The Brink of Renewal:
A Business Leader's Guide to Progress in America's Schools

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Conflict of interest disclosure

The organizations writing this report and the accompanying report, "*Lasting Impact: A Business Leader's Playbook for Supporting America's Schools*," have been substantively and, in some cases, financially involved in certain examples used in the reports. Specifically:

- Through grants and other activities, the Bill & Melinda Gates Foundation has supported multiple organizations described in both reports. They are Alliance for Excellent Education; Aspire Public Schools; Charter School Growth Fund; Council of Chief State School Officers and National Governors Association's Common Core State Standards Initiative; Delaware Department of Education; Denver Public Schools; Education Pioneers; Hillsborough County Public Schools, Florida; Jefferson County Schools, Louisville, Kentucky; Kentucky Department of Education; KIPP; KnowledgeWorks Foundation; Literacy and Math Design Collaboratives; Los Angeles Unified School District; Memphis & Shelby County Public Schools; Montgomery County Public Schools, Maryland; National Math and Science Initiative; New Leaders for New Schools; New Schools for New Orleans; New York City Department of Education; Rocketship Education; Rodel Foundation, Delaware; Strategic Data Project; Strive Partnership; Student Achievement Partners; Teach for America; The New Teacher Project; and UTeach.
- The Boston Consulting Group (BCG) worked with Delaware stakeholders to draft the Vision 2015 plan and supported the initial launch of the National Math and Science Initiative. In addition, as part of the Memphis-Shelby County merger, BCG supported the Transition Planning Commission in creating the strategic plan for the merger and helped the school districts implement key initiatives from the plan.

In addition, Harvard Business School provides executive education to over twenty-five large school districts through its Public Education Leadership Project, a joint effort with the Harvard Graduate School of Education, including the Denver Public Schools.

Off the sidelines and onto the field

Powerful, positive forces are gathering with potential to transform American education. Whether Americans unite behind educators to promote these forces will ultimately determine if the nation has the workforce to thrive in tomorrow's global economy and if we remain a land of opportunity.

Many business leaders are aware of the pressing need to improve PK–12* education and would like to help. Yet most executives don't understand the key role they can play in helping educators transform our schools. What they do know is that the education system is complicated, resistant to change, and politically charged. As a result, executives who obsess over other critical parts of their businesses remain on the sidelines when it comes to issues that will lastingly affect their future supply of talent.

We aim to draw such business leaders off the sidelines and onto the field as informed—and essential—partners of educators. To do so, we offer three resources.

The first resource is this publication. It is written for a business leader who wants to understand what's going on in PK–12 education. It provides a view of the related forces that, taken together, can make dramatic progress in America's schools a reality.

A second booklet, *Lasting Impact: A Business Leader's Playbook for Supporting America's Schools*, is written for a businessperson who is ready to join hands with educators or is already engaged. It highlights three primary ways through which businesspeople can strengthen the forces of positive change, by:

- Joining with educators and civic leaders to **lay the policy foundations** for education innovation.
- Helping to **expand programs that boost student outcomes**, taking them to national scale.
- And collaborating with a variety of stakeholders—from school district leaders and local community organizations to parent groups and labor associations—to **reinvigorate the entire education ecosystem** in selected cities and towns.

The third resource, *Partial Credit: How America's School Superintendents See Business as a Partner*, reports the findings of a BCG-HBS survey of the nation's education leaders on the role of business in PK–12 education. *Partial Credit* and *Lasting Impact* can be found at www.hbs.edu/competitiveness.

*PK–12 education refers to education from prekindergarten to 12th grade.

Hotbeds of reform

Over the past two decades, America's major cities have been hotbeds of education reform. From encouraging school choice and competition in various forms to outsourcing school management to nonprofit and for-profit operators; to recruiting teachers, principals, and even superintendents from nontraditional routes; to adopting sophisticated performance measurement and management systems; to wholesale redesign of school districts into "portfolio managers," and more, cities have tried a wide range of strategies to accelerate the pace of improvement.

And some cities are seeing genuine results. Boston, New York City, New Orleans, and Dallas have witnessed progress in student achievement and graduation rates. Among these cities, Denver stands out as a place where a coherent strategy and broad commitment to change are driving improvement.

In Denver's school system, students are making steady progress in reading, mathematics, and writing, and they are improving faster on state tests than are students in other Colorado districts. Since 2005, the district has cut dropout rates by more than half and boosted on-time graduation rates from 38.7 percent in the 2006–07 school year to 61.3 percent in the 2012–13 school year, closing much of the gap with the state rate of about 77 percent. The number of students taking Advanced Placement classes has more than doubled since 2005.[1]

These improvements have won over the community. Despite a reputation for opposing tax hikes, Denver voters in 2012 approved, by a large margin, a proposal to increase school funding through a mill levy increase, and said "yes" to a $466 million bond issue for school construction and repairs. The achievement is even more impressive considering that, in 2013, Colorado voters rejected a referendum to increase taxes by $950 million and revamp school funding statewide.

What is Denver's recipe for success? It has been more like an entire cookbook. It is a multi-faceted endeavor built around a coherent strategy for improving schools, and it is sustained by a unified group of determined education, civic, and business leaders. At the heart of Denver's strategy are the following ingredients:

- **Effective leadership and management.** Denver has had only two superintendents since 2005. Both have centered their reform strategies on investing in talent to change the school system.
- **Effective teachers.** Denver was an early leader in reimagining the career path for teachers and reforming teacher pay. A constructive relationship with the teachers' union made this possible—a critical enabler as the district has experimented with new ways to train and evaluate teachers.
- **Rigorous standards and strong accountability.** The district established a performance framework that was more detailed and far-reaching than the state required. The district communicated to all stakeholders that it had a compelling strategy with goals for improving schools, an accountability system to track progress, and transparency about how it spent money and made decisions.
- **Abundant school choice.** The district's Office of School Reform and Innovation is working to develop, support, and expand four models of innovative schools: charter schools, as well as district-run performance schools, innovation schools, and contract schools.[2] Sixty new district-run and charter schools have opened since Tom Boasberg became superintendent in 2009.[3]
- **A strong local ecosystem.** The district has worked actively to engage business and civic leaders as partners for change. These leaders have responded by investing their money and time in advocating for the laws, policies, and funding that the district needs to achieve its goals.

Denver superintendent Tom Boasberg meets regularly with leaders from unions, community groups, business, and other constituencies, including the Chamber of Commerce, as well as his own advisory council of a dozen local business leaders. These gatherings help Denver leaders understand the challenges that the district faces and engage in a deep dialogue about the district's long-term vision, goals, and strategy.

For Boasberg, the key to establishing—and sustaining—broad community support for school reform is constantly reiterating that the district has clear goals for change and transparent systems to measure progress toward them. Boasberg—a lawyer who spent much of his career in the communications industry, both as a business executive and in government—emphasizes that he always looks to learn from others' successes. "We are not here defending a failed status quo; we are here to change it," he says. "We welcome good ideas and practices from elsewhere, from other private-sector and public-sector entities."[4]

Denver illustrates what's possible in America's schools when education, civic, and business leaders come together, rally behind a strategy for change, and stick with it over time.

Denver, Boston, New York City, New Orleans, and Dallas have witnessed progress in student achievement and graduation results.

