

INNOVATION IN PUBLIC EDUCATION: PROBLEMS AND OPPORTUNITIES

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Introduction

We find ourselves at a unique moment of broad consensus that the public school system, as it is currently constructed, simply isn't delivering on its promise of educational excellence for all children – particularly for those in underserved communities. While this has been the case for a while, today there is also an unprecedented level of support for doing things differently and widespread recognition that new approaches and new structures will be essential to fixing the situation. When other sectors have faced this challenge, they have turned to innovation – new ways of doing things that bring about an improved result – in order to make this kind of dramatic improvement a reality. At its best, though, innovation is the centerpiece of a results-driven ethos, and a crucial engine for creating a cycle of continuous learning and improvement. It is sadly ironic that this learning cycle is weaker in public education than in almost any other field, even though the purpose of this field is to advance learning among the students it serves.

Educational innovation has become a ubiquitous topic in policy discussions and yet somehow remains murky in concept and elusive in practice. There is a lot of promising energy behind innovation in public education today, but that energy will yield little if we don't act quickly to establish some common definitions and principles that can underpin and sustain the work ahead. As such, we¹ will present a definition of innovation that is informed by lessons learned from other industries and that accounts for innovation's many faces, so that we can come to some agreement – or at least transparency – about what we mean when we use the term. This definition includes a recognition that innovation is not simply about a moment of invention: it is a cycle that includes several stages and the work of many stakeholders. We will also analyze some of the factors that keep innovation from taking hold in education, and use that as an entry point for describing the current opportunity for innovation in public education. Finally, we present a series of recommendations designed to encourage the public, private and philanthropic sectors to work productively across the sectors and other traditional boundaries toward a better ecosystem for education innovation.

Defining Innovation

*In a time of drastic change, it is the learners who inherit the future.
The learned find themselves equipped to live in a world that no longer exists.
– Eric Hoffer, writer and philosopher*

We are not concerned with innovation in education merely for the sake of novelty. We are concerned with innovation as a necessary ingredient in creating and sustaining a culture of performance in public education, one that is based on the kind of continuous improvement that we believe is necessary to bring about faster and better problem solving that can, in turn, increase student achievement results.

We consider a successful “innovation” to be a **new approach that brings an improved result**. These innovations can be small or large, mostly recognizable or entirely new and different. As innovation writer and professor Clay Christensen describes, some innovations are “disruptive” while others are considered “sustaining.” **Disruptive innovations** are those that break with current practice to serve a new population of

¹ This paper was written by Kim Smith, NewSchools' co-founder and senior advisor, with contributions from Nelson Gonzalez, Stupski Foundation and Leah Hamilton, Carnegie Corporation of New York.

customers (or serve an existing population in radically different ways) and, in so doing, create entirely new architectures and ecosystems – such as the shift from horses to automobiles. Meanwhile, **sustaining innovations** are generally improvements within the existing architecture of the current system – such as moving from gas-powered to hybrid cars. In order for public education to better meet the needs of all students, it must better embrace not only the steady sustaining innovations that are needed, but also the truly disruptive innovations – many of which will come from people and organizations outside of the traditional system – that will lead to a fundamental change in the way the system looks and works, and ultimately to dramatic improvement in outcomes for the children who have so far not been served well.

When most people think of innovation, they picture a new **product** – something like the arrival of the minivan into a world of cars and trucks. However, although much innovation is in fact at the product level, some of the most important innovation is at the **platform** level. In technology, a “platform” is a hardware architecture or software framework that allows diverse producers to create modular solutions that run on a machine. The Internet and the iPhone, are examples of different kinds of technology platforms that each enabled entirely new markets of independent innovators to emerge. The innovation enabled by the Internet was not a mere product, rather it enabled a complete shift in the architecture of how millions of people around the world connect and communicate with each other. The Internet infrastructure is an evolving platform that includes various software languages and technology protocols that enabled a wide network of independent computers and other hardware devices to communicate and connect across the globe. The iPhone is another platform that has enabled a new market of innovators to emerge – 50,000 “apps” (or applications) allow the iPhone to do new and innovative things. Apple Computers, creator of the iPod and iPhone, produce the hardware and software platform, but by defining and sharing a set of common rules and protocols, they have enabled tens of thousands of software innovators to create these inexpensive modular solutions that plug into this platform to create value for users of the iPhone.

