basis. Require demonstrated competence before students progress. Create more time and support when and where students need it.
9. **Invest in teacher development.** States and districts should sponsor a variety of digital learning, online assessment and Common Core learning opportunities for teachers. [PARCC](#) and [Smarter Balanced](#) have released guidance. [Student Achievement Partners](#) has extensive guidance on Common Core alignment. Blended learning opportunities should be relevant to the model and platform (i.e., generic training isn't of much value) and should be a mixture of scheduled and available anytime.

10. **Update school finance.** As outlined in the school finance chapter, states should adopt a weighted, flexible, portable funding system. With the growing number of charter schools and online options, states should begin a dialog about separating facilities funding and school operations.
11. **Data backpack.** States should ensure that a comprehensive gradebook moves with each student grade to grade and school to school. States should begin a dialog about a parent managed comprehensive learner profile that includes a portfolio of student work.
12. **Learn from other states.** States that are early in the shift to digital should learn from the leaders like Utah and Florida. See the [Digital Learning Report Card](#) and track the [DLN blog](#) for updates on state policy.

The eight papers in the DLN Smart Series have been our attempt to take on the important issues of our time and provide the best advice available. We've had the opportunity to work with and seek the advice of the leading experts in the field, and put all of that information together to create this book.

We appreciate the difficult work that teachers and administrators do every day. We are confident that by continuing this kind of dialogue that we can create learning environments that work better for students and educators.

This book is just the start of an important conversation that we hope to continue as these unprecedented opportunities continue to intersect.



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Nathan Martin serves as the State Policy Director for Digital Learning Now! Previously, he worked as the Director of Policy and Alliances for GlobalScholar, an education technology company focusing on digital learning and assessment. Prior to that, he worked in journalism, producing a nationally-syndicated talk radio show, working for the Washington Post and writing for various newspapers in his home state of Mississippi. Nathan received his undergraduate degree from Patrick Henry College.

Daniel Owens - Partner, The Learning Accelerator

Daniel has a wealth of experience in education, philanthropy and business strategy. Daniel has participated in Teach for America, where he taught underprivileged sixth graders math and science in south central Los Angeles. He joined TLA from J.P. Morgan, where he was an analyst in the Private Bank and focused on strategy and resource allocation. Daniel has served on young leadership boards for both his alma mater (William & Mary) and an education non-profit organization (Summer Search). He has an undergraduate degree in finance from William & Mary, a M.Ed. from Loyola Marymount University, and has studied economics and romance languages at the University of Buenos Aires as a Rotary Scholar.

Susan Patrick - President & CEO, International Association for K–12 Online Learning (iNACOL)

Susan is the President and Chief Executive Officer of the International Association for K–12 Online Learning (iNACOL). iNACOL is the leading voice for the emerging field of online, blended and competency-based learning. iNACOL serves the field through education and advocacy aimed at building the capacity of policy makers, education leaders and online and blended learning professionals, providing policy advocacy, publishing national quality standards, research on new learning models and shaping the direction of the field as a whole. In 2011, she was named to the International Advisory Board for the European Union program for lifelong learning/virtual education. Susan is the former director of the Office of Educational Technology at the U.S. Department of Education.

Beth Rabbitt - Partner, The Learning Accelerator

Beth has a decade of experience in education entrepreneurship, human capital, consulting, and finance. She most recently was the Director of Human Capital and Innovation at Touchstone Education, a blended learning charter management organization. Prior to that, Beth worked for several years as an Associate Partner at the NewSchools Venture Fund, where she identified, supported, and helped to launch and scale innovative education ventures. She

has also worked as a Summer Associate with Education Resource Strategies and a founding Doctoral Fellow at the Harvard Innovation Lab. Beth serves as an advisor to several education organizations and is a Trustee of Scholar Academies. She earned an undergraduate degree in Psychological and Brain Sciences from Dartmouth College and a Doctorate in Education Leadership (Ed.L.D.) from Harvard University.