A tough national report card

While Denver has made notable progress, high performance is still a long way off. Its schools graduate just over 60 percent of their students, and wide racial, ethnic, and socioeconomic achievement gaps persist. In that sense it is like the nation as a whole: plagued by low overall achievement, wide achievement gaps, and uncertain prospects for the future. Consider four critical indicators.

First, U.S. student performance is mediocre by global standards. America spends more on its schools than almost all other industrialized nations: we rank fifth highest among the nations in the Organisation for Economic Co-operation and Development (OECD).[5] (See Figure 1.) Nevertheless, American students still lag behind their global peers, performing at or below average on many international measures:

- On the Program for International Student Assessment (PISA), the exam that measures the academic performance of 15-year-olds around the world, the most recent results from 2012 show that American students rank 17th in reading, 27th in math, and 20th in science literacy among the 34 OECD nations.[6] (See Figure 2.) Between 2012 and the previous exam, in 2009, the OECD's best estimate of America's relative ranking slipped across all three subjects.

FIGURE 1: U.S. RANKS 5TH AMONG OECD COUNTRIES IN PER-PUPIL SPENDING FOR SECONDARY EDUCATION

Rank	Country	Per-Pupil Spending
1	Luxembourg	17,633
2	Switzerland*	14,972
3	Norway	13,852
4	Austria	12,551
5	**United States**	**12,464**
6	Netherlands	11,838
7	Denmark**	11,747
8	Ireland*	11,380
9	Belgium	11,004
10	France	10,877
11	United Kingdom	10,452
12	Australia	10,350
13	Sweden	10,185
14	Japan**	9,957
15	Spain	9,608
16	Finland	9,162
17	Portugal*	8,882
18	Italy*	8,607
19	Slovenia	8,187
20	New Zealand	8,170
21	Korea	8,060
22	Iceland	7,841
23	Czech Republic	6,546
24	Estonia	6,444
25	Israel	5,616
26	Poland*	5,483
27	Slovak Republic**	4,806
28	Hungary*	4,553
29	Chile	3,110
30	Mexico	2,632
31	Turkey	2,470

Annual expenditure per student for all services in equivalent U.S. dollars converted using purchasing power parities, based on the full-time equivalent number of students. Data is for 2010, except as noted. Data not available for Canada, Germany, and Greece.

*Year of reference 2009

**Public institutions only

Source: OECD

FIGURE 2: U.S. RANKED 17TH IN READING, 27TH IN MATH, AND 20TH IN SCIENCE ON THE 2012 PISA EXAM*

	Reading			Math			Science		
	Rank	Country	Score	Rank	Country	Score	Rank	Country	Score
Statistically significantly above OECD average	1	Japan	538	1	Korea	554	1	Japan	554
	2	Korea	536	2	Japan	536	2	Finland	536
	3	Finland	524	3	Switzerland	531	3	Estonia	531
	4	Canada	523	4	Netherlands	523	4	Korea	523
	5	Ireland	523	5	Estonia	521	5	Poland	521
	6	Poland	518	6	Finland	519	6	Canada	519
	7	Estonia	516	7	Poland	518	7	Germany	518
	8	Australia	512	8	Canada	518	8	Netherlands	518
	9	New Zealand	512	9	Belgium	515	9	Ireland	515
	10	Netherlands	511	10	Germany	514	10	Australia	514
	11	Switzerland	509	11	Austria	506	11	New Zealand	506
	12	Belgium	509	12	Australia	504	12	Switzerland	504
	13	Germany	508	13	Ireland	501	13	Slovenia	501
	14	France	505	14	Slovenia	501	14	United Kingdom	501
	15	Norway	504	15	New Zealand	500	15	Czech Republic	500
Not statistically different from the OECD average	16	United Kingdom	499	16	Denmark	500	16	Austria	500
	17	**United States**	**498**	**17**	Czech Republic	499	**17**	Belgium	499
	18	Denmark	496	18	France	495	18	France	495
	19	Czech Republic	493	19	United Kingdom	494	19	Denmark	494
	20	Austria	490	20	Iceland	493	**20**	**United States**	**493**
	21	Italy	490	21	Luxembourg	490	21	Spain	490
	22	Spain	488	22	Norway	489	22	Norway	489
	23	Hungary	488	23	Portugal	487	23	Hungary	487
	24	Luxembourg	488	24	Italy	485	24	Italy	485
	25	Portugal	488	25	Spain	484	25	Luxembourg	484
Statistically significantly below OECD average	26	Israel	486	26	Slovak Republic	482	26	Portugal	482
	27	Sweden	483	**27**	**United States**	**481**	27	Sweden	481
	28	Iceland	483	28	Sweden	478	28	Iceland	478
	29	Slovenia	481	29	Hungary	477	29	Slovak Republic	477
	30	Greece	477	30	Israel	466	30	Israel	466
	31	Turkey	475	31	Greece	453	31	Greece	453
	32	Slovak Republic	463	32	Turkey	448	32	Turkey	448
	33	Chile	441	33	Chile	423	33	Chile	423
	34	Mexico	424	34	Mexico	413	34	Mexico	413
	OECD average		496	OECD average		494	OECD average		501

Source: OECD

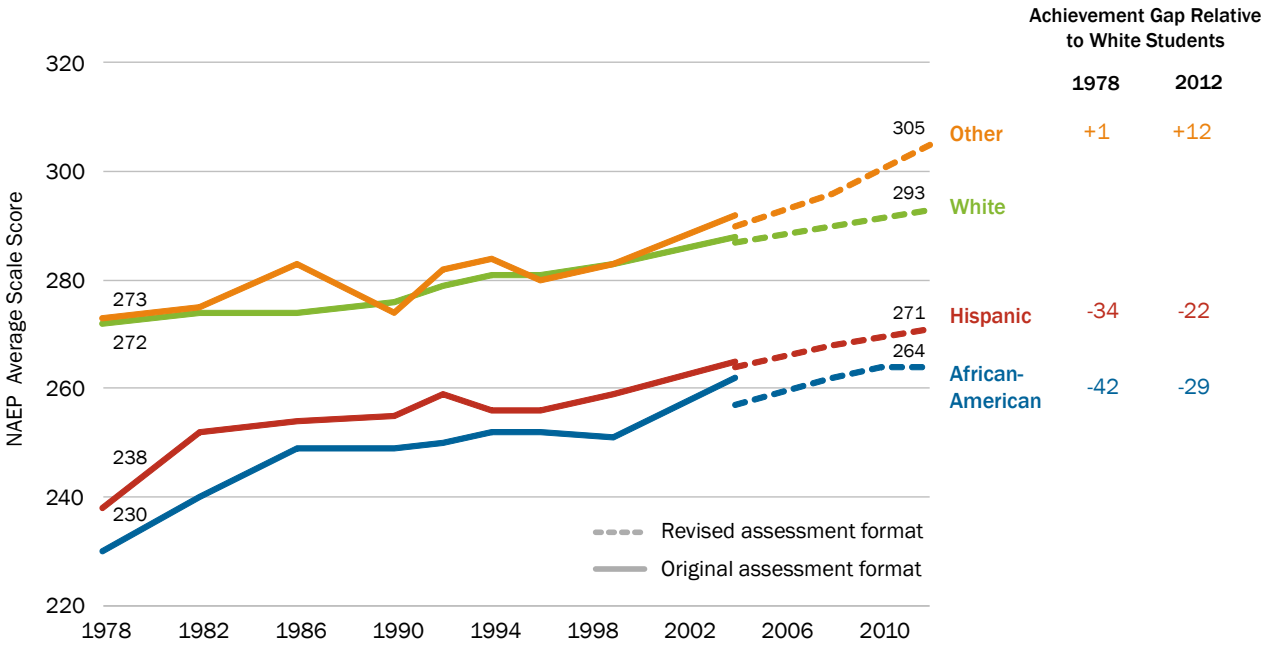
- America has also slipped in the proportion of students who attend college relative to other nations. This is not because U.S. college-going rates have declined; indeed, they have increased fairly steadily over time.[7] Rather, we are failing to keep pace relative to other countries' progress as they have improved their higher education systems and sent a greater proportion of students on to college. We are no longer the best in the world in college-degree attainment: In 2011, **43 percent of 25- to 34-year-olds in the U.S. had a college degree, well below South Korea's rate of 64 percent. On this measure, the United States ranks 12th highest of 36 OECD and partner countries.**[8]