The term “platform” can and should also be applied beyond technology to refer to a shared conceptual architecture that includes a framework and a set of definitions, standards and protocols that provide an infrastructure into which modular components can connect, thereby paving the way for enormous innovation. Simple examples could include the way that establishing a common size and materials definition of a shipping container enabled wide process innovation in the shipping industry – moving from individuals loading items by hand onto and off of ships, to widespread automated systems that efficiently connect these standard containers from ships to the trucks and trains that carry them to and from port. Or the way that creating some common definitions of shoe size enabled far greater innovation in the design and manufacturing of shoes.

What these diverse examples show is that new platforms have the power to enable vastly larger populations of innovators to emerge because establishing these common definitions, standards and protocols, and creating an infrastructure into which modular components can be connected reduces the degrees of customization required for any new solution, thus unleashing enormous innovation by allowing innovators to focus their energy and resources only on their modular solution, and not on all of the enabling infrastructure that has already been standardized into the platform itself. Without a platform approach, individual product innovations—no matter how well-intended or sophisticated—are limited in scope to one-off “point solutions” and are dismissed as mere exceptions, because they do not enable large-scale innovations and modular improvements by different contributors.

In addition to products and platforms, innovations in **process** can lead to great change too. Consider the way Netflix has transformed the process by which people rent movies, or the way hand-washing has nearly eliminated intra-hospital infections. Sometimes this will mean creating brand-new processes, but as in the

hand-washing example², this can also happen by creating new ways of enabling and motivating executing with excellence on a well-understood task. Finally, innovations can also take the form of **ideas**, shifting the way people view an issue or question by redefining our sense of what is possible—such as the way the Declaration of Independence established a new model for how to organize civil society.

Usually innovation isn't merely a single moment of divine inspiration – though that plays a role in some innovations. But the old adage that “necessity is the mother of invention” reminds us that the **innovation cycle** begins with **clarity about a problem that needs to be solved**. This clarity alone is an important accomplishment, as it steers energy and curiosity towards a specific goal, and helps to define clear metrics against which to measure potential solutions. This clarity then leads people to consider facts, circumstances, and other experiences in order to **generate ideas to solve that problem**. Often, the most innovative solutions come from those who are seeing the facts from a new angle or with new insight, such as those from outside or on the edge of the official field of study. We find that “hybrid” thinkers who bring a cross-sector or cross-disciplinary approach to problem solving often have this effect, by combining ideas from across silos and sectors in new and innovative ways. At this point it is important to have a **“small space” or lab environment to refine and test the ideas**, gathering evidence and using it to sort through potential ideas and solutions to identify which ideas really work. Successful design firms like IDEO advocate for “rapid prototyping” to quickly assemble, test, and refine innovations in real time with real users, rather than dedicating a lot of time up front to developing a theoretical innovation that may never see the light of day. Once we know what can work on a small scale, we need to **capture and share evidence** so that it can spur the next wave of innovation, and we need **investment and entrepreneurs to pursue the development and dissemination process** in order to scale good innovations and their impact. Finally, the last stage in the cycle should always be an **open feedback loop** that enables continuous improvement and informs future innovation.

Finally innovation generally does not emerge from a visionary individual holed up in a laboratory. A wide variety of stakeholders need to play a role and be effectively inter-connected in an innovation ecosystem or cycle. In education this cycle should connect policymakers who set goals and conditions, practitioners and users who help define what kinds of solutions can work and initiate some of the best new ideas, researchers who help test and refine ideas and assess effectiveness, states and districts who make buying decisions that often drive what can be scaled, investors who give people and organizations the runway they need to pursue innovative activity, and the entrepreneurs who translate innovative new approaches into sustainable and scalable organizations. In education, this ecosystem is currently disjointed and fragmented. Most of our most promising innovations happen in spite of this ecosystem, rather than because of it.

