

SEPTEMBER 2011

Pull and Push:

STRENGTHENING DEMAND FOR INNOVATION IN EDUCATION

Kim Smith and Julie Petersen





innovation
FOR THE PUBLIC GOOD

A Case Study of US Education



BELLWETHER
EDUCATION PARTNERS
IDEAS | PEOPLE | RESULTS

© 2011 Bellwether Education Partners

-  This report carries a Creative Commons license, which permits noncommercial re-use of content when proper attribution is provided. This means you are free to copy, display and distribute this work, or include content from this report in derivative works, under the following conditions:
-  Attribution. You must clearly attribute the work to Bellwether Education Partners, and provide a link back to the publication at <http://bellwethereducation.org/>.
-  Noncommercial. You may not use this work for commercial purposes without explicit prior permission from Bellwether Education Partners.
-  Share Alike. If you alter, transform, or build upon this work, you may distribute the resulting work only under a license identical to this one.

For the full legal code of this Creative Commons license, please visit www.creativecommons.org. If you have any questions about citing or reusing Bellwether Education Partners content, please contact us.

SEPTEMBER 2011

Pull and Push:

STRENGTHENING DEMAND FOR INNOVATION IN EDUCATION

Kim Smith and Julie Petersen

Third in the series from **innovation**
FOR THE PUBLIC GOOD

A Case Study of US Education



This report was funded by The Rockefeller Foundation. The views and analysis in this report are the responsibility of the authors alone.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	i
INTRODUCTION	1
ON INNOVATION AND DEMAND IN PUBLIC EDUCATION	5
WHAT KEEPS DEMAND FROM PULLING EDUCATIONAL INNOVATION FORWARD?	13
Policy Barriers	13
Information Barriers	17
Cultural Barriers	21
A Last Barrier: Supply	24
STEPS TO SHARPENING AND STRENGTHENING DEMAND FOR INNOVATION.....	25
1. Encourage Early Adopters	26
2. Bolster Smart Adoption.....	28
3. Provide Better Information to Encourage Smart Demand.....	32
4. Reward Productivity Improvements.....	34
CONCLUSION	37

ACKNOWLEDGEMENTS

innovation FOR THE PUBLIC GOOD

A Case Study of US Education

ABOUT THIS PROJECT

It is widely acknowledged that innovation will be necessary to dramatically improve public services in America. But innovation in the public sector doesn't happen in a vacuum; innovation happens at the nexus of policy, research, capital, and practice. This project looks at one case study – education – by analyzing some of the key aspects of an emerging ecosystem for innovation in public education in the US, including the flow of investment capital for such efforts, the uptake of innovations by buyers and users, federal efforts to stimulate and scale innovation, and ways that technology could facilitate innovation investment and practice. Drawing on surveys, interviews, and working groups, the project highlights recent efforts to fuel and steer more innovation, and frames the remaining challenges that lie ahead for the public, private, and philanthropic sectors. This project culminates in an analysis of the lessons and insights drawn from the recent experience of US public education in comparison to the way leaders are using innovation to address similar intractable social problems in other fields and in other countries.

For more on this project and its publications, visit <http://www.bellwethereducation.org/innovation-for-the-public-good/>.



ABOUT BELLWETHER EDUCATION PARTNERS

Bellwether Education Partners is a national nonprofit organization dedicated to accelerating the achievement of low-income students by cultivating, advising and placing a robust community of innovative, effective and sustainable change agents in public education reform and improving the public and policy climate for their work.

ABOUT THE AUTHORS

Kim Smith is a co-founder and CEO of Bellwether Education Partners. After serving as a founding team member at Teach For America, she went on to found and lead an AmeriCorps program for community-based leaders in education as well as a business start-up. After completing her M.B.A. at Stanford University, Kim co-founded and led NewSchools Venture Fund, a venture philanthropy firm focused on transforming public education.

Julie Petersen is a freelance writer and editor. As communications director at NewSchools Venture Fund, she led the firm's marketing and publishing efforts for eight years, including articles in *Education Next*, *Urban Education Journal* and several Harvard Education Press volumes. She also spent several years covering technology venture capital and entrepreneurs for *Red Herring* magazine.

INTRODUCTION

As we consider creating change in public education, we must remember that the world around our public schools has changed, and our expectations for what our schools must deliver have risen. Where we once built public schools to educate a small number of citizens to a high level—and get the rest culturally assimilated—we’ve since layered onto those schools requirements like equitable access and funding, concrete academic standards, and assessment and accountability mechanisms intended to demonstrate whether students are making real progress against those standards. What’s more, we’re increasingly asking that schools prepare all children to earn a college degree. But expecting the public school system to deliver at both a higher level and a larger scale than it was designed to do—and with the same dollars, or increasingly even fewer—is the classic definition of a productivity crisis.

By “productivity” we do not mean merely “efficiency.” Efficiency is about cost savings and, when narrowly pursued, can actually put quality at risk. But improving public education is not about cutting corners, it’s about delivering greater and deeper learning to a greater number of our children, particularly those who have not been well served by public schools, but needing to do so with fewer resources at our disposal. Therefore, improving educational productivity means accomplishing a greater amount of student achievement and attainment—with the same or fewer resources, be they time, money or energy, or all of the above.

To get there, we will need to tap innovation—which, despite the allure surrounding the term today, in our usage means simply a new approach that produces better results and can work at scale. This paper is part of a wider *Innovation for the Public Good* project, developed with the support of the Rockefeller Foundation, which is focused on fostering innovation in order to improve education for the good of our students, our communities, our economy and our country.¹ Other papers to date in this series—including *Steering Capital* on the financial capital markets for education innovation, and *Supporting and Scaling Change* on federal efforts to stimulate innovation—have focused on creating a high-quality supply of innovation, and on removing the impediments to doing so. This paper will examine the other side of the equation: the demand for innovation by educator and student users, school and district buyers, policymakers, and others who provide funding for educational goods and services, like foundations and even parents. Strengthening, sharpening and “smartening” the way these buyers and users find and implement innovation can make a big difference in bringing more productive, effective teaching and learning approaches to the kids and schools that need it.

The pace of innovation is linked in part to the “push” of researchers, entrepreneurs and others who find and develop new ideas into useful products and services, but also to the “pull” of the market’s buyers and users.

The pace of innovation is linked in part to the “push” of researchers, entrepreneurs and others who find and develop new ideas into useful products and services, but also to the “pull” of the market’s buyers and users. Innovation researchers in the private sector have found that emphasizing “push” without attending to “pull” may seem more expedient in the short term, but is far less effective. “The highly specified, centralized, and restrictive nature of push systems prevents companies from experimenting, improvising, and learning as quickly as they might,” wrote John Seely Brown, former head of the legendary Silicon Valley innovation factory Xerox Palo

Alto Research Center (PARC)—a laboratory known for the kind of deep, ongoing research and development that has been largely missing in education.²

In other sectors, the “venturesome” role of customers allows innovation to flourish. As innovation researcher Amar Bhide has observed, “the willingness and ability of users to undertake a venturesome part plays a critical role in determining the ultimate value of innovations.³” In other words, early customers assume some of the critical early risk in product development by purchasing imperfect products and services and providing the feedback necessary to refine them. For innovations that prove their worth, these “early adopters” are followed by more conservative customers who wait for the kinks to be worked

out and purchase only when they're convinced a new product or service is clearly well worth the money or hassle of switching. We call these venturesome buyers and users “smart demand”—customers that have high expectations for new products and services that will meet their needs, that push suppliers to create and innovate, and that support innovations by adopting those that lead to better outcomes at lower costs. As a result, innovation happens more quickly, and results in better outcomes due to tighter linkages to evolving customer and user needs, more widespread adoption, and at lower costs.

But in education, there simply isn't enough of this so-called “venturesome” or “smart” demand to go around. Education buyers—mostly districts, but also states and schools—are, like most government agencies, extremely conservative and with complex, increasingly difficult jobs. In many ways, they are appropriately cautious about inviting too many potentially disruptive programs into their midst, careful about making waves among teachers and parents, weary after previous decades of reforms—including curriculum materials and computer software that made exaggerated claims of revolutionizing learning. For the most part, even the most hard-working and well-intentioned among them do not appear to be focused on optimizing the return on investment of every public dollar they spend, or determining what would make their employees as productive as possible, or surfacing and serving the diverse latent needs and wants of students and parents, or sifting through the market of available products and services to find the best available fit for these needs.

To be clear, there are some early adopters who eagerly push the market forward by piloting new programs and experimenting with new technologies, but the wider education field rarely rewards these innovators by adopting more effective innovations quickly and broadly, as other fields like technology, retail and manufacturing commonly do. This paper will summarize the barriers that minimize the number and power of early adopters and that limit wider adoption and the spread of innovations, including:

- » **Policy barriers**, including lack of incentives for improvement, inflexible funding mechanisms and the separation of users from buyers;
- » **Information barriers**, including a dearth of understanding of the needs and preferences of users and buyers, as well as limited data about the availability, usage, cost and quality of educational products and services; and
- » **Cultural barriers**, including the tendency to operate within silos, a mistrust of outside solutions or approaches, a reliance on relationship-based sales, a reluctance to measure return on investment or replace labor with technology—and processes designed to reinforce these behaviors.⁴

After considering these barriers, we will present a range of approaches to strengthening demand for innovation in public education. Based on a survey of and interviews with a variety of stakeholders in the system and a problem-solving meeting that looked both inside and beyond education to identify lessons and opportunities, we identified four primary ways to ensure that the educators who make up the demand part of this equation can act as a greater lever for innovations to improve student outcomes and overall productivity:

1. **Encourage early adopters:** Identify, support and strengthen the work of education's existing early adopters.
2. **Bolster smart adoption:** Replace policy and operational barriers that inhibit smart adoption with infrastructure that encourages it.
3. **Provide better information to encourage smart demand:** Create useful information tools to inform and strengthen both early and mainstream demand.
4. **Reward productivity improvements:** Redefine the culture of public education so that people and organizations are able to identify, obtain and be rewarded for improved outcomes and productivity.