Second, large achievement gaps persist among subgroups of students, including differences by race, ethnicity, and socioeconomic status. While the nation has narrowed some of these gaps over the past 30 years, this progress has occurred at a glacial pace. Significant disparities remain. For instance, on the math portion of the National Assessment of Educational Progress (NAEP) black 13-year-olds lagged their white counterparts by 42 points in 1978. Thirty-four years later, in 2012, a gap of 29 points remained. (See Figure 3.) If the gap narrows at a similar pace in the future, scores of black students will not match those of white students until late in the 2080s.[9] Similarly, the gap between Hispanic and white students has also narrowed somewhat, but continues to be substantial.

*The rankings presented are OECD "best estimates." Due to sampling and measurement error, the U.S. rank could be between 14 and 20 in reading, between 23 and 29 in math, and between 17 and 25 in science.

FIGURE 3: DESPITE OVERALL IMPROVEMENTS IN PERFORMANCE ON THE NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS, WIDE GAPS IN ACHIEVEMENT BY RACE/ETHNICITY PERSIST

NAEP mathematics achievement, by race/ethnicity, age 13



Source: National Center for Education Statistics

Achievement gaps also show up in measures of college readiness such as the ACT. (See Figure 4.) The most recent research from the publishers of the ACT exam revealed that 43 percent of Asian high school graduates met all of their college-readiness benchmarks in English, reading, mathematics, and science, while only 5 percent of black high school graduates met all four benchmarks.[10]

These achievement gaps are increasingly important because minority students are becoming a larger proportion of U.S. students. In 2012, Hispanic students represented 21 percent of all 13-year-olds tested on NAEP in mathematics, a substantial increase from just 6 percent in 1978, and black students represented 15 percent, a slight increase from 13 percent in 1978. Meanwhile, the proportion of white students fell, from 80 percent of 13-year-olds tested in 1978 to 56 percent in 2012.[11] Looking ahead, demographic trends suggest that America's population will continue to grow more diverse, making the achievement of students of color increasingly critical to national progress.

Third, too many U.S. high school graduates are unprepared to do college-level work. Although many students start college, a large percentage do not finish. Of students who enter a U.S. post-secondary institution, about half fail to graduate within six years. That figure is even higher for African-Americans (63 percent) and Hispanics (58 percent).[12] Nationally, it is estimated that more than 50 percent of students who enter community colleges take at least one remedial college course.[13]

The poor preparation among high school graduates is especially troubling because having a post-secondary certification or degree is more critical than ever. By 2018, a Georgetown University study predicts, an estimated 63 percent of job openings will require at least some college education.[14] Yet today, only about 43 percent of Americans aged 25 to 34 have earned an associate's or a higher-level degree.[15]

Fourth, the mismatch between the poor performance of U.S. education and the need for a skilled workforce of tomorrow casts doubt on our future economic competitiveness. A 2012 survey by *The Chronicle of Higher Education* and American Public Media's *Marketplace* found that about a third of employers say colleges do only a fair or poor job of producing successful workers. A similar proportion say that recent graduates are "unprepared" or

"very unprepared" for a job search.[16] In addition, 53 percent of employers reported that it is "difficult" or "very difficult" to find qualified college graduates to fill positions, according to the study.

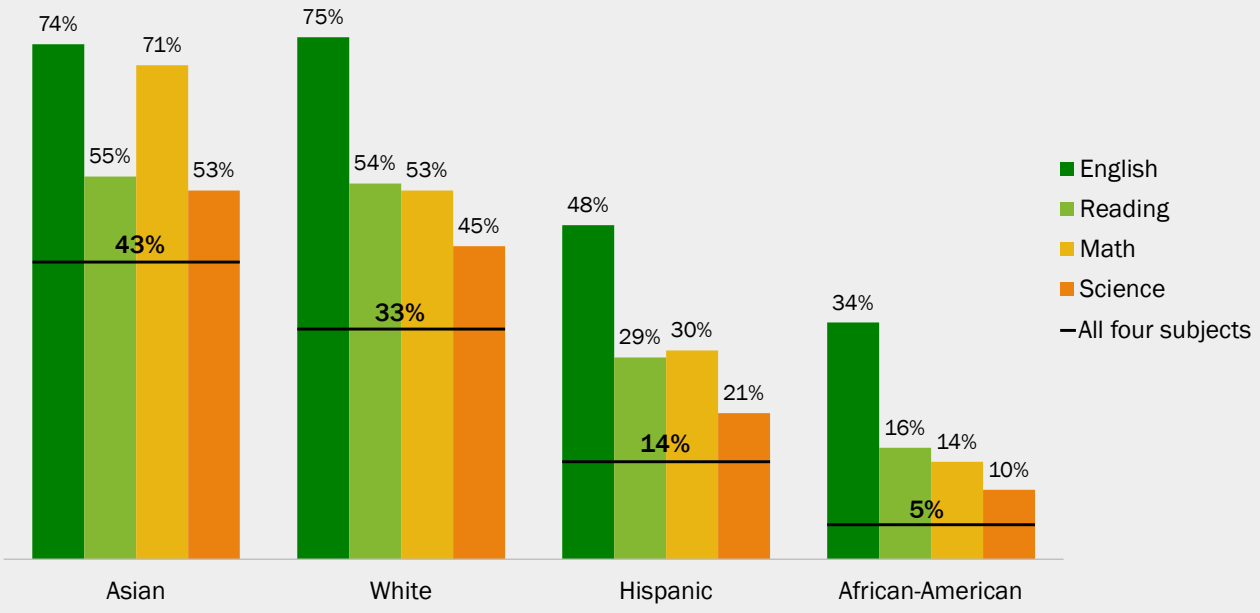
Poor school performance makes students less able to work in high-skilled jobs and reduces their purchasing power in the future. Consequently, the quality of our public schools has a direct impact on the nation's Gross Domestic Product (GDP). A study by McKinsey & Company estimated that if the educational gap between the United States and higher-performing nations such as Finland and Korea were closed, GDP in 2008 would have been higher by $1.3 trillion to $2.3 trillion, or about 9 percent to 16 percent of GDP at that time. The study warned that the persistence of such gaps "imposes on the United States the economic equivalent of a permanent national recession." Furthermore, it observed, the gaps get even worse over time: the longer American children attend school, the worse they score relative to their international counterparts.[17]

Given all this evidence, it's no surprise that pessimism prevails in many assessments of America's schools. In a recent Harvard Business School survey on U.S. competitiveness, the nearly 7,000 business leaders who responded named PK–12 education among the greatest current weaknesses in the U.S. business environment. A significant majority also said they believe the U.S. is falling behind in PK–12 education compared with other nations. Asked the same questions, 1,000 members of the general public were nearly as negative in their assessment.[18]

Interestingly, when 1,118 superintendents of American school systems responded to the same questions, they ranked public education as close to strong and keeping pace with other economies. (See *Partial Credit: How America's School Superintendents See Business as a Partner* at www.hbs.edu/competitiveness.) Only one other of the 16 questions asked had a different response from business leaders and the general public. Business and education leaders have sharply different views on American education. This disparity must be closed if these two groups are to work together constructively.