It is clear that in public education today, there are plenty of innovations in practice taking place in small pockets across the country. **What we must do now is accelerate that process, make it more accessible, and realign incentives, tools and investments to allow us to get to more significant scale and to sustain these cycles of learning over time.** To get there, we must use thoughtful experimentation and evidence at a systems level, in order to prevent our children from being left behind globally as the rest of the world catches up and surpasses America in delivering high-quality public education to a greater percentage of their students.³ Not retooling for and investing in innovation in this context is an arrogance we can no longer afford.

² For more about the process innovation of hand-washing in hospitals, see Atul Gawande's book *Better: A Surgeon's Notes on Performance*. New York: Henry Holt and Company, 2007.

³ McKinsey & Company. [“The Economic Impact of the Achievement Gap in America's Schools.”](#) April 2009.

Barriers to Innovation in Education⁴

As we have discussed above, innovation is not merely about a final product, but also about the conditions that must be in place to allow innovators to see a problem in a new light, create potential solutions, refine their approach, and ultimately bring to scale effective ideas, products, processes, and platforms. In other sectors that embrace this cycle of innovation and continuous improvement, like biotechnology, we can see in examples like the human genome project, how evidence from one cycle of innovation is captured and disseminated broadly, and applied by many towards thinking through the next challenge.

In education, this kind of work needs to happen at the student, school and system levels and will require reconfiguring many incentives that currently drive behaviors. Today, we have a publicly regulated system that was created to value stability over adaptation. As a result, we have some fundamental barriers to innovation:

Barrier 1: Traditional political and structural arrangements in education restrict innovation.

- **Lack of clarity on the problem to be solved.** Significant ideological disagreements about the purpose and role of public education, states' rights, parents rights, etc. muddy the definition of the problem to be solved, which creates confusion for policy makers and inhibits innovation.
- **Lack of clear and common metrics.** A system with 50 different state standards means many types of innovation must customize for each state, which is expensive and inhibits innovation. It also means huge amounts of funding are used to meet basic state targets in content and assessment, leaving little room for innovation in how we teach or assess progress. (Current federal policy is attempting to address this issue.)
- **State and federal policies are process-specific compliance-driven and inhibit innovation.** Without clarity about the problem we are trying to solve or the metrics for success, federal and state policies instead demand compliance with process regulations, thus constraining the “means” while being loose about the “ends” that schools must achieve.
- **Policy is impenetrable to most innovators.** Innovations are rarely translated into policy changes, whether they originate from social entrepreneurs who operate outside of the traditional system, where policy constraints are reduced, or from inside change agents who work around the traditional system's constraints.
- **Local governance is not aligned to support innovation.** Shifting political forces and school boards that are often used as a political stepping stone, lead to “spinning wheels”⁵ in most districts, which ironically creates almost constant change for practitioners, but makes it nearly impossible to sustain any innovation long enough to truly understand its efficacy.

Barrier 2: Market dynamics and incentives do not promote innovation.

- **Fragmentation and oligopoly.** In addition to 50 state systems, there are 15,000 districts that as buyers are often not staffed to make informed, strategic, evidence-based buying decisions. Combined with centralized state textbook adoption processes, this inhibits the entrepreneurial supply of innovative curricula and tools that could support dramatic increases in productivity like most other industries have seen. This results in a powerful incentive to build content and tools for the largest adopters and for the lowest common denominator, not for best or improved practice. This has created a publisher oligopoly

⁴ This analysis is based on two decades of working in the field of education reform, as well as [“Social Purpose Capital Markets: Financial Capital for Social Entrepreneurs in Education”](#) by Kim Smith and Julie Petersen for Hess, Frederick. *The Future of Educational Entrepreneurship: Possibilities for School Reform*. Cambridge, MA: Harvard Education Press, 2008. For additional in-depth analysis on these issues, see also [“K-12 Entrepreneurship: Slow Entry, Distant Exit”](#) by Larry Berger and David Stevenson, and [“Ruminations on Reinventing an R&D Capacity for Educational Improvement”](#) by Anthony Bryk, in the same volume.

⁵ See Hess, Frederick. *Spinning Wheels: The Politics of Urban School Reform*. Cambridge, MA: Harvard University, 1997.

that persists today, in which a small group of large incumbent firms inhibits innovation by making it very difficult for smaller entrepreneurial startups to survive or thrive in this concentrated sales channel, and leaving them little incentive to innovate themselves.