ON INNOVATION AND DEMAND IN PUBLIC EDUCATION

Innovation has become an over-used term in public education (not to mention in the business sector and increasingly in the public sector as well). The simplest definition of an innovation for our purposes is: a new approach that produces better outcomes (and can work at scale). Innovation takes many forms beyond the most familiar *product innovations* like the automobile, including *process innovations* like washing hands to prevent disease in medical contexts, *platform innovations* like the Internet or the iPhone that enable massive shifts in entire ecosystems, and *market innovations* like the creation of nonprofits as a specific classification of organization in the American tax code.⁵

As we have discussed at length in other papers in this series,⁶ an effective innovation cycle is at its heart an ongoing cycle of improvement and learning in which all stakeholders are committed to common goals, with a shared understanding of the metrics that will indicate progress, and to the notion that informed experimentation is necessary for continuously improving outcomes.

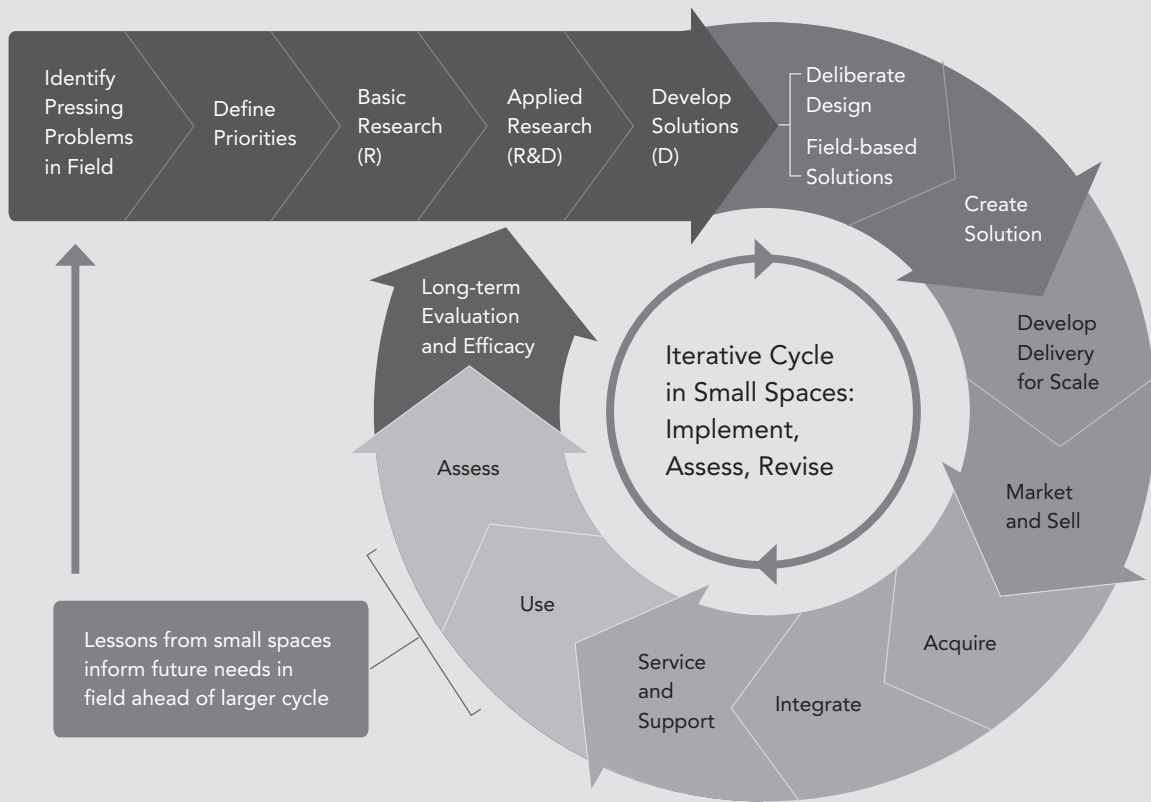
Unfortunately, this innovation cycle in US public education is broken. Although the issues inhibiting innovation in education are many, going all the way back in the cycle to significant underinvestment in research and development, this paper will focus primarily on the “demand” side of this cycle—that is, the disconnect between suppliers and researchers and

the educators (customers and users) they seek to serve, and on the limited uptake engine for innovation in education, which has a dampening effect on the development cycle for innovations.

This cycle takes place within an ecosystem of educational stakeholders, including students, teachers and administrators that use and benefit from innovations, but also schools and school systems, which tend to be the key “buyers” or “customers” of educational innovations, as well as parents and communities who can either encourage or discourage adoption of innovations. The supply side includes traditional outside providers of goods and services

FIGURE 1

The Cycle of Innovation



Source: Bellwether Education Partners analysis

like textbook and assessment publishers and the higher education institutions that train and certify teachers and principals, but also newer nonprofit and for-profit entrepreneurial entrants that develop new solutions such as charter schools, professional development, technology tools or alternative teacher training routes. As in most markets, some stakeholders are both suppliers and demanders, such as districts or charter school management organizations that supply educational services to particular communities but also purchase educational tools and programs, or foundations that sometimes provide funding to build the supply of innovative solutions and other times provide funding to district and state buyers to acquire solutions.

Many have observed that our public education system is simply not set up to demand, reward and incent greater and faster innovation as many other sectors have done. In a way, this paper is about unpacking this problem. It is in part about the behaviors of the schools, districts and states that buy educational products and services on behalf of the educators (administrators, teachers, support staff) that use them and the students and families they ultimately serve. But more broadly, it is about the systemic dynamics that contribute to dysfunction in this process, ranging from the lack of incentives and rewards for continuous improvement of learning, to the misalignment of goals and priorities and metrics across different stakeholders in education, to a strong mistrust of market forces (including parental school choice as well as the potential to effectively engage non-public entities as publicly accountable providers). These dynamics

pervade everything from public education policy and cultural operating norms, to the public's perception of what's possible or desirable, to the operational infrastructure and funding of schooling, and thus confound efforts to make educator demand for innovation stronger and smarter.

Educational buyers are rarely seen as clamoring for products that will make dramatic improvements in the way they work or the outcomes they accomplish, and the needs and preferences of forward-thinking users are rarely the basis of development and innovation.

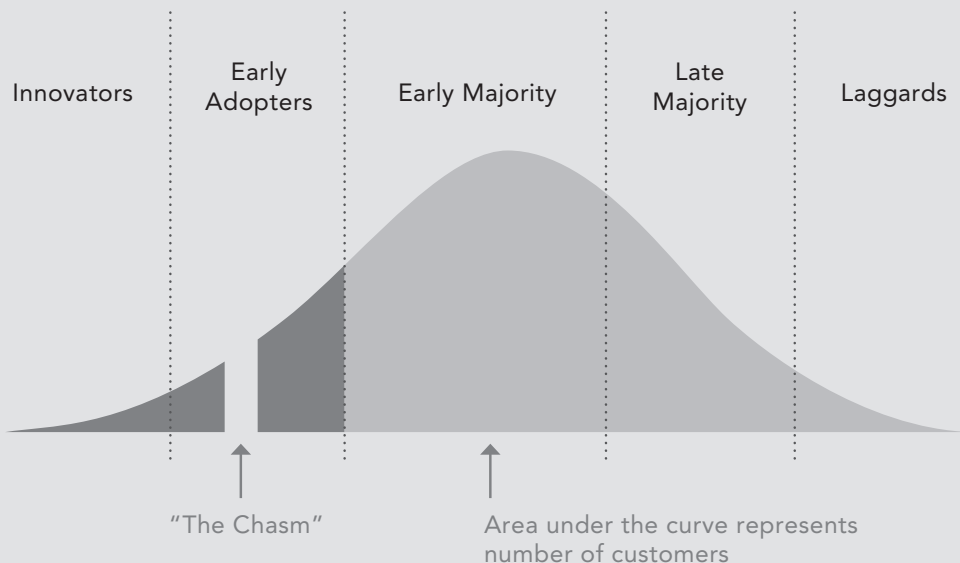
As we'll explain further below, public education in the US has had a notoriously weak "demand" function—that is, educational buyers as a whole are rarely seen as clamoring for products that will make dramatic improvements in the way they work or the outcomes they accomplish, and the needs and preferences of forward-thinking users are rarely the basis of development and innovation cycles, which are more often organized around the largest customers or the lowest common denominator across customers. To fuel innovation in education, we need a "smarter" demand function in the ecosystem—including cutting-edge customers and buyers that have high expectations for new products and services that

will meet their needs, who have the power to push suppliers to create and innovate, and then drive adoption for those solutions that lead to better outcomes at the same or lower costs. Not only do we need to identify and support more of these early adopters in pulling innovation forward, we also need incentives and infrastructure that help ensure the wider market will make well-informed decisions about purchasing innovations that have a demonstrated impact on student achievement with operational efficiency.

In his landmark book on the adoption of technology innovations, *Crossing the Chasm: Marketing and Selling High-Tech Products to Mainstream Customers*, author Geoffrey Moore lays out a typology of innovation customers that has useful implications for education.⁷ Moore observed the way demand for new innovations works in the technology field (where, like in education, there are complex tasks to be accomplished and the need for constant

FIGURE 2

Technology Adoption Lifecycle



Source: *Crossing the Chasm*, Geoffrey Moore

learning and improvement). The “chasm” to which Moore refers is a yawning gap—into which many innovations fall, never to climb back out—between the eager “innovators” and “early adopters” who are willing to take a risk on an unproven innovation, and the rest of the market. “The chasm represents the gulf between two distinct marketplaces for technology products—the first, an early market dominated by early adopters and insiders who are quick to appreciate the nature and benefits of the new development, and the second a mainstream market who want the benefits of new technology but do not want to ‘experience’ it in all its gory details,” writes Moore. “The transition between these two markets is anything but smooth.”

In Moore’s typology, “innovators” might also be thought of as “enthusiasts” who are passionate about any new advance in technology, rely mostly on intuition when making a purchasing decision and are willing to put up with bugs in exchange for a free or cheap product that they can play around with. Meanwhile, the critical “early adopter” crowd has a different set of demands: they are motivated by technologies that will address the strategic core of their work, they want to see real references to prove the innovation works (but not too many—they don’t want to be too late to the party). These early adopters are relatively easy to sell, and less price-sensitive than enthusiasts, but are demanding and hard to please once the sale’s been made. The vast majority of the market falls into what Moore terms the “early majority,” characterized as “pragmatists” that are keen on incremental, measurable, predictable progress. They want to reduce their risk by seeing a reference list of similar customers, and by choosing from among a field of many competitors, so they know that if it all falls apart they have somewhere else to turn. Though the early majority is price-sensitive, it tends to be loyal and to make repeat purchases for many years. (Moore doesn’t spend much analytic energy on the “late majority,” which craves the simple and traditional, and only buys once products have become inexpensive commodities. He also has little to say about the laggards who avoid new technologies entirely.)