Chris Sturgis - Principal, MetisNet

Chris Sturgis is Principal of MetisNet, a consulting firm based in Santa Fe, New Mexico that specializes in philanthropic strategy development. Chris is a frequent writer on education and youth issues. She encountered competency education for the first time in the 1990s during a site visit to Diploma Plus and was awed by the importance it plays in addressing America's graduation crisis. Since then she has been an advocate, working in partnership with the International Association for K-12 Online Learning (iNACOL) to manage CompetencyWorks.

Alex Terman - Formerly of The Learning Accelerator

Alex has more than 15 years of professional experience in non-profit leadership, education reform, and business strategy. Prior to joining TLA, Alex was the co-founder and CEO of Digital Parent, an online service providing expert advice and e-learning resources for parents of young children. Alex has been involved in education reform since 2002, when he joined Leadership Public Schools, a non-profit charter management organization (CMO), as their first Chief Operating Officer; he remains involved as a board member. He is also a board member of Rocketship Education. Alex has served as Chief Business Officer for the Stupski Foundation, an operating foundation focused on transforming urban school districts. In addition to his involvement in education, Alex has experience working in business and corporate development roles at America Online and in management consulting at Bain & Company. He has an MBA from Stanford, an undergraduate degree in history from UC Berkeley, and has completed the Broad Residency in Urban Education, a two-year program that prepares leaders for senior management roles within public education.

PRIMARY ORGANIZATION PROFILES:

DIGITAL LEARNING NOW!

Digital Learning Now! is a national initiative under the [Foundation for Excellence in Education \(ExcelinEd\)](#), to advance policies that will create a high quality digital learning environment to better prepare students with the knowledge and skills to succeed in college and careers. Digital Learning Now! is building support for the 10 Elements of High Quality Digital Learning, which provides a roadmap for reform for lawmakers and policymakers to integrate digital learning into education.

In 2010, former Florida Governor [Jeb Bush](#) and former West Virginia Governor [Bob Wise](#) co-chaired the convening of the [Digital Learning Council](#) to define the policies that will integrate current and future technological innovations into public education. The Digital Learning Council united a diverse group of more than 100 leaders from education, government, philanthropy, business, technology, and think tanks to develop the roadmap of reform for local, state, and federal lawmakers and policymakers. This work produced a consensus around the [10 Elements of High Quality Digital Learning](#) which were released at the 2010 Excellence in Action National Summit on Education Reform in Washington, D.C.

Digital Learning Now! is focused on advancing these policies through the following strategies:

Advocacy: Building the broad public and political will needed to support policy change in legislation, regulation, and other policy levers to support digital learning. This includes annual report cards on state progress in advancing the 10 Elements of High Quality Digital Learning.

State Capacity Building: Assisting states in developing digital learning strategies tailored to their unique needs. DLN supports states in identifying best practices other states have used to develop systems to approve online courses or schools, define quality criteria, develop funding structures, or providing flexibility to allow room for innovation with new school models.

Collaboration: Working to leverage the work of other thought leaders, organizations, and advocates. We seek to align our collective efforts to help advance the policies and move the field forward.

Thought Leadership: Using white papers, convenings, and other resources, we seek to help make digital learning issues more accessible and aligned to the broader education reform community. This includes demonstrating how aligned use of digital learning can accelerate the implementation of the Common Core State Standards, broaden options for students, support teacher effectiveness, and using technology as a catalyst for transforming instructional models.

GETTING SMART

Getting Smart® is a community passionate about innovations in learning. We believe the shift to personal digital learning holds promise for improved student achievement in the developed world and access to quality education in the emerging economy—for the first time we have a chance to provide a quality education to every young person on the planet!

We are advocates for better K-12 education as well as early, post-secondary, and informal learning opportunities for all students. We attempt to accelerate and improve the shift to digital learning. We cover important events, trends, products, books, and reports. We welcome guest bloggers with something to say. We look for ways that innovation can help reframe historical problems and suggest new solutions.