- **Weak technology infrastructure.** Most districts and schools plan only for technology acquisition and not upgrades or maintenance, thus it is hard for teachers and users to trust in the adoption of technology tools that may not be supported over time. This in turn inhibits innovation in technology applications.
- **Misaligned labor market.** The professions of teaching, school leadership and education administration are set up to value “seat time” and longevity (for licensure and promotion), with virtually no incentives or rewards for attempting innovative practices to drive improved student outcomes.

Barrier 3: The R&D cycle in education is broken, creating disconnects across practice, research, development, and investment, which in turn inhibits the ability to create and scale innovations.

- **Weak knowledge base.** Compared to other professional fields like medicine, which has professional knowledge standards, a constantly improving knowledge base, and advanced mastery indicators like the Board Certification process for medical doctors, the knowledge base regarding what works in advancing student achievement and organizing education practice to encourage innovation is very weak. As a result, there is no commonly accepted body of knowledge that is universally mastered as a prerequisite for entering the profession, nor a standard for advanced mastery.
- **Research divorced from problems of practice.** Currently, educational research sits inside government-funded laboratories and universities that are largely isolated within schools of education, and is often aligned to tenure incentives rather than problem-based needs in the field. There is little sense of urgency to disseminate knowledge and bring innovative ideas or knowledge into the development cycle and to scale. Knowledge development often doesn’t meet basic pragmatic requirements in the field. Problems of practice are cross-disciplinary, but the current educational research rarely is.
- **Disconnect between philanthropic innovations and public sector R&D -** Innovations that begin in practice – often funded by private philanthropy – are not connected back into the publicly supported R&D cycle to measure effectiveness, share evidence, scale adoption of promising practices, and drive adaptations in public policies.
- **Weak R&D infrastructure and investment.** Compared to other industries, we invest very little in education R&D. Contrast, for example, the \$500 million appropriated for education research under the Institute on Education Sciences in 2004 with the \$28 billion allotted to the National Institutes for Health in that same period. Further, we are missing an infrastructure like that which exists in the field of military defense, the Defense Advanced Research Projects Agency (DARPA), which applies a strategic intent to funding basic research tied to identified needs in the field and then brings worthwhile innovations to the development and commercialization phases, thereby strategically connecting basic research with product development in a way that has real impact.
- **Investment is not a virtuous cycle.** Private sector investors don’t invest as much in K-12 as other similar sized markets because two factors make it more difficult to recoup up-front investments over time. First, swings in popular ideology (as opposed to evidence) drive major shifts in the market. Second, an expensive sales cycle that is driven by the publisher concentration in the distribution/state adoption channel – and by buyers who are fragmented and are motivated by relationships more than evidence – lead to a weak incentive for adopting better tools.

- **Ineffective uptake and dissemination.** There is not enough attention paid to diffusing knowledge and innovation, so that benefits reach people and organizations beyond those it was originally developed to serve. This is in part due to the isolation of practitioners and their lack of rewards or incentives for adopting innovative practices. But it is also because too often, dissemination means the development of lengthy reports that sit on dusty shelves or on unseen Web sites that fail to inform real practice

The Opportunity to Innovate

The first job of a leader is to define reality, the last is to say thank you, and in between he is a servant.
– Max Depree, CEO, Herman Miller

Our system of K-12 public education has one overarching goal: to prepare our children – especially those who have been historically underserved – for citizenship, community, and work that earns a livable family wage. In the knowledge economy of the 21st century, this translates into a need to ensure that all students have the academic foundation for college success. Though there is little credible disagreement about this goal, there is great disagreement about the proper means to reach it. Conflicts about effective educational practice – including debates about standards, testing, “reading wars,” bilingual education, choice, teacher licensure, class size, and other potential drivers of achievement – have been driven largely by ideological beliefs rather than evidence about what works for children.