These typologies are relevant to the education field. While Moore’s work focused on information technology (computers and the like), we will consider the broader definition of “technology” as Clay Christensen and his co-authors do in their recent book, *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns*: “the processes by which an organization transforms inputs of labor, capital, materials, and information into products and services of greater value.”⁸ In education, there are—and always have been—a small group of innovators, “intrapreneurs” and eager early adopters who consciously try to “pull” the market forward. In spite of the dysfunctional systemic forces around them, and the incredible complexity of their work, these educators and policymakers are focused

on constant improvement and on seeking out or creating innovations that can dramatically improve educational productivity. They probably don't talk about it in those terms—perhaps they talk instead about “helping teachers be more effective,” or “providing timely and useful data to teachers and principals so they know what works,” or “providing tools for students to own and manage their own progress through academic or social development.” These early adopters are “mavericks,” obsessively focused on outcomes for students, who actively seek new solutions, have an innate drive to constantly learn and improve, and embrace being held accountable for—and rewarded for—success. The most advanced among them also have an understanding that not all effective instruction or schooling needs to look the same, and that the needs and preferences of students, families and communities must be front and center. They believe that, as professionals, teachers need and deserve useful, timely data to help them understand what is effective and where they need to work on their craft, and that the currently available tools—including curriculum materials, student assessments and data systems—are not yet sufficient.

These eager innovators and constant learners are who we refer to as “smart demand,” because they actively want suppliers to make better and more effective tools and services and are willing to get help from outside partners in order to increase their impact (or “productivity”). However, in public education, we don't systematically identify, support or encourage these folks very much. Though many of these mavericks operate within traditional districts, the chartering mechanism has allowed a cadre of them to align governance, management, teachers, parents and students around their vision within charter school management organizations, which creates a special opportunity for experimenting with innovation and constant learning cycles among like-minded professionals and students. The total population of such mavericks is relatively small, and their market influence fades in the face of a system that optimizes for the greatest across-the-board outcomes; they are too often ignored by suppliers like publishers and technology companies, who face strong economic pressure to build tools and create services and supplies that meet the needs of the large middle of the market. In fact, some of them have been so disheartened by the lack of available innovations that they've become “do-it-yourselfers”—that is, they end up developing their own custom technology platforms or teacher development programs, because the innovation ecosystem doesn't meet their needs for improvement.⁹ But relying on “do-it-yourselfers” is problematic in a complex field, because not only are these in-house innovations rarely able to scale to meet the needs of other school systems, they also generally distract excellent educators from focusing on their core business of educating students. We should be investing in innovation in a way that serves leading educators so they do not have to do both at the same time. There

is a reason we do not generally ask our medical practitioners (doctors, surgeons, nurses) to develop and lead the medical device innovation cycle while running their medical practices—though their input is regularly included to ensure that their needs are identified and being met—and we should likewise not be asking our best educators to do double duty either.

Education buyers—mostly districts, but also states and schools—are, like most government agencies, extremely risk-averse with complex and increasingly difficult jobs. In many ways, they are appropriately cautious about inviting too many potentially disruptive programs into their midst, careful about making waves among teachers and parents, weary after previous decades of reforms—including curriculum materials and computer software that made exaggerated claims of revolutionizing learning. For the most part, even the most hard-working and well-intentioned among them do not appear to be focused on optimizing the return on investment of every public dollar they spend, or determining what would make their employees as productive as possible, or surfacing and serving the diverse latent needs and

In order to achieve the kinds of productivity improvements our children deserve, we must identify and empower the cutting-edge educators who make up “smart” demand, expand the number of these buyers and users, and dismantle the policy, operational, informational and cultural barriers that inhibit widespread adoption.

wants of students and parents, or sifting through the market of available products and services to find the best available fit for these needs. As a consequence, the bulk of the public K-12 education field is made up of more risk-averse customers and users who at least appear to only be open to innovations when they are proven and already widely accepted by others. (See the next section for much more on the policy, information and cultural reasons for this.)

In order to achieve the kinds of productivity improvements our children deserve, we must identify and empower the cutting-edge educators who make up smart demand, expand the number of these buyers and users, and dismantle the policy, operational, informational and cultural barriers that inhibit widespread “smart” adoption. Together, these three steps will help ensure that the entire education ecosystem, including the largest swath of mainstream buyers—and indeed, the millions of students and families they serve—can dramatically improve.

WHAT KEEPS DEMAND FROM PULLING EDUCATIONAL INNOVATION FORWARD?

Before we turn to ways to encourage and strengthen smarter demand in K-12 education, let us revisit the primary barriers that keep it from being smart to begin with.

Policy Barriers

As a public good, public education is delivered through a publicly funded infrastructure that has been developed, with many layers of regulation and bureaucracy, over the last several centuries in an effort to protect students (and to a great extent its core employee base, teachers). As such, public education struggles with many of the same barriers to innovation as the public sector writ large; as noted by the Center on American Progress and the Young Foundation, these include: a lack of incentive to change, an aversion to admitting that government may not have all the answers, a fear that any failure will be seen as “wasting” public dollars, and the political reality that what’s popular with voters (such as more teachers or police officers or smaller class size) may not always be what’s most effective or the most productive use of resources.¹⁰

Certainly, many of these challenges are present in public education. Moreover, public education is hampered by a lack of agreement and clarity about its goals, as well as

inconsistent (or sometimes nonexistent) metrics for success. As mentioned earlier and detailed in our recent *Steering Capital* paper, there is not a broad and explicit agreement about the goals of education, which makes targeting innovations and measuring progress incoherent.¹¹ Unlike, say, the environmental movement, which has worked for a long time to reach consensus on some quantifiable goals for reduction of emissions that have in turn spurred a range of technology and market innovations that creatively address the challenge, the field of public education still spars about crucial issues like: the relative importance of proficiency for all, the appropriate “cut scores” that determine proficiency and mastery, the proper way to calculate graduation rates, and whether all students should pursue postsecondary education. Though the development of state standards helped begin to shift the emphasis from inputs like spending equity and relative student performance toward mastery of specific content and skills, the fragmentation of such standards—and the myriad standardized assessments designed to measure progress—have created a patchwork quilt of educational goals and quality in which it is nearly impossible to learn about the practice by comparing the educational outcomes of two different students, much less two different teachers or schools or states. Coupled with inconsistent approaches to measuring everything from proficiency to graduation rates, the result is a public education system that fundamentally struggles to

“Whether a school does well or poorly, it will get the students it needs to stay in business, because most kids have no other choice. And that, in turn, creates no incentive for better performance, greater efficiency, or more innovation.” – Joel Klein, former New York City schools chancellor

define success. In this context, it’s no wonder it’s been so hard to make improvements at scale. Though progress is being steadily made on defining agreed-upon desired outcomes—through the development of Common Core standards and investment in developing more robust, diverse, mastery-based and aligned assessments—and on standardizing performance metrics like graduation rate calculations, for the most part appropriate metrics and user-friendly systems for capturing and using this data lag even further behind.

What’s more, the way public funding flows—based largely on input formulas for things like the number of students or buildings in a given location, or the amount of time spent—practically guarantee that the status quo will prevail. As former New York City schools chancellor

Joel Klein recently pointed out about the current system: “Whether a school does well or poorly, it will get the students it needs to stay in business, because most kids have no other choice. And that, in turn, creates no incentive for better performance, greater efficiency, or

more innovation—all things as necessary in public education as they are in any other field.”¹² Federal, state and local education agencies are responsible for setting standards for effective education, spending taxpayer dollars to educate students and ensuring that those dollars were spent carefully—but not for setting standards that flexibly accommodate a range of providers, funding structures that accommodate rapid decision-making at the school or user level, or optimizing the return on every dollar spent. The vast majority of money spent on schools comes from states, who provide those dollars to districts to spend on schools and administration; most of that money is spent on teachers, with just 3.5 cents of every dollar spent on materials, tools and services, and even that money is mostly required to be spent on mandatory textbook purchases and standardized tests with little left over for trying anything new or innovative.¹³ “With the movement toward holding schools and districts accountable for student outcomes, we might think that officials can precisely track how much they are spending per student, per program, per school,” notes Marguerite Roza of the Center on Reinventing Public Education at the University of Washington (UW-CRPE). “But considering the patchwork that is school finance—federal block funding, foundation grants, earmarks, set-asides, and union mandates—funds can easily be diverted from where they are most needed.”¹⁴

Moreover, there is rarely any upfront investment at all made in developing or trying radically new ways of delivering education—let alone the capacity-building needed for district and state employees to handle this shift. “Most states tie up fiscal resources by funding dozens of different programs, and then forbidding schools and districts from making alternative uses of dollars given for particular purposes,” explains Roza’s UW-CRPE colleague Paul Hill. “As in every other field where performance is unacceptable but higher performance is clearly possible, rules on the uses of funds must be opened up so that: money and people can flow from approaches that are less productive to those that are more productive, potential innovators are encouraged to invest time and money developing new approaches, fair comparisons can be made between new and dominant approaches, and performance improvement is the focus of accountability.”¹⁵

Other barriers cement these policies into operational structures and entities that prevent productive change. For example, in their quest to define instructional standards while keeping costs low, statewide textbook adoption committees approve new materials every few years—but operate at a distance from the rapidly changing needs of classroom teachers, who cannot wait several years for new content and find themselves increasingly turning to the Internet for instructional resources. “State textbook adoption policies inadvertently reinforce [publishers’] monopoly by engaging adoption committees who are often inclined to seek out the least offensive material or books that cover the most material on the state standards

list—not necessarily the most accurate, engaging, or likely to meet student needs,” explained a recent bipartisan report focused on encouraging innovation in education.¹⁶ This is caused in part by school administrators feeling forced to minimize the cost of textbook spending (a business that favors the printing of many copies of the same thing, making customized content prohibitively expensive to produce) and the amount of quality control they’ll have to conduct. “Administrators understand that no single text can be effective for each student because different students learn differently. But, in the old model of instruction, needing to choose a single text for all students to use, the best they can do is a one-size-fits-as-many-as-possible solution,” note the authors of *Disrupting Class*.¹⁷

Further, at the state and local level, procurement policies designed to protect against fraud or favoritism often overshoot the mark, making it virtually impossible for suppliers to engage directly with school buyers or users like teachers or principals, let alone students themselves. “To prevent public officials from developing cozy relationships with vendors, procurement regulations typically require thoroughly arms-length dealings with potential vendors,” explains the *Stimulating Excellence* report. “This arrangement can work well when a district is buying a well-defined service or product that already exists in the market, such as pencils or landscaping services. It creates problems, however, when districts need vendors to create something new, such as a data analysis system or a new model of professional development.”¹⁸ This hampers effective decision-making by schools and districts, which are shielded from an understanding of what’s on the market that might meet their needs, and slows the development and spread of effective solutions by suppliers kept relatively clueless about users’ needs. What’s more, educators rarely have school-level autonomy over their budgets, which keeps them from choosing the products and services most closely tailored to the needs of their students and staff.