THE LEARNING ACCELERATOR

The Learning Accelerator is a non-profit organization whose mission is to transform K-12 education by accelerating the implementation of high-quality blended learning in school districts across the U.S. We envision a future in which every school in the country implements high quality blended learning and all students receive an outstanding education, enabling them to reach their potential.

We are part architect, part investor: we are mobilizing more than \$100 million to create a series of scalable solutions to support districts in their efforts to implement blended learning, and creating a few examples of district-wide implementation that can be replicated across the country. While the free market will create and curate educational software and solutions to help teachers, we are focusing on parts of the value chain that don't lend themselves to for-profit models: broadband, pooled purchasing of hardware, professional development for teachers and principals, definition of financing models, and the creation of scalable consulting solutions to support districts. Our goal is to achieve these objectives in the next five years.



Disclosures

Digital Learning Now!:

This book and the Digital Learning Now! Smart Series are intended to provide education leaders with the best information, examples, and resources regardless of affiliations such as a client, sponsor, or partner organization.

Digital Learning Now! is an initiative of the [Foundation for Excellence in Education](#) which is supported by generous contributions from private and family foundations. The Foundation's [annual summit](#) is sponsored by [foundations and leading providers](#) who share a passion for the Foundation's [reform agenda](#) to ignite a movement of reform state by state that transforms an education system to maximize every student's potential for learning and prepares all students for success in the 21st century.”

Getting Smart:

Advocacy Partners:

- Compass Learning
- Connections
- Curriculum Associates
- Digital Learning Now!
- Dreambox
- FLVS
- K12, Inc.
- Pearson
- PresenceLearning

Learn Capital portfolio companies, where Tom Vander Are is a partner:

- Advance Path
- Bloomboard
- Edmodo
- General Assembly
- LearnZillion
- MasterConnect
- No RedInk
- Udemy

Other:

Tom Vander Ark is a Director of the International Association for K-12 Online Learning (iNACOL) and an AdvancePath director.



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Introduction: From Personalization to Policy

None.

Blended Learning Implementation Guide 2.0

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The Shift From Cohorts To Competency

None.

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Conclusion: The Start of an Important Conversation

None.

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All stock images were purchased from BIGSTOCK (www.bigstock.com).



Appendix: Additional Resources By Chapter

Introduction: From Personalization to Policy

None.

Blended Learning Implementation Guide 2.0

Blended Learning Case Studies and Profiles

- Christensen Institute: Blended Learning Profiles. http://www.christenseninstitute.org/wp-content/uploads/2013/04/The-rise-of-K-12-blended-learning_emerging-models.pdf
- Making Math Work: K-8 Blended Learning http://gettingsmart.com/wp-content/uploads/2013/09/white_paper_making_math_work_k_8_blended_learning.pdf
- Consortium for School Networking (CoSN) Student Mobile Learning Devices: A Summary of Two District Case Studies. <http://access4ed.net/sites/default/files/tco-voicasesstudysummary.pdf>
- Michael & Susan Dell Foundation: Blended Learning Case Studies. <http://www.msdf.org/programs/urban-education/initiatives/united-states/blended-learning/>
- Education Sector, The Right Mix: How One Los Angeles School is Blending a Curriculum for Personalized Learning. <http://www.educationsector.org/publications/right-mix-how-one-los-angeles-school-blending-curriculum-personalized-learning>
- Forsyth County Schools BYOT Video Tour. <https://fcschoolsga.eduvision.tv/default.aspx?q=3SfVi13wT7SmZEIpTemLWg%3D%3D>
- FSG: Blended Learning in Practice: Case Studies from Leading Schools. <http://www.fsg.org/tabid/191/ArticleId/799/Default.aspx?srpush=true>
- Public Impact, Opportunity Culture Case Studies. <http://opportunityculture.org/reach/case-studies/>
- A Case Study: Flipped Learning Model Dramatically Improves Pass Rate for At-Risk Students, Clintondale High School. http://assets.pearsonschool.com/asset_mgr/current/201317/Clintondale_casestudy.pdf
- A Case Study: Flipped Learning Model Increases Student Engagement and Performance, Byron High School. http://assets.pearsonschool.com/asset_mgr/current/201320/Byron_standalone_casestudy.pdf