Within this contentious realm, the federal No Child Left Behind (NCLB) act managed to accomplish several important things. A courageous bipartisan coalition of national political leaders agreed to make federal education policy decisions based squarely on the goal of equity at scale, to begin shifting toward an evidence-based culture for policy decision making, and shine a spotlight on disaggregated student achievement data that would make clear the true inequities in our system and elicit real consequences for school systems’ failure to educate many populations, including low-income and minority students in urban and rural communities. However, most agree that NCLB was not perfect. Goals were left loose, with states given wide latitude on setting academic standards, while the means for assessing progress against those goals was tight, enforced through compliance with the blunt instrument of hard-wired short-term summative testing algorithms and subgroup achievement data. As a result, in spite of good intentions to the contrary, in many places around the country NCLB led to a more compliance-driven mentality, and a fear of innovation – at least in the short term.

Today, the Obama administration is building upon the foundation that NCLB established and attempting to mend its shortcomings. This administration is ambitious, setting our collective sights on combining excellence and equity at scale. Building upon the transparency and outcomes culture of NCLB, the approach begun with the Race to the Top competitive grants program is a valiant attempt to turn a compliance-driven system of public education on its head, by providing dramatic incentives for states to adopt fewer, deeper and (for most states) higher common academic standards, while also requiring state to put in place policies that encourage greater equity and enable greater innovation in the means for achieving these ambitious goals.

These huge shifts create a need and opportunity for innovation the likes of which we have never seen in public education. Recognizing this, there are some important specific federal efforts to support this shift – including the \$350 million set-aside for investing in new assessments aligned to these common standards, and the Investing in Innovation competitive grants programs – but these will not be enough. In order to spark significant innovation and sustain it over time, we will need to rethink and retool how we support innovation in the system as a whole.

A Framework for Addressing Educational Innovation

Skate to where the puck is going, not to where it has been.
– Wayne Gretzky, hockey player

The ambitious education agenda of the Obama administration – coupled with specific funds allocated to help drive innovation within the stimulus package as well as in legislation like the Serve America Act and its Social Innovation Fund – give us a rare opportunity to move beyond some of the barriers to innovation in education. We believe in order to make the most of this opportunity, we need public policy and private philanthropy to embrace some common principles, and we need collectively to apply our efforts to the most pressing problems of practice. We present below a starting point for defining some common operating principles and identifying some of the most pressing problems of practice that must be addressed.

Principles for Action

1. Innovation investments should as much as possible **prioritize students not being adequately served by the system today, and the problems of practice that have defied effective solutions to date**, as they have the most to gain from urgent action. It is imperative that we not let another generation of students slip through the cracks.
2. We can and should acknowledge that **there are socio-economic factors outside education** that affect student success – including poverty, mobility, hunger, health, and safety issues. We can and should develop innovative solutions to overcome policy silos that fragment services intended to address these related issues. Yet we must also agree **not to let these other factors become excuses** for not demanding and providing excellent college-ready public education for all of our low-income students.
3. One-time stimulus funding for innovation in education should **prioritize platform and infrastructure redesign and leverage ongoing formula funding streams**, not just single product-level or “point” solutions.
4. We must be open to **fundamental transformations in the existing system of education** as we leverage new Web 2.0 technologies, learn from advances in cognitive sciences, and pay attention to effective models of learning. Current structural realities of schooling, including formula funding and Departmental boundaries, should not be allowed to get in the way.
5. Innovation and research investments should be designed to change incentives to support continuous learning cycles that build a robust and improving **knowledge base that is widely accessible, actually useful to practitioners, and sustained and improved over time**.
6. Innovation requires a context where the **intended outcomes and metrics are clear and the means for achieving them have been freed from unnecessary process rules**. The Millennium Development Goals show us that defining some common metrics can help a complex sector to align around shared goals, and real shared accountability reshapes belief, attitude and behavior across the field.
7. We should be user-centric, **prioritizing what works for students, teachers, leaders, and communities**, not merely what is most efficient for policy makers or those who control purchasing. We should acknowledge the need to provide **diverse supply** to meet the varying needs of our population and not seek one-size-fits-all solutions.

8. We must create new mechanisms to motivate the **highest and best use of public, private and philanthropic resources**, based on what each sector does best, and we should explicitly seek partnerships and intermediaries that leverage cross-sector and inter-disciplinary partnership and models towards intended impact.
9. We must consider ways to **fundamentally change markets, business models, and delivery channels** to ensure that innovation succeeds, including open source arrangements, new intellectual property regimes, and other ways to bring innovation to scale.