FIGURE 4: GAPS PERSIST ON THE ACT EXAM, WHERE LOW PERCENTAGES OF BLACK AND HISPANIC STUDENTS MEET COLLEGE-READY STANDARDS

Share of students meeting college-readiness standards on the ACT, by race/ethnicity



Source: ACT

A special moment

Despite the troubling data laid out in the previous section, we believe that today can represent an historic turning point for America's schools. Promising trends, some decades in the making, are converging to make a transformation of the U.S. education system possible.

This optimistic assessment is based partly on a number of positive trends in student performance. The nation's on-time graduation rate, for instance, has been rising since the mid-1990s and is approaching an all-time high. A larger portion of the population now holds a high school diploma, increasing from 83 percent of the 18- to 24-year-old population (of those not currently enrolled in high school) in 1972 to 90 percent of the same age cohort in 2008. And the percentage of students taking advanced coursework in mathematics, science, English, and foreign languages has increased at a steady pace in each of those subjects since *A Nation At Risk* was published in 1983.[20]

Hopefulness is reinforced by the strong gains registered in some pockets of the nation's public education system: for example, Denver, as described earlier; New Orleans after Hurricane Katrina; New York City under Mayor Michael Bloomberg; and the best-performing charter management organizations.

But the decisive factor making us hopeful is the systemic, reinforcing set of changes underway in U.S. education—how individual parts of the system are evolving and how those changes reinforce each other to open new possibilities.

A view of the system

Figure 5 depicts the typical "local education ecosystem" in any American city or town and shows key areas that influence change. In most places, the local school district is the central actor in the ecosystem. But other ecosystem members contribute to student achievement. These include nonprofit organizations, such as College Possible and Teach for America; government agencies, such as social services and public housing administrations; teachers' unions; businesses that are involved in education; faith-based organizations that run parochial schools and offer social services and other programs; and, in many places, networks of charter schools.

At the heart of a locale's ecosystem are the students. Close to the students are the forces that have the most direct impact on their success. In a strong ecosystem, these key drivers include:

- **Effective teachers** who bring great talent to the classroom each day.
- **Quality curriculum** that guides teachers to deliver great content.
- **Personalized learning** models that tailor teaching and curriculum to the needs of each student.
- **Integrated wraparound supports** that give students access to health services, social services, enrichment programs, and other resources, so they arrive in school ready to learn.
- **Engaged families** who understand and reinforce what the teachers and curriculum in a child's school aim to accomplish.

Surrounding these in a strong ecosystem are enabling elements that make these forces more effective:

- **Rigorous standards** that shape the curriculum and guide teachers to prepare students for college and careers.
- **Sophisticated data and measurement systems** that reveal whether students are progressing toward meeting the standards.

- **Strong accountability** that focuses everyone in the system on his or her responsibility to help students succeed.
- **Abundant school choice** that matches children's needs to teachers and the curriculum and promotes healthy competition.
- **Sufficient resources, productively employed,** that give stakeholders what they need to help students.
- **Effective leadership and management**—from principals to superintendents to school board members—who craft and carry out a coherent strategy for the ecosystem.

Freeing up the system

Historically, the local education ecosystem of the typical American city or town was frozen in place. Consider, for instance, the situation in 1983—the year that a presidential commission's groundbreaking report on American education, *A Nation at Risk*, warned that America's schools were "being eroded by a rising tide of mediocrity." At that time, most school districts were "command and control" structures. Meaningful formal academic standards barely existed at the state or national level. Measurement of student achievement was sparse and inconsistent. Seniority controlled how teachers were evaluated and promoted. Core technologies—chalkboards, books, and pencils—had not changed for centuries. In most classrooms, one curriculum was assumed to fit all students. To switch schools, families had to move to different districts or pay for private schools; the first state law allowing charter schools would not be enacted for nearly a decade.

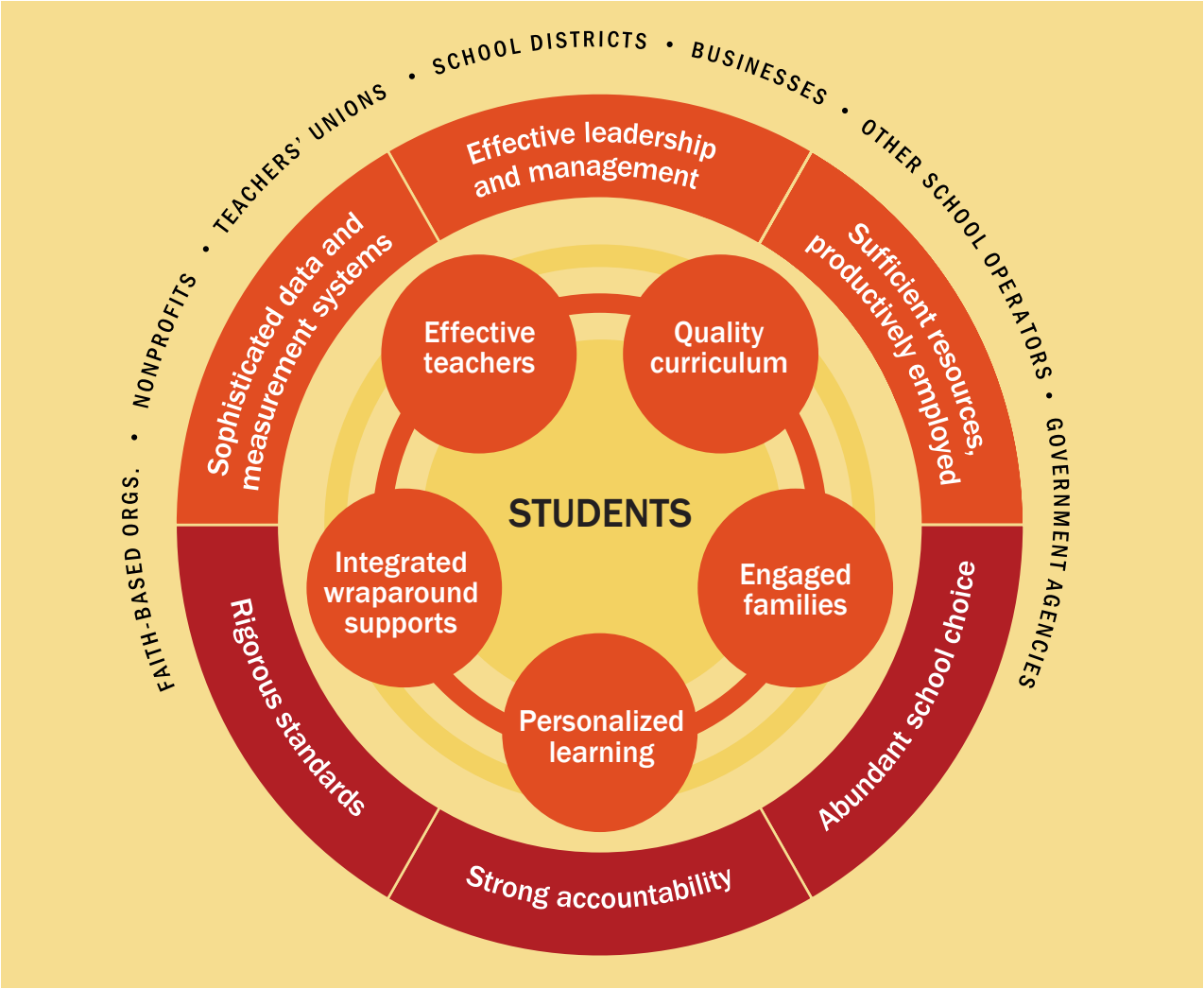
A Nation at Risk unleashed a wave of school reform that continues today. For the past three decades, U.S. educators have been reorganizing, restructuring, and rethinking each piece of the education system. Changes have touched everything from how teachers are trained to how students are tested to how schools collect data. The once-frozen system is freeing up.