- Next Generation Learning Challenges Grantee Profiles. <http://nextgenlearning.org/discover-grantees>
- Rogers Family Foundation: Oakland Unified School District Blended Learning Pilot. http://rogersfoundation.org/system/resources/0000/0022/BlendedLearning_final.pdf

Useful Websites for Implementation Support

- Anytime Anywhere Learning Foundation. <http://aalf.org/>
- Aspire Blended Learning Handbook. http://www.blendmylearning.com/wp-content/uploads/et_temp/aspire-blended-learning-handbook-2013.pdf
- Blend My Learning. www.Blendmylearning.com
- CEE-Trust. <http://www.blendedlearningnow.com/>
- DELL. <http://i.dell.com/sites/doccontent/business/solutions/power/en/Documents/ps2q13pl-20130165-coverstory.pdf>
- Educause Toolkit. <http://www.educause.edu/library/resources/rethink-planning-and-designing-k%E2%80%9312-next-generation-learning>
- Edutopia “How To Integrate Technology” Guide <http://www.edutopia.org/technology-integration-guide-implementation>
- Epic-Ed, Implementation. <https://www.epiced.org/implement>
- Microsoft Partners in Learning Innovation Workshops. <http://www.is-toolkit.com/workshops.html>
- One-to-One Institute. <http://www.one-to-oneinstitute.org/>
- Project 24. <http://www.all4ed.org/project24>
- Project Red. <http://www.projectred.org/>
- 125 Top Articles on Blended Learning. <http://gettingsmart.com/2013/09/120-top-articles-on-blended-learning/>
- Are there additional resources you would like to see on this list? Email us at: SmartSeries@GettingSmart.com.

Improving Conditions & Careers: How Blended Learning Can Improve The Teaching Profession

Resources

- Alliance for Excellent Education: The Online Learning Imperative: A Solution to Three Looming Crises in Education. <http://www.all4ed.org/files/OnlineLearning.pdf>
- Alliance for Excellent Education Webinar: Perspectives on the Future of Teacher Preparation in the Digital Age. <http://media.all4ed.org/webinar-mar-20-2013>

- The Brookings Institute: Education Technology Success Stories. <http://www.brookings.edu/~media/Research/Files/Papers/2013/3/20%20education%20technology%20success%20west%20bleiberg/Download%20the%20paper.pdf>
- Michael & Susan Dell Foundation: Case Studies of Blended Learning. http://www.msdf.org/programs/urban-education/initiatives/united-states/blended-learning/?utm_source=Blended+Learning&utm_campaign=00c6b79466-Blended_Learning_Case_Studies7_23_2012&utm_medium=email
- The Thomas B. Fordham Institute: Teachers in the Age of Digital Instruction. http://www.edexcellencemedia.net/publications/2011/2011_CreatingSoundPolicyforDigitalLearning/20111116_TeachersintheAgeofDigitalInstruction.pdf
- FSG: Blended Learning in Practice: Case Studies from Leading Schools. <http://www.fsg.org/tabid/191/ArticleId/799/Default.aspx?srpush=true>
- Publications from the Innosight Institute (recently changed to the Clayton Christensen Institute for Disruptive Innovation). <http://www.innosightinstitute.org/media-room/publications/education-publications/>
- Publications from the National Commission on Teaching & America's Future. <http://nctaf.org/research/research-papers/>
- Next Generation Learning Challenges (NGLC) Breakthrough Models. <http://www.nextgenlearning.org/wave-iii>
- Public Impact's Opportunity Culture Case Studies. <http://opportunityculture.org/>
- Public Impact's Opportunity Culture Website: Extending the Reach of Excellent Teachers Using Job Redesign and Technology. <http://opportunityculture.org/>
- U.S. Department of Education: Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies (2010). <http://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf>