With these principles as backdrop, effective cycles of innovation can begin with clarity on the problems of practice that need to be solved. The list below provides a starting point for these priorities, and some ideas that should be considered as we begin to innovate towards solutions.

Problems of Practice

Excellent common metrics for college-ready student achievement and strong instructional tools aligned with those metrics. As explained above, the lack of common metrics for success makes it incredibly difficult for innovators and investors to experiment with new ways of achieving that goal at scale. In order to address this, we must focus on:

- **Core academic standards.** The Administration's effort to create robust common standards in math and reading is a first step to catching up with the rest of the world, but we need standards in science, writing, and other subjects to following quickly behind, and for a continuous improvement platform to ensure these standards lead to college success.
- **Aligned content.** New instructional content must be developed in alignment with these new standards. Doing this in a way that harnesses open-source content and technology and mindsets would be ideal, freeing significant capital to be used in other parts of the system.
- **Aligned and effective assessments.** To enable common standards and strong content, significant work must be done to develop and use better, more timely, more useful measurements of growth in student performance on both content and skills. Platforms that enable systems of aligned formative and summative assessments – including open-ended questions and end-of-course exams, many items on every standard, as well as platforms for developing, managing, delivering, and validating items – would allow practitioners to measure progress, track effective instructional practice and ultimately prescribe instructional solutions.

Creating data standards and strong information platforms. Education data must go beyond the gathering and distribution of statistics and become pragmatically useful to instructional, managerial and policy decision makers. We need much more robust data warehousing capabilities that are built into platforms and tools of practice, thus enabling far greater data-mining and much less intrusive research access to data. Standards for how education data is managed would allow different sectors and organizations to share data across technology platforms, enabling more sophisticated analysis that could lead to better problem solving. Systems need to be developed that allow for interoperability across performance management, instructional decision making, summative accountability, and research uses. And platforms and standards need to be developed in a way that enables cross-disciplinary and inter-departmental data sharing and learning.

Dramatically improving the productivity and effectiveness of the adults in the system. At heart, education is a human service enterprise, and so the key to improvement lies in ensuring that teachers, leaders and professional staff are equipped with the skills and tools they need to be successful. In order to address this, we must bring innovative thinking to:

- **Radically rethinking teacher/leader development.** We need new approaches and new technologies to enable teacher and leader effectiveness, rather than trying to eke better performance out of the broken

systems of pre-service, certification, licensure, and professional development. The process of recruiting, preparing, supporting and developing talented educators should be better integrated with actual practice, should track performance, mastery, and related student outcomes over time, and should be differentiated by performance level not seniority or seat time. Systemic redesign, coupled with new platforms, products, and processes, will be crucial to developing new incentives for dramatically more productive adult learning cycles over time.

- **Developing tools for educator and management effectiveness.** Technology tools must be developed to better meet the needs of instructors and the managers that support them, not just the needs of compliance in large districts. These tools need to provide real-time resources for data-based instructional decision making, student diagnostics and proscriptioin, professional development, and performance management. These tools must be built in a way that can adapt to new needs and users, and take advantage of technological advancements.
- **Developing tools to increase the number of students reached by effective educators.** Platforms that expand the reach of outstanding educators – enabling them to teach other teachers, rural communities and under-served students – could be high-impact.
- **Creating new platforms to ensure we have enough access to excellent educators to meet science, math, engineering and technology (STEM) requirements for all students.** There is a clear need to think differently about how to make sure that all of our students are STEM-capable, and that we are developing enough STEM-advanced students to continue to grow our innovation economy. Efforts like High Tech High and Denver School of Science and Technology, and the use of military-inspired simulation tools, show us we need to scale what works, and also develop entirely new and even more scalable platforms.
- **Increasing the number and types of productive work environments.** Expanding charter schools and other environments – including ones not physically housed in a school facility – would provide degrees of management freedom for successful practitioners, in exchange for greater transparency and accountability for student outcomes.
- **Turning around failing schools.** In order to bring about real improvement in the nation’s thousands of chronically failing schools, we must look for new ways to enable and accelerate innovation on this front. Dramatic changes in structures and rules that allow for innovative use of time and resources – as well as innovative human capital practices such as recruitment, coaching, evaluation and compensation – will be required to do this successfully.
- **Overcoming policy barriers that silo early learning, K-12 and higher education, and those that separate education from important social services.** Examples like the SEED Foundation’s charter boarding schools and the early college high school model show us there is a need and opportunity to innovate across traditional funding boundaries – both across Department of Education formula silos and inter-departmental silos. These efforts need to scale and additional innovation is needed to overcome other boundaries, including better connecting Head Start and other pre-K efforts to the K-12 system.