This has implications for the supply of innovative products by outside organizations. Because procurement policies were built to protect the public good against the potential downside of favoritism, they sometimes scare away prospective partners who might achieve greater effectiveness, but would need more input and iteration—and ownership—in order to do so. “Small entrepreneurial organizations want to build their business, so our usual work-for-hire contract—in which we take over the intellectual property they create—doesn’t work for them,” says Arthur VanderVeen of the New York City Department of Education. “Government bureaucracy has an impulse to protect the interest of taxpayers but doesn’t understand the value that can get leveraged if we enable these small companies to grow and take their value elsewhere.” VanderVeen also notes that procurement tends to be organized around large centralized purchases, and is sufficiently complex to make piloting new

“[In education] the customer is not the student, or even the family. And not even the employers, certainly not the economy. The customer role is played out by the political expressions of the adults who preside over the system.”

– Curtis Johnson and Ted Kolderie, *Education|Evolving*

technologies difficult, time-consuming and expensive, which biases districts like New York toward buying one big new system every several years rather than many frequent, iterative purchases of small programs or tools every few months or every school year.¹⁹ (Indeed, the question of how long an innovation should be tested to determine its efficacy is a significant one, which underpins the discussion in the section that follows on information.)

Most crucial of all, in education, the buyer is almost never the user—and in fact is rarely incented to listen to users. “[In education] the customer is not the student, or even the family. And not even the employers, certainly not the economy,” explain Curtis Johnson and Ted Kolderie of *Education|Evolving*. “The customer role is played out by the political expressions of the adults who preside over the system.”²⁰ Educational buyers—often states and districts that purchase goods and services on

behalf of schools and students—are often responding to policy constraints or rules rather than expressed user needs and preferences. When innovations aren’t sold directly to users or buyers with incentives to listen to users, not only is it challenging to build the right solutions and target the people who need them—it also creates a broken feedback loop, with many missed opportunities to refine products and services based on experience. This is exactly what unfolds in education.

Information Barriers

One of the most fundamental elements of a market that works is the free and open exchange of useful, timely information. This includes information about the people, products and organizations on both the supply side (in this case, vendors of technology tools, teacher training programs and so forth) and the demand side (the state, district, charter school management organization and school buyers and the principal, teacher and student users).

Information for Suppliers About Buyers and Users

A functional innovation ecosystem requires a sophisticated understanding of demand, including information about both buyers and users. “We’ve been reluctant as a field to get beyond the surface similarities within our public school communities and really understand the

differing needs and priorities that might benefit from being addressed in different ways,” we wrote in a previous paper, referring not only to student needs but also the needs of different parents, teachers, schools or communities. “Without detailed information, we tend to make sweeping assumptions about what people want or need, defer to ideology or intuition, and end up with suppliers who unknowingly waste valuable time, money, and energy—not to mention frustrated consumers who don’t get the products, services, or outcomes they’re hoping for.”²¹

While businesses routinely conduct this type of analysis, nonprofit organizations addressing public sector issues routinely fail to dig deeply into the needs of their users, explains Daniel Stid, a partner at nonprofit consulting firm The Bridgespan Group:

*Any business strategy worth its name—and I worked on a bunch of them, ranging from a big three automaker selling collision-repair parts into body shops to a pharmaceutical company bringing a “me too” Viagra competitor to market—is animated by an illuminating vantage point on the customer’s perspective. With human services nonprofits and the government agencies that fund them, this hunger to gain deep insight into the needs and perspectives of the people being served is typically much more limited, if it exists at all. The working assumption of the suppliers and their funders alike is that they know what is best for the individuals and families they are serving, who are thereby reduced to essentially passive “recipients.” This working assumption leads more or less directly to the relative lack of outcomes data and user insights that plague so many nonprofits and their funders. Why dedicate yourself to collecting this information, seeking to understand what it means, and continually improving your offering in light of it, if you already know what the people you are supporting need? And why bother given that in most instances your beneficiaries can’t really take their business elsewhere? They aren’t buying your service; rather a third party is paying you to provide it to them. Hence the focus shifts more toward the requirements of who is paying vs. the unmet needs and aspirations of those meant to benefit.*²²

To maximize their understanding of their customers, businesses have drawn on a range of tactics, including market research, surveys, focus groups, and even ethnography: Intel employs dozens of anthropologists and ethnographers that model customers’ needs as a way to predict the development of new markets. “Intel can analyze the latest buying patterns and customer surveys for useful data. But people often can’t articulate what they’re looking for in products or services,” says one of Intel’s anthropologists, Ken Anderson. “By understanding how people live, researchers discover otherwise elusive trends that inform the company’s future strategies.”²³ Likewise, the principle of “user-centered design” (or, as popularized by

design firm IDEO, “human-centered design”) involves significant upfront research in end users’ needs and ongoing testing of their actual behavior relative to the thing being designed, whether a personal product or a public space or even an entire experience like a hospital visit. If companies and designers can invest in such sophisticated modeling of human behavior to understand emerging needs for semiconductors and retail products, surely we should be employing sophisticated and thoughtful techniques to understand and predict user and buyer needs in something as important as public education.

Better market segmentation information in education—alongside careful action taken in response to those findings—would have implications for the supply of innovation, but also for buyers themselves: the more effectively innovation can target actual need in a relevant, useful way, the more likely it is to be adopted in a meaningful way. “Most of the ‘home runs’ of marketing history occurred when people sensed the fundamental job that customers were trying to do—and then found a way to help more people do it more effectively, conveniently, and affordably,” notes Clay Christensen. “If you don’t understand what the customer is trying to accomplish, you don’t know what experiences in purchase and use you need to provide.

And if you don’t understand what these necessary experiences are, you are likely to integrate the elements of your enterprise in ways that are irrelevant to what your customers are trying to accomplish.”²⁴

Better market segmentation information in education—alongside careful action taken in response to those findings—would have implications for the supply of innovation, but also for buyers themselves: the more effectively innovation can target actual need in a relevant, useful way, the more likely it is to be adopted in a meaningful way.

Moreover, there is very little market research on buyer demand in public education, identifying those schools, charter school management organizations (CMOs) and districts hungry to adopt new innovations or willing to adopt particular products or services once more-mature offerings become available—let alone those that have already implemented them. Without a sophisticated understanding of who is using what (and how), it is difficult for suppliers to understand the current portrait of demand and refine their own offerings accordingly. Meanwhile, in forecasting demand, market research like that generated by investment banks provides crude analysis of the expected growth of particular parts of the market—tutoring software, online learning providers, professional development offerings—with nary a

hint about which types of (or actual) customers are most ready to drive that growth. While this shallow market information is typical of disruptive innovative offerings in most markets,

it hinders the spread of innovation in the public sector, where such information might easily be made more transparent.

Information for Buyers and Users About Supply

In a classic 1970 economics paper, University of California–Berkeley professor George Akerlof illuminated what happens when information about supply is better understood by suppliers than by buyers, using a marketplace familiar to many: used cars. When information is asymmetrical (meaning one side knows more than the other, in this case sellers), quality is difficult to ascertain and buyers unwittingly end up buying low-quality “lemons.” This has the effect of driving out quality from the market: no seller of a used car in good shape would bother venturing into a market so overrun by lemons, with no credible way to persuade pessimistic buyers of the higher value of their car.²⁵ (Federal and state “lemon laws” cropped up thereafter to protect buyers of low-quality used cars and other goods.)

In education, there is also a lack of information about available product and service offerings and their cost. And information about their use and effectiveness is nearly impossible

Student progress information is fragmented within and across districts and states, siloed from operational data about programs and costs, and rarely tracked back to the component level so that potential buyers can determine whether specific innovations are effective, and if so, under what circumstances.

to find—and is almost never mandated by policy regulations—which means analyzing likely return on investment in terms of effectiveness or outcome per dollar spent is virtually impossible. Even once innovations are in use, student progress information is fragmented within and across districts and states, siloed from operational data about programs and costs, and rarely tracked back to the component level so that potential buyers can determine whether specific innovations are effective, and if so, under what circumstances. This problem can be traced all the way back to policy arrangements that fail to specify desired outcomes or track activity and spending relative to those outcomes. “The information generated by the 50-state systems typically does not make it possible to judge the quality of particular entrepreneurial service providers or the district in-house offices with which they compete,” notes the *Stimulating Excellence* report cited

earlier. “End-of-year proficiency measures say little about the value that different actors are adding to students’ learning over time.”²⁶ This makes it incredibly difficult to link information

about any given innovation—itself fragmented and hard to come by—with data about the impact those products’ innovations make on the most important metric: student achievement, relative to cost and ease of implementation.

Cultural Barriers

In many ways, the lack of effective demand for innovation in education is a result of a culture of compliance that results from a combination of policy, operational and information barriers, and too few incentives or supports for the kind of constant learning required in an innovation cycle. Too often, educators—especially teachers—are accused of being anti-innovation,

but this allegation is often unfounded. Many (if not most) individual educators are hungry for innovative products and approaches that will help them better reach their students and make better use of their own time—but not for things that add one more “to-do” to their busy days. If anything, most entrepreneurs have told us that contrary to conventional wisdom about educators at the ground level, they find more cultural resistance at the district leadership and management levels, and especially among ossified public policies and inflexible funding formulas that prevent new approaches from taking hold.