Our assessment is that these changes are now converging in a way that permits *transformational change* in the PK–12 system—change that fundamentally alters how local ecosystems function and what results they produce. Three underlying processes are at work:

- **Experimentation:** It has become easier to innovate in schools.
- **Detection:** We increasingly have the data and information to tell which innovations are working.
- **Scaling:** The forces that allow successful innovations to spread have strengthened.

All three of these processes are at work, creating encouraging change in each part of the education ecosystem. We next describe each component of Figure 5 on page 10, starting with enabling elements, then moving inward to the key drivers.

FIGURE 5: A LOCAL EDUCATION ECOSYSTEM



Key drivers:
most directly affect student outcomes

Enabling elements:
create right context for change

Enabling elements: Creating the context for transformation

Rigorous standards

A Nation at Risk sparked a movement toward clear and higher standards in American education. By 1989, all 50 state governors had set a common goal: "By the year 2000, all students will leave grades 4, 8, and 12 having demonstrated competency" in core subjects.[21] The No Child Left Behind Act (NCLB), passed by Congress in 2001, raised the stakes: states would not only have to develop standards and linked assessments but also hold schools accountable for the results. If not, they would lose federal education funding. This act has its flaws, but the standards requirement shifted school leaders' focus from inputs and outputs to results and spurred a great deal of experimentation in most states.

Under No Child Left Behind (NCLB), each state used its own standards to measure progress, but standards were much lower in some states than in others. Consequently, it was difficult to benchmark performance across states, compare state standards with international yardsticks, and develop textbooks or other materials for multiple states.

To address those issues, in 2008, the nation's governors and state education commissioners launched the Common Core State Standards Initiative—an effort to develop a shared set of evidence-based standards that would prepare students across the nation for college and careers and meet international benchmarks. The resulting standards specify what students should master at each stage of their K–12 education, while leaving curriculum design to local or state officials. Math and English Language Arts standards were released in 2009.

Originally, 45 states plus the District of Columbia adopted the standards and agreed to put them in place by 2015. Efforts to roll out the Common Core are now underway in thousands of school districts across the country. The challenge is massive: develop curricula and materials, train teachers, and create assessments tied to the new standards, all on a national scale under tight deadlines. But the opportunities for innovation and improved student performance are equally large.

However, as the rollout unfolds the Common Core has become a sensitive political issue. In fact one state, Indiana, recently passed legislation withdrawing its adoption of the standards.[22] Conservative groups have framed the new standards as a federal effort to "tell us what to teach our children."[23] They are attempting to block implementation. These conservatives have found unusual allies among some staunch liberals. The latter argue that rollout has been rushed. They also fear that teachers will unfairly be held accountable when students fare poorly against the standards, and that students are being over-tested.

Public opinion polls have shown that until recently, most Americans had never heard of the Common Core; however, once they are given information about the standards the majority are supportive of the need for them. Similarly, the majority of teachers are very supportive of the Common Core standards, but are anxious to be given the time and support needed to implement them well. Many states and districts are taking a thoughtful approach to this endeavor and allowing time for significant training and lesson design by teachers, using high-quality tools developed for and by teachers, such as the Literacy and Math Design Collaboratives. It is very important to the success of the standards that states and districts continue to create the space for schools to implement the instructional practices called for by the standards that will enable students to develop the critical problem-solving skills required for success in today's economy. In an initiative of this scale and scope, there are bound to be some missteps, but educators across the country need the support and commitment of policy makers and the community over the long haul to realize Common Core's potential to help improve student achievement.

Sophisticated data and measurement systems

Once standards exist, students can and should be tested against them. And tests produce performance data. The rise of standards in American education has thus unleashed an unprecedented wave of data on student performance. Data are crucial for improving America's PK–12 system, for they allow educators, parents, policymakers, and others to *detect what's working and what isn't* among existing programs and innovations.

The No Child Left Behind Act mandated public reporting of student performance data. In particular, it required schools, districts, and states to sort testing data by race, income, and other attributes. Such data slices have focused educators on making sure that all students meet high expectations.

To collect data, school districts have had to invest in information technology and accompanying skills. To use data well, school bureaucracies have then had to make decisions based on findings. This has not been an easy shift. A promising national effort to increase skills in this new area is the Strategic Data Project, which aims to create a new career path in education for data experts and strategists. The project is teaching central office staff, as well as a newly hired cadre of information specialists, how to use the mountains of data to make better decisions about everything from testing to teacher assignments. (See "Data takes its place in PK–12 education decision making" on p. 13.)

Student performance data have led to ripple effects. Society can now hold educators accountable for student progress, parents are more able to choose wisely among schools, and teachers can tailor lessons to the needs of each student. We consider each of these effects below.

Strong accountability

With increasingly sophisticated measurement approaches, it's now possible to hold districts, schools, and even individual teachers accountable for meeting specific student performance goals. It has become a commonly held belief that incorporating student performance into evaluation and performance accountability for schools and educators is appropriate, but education leaders are still learning about the best ways to do this to drive continuous improvement in student outcomes.

The approach that has been in place since the early 2000s is to hold entire schools accountable for student results. Under the No Child Left Behind Act, for instance, schools that receive federal funding and repeatedly fail to make so-called "adequate yearly progress" are subject to escalating sanctions. Among other things, they may be forced to offer students transfers to other public schools or give students extra tutoring. They might also be completely restructured, or even shut down. However, NCLB required that all students reach state proficiency standards in reading and math by 2014 and did not take into account individual student progress towards those goals. This penalized schools that had incoming students who were behind, English language learners, or special education students, even if they demonstrated significant growth. In turn, it rewarded schools that benefited from the demographics of their incoming students, even if they made very little progress. The recent NCLB waivers many states have been granted have attempted to shift the measures used for accountability toward a combination of growth measures and absolute performance measures, so that sanctions and supports to under-performing schools can be applied in a more targeted manner. Many districts have also adopted a basket of indicators to assess overall school performance, including measures such as parent satisfaction and school climate as well as performance on standardized achievement tests.