Developing entirely new system designs. Too many students are not being served by the current system. To reach these students – and to put much more modular control of resources into the hands of practitioners and students – we need to consider radical ways to **enable personalized learning** and novel ways to combine that learning with the **social and community supports** that youth development research tells us are needed for ultimate success. In order to address this, we must focus on:

- **New platforms and tools to provide much more effective and personalized instruction.** This is especially crucial for those learners who we have been least successful with at scale, including English Language Learners, special education students, and those who are incarcerated or have high mobility.
- **Enabling learning to happen outside of traditional classrooms.** At its heart, public education is about learning, not about schooling, so new platforms and structures must be created to enable personalized learning and more modular control of time and resources.

- **Radical change to reach disconnected youth.** We must be open to complete systems redesign in order to support a diverse supply of non-traditional pathways to successfully re-engage disconnected youth ages 16-24. This may require us to think outside of the boxes of “classes” and Carnegie units, and school days and years as we have known them to date.

Dramatically strengthening and improving the education R&D ecosystem and results. The current system of R&D in education is fragmented, separated from real problems of practice, and insufficient to the enormous need. Education needs the equivalents to the strong R&D platforms that exist in other sectors like DARPA (as mentioned earlier), the National Institutes of Health, Xerox’s PARC (Palo Alto Research Center), and In-Q-Tel, the venture arm of the Central Intelligence Agency.

This list can and should evolve over time as solutions and evidence emerge, and new problems arise.

Recommendations for Action

Direct and coordinated action can enable much more effective innovation in education. Below, we outline some simple but concrete recommendations for action. Taken together, we believe these actions will lead to more productive work within each sector, meaningful collaboration between them, and ultimately a more effective environment for educational innovation.

High-impact actions the **Department of Education** could take include:

- Convene a series of cross-sector, inter-disciplinary and inter-departmental advisory meetings to establish some common definitions, metrics, and priorities for innovation in education. Make results transparent. Consider developing working groups to continue learning over time.
- Apply common innovation priorities and metrics across all four assurances, as well as across all Department funds, not just the Race to the Top Fund and the Investing in Innovation Fund.
- Identify problems of practice that merit truly disruptive innovation, and be open to radical redesign at the system level for these solutions – new models of schools, systems of schools, district/state /federal governance arrangements, a redefinition of the local education agency, perhaps even some federal-direct arrangements.
- Create the “small spaces” needed to innovate – enable some state/district or turn-around “innovation safety zones” in which policy barriers to innovation are reduced or removed for enough time to allow for development, implementation and assessment of dramatically different approaches.
- Better align existing public funds to support and sustain innovation - redesign formula funding rules and departmental and disciplinary silos to enable solutions that relate to the cross-functional nature of key problems, and redesign flows of funding to mobilize far more effective and efficient solutions.
- Act like agencies in sectors with more robust innovation capacity, such as the military and medical arms of government. Develop a DARPA-like R&D capacity and infrastructure. Establish pragmatic and tiered evidence standards, prioritizing utility in the field, and define multiple levels of efficacy indicators for different levels of investment. Support both truly innovative smaller scale experimentation, as well as scaling what has been proven to work in the field. Bring urgency to the task of quickly disseminating pragmatic early indicators of promising practice, as well as evidence of success as it is developed.
- Create mechanisms to motivate private investment that is aligned with specific public priorities, such as supporting targeted social-benefit intermediaries that aggregate private capital towards public priorities or developing targeted short-term investment tax incentives perhaps modeled on New Markets Tax Credits.

- Create mechanisms to coordinate and motivate private philanthropy so that it is aligned with and complementary to public innovation priorities.