At these levels, people have often moved up within the education infrastructure, acutely aware of what has historically not been allowed in the compliance-based system, and with a significant mistrust of ideas and approaches from other sectors. School and district leaders tend to have moved up through the teaching ranks, with little or none of the type of management training that assesses operational, cost, or return on investment trade-offs. “[School administrators are] often promoted from the classroom, and we find that they are often more comfortable with teaching and learning than with procurement,” Larry Berger and David Stevenson of

educational software company Wireless Generation have pointed out.²⁷ “A management style that ignores cost efficiencies in staff time and salaries constitutes an enormous obstacle when trying to convince school systems to purchase a product meant to radically improve efficiency

“The problem for education ventures is that administrators will tend to make decisions within their comfort zone—they will usually choose to solve a problem with additional district people and processes rather than with tools, systems or outsourced resources—without regard to whether the additional district people might be the more expensive or less effective option.” – Larry Berger and David Stevenson, Wireless Generation

or performance,” adds Rick Hess.²⁸ Because district leaders don’t get practice making these cost trade-offs, they tend to make across-the-board spending cuts or politically attractive cuts like reducing centralized support services and maintaining school-level spending, “but with no rigorous analysis to support this approach as the most effective way to drive results while reducing spending,” explains former Harvard Business School professor Stacey Childress, now a program officer at the Bill & Melinda Gates Foundation.²⁹

Moreover, education stakeholders tend to operate largely within their own silo (by the geographic or functional area they work in and by the sector they sit in, such as public or nonprofit). District technology officials hobnob with their district colleagues or other school technologists, rarely with technology executives in the private sector. Teachers connect with other teachers online and offline, rather than with professionals in other service- and information-focused industries, like medicine or energy, that may have lessons to offer educators (and vice versa). In a closed, license-based and publicly managed system like K-12 education, people are trained and groomed inside the system itself, and generally continue to live and work within these silos, and are rarely asked to track performance or learn from other fields—let alone be actively recruited, trained, evaluated or compensated for improving their skills.

As a result, every school and district tends to assume it’s entirely different from not only other industries but even other educational institutions, and so “grapples with its needs in isolation,” as Joanne Weiss, a former education entrepreneur and investor who now works for the US Department of Education, writes. “[Each user] creates its own homegrown, fragmented, one-off programs. Their solutions generally don’t scale well—they start breaking down when too many students or teachers or schools or districts begin using them.” Weiss also explains that in the absence of timely, useful data about the effectiveness of innovative educational approaches and products, school and district buyers fall into the habit of relationship-based sales from large, established publishing companies. “Given the relative dearth of valid, reliable measures of student achievement, few innovative programs can demonstrate their efficacy—so why not select solutions sold by someone you’ve worked with for years, or buy the products that come with the best give-aways, or purchase from the company everyone has heard of?” writes Weiss.³⁰

It’s a vicious circle: with a sales cycle so often anchored in existing relationships with current companies, and huge incentives for those companies to focus on the largest customers rather than the most advanced users, little capacity exists for optimizing return on investment by assessing information about what is available, what works and what impact those solutions

could have on school operations or student outcomes. Purchasing decisions are often assessed relative to the current year's budget, rarely with consideration of the cost of a new program or product relative to other spending already targeting that same area or problem, nor of the total cost of ownership over time. What's more, buying decisions are complicated and disaggregated across a variety of decision-makers, whose checklist of what's acceptable or desired rarely includes a consideration of what the school system's dozens or thousands of educators may need. "Our sales process often involves winning the support of state policy people who oversee the relevant funding streams, academic consultants who advise the districts, key school board members, the district curriculum leadership, the special education department, the office of research and assessment, the Chief Information Officer, the Director of IT, the principals of the individual schools, the reading coaches in the individual schools, the district lawyers," Berger and Stevenson say. "It should be noted that, of this long list of people who are 'in charge,' most of them are only authorized to say 'no.' Only a few people have the budgetary or instructional authority to say 'yes.'"³¹ Venture capitalist and education entrepreneur Chris Gabrieli, who has invested in both education and technology companies, says these dynamics complicate the demand for innovation just as significantly in education as they do in health care, where the needs and desires of patients, doctors and hospital administrators are not always compatible. Likewise, in education, "if federal and state regulators, superintendents, unions and teachers don't agree on which innovations to pursue in order to measure teacher effectiveness, who's the demand?" he wonders.

Technology is a particularly problematic purchase for school systems, especially for products that might change the way people (teachers and leaders) are focused or distributed. "The problem for education ventures is that administrators will tend to make decisions within their comfort zone—they will usually choose to solve a problem with additional district people and processes rather than with tools, systems or outsourced resources—without regard to whether the additional district people might be the more expensive or less effective option," note Berger and Stevenson. "The return on investment mindset that drives other sectors to replace expensive labor with technology, and that sees the logic of scaling such efficiencies rapidly, does not come naturally to K-12."³² Organizations like California's Rocketship Public Schools and New York's School of One are putting the lie to that assumption, showing that reallocating teacher salary dollars to technology can actually lead to higher salaries and greater job satisfaction among the remaining teachers, who find it more satisfying to focus their time and effort on higher-order student learning and let tutors and technology systems address more basic content and skills.

When they do make technology purchases, school systems tend to replace existing products rather than reinvent the way they allocate time and resources, and when they do choose a new technology product, it is either one with minimal budgetary and time impact that operates on the fringes of the work, or one that covers many bases rather than the best-of-breed point solutions that can be knit together into a stronger whole. This is due in part to the way that school systems are structured and staffed, often with little resident technology expertise or resources to connect the dots between individual technologies. “What we have mostly seen is mainstream adoption and growth of replicative technologies (i.e., those that allow teachers to mirror traditional educational practices only with more bells and whistles),” writes Scott McLeod, a professor who runs the Center for the Advanced Study of Technology Leadership in Education, who notes that these technologies function as replacements or amplifications of existing practice. “Replicative technologies are the easiest for teachers to adopt because they’re the shortest path between current practice and new tool usage. They’re also the easiest for school leaders to stomach because they look fairly familiar and cause less angst regarding perceived issues of pedagogical control and disruption.”³³

A Last Barrier: Supply

Of course, these demand-side issues are echoed and compounded by issues on the supply side, including the lack of a robust research and development infrastructure and an inadequate supply of capital for education innovation, where philanthropic donors rarely fund successful nonprofit innovations to scale and for-profit investors have been reluctant to support companies selling into the volatile education market (see our paper *Steering Capital* for much more on this issue).³⁴

What can we do to ensure that the supply of innovative products and services are addressing the right targets, and connect that supply with motivated demand for goods that improve student achievement and attainment, enhance teachers’ effectiveness and reach, and improve schools’ productivity?

STEPS TO SHARPENING AND STRENGTHENING DEMAND FOR INNOVATION

As we have discussed above, public education is not set up to encourage the emergence of innovation, let alone its rapid adoption or scale in a way that would transform practice and outcomes at scale. For too long, many have simply thrown their hands up at the inevitable inertia. But given the current economic pressure, increased expectations for schools and demands that taxpayer dollars be used to accomplish loftier outcomes than ever before, the time is ripe to throw some energy behind sparking smarter innovation, sustaining those early sparks and enabling wider adoption of those innovations that lead to improvement in student achievement (while ditching those that don't).

Based on several dozen interviews with educators, and education buyers, suppliers, investors, donors and policymakers in the system—a subset of whom joined us for a working group that identified lessons and opportunities from inside and outside of education—we identified four primary ways to strengthen educational demand for innovation and make “smart” educator demand a greater lever for improved student outcomes and overall productivity:

1. **Encourage early adopters:** Identify, support and strengthen the work of education's existing early adopters.
2. **Bolster smart adoption:** Replace policy and operational barriers that inhibit smart adoption with infrastructure that encourages it.

3. **Provide better information to encourage smart demand:** Create useful information tools to inform and strengthen both early and mainstream demand.
4. **Reward productivity improvements:** Redefine the culture of public education so that people and organizations are able to identify, obtain and be rewarded for improved outcomes and productivity

1. Encourage Early Adopters

Identify, support and strengthen the work of education's existing early adopters

The first step is simply to acknowledge that there are people and organizations in the public education sector that want to do things differently, and are hungry for the tools and resources that will enable them to achieve dramatically better results at the same or lower costs. Some will be individuals, such as energetic and ambitious teachers or hopeful parents, trying to push toward innovation whether or not their school is ready for it; others will be schools or school systems like the New York City Department of Education or charter school management organizations like Rocketship Public Schools, that are looking to shift entire institutions and ecosystems toward a different way of operating. These early adopters should be more systematically identified, encouraged and supported, because the rest of the system can eventually benefit from their vision and willingness to help define and refine new educational products and approaches. “In order to truly break new ground on how we educate students in transformative ways, we need to consider carefully what we wish for,” notes Rocketship Public Schools chief schools officer Aylon Samouha. “The ‘demand’ needs to be well-articulated and explicitly aligned to a vision of how we educate students more effectively.”³⁵

Two ways to support these early adopters are described in *Disrupting Class*, written by business innovation scholar Clay Christensen and co-authors Curtis Johnson and Michael Horn. One is to develop technology platforms that make it easier for non-technologists to create new tools and for such tools to work together. Such technology platforms can help early adopters standardize the back-end parts of the system, making it easier for innovators to build new tools and products that fit specifications for smaller and more cutting-edge practitioners in a cost-effective way, and eventually simplifying future adoption by later customers. Secondly, creating and supporting networks of these pioneering users—whether face-to-face or virtual—and allowing them to identify shared interests and challenges, work and problem-solve together leads to a stronger collective ability to inform product or service design.

In some cases, such networks could be formalized as networks of “beta testers” (a term that comes from the software development world, where “alpha” tests of a product’s functionality are conducted by the developer, followed by “beta” tests among a small set of likely users). Public or philanthropic resources could be used to subsidize the work of such beta networks, allowing them to spend some of their own precious time and resources helping to scope and refine products and services that meet their own current needs, and could also help steer the broader market by showing what is possible, thus helping to lead to a more productive use of public resources. For example, NewSchools Venture Fund convened a set of forward-thinking charter school management organizations and their chief academic officers in 2008 to define a set of shared “academic systems” needs that technology could help address, and to help inform the development of those solutions with a set of vetted providers. With philanthropic funding from supportive foundations, NewSchools provided small participation grants to cover the time and insight of CMO academic leaders, some of whom acted as focus group and beta site participants, while others agreed to be “early adopters” of the technologies as they emerged. Four years later, NewSchools attributes the rapid development and accelerated scale of investments like BetterLesson and Beyond 12 to the coordinated actions of this group of advanced users and buyers, and a wider set of customers is beginning to take advantage of the solutions as well.