Another emerging approach is to use student performance metrics to evaluate teachers and principals, which are then linked to individual retention, tenure, promotion, and compensation decisions. Recently, many states and districts have begun to use value-added measures (VAM) to attempt to isolate the impact of individual teachers on student learning, as a component of teacher evaluation systems. Research shows that using VAM carefully, in combination with other measures such as observations of instruction and student feedback, can lead to a valid and reliable measure of teacher effectiveness.[24]

Many states have recently updated their policies around teacher evaluation, and are attempting to put in place common-sense approaches to phasing in new accountability systems in ways that give teachers and principals the time to understand the evaluation system design and instructional expectations prior to any high-stakes decisions being made. Systems for accountability are relatively early in their development, and experiments continue. The approach that produces the desired outcomes is still a work in process.

In education, as in business, accountability systems must be designed with skill. Deployed well, they give teachers and administrators strong incentives to find new ways to propel student progress and spread innovations that work. Deployed poorly, they can lead people to game the system and to focus on metrics rather than real student learning.

Data takes its place in PK–12 education decision making

Today, schools, districts, and states are collecting volumes of data about student progress, teacher quality, and numerous other topics. But a significant challenge remains: how can they use this data to better inform their strategic decisions? That's where the Strategic Data Project (SDP) comes in.

Initiated by the Bill & Melinda Gates Foundation in 2008 and housed at the Center for Education Policy Research at Harvard University, SDP is creating a new professional track in PK–12 education for experts who can organize, manage, and interpret data effectively.

SDP recruits and places "Fellows"—top-notch data strategists—to work full time for two years in school districts, charter management organizations, nonprofits, and state education agencies. These Fellows work closely with faculty advisors from colleges and universities across the country, attend periodic training sessions focused on analytics and school leadership issues, and participate in webinars and virtual professional development sessions.

The Fellows work hand in hand with selected in-house employees—"Agency Fellows"—who are information specialists. Together, they pore over data to analyze trends and identify problems, examining everything from test scores to teacher credential information.

SDP is making a difference in how districts, states, charter management organizations, and other education-related organizations gather, analyze, and use education data to drive decision making. Here are just a few examples:

- Fellows working with the Delaware Department of Education (DDOE) analyzed six years of data to determine the obstacles to college completion. The report noted, among other findings, that one out of five students (and in particular, low-income students) who are qualified to attend college do not enroll, only 30 percent of 9th graders go on to college, and most fall off the track in their freshman year of high school. Using this analysis, the state plans to craft new policies to improve high school graduation rates and work in partnership with school districts and charter schools to improve college preparedness and retention rates.
- Los Angeles Unified School District (LAUSD) partnered with SDP to analyze how district students progress toward meeting college requirements and high school graduation, and to determine how students who fall off track for graduation recover and go on to graduate.
- In Georgia, the Gwinnett County Public Schools worked with SDP to identify patterns of teacher effectiveness and areas for policy change that could improve teacher quality and lead to higher levels of student achievement.

SDP is growing rapidly. Launched with four Fellows, two faculty advisors, and two school systems in 2008, today it has 147 Fellows (73 current and 74 alumni), 25 faculty advisors, and 60 partner organizations, including 38 school districts, three charter management organizations, 13 state agencies, and six nonprofit organizations.[25]

More importantly, SDP is spreading its work beyond the Fellows by making data analysis training more available to all school agencies and data personnel. On the SDP Web site (http://www.gse.harvard.edu/sdp/resources/toolkit.php) a free toolkit is available to any data strategist who signs up via email. With this toolkit, the strategist can follow a step-by-step guide to collecting and analyzing student achievement data. Webinars are also available on how to use the toolkit and how to clean and analyze data.

SDP has considerable potential. With its data strategist toolkit, a growing group of alumni, and an influx of new Fellow recruits, it is helping to build a new profession in education and a fresh understanding of the power of data to improve schools.

Abundant school choice

One of the most striking developments in American PK–12 education during the past 25 years has been the proliferation of school options. School choice was once the privilege of the affluent, who could move their children to private schools. But increasingly, families at all income levels have gained options: they can send their children to charter schools or magnet or other alternative public schools within their districts, or use vouchers to apply public funds toward private education.

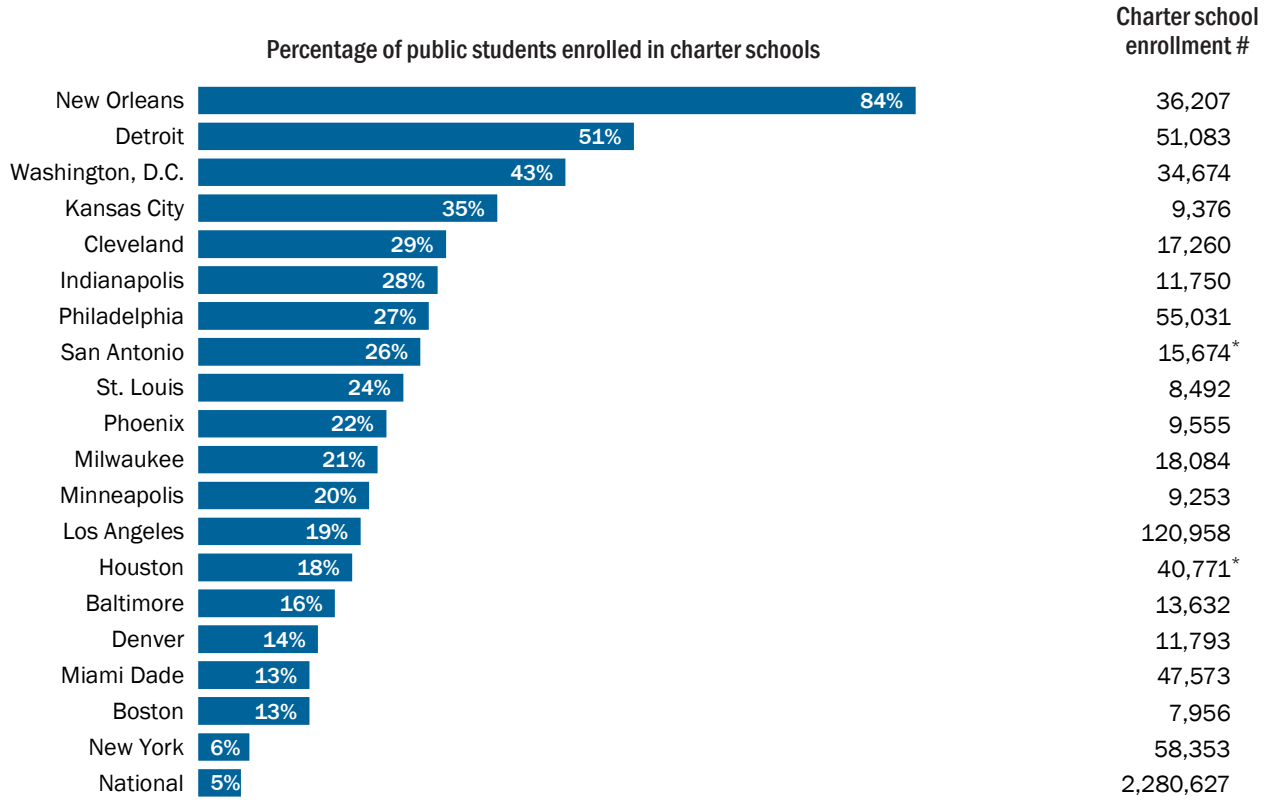
The effect has been akin to replacing a monopoly with competition. Introducing choice into local ecosystems has given entrepreneurial educators the space to experiment with new models and scale up those that are effective. At the same time, it has forced many schools and traditional districts to rethink how they operate.