High-impact actions the **philanthropic community** could take include:

- Act with much greater urgency to provide immediate capacity to help entrepreneurial organizations with innovative track records to meet the scale (but inopportune timing) of the stimulus package opportunities. Provide immediate, relatively small investments in targeted innovative organizations that are aligned with clear federal priorities (such as teacher and leader effectiveness tools and practices, turnaround specialists, and next-generation assessment innovators) right now could give these organizations the recruiting and infrastructure capacity they need to be able to leverage this support with large-scale federal support, and to translate both into dramatically stronger results.
- Work collaboratively to optimize philanthropy's relative freedom as compared to the public sector. Support entrepreneurs with important innovations who cannot receive public funding (including for-profit organizations), and coordinate to provide some wrap-around funds to organizations that do receive funding but need complementary support to succeed.
- Support a diverse entrepreneurial ecosystem of providers for the long haul. There is an immediate need for organizations to develop modular solutions that leverage Department-backed platforms or innovation zones. Long-term, we will also need intermediaries that can strengthen the field of education innovation and entrepreneurship, and those that can quickly develop advice about quality and efficacy for users and buyers of innovative products and services (such as that provided by JD Power and Consumer Reports in the retail space).
- Build public will by supporting demand-side organizing (e.g. working with community groups and parents) related to the use of public funds for innovation as a way of ensuring that innovation goals, metrics, and outcomes are easily understood by the general public.
- As a complement to a Department investment in an R&D platform redesign, provide capacity-building support to innovative practitioners and social purpose intermediaries to ensure better connections between practitioners, knowledge developers, and users.
- Be open to providing some strategic social-purpose investment capital to seed innovative companies that target quality users and leverage private for-profit capital markets.
- Set aside some portion of annual funds to support innovations that do not fit neatly into existing internal funding silos. This will create stronger adaptation and allow innovation cycles to emerge faster.

High-impact actions **states and districts** could take include:

- Use the lever of stimulus incentives to fundamentally re-imagine and redesign systems, processes and policies to be more user-centric and to enable learning cycles and innovation over time, not just to meet current funding requirements.
- Given the incredibly urgent timeframe created by the stimulus package, strategically partner with innovative entrepreneurial organizations to provide additional execution capacity. Operating in dramatically new performance-driven ways will require significant internal systems redesign and capacity building, as well as high quality external providers.
- Take full advantage of this opportunity to re-engineer provider selection processes, and reconfigure or replace current relationships, in order to create more dynamic markets of diverse providers that meet the

needs of diverse users – students, schools, systems of schools, teachers, leaders - for development and support, instructional tools, content, and assessments, and productivity tools and platforms.

- Strategically partner with like-minded states and districts – avoid reinventing the wheel where ever possible, and identify like-minded partners to share platform development costs, and create true learning communities around core problems of practice. This approach should apply particularly to development of new aligned content and assessments and related platforms.

High-impact actions **education entrepreneurs** could take include:

- Make time to bring entrepreneurial ideas, problem-solving approaches, and experience with innovation to bear on state and district redesign efforts.
- Partner strategically with other high-quality providers to offer states and districts “bundles” of best-of-breed modular solutions that may meet their critical needs, such as turning around failing schools or meeting teacher effectiveness assurances. Help districts and states invest their resources in the highest and best innovations available today, so they don’t feel the need to recreate everything internally.
- Overcome the entrepreneurial tendency to be competitive and think you have to build it all yourself, by pursuing strategic partnerships that leverage these once-in-a-lifetime stimulus funds. These will not only strengthen individual organizations, but also help students and the entire field of public education take a quantum leap forward in performance.
- Build into proposals and applications enough capacity not only to execute with excellence – which may require more scalable and technology-enabled management and knowledge systems – but also the capacity to develop knowledge, gather evidence, and engage in learning across organizations and systems.

Conclusion

In creating this document, we have tried to contribute to greater clarity regarding innovation in education. These ideas have emerged over the last decade from NewSchools Venture Fund’s collaboration with education entrepreneurs, foundations, private sector investors, policy makers, and others to transform public education for students in underserved communities. We encourage these groups to continue the dialogue that has already begun about supporting innovation in education, applying it to the problems of practice that threaten to slow our progress, and ultimately improving outcomes for students across the country.