Another way to organize innovation around the needs of early adopters is to establish prizes to help steer the market of suppliers. As McKinsey & Company has explained, prizes differ from traditional financing instruments like grants or fees by paying only if specific results are achieved, and work well in cases where there might be many who could solve the problem and are willing to accept the risk of experimenting with solutions and receiving payment only if the outcome is achieved. “A rule of thumb holds that prizes are useful tools for solving problems for which the objective is clear, but the way to achieve it is not,” its staff writes in a report on the potential for prizes to improve philanthropic giving. “By attracting diverse talent and a range of potential solutions, prizes draw out many possible solutions, many of them unexpected, and steer the effort in directions that established experts might not go but where the solution may nonetheless lie.”³⁶ (Notably, this study helped to inform congressional legislation passed in 2010 that gives all government agencies legal authority to sponsor prizes of up to \$50 million and the ability to collaborate with the private and nonprofit sectors along the way.)³⁷

In other cases, as suggested by White House Deputy Science and Technology Policy Director Thomas Kalil in a recent paper, philanthropy or public sector institutions like the federal government could offer advanced market commitments (AMCs), a type of inducement

prize (designed to “induce” specific activity, as opposed to a “recognition” prize that rewards existing effort, like the Nobel Prize) in which they agree to buy a given quantity of a product or service if it meets specific goals. In the best-known example, governments and philanthropists committed to purchase a specified number of doses of a pneumococcal vaccine at a specific cost per dose to administer to poor citizens, as an expenditure that would benefit public health and incentivize vaccine-makers to quickly create a product they might not otherwise have a clear market incentive to invest in.³⁸ Similarly in education, philanthropic foundations—including national players but also smaller specialized regional and family foundations—could work to discover and aggregate demand by advanced practitioners (schools, CMOs and districts), and then underwrite the adoption of solutions that are demonstrated to meet those defined needs, promising real revenue to those suppliers that develop products that achieve the desired outcome. Typically, AMCs are more costly to administer than other prizes and are designed to foster the spread of innovations rather than to kick-start brand-new ones, so they may be more valuable for helping spread innovations from early adopters to more mainstream markets.

2. Bolster Smart Adoption

Replace policy and operational barriers that inhibit smart adoption with infrastructure that encourages it

In the sage words of policy scholar Paul Hill, “Policy makers must take the view that every arrangement, even those that look good at the present time, are subject to challenge and

Policymakers should look for opportunities to align educational buyers’ actions and incentives with the needs of their teacher or student users—and to encourage student, teacher and parent feedback to be directly incorporated into purchasing decisions.

replacement by something better.”³⁹ In order to allow for more sophisticated purchasing of innovative products and services, it is crucial that we fix broken procurement policies that hamstring potential providers and constrain buyers who want to spend monies in new ways. These policies often try to ensure that public monies are spent wisely by creating elaborate, time-consuming procurement or adoption processes; some have proposed flipping that equation, allowing schools and districts to adopt products far more quickly—but to document and publicly disclose far more information about use and results.⁴⁰ Policymakers should look for opportunities to align educational buyers’ actions and incentives with the needs of their teacher or student users—and to encourage

student, teacher and parent feedback to be directly incorporated into purchasing decisions (or even connecting those audiences directly with vendors to create a faster feedback loop, while opening up that feedback loop to public scrutiny). Likewise, on the vendor side, suppliers should be flexible about the kinds of purchasing agreements they offer, taking into account the ways in which schools' or teachers' needs might be different from those of school districts.

Moreover, there must be more careful attempts to link up schools and educators with common needs so that suppliers can address those needs, and so progress can be effectively measured against common goals and metrics. As mentioned earlier, the progress toward Common Core standards will go a long way toward establishing a more sensible, understandable body of knowledge against which students—and the schools, programs and technologies that serve them—will be measured. This will greatly simplify the work of education innovators, who will no longer have to navigate multiple states' standards in developing their products (or, as was more common, build for the “lowest common denominator”). It will broaden the pool of buyers and users for any given product, requiring less customization on initial product or content, and thus hopefully saving both suppliers and buyers money down the road—and ultimately allowing for more direct comparisons of products across state lines.

A key element of ensuring that this works as expected will be the development of robust and diverse assessments that effectively measure student mastery of these standards. As articulated in an open letter from a number of innovation advocates, the development of these assessments has the potential to “provide a platform for new approaches to learning and schooling, not just to testing” but policymakers and practitioners must: build a vibrant ecosystem of tests rather than a one-size-fits-all approach, plan for the incorporation of a wide range of data points throughout the school year and beyond, and emphasize on-demand competency-based learning.⁴¹ Moreover, initiatives to standardize and share district, city and state performance data will also help bridge the needs of buyers with the offerings of current and potential suppliers. For example, the Michael & Susan Dell Foundation has developed Ed-Fi, a universal data standard that permits interoperation among student data systems by establishing common data elements, a framework for how they interact, and sample dashboards that show the data in an actionable way for teachers. Meanwhile, the Bill & Melinda Gates Foundation and the Carnegie Corporation of New York are supporting the Shared Learning Collaborative, a multistate effort to develop and pilot an open-source technology platform that will integrate and store instructional performance data and support a common clearinghouse of resources for teachers.

Bolstered by these initiatives and others, buyers or users with similar needs could be linked within or even across geographies. For example, some states have established buyer collaboratives, in which like-minded districts, charter school organizations, individual schools or even groups of teachers across district or state lines use common purchasing frameworks. Using these collaboratives in other ways—pooling funds for project-based-learning teachers in multiple high schools or for Teach for America teachers in rural schools—could allow them to adopt (and even influence the development of) innovations at a lower cost.

Another form this can take is the “innovation zone,” whose most mature incarnation can be found in New York City’s aptly named Innovation Zone (iZone). As a subsystem within the city’s school district, the iZone is experimenting with ways to leverage outside innovations to advance progress within iZone schools toward personalized, competency-based learning. “We are creating the mechanisms by which we can surface and better articulate opportunities, and then framing those opportunities out to the market,” says Arthur VanderVeen of the iZone, who adds that the zone’s innovations stem from a particular theory of action (that personalization will lead to dramatically better outcomes) around which all iZone schools are aligned, not about “incubating whatever comes up.” The iZone staff includes a team dedicated to understanding the market, vetting products and brokering connections between vendors and interested schools.

Districts might also consider changing the way purchasing happens, as the New York City Department of Education did several years ago across city schools, by pushing spending authority down to school sites. Other approaches that could more tightly connect supply and demand include faster or multiple concurrent sales cycles (rather than just one district-wide cycle that takes an entire school year or more) and performance-based contracts that base spending on the accomplishment of desired outcomes.

The iZone concept could certainly be adopted by other districts or even within cities or states—which could knit together a wide range of services designed to provide education and support services for a region’s children, or could even include schools or teachers in other geographic areas who are aligned with an innovation zone’s principles. An early version of this cross-geography approach that bridges both policy change and operational infrastructure is the Innovation Lab Network spearheaded by the Council of Chief State School Officers (CCSSO) and the Stupski Foundation as part of its Partnership for Next Generation Learning. Working across seven member states that all believe in the shift toward more personalized learning, the CCSSO is coordinating with these states’ policy leaders to identify and remove policy barriers, such as creating flexible credit policies that credential student work that

takes place outside of school, redefining learning materials to include more than just paper textbooks, and allowing students to demonstrate competency throughout the year rather than just the end of the school year.⁴² In concert with these policy changes, the Stupski Foundation will be working with students, teachers and principals in six to eight high schools across these states that will act as “learning labs” to redefine together how classroom practice could and should shift to dramatically increase student engagement and learning. Schools will agree on common standards and design principles, with student progress measured by the same assessments, and convene several times a year to share ideas and needs with one another (and potentially with vendors), all coordinated and underwritten by Stupski as part of the operating foundation’s work to make public education more learner-centered and equitable.

“States should work with schools to define their needs and to develop lists of qualified products based on their standards and criteria, develop test users to try things out and give feedback, and then create endorsement lists based on end user testing.” – Rayne Martin, Louisiana Department of Education

This type of shift calls upon states and districts to become hubs of information about the needs of their users and about the market of suppliers, rather than being central managers or providers of services. They would scrutinize student-level data for patterns, examine teacher effectiveness and reach, and explore alternative approaches for meeting the needs of students and educators alike. “We need to strike the right balance between getting educators access and information versus overwhelming them,” says Rayne Martin, chief of the Louisiana Department of Education’s Office of Innovation. “States should work with schools to define their needs and to develop lists of qualified products based on their standards and criteria, develop test users to try things out and give feedback, and then create endorsement lists based on end user testing.”⁴³ For example, when Florida mandated a few years back that all districts establish a virtual schooling option for students, it provided them all with an approved list of

vendors, simplifying their buying decisions while still allowing them to find the best fit for their needs.

However, this process must be designed thoughtfully, with attention given to both the capacity built inside district and state offices and the incentives that must be put in place. The market for supplemental education services (SES)—expected to flourish in the wake of No Child Left Behind legislation that mandated that students attending schools that were not making adequate yearly progress would be allowed to receive outside tutoring—was widely deemed a failure when districts were given the job of determining student eligibility, informing parents

and managing approved providers. As journalist Siobhan Gorman observed, “school districts hold enormous power as a result of their dual role as both program administrator and potential provider” and have “little incentive to inform parents of the money available to them for tutoring, since districts get to keep any unused funds.”⁴⁴ One way to avoid this problem is to establish independent intermediary organizations like the market research firms that exist in most other industries, which could establish criteria for quality providers, provide state and district buyers with information about useful vendors, and share market research insights with suppliers to inform product development.

3. Provide Better Information to Encourage Smart Demand

Create useful information tools to inform and strengthen both early and mainstream demand

The best way to help educators and administrators become smarter and more informed about potential purchases is to strengthen the flow of information. “If what drives innovation is the opportunity to do things better and get rewarded for doing things better, then you have to have more information about the problem and you need more metrics about whether the

More transparent and accessible information about educational goals, outcomes and offerings would help students and parents better articulate their needs, give teachers and principals ideas for how to make their work more productive, and lower the transaction costs for states and districts as they search for solutions to meet the needs of their schools and students.

solution is any better,” says entrepreneur Chris Gabrieli. A good place to start is with more transparent and useful information about product and service offerings, their costs and their quality—including more transparency and proactive sharing of information and results on the part of suppliers themselves. As Clay Christensen and his co-authors noted in *Disrupting Class*, the health care industry has taught us that patients are good at self-diagnosis when given useful information and adequate tools to help them make sense of symptoms they might otherwise have just put up with. “In the past, drugs were ‘push-marketed’ through the professionals—the doctors—and patients generally received therapy if and when the doctor prescribed it,” they explain. “Increasingly, patients are ‘pulling’ the solution from their doctors after they’ve made a preliminary diagnosis themselves.” This pull of patient demand affects suppliers, who suddenly find doctors asking for the products their patients feel they need.