The growing availability of performance data, described earlier, has been a key to making school choice effective. Because most families are now equipped with schools' online ratings and other reports, they have previously unavailable information with which to make more informed decisions about the school that best matches their child. The link between performance data and school choice illustrates how the trends we report reinforce each other.

Charter schools, which are publicly funded but independently run, have multiplied rapidly since Minnesota became the first state to allow them in 1991. Today, about 5,300 charter schools operate in 40 states and the District of Columbia, representing about 5 percent of all public schools.[26] Cities with large concentrations of charter schools include Washington, D.C., (where 43 percent of public school students attend charter schools) and New Orleans (about 84 percent). (See Figures 6 and 7.) Some educators have even seized on the power of technology to move beyond bricks and mortar; as of the 2009–10 school year, there were an estimated 219 "virtual" charter schools that exist only online and at least 134 "hybrid" schools that combine online learning with various forms of in-person instruction.[27]

FIGURE 6: CHARTER SCHOOL SECTOR HAS REACHED CRITICAL MASS IN A NUMBER OF MAJOR CITIES

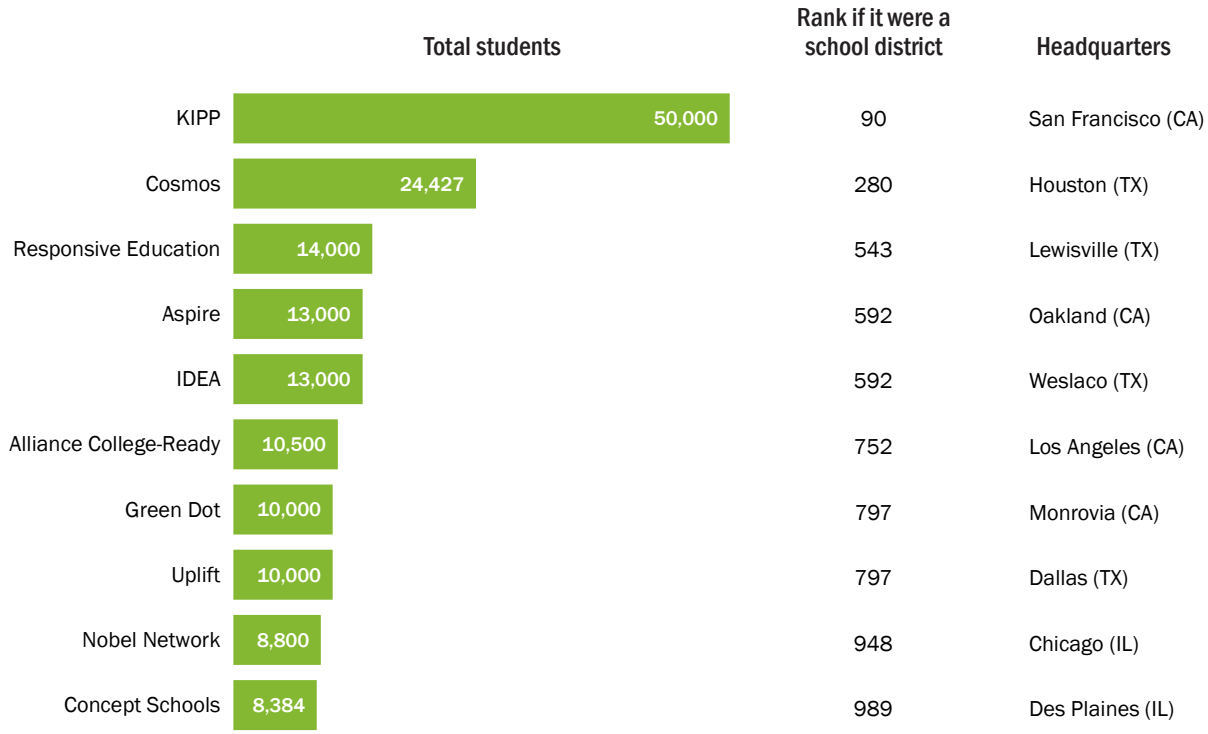
Cities with significant charter school enrollments



As of 2012-2013, except as noted.
*As of 2011-12.
Source: National Alliance for Public School Charters

FIGURE 7: MAJOR CHARTER SCHOOL MANAGEMENT ORGANIZATIONS ARE REACHING SCALE SIMILAR TO THAT OF THE TOP 5% OF PUBLIC SCHOOL DISTRICTS, BY SIZE

Cities with significant charter school enrollments (enrollment as of 2011-12)



Source: National Alliance for Public School Charters, CMO websites; National Center for Education Statistics

However, charter schools aren't universally superior to district-run schools. A 2013 study by the Center for Research on Education Outcomes at Stanford University reports that of the charter schools it analyzed in 27 states, 25 percent showed stronger gains in reading than traditional schools, but 56 percent showed no statistically significant difference and 19 percent had weaker gains. In mathematics, a slightly larger percentage of charter schools showed stronger gains (29 percent) but fewer (40 percent) were no different, while a much larger proportion, 31 percent, performed worse than traditional schools.[28]

These mixed outcomes mean that education leaders must carefully manage where and how they allow charters to grow—and then how to improve them or shut them down. In cities like Boston, where charter school results are carefully monitored by the state and underperforming charters do not receive licenses for renewal, charter schools as a group have outperformed the district schools in a statistically meaningful way.[29]

School choice will continue to be available as a growing number of school ecosystems embrace a "portfolio" approach to organizing districts. For example, in Memphis, Tennessee, the portfolio of schools includes district-operated schools, independent charter-operated schools, charter operators running schools taken over by the state, and state-operated schools. Tennessee helped propel a portfolio approach by creating the Achievement School District (ASD) to take over the state's lowest-performing schools and either convert them to charter schools or run them with charter-like practices.

The Center on Reinventing Public Education at the University of Washington is advising about three dozen school districts across the country on how to adopt a "portfolio management" strategy to better identify which schools are the most effective, spread their successes, and improve struggling schools. Portfolio districts give individual schools more autonomy, including greater control over budget and hiring, in exchange for meeting higher performance standards—similar to how charter schools are governed.

Sufficient resources, productively employed

The spread of standards, data, accountability, and school choice are linked improvements in American education. But their combination will make a major difference only if the education system spends its resources productively. International comparisons suggest that in many cases the amount of money available is not the primary issue. As noted, the United States spends more per pupil than most other developed countries yet sees only mediocre student scores on international tests. This suggests that the nation has a resource *allocation* problem. In other words, monies are being spent in ineffective ways or in the wrong places.

Fortunately, recent years have seen a number of innovations in how resources are allocated in the public education system.