An Opportunity Culture for Teaching And Learning

- Opportunity Culture's [Teacher Pay & Career Advancement - A Leader's Guide to Sustainably Funded Excellence](#).
- Opportunity Culture's video [Extending the Reach - Part 1](#)

Data Backpacks: Portable Records & Learner Profiles

Recommendations to Power Learning

Personalized Learning From Day One - Student Data Backpack

- Demographic data
- Standards-based gradebook (computer and teacher entered items)
- Grades and transcript data (for secondary students)
- Portfolio of personal bests (e.g., current writing sample)
- State testing data
- Attendance and behavior data
- Supplementary student supports

Personalized Learning To College and Career Readiness - Expanded Learner Profile

- Expanded achievement data
- Motivational profile that predicts persistence and performance
- A narrative description of student assets and challenges
- Recognitions and badges
- Full portfolio of student work
- Student goal statements
- College and career readiness tracker
- Optional - Non-cognitive variables
- Optional - Self-management skills
- Optional - Behavior and character education
- Optional - Record of community service

The Current Data Solutions Landscape

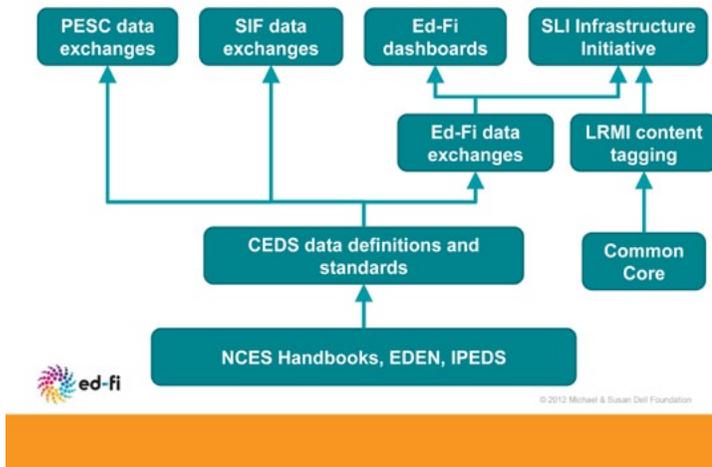
The figure below, used with the permission of the team at Ed-Fi Alliance, is an attempt to clarify how many of the current efforts fit together. Information for this section was gathered from public resources and describes summary-level objectives and interrelationships of these key initiatives.

The greatest level of generality is at the bottom of the figure; the NCES handbooks provide guidance on consistency in data definitions so that all such data can be accurately identified when either aggregated or analyzed. As you move upwards through the figure, the data becomes increasingly more specific—requiring more detail and definition in the data protocol and more flexibility across the technical infrastructure if systems citing or transferring these data are to be interoperable.

What is missing from the illustration, perched at the very top, is the single record of a universally accessible Student Data Backpack and comprehensive Learner Profile, which have the power to benefit from (and make sense of) all these efforts through the coordinated handling of supremely comprehensive individual student records.

Unless—and until—all of these efforts come together to enable the swift and secure transfer of individual student records that can be used to drive individual student achievement in the most innovative and imaginative ways possible, we will only be working at the margins.

How do they fit together?



[Achievement Standards Network \(ASN\)](#) is the largest open-access repository of learning objective data on the web. It provides access to machine-readable representations of learning objectives published by education agencies and organizations, including the Common Core State Standards.

[Common Education Data Standards \(CEDS\)](#) is an NCES-led group that created a set of commonly used P-20 education data elements to support the effective exchange of data within and across states, through student transitions, for federal reporting.

[Ed-Fi](#) tools include a universal educational data standard and tool suite that align with CEDS and is supported by the Michael & Susan Dell Foundation. Ed-Fi tools are designed to integrate information from a broad range of existing education data sources to facilitate data comparisons and interoperability. The

tool suite also allows vendors to develop reusable products across multiple states. The Ed-Fi 1.1 version, out in November, includes improved dashboards, content tagging, and student assessment tracking.