Similarly, more transparent and accessible information about educational goals, outcomes and offerings would help students and parents better articulate their needs, give teachers and principals ideas for how to make their work more productive, and lower the transaction costs for states and districts as they search for solutions to meet the needs of their schools and students. In many cases, new information or service intermediaries will be needed, including those that provide better information about specific educational goals, user needs, capital availability, and product/service quality and efficacy. Some good new examples include: EdSurge, a news site and information database on educational technology that will ultimately provide investors and buyers alike with more information about available products and their efficacy; thecoursebook.com, an online listing of local and online classes with student ratings that would also provide feedback to course providers; and Classroom Window, which is building a data system that would combine Consumer Reports-like expertise with crowdsourced knowledge like that popularized by Yelp in order to report what innovations are being used in a given context, how they are being used and how that leads to both teacher and principal satisfaction as well as to student achievement. (Schools and buyers aren't the only beneficiaries here. This sharing of information also benefits effective suppliers, and in fact it is in their best interest to participate openly by sharing high-quality information and results broadly, to counteract the "lemon" effect mentioned earlier and help quality rise to the top.)

This effectiveness information must flow much faster than the typical longitudinal research study or multiyear sales cycle tends to take in K-12 education; worthwhile efforts to improve this cycle include the 90-day research cycle that the Carnegie Foundation for the Advancement of Teaching has imported into education from health care. The 90-day process includes a scan of existing knowledge in the field, a focus on specific theories that will be tested, and ensuring that the findings are adopted and used by practitioners. For example, the Carnegie team found that many students weren't finishing college math requirements because they were starting in the wrong first math class in community college; they quickly worked to develop and test alternative approaches on 19 community college campuses for making that initial placement more effective.

As more student-centric approaches and technologies emerge, students and their parents will increasingly become part of the buying equation and so should be provided with user-friendly information about goals and metrics and tapped as rich sources of quality information. "Consumers of education—both students and parents—often provide the best feedback on the quality of providers," noted the recent Digital Learning Now! report, which put forth a series of principles for advancing online competency-based learning. "A publicly available database that fosters a feedback loop, similar to tools used on Amazon or eBay, would help

parents and students make informed decisions.”⁴⁵ Such information may need to be captured and codified in new ways. For example, the Mozilla Foundation is working on creating personal learning records that would follow students throughout their educational “careers,” as well as “badges” that would certify learning in a range of settings. “We know that learning from someone lecturing at us, by reading a textbook on our own or by taking a multiple-choice exam represents a very small fraction of what and how we learn across our lifetimes, and yet these are the types of learning that are formally recognized and heavily required for advancement,” noted the Mozilla Foundation and Peer 2 Peer University in a paper about this concept in higher education. “Without a way to capture, promote and transfer all of the learning that can occur within a broader connected learning ecology, we are limiting that ecology by discouraging self-driven engaged learning, isolating or ignoring quality efforts and interactions and ultimately, holding learners back from reaching their potential.”⁴⁶

It is also worth considering ways to surface better information about demand for suppliers, including granular information about the needs and preferences of users, data about expressed buyer needs, and market data such as who is already using what products and how. John Bailey of Whiteboard Advisors, formerly a federal and state education official and foundation executive, has also suggested that a version of the World Bank’s Doing Business survey would offer useful information about how receptive various states and districts are to innovation.⁴⁷ By asking suppliers questions about the speed of a state or district’s charter school approval or technology procurement processes, the length of the average Request for Proposal, the cost of securing a contract or complying with regulations, and so forth, states and districts could make clear their openness to innovation and suppliers could more effectively prioritize their sales efforts. For example, studies like the *Leaders and Laggards* state report cards on educational innovation created by the U.S. Chamber of Commerce, the Center on American Progress and Frederick Hess at the American Enterprise Institute, as well as the Thomas B. Fordham Institute’s *America’s Best (and Worst) Cities for School Reform: Attracting Entrepreneurs and Change Agents* at the local level, assess policies based on their friendliness toward innovation and entrepreneurship.⁴⁸

4. Reward Productivity Improvements

Redefine the culture of public education so that people and organizations are able to identify, obtain and be rewarded for improved outcomes and productivity

In order to ensure that the demand side of education embraces innovation and prioritizes productivity, we must continue efforts to change the culture of public education from one that prioritizes inputs and process compliance to one that values and measures outcomes.

At the same time, like any other sector, public education will always have its early adopters and its mainstream customers, and so we should not expect that it will magically turn into a consistent engine of constant innovation overnight. Returning to our earlier analogy with the adoption of technology products in the business sector, the bulk of the demand curve is made up of mainstream customers who do want productivity improvements, but don't necessarily want to deal with the messy early stages of innovation—where early adopters deal with what business writer Geoffrey Moore called a “radical discontinuity between the old ways and the new.” He explains about the bulk of the market:

They are looking to minimize the discontinuity with the old ways. They want evolution, not revolution. They want technology to enhance, not overthrow, the established ways of doing business. And above all, they do not want to debug someone else's product. By the time they adopt it, they want it to work properly and to integrate appropriately with their existing user base.⁴⁹

This means that we must resolve many of the issues above—policy, operations, information—in order to develop high-quality products that will meet the needs of more mainstream customers, and by that time early adopters will have already moved on to the next disruptive innovation. But we can still take steps to reinforce the notion that improved productivity needs to be a goal of *all* public schooling, not just that of a brave few cutting-edge practitioners.

One important action step here is to change teacher and leader preparation programs and licensure so that we purposefully develop professionals who are clearly focused on constant learning as professionals, and as such are not only excited to follow in the footsteps of generations of educators before them, but are also willing and excited to experiment with innovative new technologies and tools, and to embrace products developed by outside organizations where those products make a measurable difference in the way they do their work or the results they can obtain for the children they serve. An analysis of the syllabi of principal preparation programs by the American Enterprise Institute's Frederick Hess and Andrew Kelly in 2007 found that few touched on issues like eliminating ineffective programs (or employees), using data to improve operations, or determining how to most productively use staff and services—all necessary skills for school leaders in an environment that prioritizes outcomes for students, and constant learning and improved productivity for adults.⁵⁰ This must be coupled with upfront communication with prospective educators about the expected pace of innovation inside the system, as well as quality professional development and ongoing technical assistance that continues to build such skills among teachers and principals. “Teachers are still being ‘broadcasters’ and taught to use 20-year-old technology, not many-to-many learning approaches and tools. Professional development needs to catch up fast,”

Genevieve Shore, the chief information officer and director of digital strategy at Pearson, told attendees at the Software Industry Information Association conference earlier this year. Indeed, teachers and principals need to not only be open to new ways of working, but also to be willing to share openly and honestly what is working—and what isn’t—in their classrooms and in their interactions with individual students. Ongoing professional development could also take a page from continuing education for doctors, who must keep their knowledge and skills up to date but select from approved courses on their own, tailored to their individual needs rather than the needs of all doctors who happen to work in their hospital or practice.

Outside the classroom, we must also focus on fostering human capital at the management and administrative levels in public school systems that is equally prepared to grapple with innovation and embrace constant learning for productivity improvements. “A school system has to have a willingness to think not just for the hundred, but for the one—and have people

“A school system has to have a willingness to think not just for the hundred, but for the one—and have people in the central office with mindsets to reflect that.” – Josh Edelman, DC Public Schools

in the central office with mindsets to reflect that,” says Josh Edelman of DC Public Schools.⁵¹ The recent Bill & Melinda Gates Foundation investment of \$7.6 million in Education Pioneers to develop more than 500 education professionals focused on data and analysis is an example of philanthropic commitment to harnessing innovation and ideas from outside of education to invigorate efforts inside it. In addition to ensuring that administrators understand instruction and teaching, it is becoming increasingly important that they are savvy customers of educational products and services, well-versed in the available options

and the cost-benefit trade-offs of using external providers versus deploying their own resources. It may also mean giving them the explicit leeway to think differently, by providing release time for educators to spend visiting peers in other school systems or sabbaticals in other industries entirely. This could be coupled with temporary injections of external talent, like an “innovation corps” of technology leaders invited to spend a fellowship year within school systems, or Broad Residents dedicated to identifying relevant external innovations and helping to translate them into educational contexts, as well as more permanent roles like the Chief Innovation Officers that some states (including Louisiana and New Jersey) and districts are now hiring. Bringing in people from other knowledge-dependent industries to offer a fresh perspective to long-standing problems—and explicitly charging them with sourcing and facilitating the adoption of innovative products and services—could also help create an environment where new ideas are valued, vetted and embraced when they demonstrate results. Connecting these leaders across the system could also help accelerate their work.

CONCLUSION

As in every other sector, innovation certainly exists in education. People find new knowledge or play around with a new concept, discover that it works and that it changes behavior and outcomes. Some of the most intrepid will turn that neat idea into a company or a nonprofit, selling a product or a service often to a handful of forward-thinking educators and schools hungry to try something different. Occasionally, that organization will grow to significant scale. But overall, the rate at which innovations emerge in education pales in comparison to that of industries that depend upon education—science, technology, defense, medicine. Moreover, the growth of education innovations is painfully slow, due in part to the limitations of the capital market but also to the insufficient and often unpredictable uptake of innovations by schools and districts. This is keeping our nation’s students stuck in an industrial-era system that is simply not preparing them for success in college and career in the 21st century.

Creating more “smart demand” in education—to fuel and refine better educational innovations, direct capital toward those worth scaling, and bring effective approaches to greater numbers of students—is a critical task facing policymakers and practitioners alike. Just as the barriers to such demand are spread among the various stakeholder groups, so too must solutions arise from interdisciplinary approaches that bring together the goals of the public sector, the needs and preferences of educators and the students and families they

serve, the ideas and innovations of nonprofit and for-profit entrepreneurs, and the resources of the philanthropic and investment sectors. Together, we can ensure that the public education system dynamically responds to the needs of students and schools with innovations that help *all* of them achieve at deeper and higher levels.

ENDNOTES

- ¹ Bellwether Education Partners, *Innovation for the Public Good: A Case Study of US Education*, 2011. <http://bellwethereducation.org/innovation-for-the-public-good/>.
- ² John Seely Brown and John Hagel III, "From push to pull: The next frontier of innovation," *McKinsey Quarterly*, 2005, No. 3. <http://www.johnseelybrown.com/pushpull.pdf>.
- ³ Amar Bhide, "Our Venturesome Economy," *The American*, November/December 2008. <http://www.american.com/archive/2008/november-december-magazine/the-venturesome-consumer/>.
- ⁴ For extensive documentation of how and why school reform happens so slowly in general, see David Tyack and Larry Cuban, *Tinkering Toward Utopia: A Century of Public School Reform* (Harvard University Press, 1995), and Frederick M. Hess, *Spinning Wheels: The Politics of Urban School Reform* (Brookings Institution Press, 1998).
- ⁵ Paul Arnsberger, et al, "A History of the tax-exempt Sector: An SOI Perspective," *Statistics of Income Bulletin*, Internal Revenue Service, Winter 2008. <http://www.irs.gov/pub/irs-soi/tehistory.pdf>.
- ⁶ Bellwether Education Partners, *Innovation for the Public Good: A Case Study of US Education*, 2011. <http://bellwethereducation.org/innovation-for-the-public-good/>.
- ⁷ Geoffrey Moore, *Crossing the Chasm: Marketing and Selling High-Tech Products to Mainstream Customers* (New York: HarperBusiness, 1991).
- ⁸ Clayton M. Christensen, Michael Horn and Curtis Johnson, *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns* (New York: McGraw-Hill, 2008).
- ⁹ See, for example, the alternative teacher preparation programs being built by charter school management organizations: High Tech High's Graduate School of Education, the Aspire Teacher Residency program developed by Aspire Public Schools, the Capital Teacher Residency created by KIPP DC and E.L. Haynes Public Charter School, and the new Relay School of Education launched by Uncommon Schools, Achievement First and KIPP.
- ¹⁰ Jitinder Kohli and Geoff Mulgan, *Capital Ideas: How to Generate Innovation in the Public Sector*, Center on American Progress and the Young Foundation, July 2010. http://www.americanprogress.org/issues/2010/07/pdf/dww_capitalideas.pdf.
- ¹¹ Julie Petersen and Kim Smith, *Steering Capital: Optimizing Financial Support for Innovation in Public Education*, Bellwether Education Partners, April 2011. <http://bellwethereducation.org/steering-capital>.
- ¹² Joel Klein, "The Failure of American Schools," *Atlantic Monthly*, June 2011. <http://www.theatlantic.com/magazine/archive/2011/06/the-failure-of-american-schools/8497/>.
- ¹³ Larry Berger and David Stevenson, "K-12 Entrepreneurship: Slow Entry, Distant Exit" (prepared for the American Enterprise Institute Conference, "The Supply Side of School Reform and the Future of Educational Entrepreneurship," Oct. 25, 2007). http://www.aei.org/docLib/20071024_BergerStevenson.pdf.
- ¹⁴ Marguerite Roza, *Educational Economics: Where Do School Funds Go?* (Washington, D.C: Urban Institute Press, 2010).
- ¹⁵ Paul Hill, "Fostering Fiscal Transparency," in "Schools in High Gear: Reforms That Work When They Work Together," Policy Innovators in Education Network, March 2011. <http://www.pie-network.org/reformsthatwork>.
- ¹⁶ *Stimulating Excellence: Unleashing the Power of Innovation in Education*, Center for American Progress, American Enterprise Institute, New Profit and Public Impact, May 2009. http://www.americanprogress.org/issues/2009/05/pdf/education_entrepreneurs.pdf.
- ¹⁷ Christensen, et al., *Disrupting Class*.
- ¹⁸ *Stimulating Excellence: Unleashing the Power of Innovation in Education*.
- ¹⁹ Author interviews with Arthur VanderVeen, April and July 2011.
- ²⁰ Curtis Johnson and Ted Kolderie, "Will Policy Allow Demand To Be the Driver?" (prepared for the American Enterprise Institute Conference, "More Than Just Schools: Rethinking the Demand for Educational Entrepreneurship," Dec. 7, 2009). <http://www.aei.org/docLib/Curtis%20Johnson%20and%20Ted%20Kolderie-%20More%20Than%20Just%20Schools%20Conference%20Draft.pdf>.
- ²¹ Kim Smith and Julie Petersen, "Creating Responsive Supply in Public Education" (prepared for the American Enterprise Institute Conference, "More Than Just Schools: Rethinking the Demand for Educational Entrepreneurship," Dec. 7, 2009). <http://www.newschools.org/files/creating-responsive-supply.pdf>.
- ²² Daniel Stid, "The Power of Seeing Things from the Beneficiary's Perspective," The Bridgespan Group, July 28, 2011. <http://www.bridgespan.org/seeing-things-from-the-beneficiary-perspective.aspx>.
- ²³ Ken Anderson, "Ethnographic Research: A Key to Strategy," *Harvard Business Review*, March 2009. <http://hbr.org/2009/03/ethnographic-research-a-key-to-strategy/ar/1>.

- ²⁴ Clayton M. Christensen, Michael Horn and Curtis Johnson, “Rethinking Student Motivation: Why understanding the ‘job’ is crucial for improving education,” Innosight Institute and Education|Evolving, September 2010. <http://www.educationevolving.org/pdf/Rethinking-Student-Motivation.pdf>.
- ²⁵ George Akerloff, “The market for ‘lemons’: Quality uncertainty and the market mechanism,” *The Quarterly Journal of Economics*, Vol. 84, No. 3, 1970.
- ²⁶ *Stimulating Excellence: Unleashing the Power of Innovation in Education*.
- ²⁷ Berger and Stevenson, “K-12 Entrepreneurship: Slow Entry, Distant Exit.”
- ²⁸ Frederick Hess, *Education Unbound: The Promise and Practice of Greenfield Schooling*, Association for Supervision & Curriculum Development, 2010.
- ²⁹ Stacey Childress, “Investing in Improvement: Strategy and Resource Allocation in Public Schools Districts” (prepared for the American Enterprise Institute and Thomas B. Fordham Institute conference, “A Penny Saved: How Schools and Districts Can Tighten Their Belts While Serving Students Better,” Jan. 11, 2010). <http://www.aei.org/docLib/Investing%20in%20Improvement-%20Childress.pdf>.
- ³⁰ Joanne Weiss, “The Innovation Mismatch: ‘Smart Capital’ and Education Innovation,” *Harvard Business Review* blog, March 31, 2011. <http://blogs.hbr.org/innovations-in-education/2011/03/the-innovation-mismatch-smart.html>.
- ³¹ Berger and Stevenson, “K-12 Entrepreneurship: Slow Entry, Distant Exit.”
- ³² Ibid.
- ³³ Scott McLeod, “The 2011 K-12 Horizon Report: Too Optimistic?” <http://bigthink.com/ideas/38788>.
- ³⁴ Petersen and Smith, “*Steering Capital: Optimizing Financial Support for Innovation in Public Education*.”
- ³⁵ Aylon Samouha, “Creating Smart Demand in the Hybrid Space,” Rocketship Public Schools’ Schools 2.0 blog, May 25, 2011. <http://schools20.rsed.org/2011/05/creating-smart-demand-in-hybrid-space.html>.
- ³⁶ McKinsey & Company, “ ‘And the winner is ...’: Capturing the promise of philanthropic prizes,” 2009. http://www.mckinsey.com/App_Media/Reports/SSO/And_the_winner_is.pdf.
- ³⁷ Thomas Kalil, “Power Tools for Progress,” (speech to the Grantmakers for Effective Organizations Learning Conference, June 6, 2011). <http://www.whitehouse.gov/sites/default/files/microsites/ostp/power-tools-for-progress-tk.pdf>.
- ³⁸ Ibid. See also “AMC Pilot Proposal,” GAVI Alliance, Sept. 7, 2006. <http://www.gavialliance.org/library/documents/amc/pilot-proposal/>.
- ³⁹ Paul Hill, “Fostering Fiscal Transparency.”
- ⁴⁰ *Stimulating Excellence: Unleashing the Power of Innovation in Education*.
- ⁴¹ “Flexibility, Innovation Must Guide Implementation of New State Assessment Systems to Measure Mastery of Common Core State Standards,” Innosight Institute, June 30, 2011. http://www.innosightinstitute.org/open_assessment_letter/.
- ⁴² Nelson Gonzales and Christopher Lohse, “Creating Networked Improvement Communities for Research, Development and Dissemination of System-level Innovation in U.S. Public Education: The Case of the Partnership for Next Generation Learning Innovation Lab Network” (paper prepared for the American Educational Research Association conference, April 2011).
- ⁴³ Author interview, April 2011.
- ⁴⁴ Siobhan Gorman, “Selling Supplemental Services: Can school districts serve as both regulators and providers?,” *Education Next*, Vol. 4, No. 4 (Fall 2004). <http://educationnext.org/selling-supplemental-services/>.
- ⁴⁵ “Digital Learning Now!,” Foundation for Excellence in Education, Dec. 1, 2010. <http://www.excelined.org/Docs/Digital%20Learning%20Now%20Report%20FINAL.pdf>.
- ⁴⁶ “An Open Badge System Framework: A foundational piece on assessment and badges for open, informal and social learning environments,” Peer 2 Peer University and the Mozilla Foundation, February 2011. <http://bit.ly/badgepaper4>.
- ⁴⁷ <http://www.doingbusiness.org/>.
- ⁴⁸ U.S. Chamber of Commerce, the Center for American Progress, and Frederick M. Hess with the American Enterprise Institute, *Leaders and Laggards Report Card Series*, 2007 and 2009. <http://icw.uschamber.com/reportcard>; Frederick M. Hess, Stafford Palmieri, and Janie Scull, *America’s Best (and Worst) Cities for School Reform: Attracting Entrepreneurs and Change Agents*, Thomas B. Fordham Institute, August 2010. <http://www.edexcellence.net/publications-issues/publications/americas-best-and-worst.html>.
- ⁴⁹ *Crossing the Chasm: Marketing and Selling High-Tech Products to Mainstream Customers*.
- ⁵⁰ Frederick Hess and Andrew Kelly, “Learning to Lead: What Gets Taught in Principal-Preparation Programs,” *Teachers College Record*, Vol. 109, No. 1, 2007. <http://www.tcrecord.org/content.asp?contentid=12742>.
- ⁵¹ “School Autonomy in DC Public Schools: A Conversation with Josh Edelman (Part 1) [Video].” Education Sector, June 21, 2011. <http://www.educationsector.org/video/school-autonomy-dc-public-schools-conversation-josh-edelman-part-1>.