[Learning Resource Metadata Initiative](#) is an initiative for tagging diverse educational content to match it with learning objectives.

The U.S. Department of Education and the Council of Chief State School Officers also developed the [National Education Data Model \(NEDM\)](#), which is a conceptual but detailed representation of educational data focused at the student, instructor, and course/class levels.

[Postsecondary Electronic Standards Council \(PESC\)](#) is collection of organizations that provides standards for the flow of student data between the K-12, Postsecondary, and federal data collections.

[School Interoperability Framework \(SIF\)](#) is a specification of rules, definitions, and data formats that enables programs and systems from different systems to share information.

[Shared Learning Collaborative \(SLC\)](#) aims to help teachers more efficiently enable effective, personalized instruction. Sponsored by the Bill & Melinda Gates Foundation with support from Carnegie Corporation, SLC is a data-sharing alliance of five states (and four more in 2013) working together on data-sharing standards and supporting middleware systems. Shared Learning Infrastructure (SLI) is a platform for teachers to find the resources and tools to address individual student learning needs. As of February 2013, the Shared Learning Collaborative is now “inBloom.”

Toward Comprehensive Learner Profiles

To illustrate some of the breadth of a comprehensive Learner Profile, this exhibit includes examples of the rich and rapidly developing landscape of tools. Profiles will include student information systems, gradebooks, portfolios, and non-cognitive variables. Data will be shared within networks or across state lines using facilities like [The National Transcript Center](#). The list of profile elements is illustrative and not comprehensive.

Student Information Systems

[PowerSchool](#) is a student information system that supports 10 million students. In states like Idaho, students can move from one school or district to another and their “Digital Backpack” follows them. When a student moves from any PowerSchool district to another, the student record is transferred to the new school. In districts with PowerSchool and Schoolnet, an integrated backpack combines the gradebook data with summative and formative assessment data. Any special documentation (RTI, IEPs, etc.) is also attached.

[Infinite Campus](#) manages more than 5 million students. Scheduling tools help match students with teachers based on learning plans. Other widely used systems include [Illuminate Education SIS](#) , [Genius SIS](#), and [Maestro SIS](#).

Standards-based Gradebooks

[PowerTeacher](#) is the most widely used standards-based gradebook. With similar functionality, [Engrade](#) combines gradebook, attendance, and calendar in one toolset. [Echo](#) powers project-based learning across the [New Tech Network](#). [Project Foundry](#) supports project-based learning and competency tracking in [Edvisions schools](#).

Dozens of schools are sponsoring the development of next-generation tools. For example, [Federal Way Public Schools](#) worked with [Global Scholar](#) on a standards-based gradebook and [E.L. Haynes Public Charter School](#) sponsored the development of [SchoolForce](#) gradebooks.

Portfolio of Student Work

[Digication](#) and [Pathbrite](#) are comprehensive e-Portfolio providers for K-12 and higher education. [OpenSchool ePortfolio](#) is an open resource. [Three Ring](#) manages student artifacts.

Non-cognitive Variables

[Renzulli Learning's Personal Success Plan](#) helps students identify their interests, develop talents, associate with role models, and create goals and plans. [Goalbook](#) helps educators, students, and parents collaborate on personal learning plans for students with special needs based on individual learning goals and needs.

[TurnAround for Children](#) helps New York City schools measure and address the predictable effects of poverty on cognitive, social, and emotional skills. The [Strive Network](#) dashboard combines academic and non-academic student support data from sources inside and outside the classroom to form a comprehensive student profile and evaluate programs and investments.

[Naviance](#) helps high school students and teachers navigate college and career readiness with tools to monitor student performance and provide early warning indicators for falling off-track.

Next Generation Learning Platforms

Over the next few years, the ability to capture several orders of magnitude more data about each student will develop. Next-generation tools and platforms will make it easier to create, manage, and use Learner Profiles to personalize learning.

Adaptive Engines that Modify Instruction Based on Student Responses

- [Dreambox Learning](#) provides an adaptive game-based K-5 math product.
- [i-Ready](#), from [Curriculum Associates](#), is an adaptive K-8 reading and math diagnostic with aligned instruction.
- [NWEA](#) has an adaptive K-12 math and reading assessment linked to [Compass Learning](#) content.

- [Wireless Generation](#) provides formative assessment, learning analytics, and adaptive curriculum to improve student achievement.
- [READ180](#) is a blended reading intervention program for grades 4-12 that leverages adaptive technology to individualize instruction for students and provide data for differentiation to teachers.
- [Alleyoop](#) uses a game-based approach to engage students who need additional support in math and science outside the classroom.
- [Knewton](#) queues [MyMath Lab](#) content based on student success in Arizona State developmental math courses.

Blended Learning Platforms

- [EdElements](#) powers classroom rotation-blended learning models at KIPP LA, Alliance for College Ready Public Schools, and IDEA Public Schools.
- Learning management systems like [Brainhoney](#), [Desire2Learn](#), and [Vschoolz](#) continue to add personalization tools for blended learning environments.

Blended Math Platforms with Customized Playlists

- Teach to One: Math from [New Classrooms](#) (the inventors of School of One) combines diagnostic academic assessments and non-academic surveys to develop an initial Learner Profile and use daily feedback to recommend a possible instructional experience for each learner each day.
- [Summit Public Schools](#) is working with [Illuminate](#) and [Khan Academy](#) to build customized math playlists for every student.

Curated Content Playlists

- Social learning platform [Edmodo](#) provides its more than 11 million teachers and student users a secure place to connect, collaborate, and share content—including tools that allow students to share their feelings about assignments with their teachers.
- [PowerMyLearning](#) has grade-level learning experiences that teachers, parents, and students can use to build customized playlists.
- [eSpark Learning](#) recommends iPad apps for elementary students based on identified needs and interests.
- [Gooru Learning](#) is a search engine for learning with open grade level resources.
- [The Floe Project](#) and [The Gateway](#) are big open education resource libraries with tools that aim to match learner needs with suitable content.

Educational Data Resources

Research and Reports

- Brookings Institution. [Big Data for Education: Data Mining, Data Analytics, and Web Dashboards](#)
- Chronicle of Higher Education Special Report. [Big Data's Mass Appeal](#)
- Data Quality Campaign. [10 Essential Elements of Statewide Longitudinal Data Systems 10 State Actions to Support Effective Data Use](#)
- Knowledge Media Institute, The Open University. [The State of Learning Analytics in 2012: A Review and Future Challenges](#)
- McKinsey Global Institute. [Big data: The next frontier for innovation, competition, and productivity](#)
- New Media Consortium. [2012 Horizon Report, Higher Education](#)
- U.S. Department of Education, Office of Educational Technology. [Enhancing Teaching and Learning Through Educational Data Mining and Learning Analytics](#)

Resources

- [Achievement Standards Network \(ASN\)](#)
- [Common Education Data Standards \(CEDS\)](#)
- [Digital Learning Now! Roadmap to Reform](#)
- [Ed-Fi](#)
- [EDUCAUSE Learning Analytics Resource Page](#)
- [Learning Resource Metadata Initiative](#)
- [National Education Data Model \(NEDM\)](#)
- [Postsecondary Electronic Standards Council \(PESC\)](#)
- [School Interoperability Framework \(SIF\)](#)
- [inBloom](#)
- [U.S. Department of Education Office of Technology Research and Reports Website](#)

The Shift From Cohorts To Competency

Competency Education Resources

- [CompetencyWorks](#) and the complementary [Competency-Based Pathways Wiki](#) are loaded with resources. Find out how classroom practices change and information on optional grading policies, advancements in state policy, and more. You can also find issue briefs on a range of topics.
- [It's Not A Matter of Time — Highlights from the 2011 Competency-Based Learning Summit](#). Learn about important topics from the 2011 Competency-Based Learning Summit, such as what competency

education is, how to get started, the challenges in implementing competency education, and how to personalize the process for your students.

- [Art and Science of Designing Competencies](#). Learn how to design and create competencies in a classroom and how to create the environment teachers need in order to implement these competencies successfully.
- [The Learning Edge: Supporting Student Success in a Competency-Based Learning Environment](#). Understanding how to structure supports is important, because learning in a competency-based environment means that students and adults are often on the edge of their comfort zone and competence: the learning edge. This paper describes how innovators are designing school culture, embedding supports, and organizing resources to ensure students are progressing and on pace.
- [Making Mastery Work: A Close-Up View of Competency Education](#) by Nora Priest, Antonia Rudenstine, and Ephraim Weissstein, Nellie Mae Education Foundation 2012.
- [State Strategies for Awarding Credit to Support Student Learning](#) published by the National Governor’s Association.
- [Case Studies of Three Districts in Maine](#). This study discusses how school districts, teachers, and communities have explored the potential for customized and competency-based education. The Maine Department of Education has made a series of [videos](#) and case studies available to help other districts.
- [Developing Rigorous Competencies for Off-track Youth: A Case Study of Boston Day and Evening Academy](#) by [Jobs for the Future](#)
- [Off the Clock: Moving Education from Time to Competency](#) by Fred Bramante and Rose Colby. This book provides an in-depth look at New Hampshire’s journey towards a competency-based system. The authors provide personal reflections as well as detailed descriptions of the policy changes, stakeholder engagement, and implementation decisions.
- Iowa’s Online Forum on Competency Based Education <http://iacompmed.com/>.
- [Strengthening High School Teaching and Learning in New Hampshire’s Competency-Based System](#) by The Alliance for Excellent Education
- [Federal Innovation Competitions: A Catalyst for Competency Education](#) by Knowledgeworks
- [Necessary for Success: Building Mastery of World-Class Skills – A State Policymakers Guide to Competency Education](#), a CompetencyWorks Issue Brief

Funding Students, Options, and Achievements

School Funding Resources

- Center for American Progress: The Stealth Inequities of School Funding. <http://www.americanprogress.org/wp-content/uploads/2012/09/StealthInequities.pdf>
- Center for Reinventing Public Education (CRPE) Publications. <http://www.crpe.org/publications>
- CRPE: Funding Student Learning: How to Align Education Resources with Student Learning Goals. <http://www.crpe.org/publications/funding-student-learning-how-align-education-resources-student-learning-goals>
- CRPE: Now Is a Great Time to Consider the Per Unit Cost of Everything in Education. <http://www.crpe.org/publications/now-great-time-consider-unit-cost-everything-education>
- CRPE: Student-Based Allocation to Enable School Choice. http://www.crpe.org/sites/default/files/rr_10_sba_2013_jan13.pdf
- CRPE: Facing the Future. <http://crpe.org/publications/facing-future-financing-productive-schools>
- CRPE: Breaking Down School Budgets. <http://www.crpe.org/publications/breaking-down-school-budgets-following-dollars-classroom>
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- Minnesota Department of Education provides many reports on accountability and assessment of its own online education programs: <http://w20.education.state.mn.us/MDEAnalytics/Data.jsp>
- Virtual Schooling at the Middle Grades: A Case Study, Journal of Distance Education: <http://www.jofde.ca/index.php/jde/article/view/145/386>

Where To Find Online Education Programs

- Keeping Pace’s database of state virtual/online schools: <http://kpk12.com/states/>
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Digital Learning Legislative Activity

The [2012 Digital Learning Report Card](#) reveals that states are making significant progress in advancing reforms that support the 10 Elements, noting that more than 700 bills involving digital learning were considered in 2012 and more than 152 signed into law. Nearly every state enacted a bill that advanced a digital learning policy.

Conclusion: The Start of an Important Conversation

None.