For instance, in the public sector, competitions such as the Race to the Top grants and the Investing in Innovation (i3) Fund have directed resources to those school systems that innovate and adopt best practices. Race to the Top is a federal grant competition that has awarded about $5 billion in three phases to states that submitted winning proposals, plus more than $620 million to school districts, and more than $1 billion for the Early Learning Challenge to increase access to high-quality preschool programs; further awards competitions are planned.[30] Winning entities must adopt challenging standards and assessments; develop data systems to better measure student achievement and help teachers and principals improve instruction; recruit, train, reward, and retain the most effective teachers and principals; and turn around failing schools. They must also encourage the development of charter schools and other innovative schools, ensure adequate funding and resources, and otherwise support system-wide reforms.

Nonprofits have also adopted new approaches to funding. For example, the Charter School Growth Fund (CSGF) is a nonprofit venture capital firm that helps successful networks of charter schools grow. Operators selected by CSGF not only get funding but also receive business-plan support and coaching on how to expand. CSGF holds its portfolio organizations accountable by tying funding to outcomes, such as gains on student test scores. Its portfolio now includes 40 charter management organizations serving 160,000 students across the nation.

All in all, these and other new methods of resource allocation encourage both experimentation and the scaling up of proven successes.

Effective leadership and management

The changes described so far make systemic improvement. But they also make the job of leading a school district, a charter school network, or a school far more challenging than it was just a decade ago. Today's district superintendent must juggle many balls: he or she must navigate the implementation of the Common Core, oversee a sophisticated information technology department, set up and manage complex accountability systems, coordinate with charter schools, shift resources toward innovation, and more. Leaders of charter school networks or principals have analogous challenges that are more complex than those faced by their predecessors.

The good news is that multiple efforts are in place to improve the talent responsible for running school districts, charter networks, and schools. There is also an increasing openness to hiring nontraditional leaders from outside of education, who can adapt unique skills and leadership experience from business, law, government, or other fields. Examples include Joel Klein in New York, Tom Boasberg in Denver, and Roy Romer in Los Angeles.

One initiative contributing to this broadening of the talent pool is the Broad Residency, launched by the Eli and Edythe Broad Foundation in 2003. Successful applicants typically have a graduate degree from a business, law, public policy, or other professional program at a top university, in addition to at least four years of work experience in the private sector, a track record of leadership, and a deep commitment to improving urban public schools. In 2013, more than 3,000 candidates applied for a Broad Residency—only 44 were accepted and placed.[31]

Within the two-year program, Broad Residents take on managerial positions in school districts, charter management organizations, and state and federal departments of education. They work on projects to ensure efficient school operations, empower teachers with new tools and support, collaborate with the wider community, and create data-driven systems to improve their organizations.

At the same time, the Residents are immersed in an intensive professional development program. With guidance from a faculty comprising superintendents, teacher leaders, managers in departments of education, and union leaders, Broad Residents learn the historical and political context of urban education, the principles of organizational change, and the characteristics of high-performing schools.

The enduring value of the Broad Residency is reflected in one statistic: more than 90 percent of the Resident alumni continue their work in K–12 education.[32] Their positions include chief financial officer for the Baltimore City Public Schools, chief of staff at the U.S. Department of Education's Office of the Deputy Secretary, and chief executive officer at New Schools for New Orleans.

Similar efforts are developing more effective principals and school-level administrators. New Leaders, for example, runs leadership training programs for educators in 12 urban

school systems across the United States. New Leaders strives to help school districts and states develop school-level leaders who can "create a vision of success for all students and engage the whole staff and community in realizing this vision."[33]

On the policy side, there has been a shift to experimentation with different governance models, most notably a shift toward greater mayoral control of school districts in some large cities, including New York, Chicago, Washington, D.C., and Seattle. This has given mayors much greater ability to select a superintendent of their choosing, rather than an elected school board directing this decision. In some cases, big-city mayors have also been granted authority to appoint some or all members of the district's school board. Such efforts have generally been intended to insulate district leaders from political disputes, encourage them to remain for longer periods of time, and provide greater stability in leadership. Other advocates have suggested that this approach creates a situation in which mayors and superintendents are more likely to work hand in hand toward common goals; their response to critics is that if such efforts are unsuccessful, the public can vote for another mayoral candidate with a different vision for the schools.

In sum, the enabling elements in America's local education ecosystems are in a vibrant state of experimentation. Together, these changes encourage continued innovation and the spread of successes. But these encouraging trends matter only if they change what happens each school day within America's classrooms. To see what is going on there, we turn to the key drivers that directly affect student performance.

The enabling elements in America's local education ecosystems are in a vibrant state of experimentation.

Key drivers: Transforming America's classrooms

Effective teachers

Evidence shows that nothing has a greater impact on student performance than teacher quality. It's heartening, then, to see the positive effect of innovations in recent decades at every stage of a teacher's career—from recruitment and training to ongoing development and feedback. These innovations promise to increase the number of people in the teaching profession who can, and will, find better ways to teach.

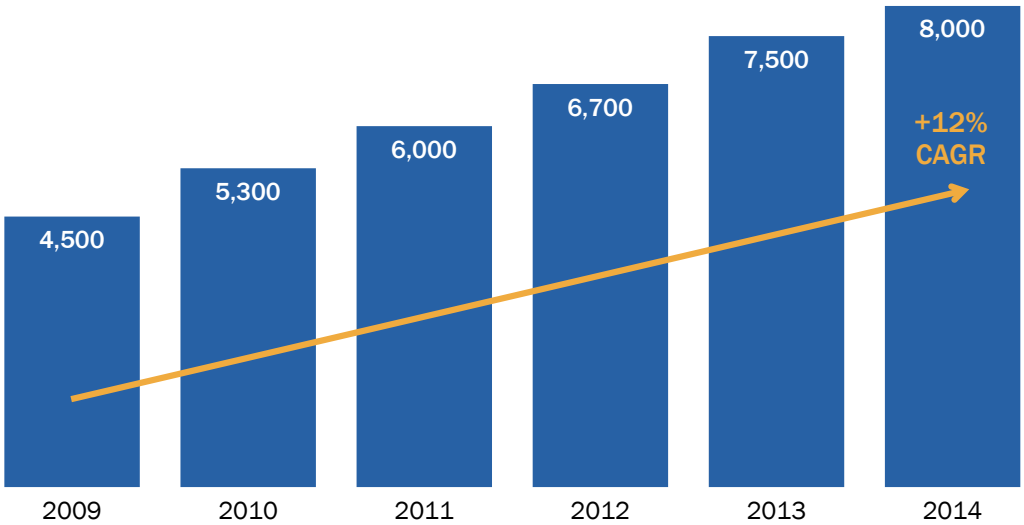
Recruitment. Attracting capable and committed teachers to the profession has been a challenge. The profession is not held in as high esteem as in many other countries such as Korea and Finland, and the pay is often less than in other professions. Exacerbating this problem is the fact that for generations America's schools benefited perversely from discrimination against women. Smart, ambitious women had few career options other than as teachers, nurses, and secretaries. The opening of career opportunities for women thus presented schools with additional staffing challenges.

Starting in the early 1990s, a number of organizations and initiatives emerged that created nontraditional pathways to the teaching profession. For example:

- Teach for America (TFA), the best-known of these organizations, recruits recent graduates from top colleges to work in understaffed districts in low-income areas. (See Figure 8.) The prestige of the program is a powerful lure.
- Troops to Teachers, a U.S. Department of Defense–supported initiative, prepares military veterans for second careers in the classroom.
- The New Teacher Project's Teaching Fellows program has recruited 32,000 mid-career professionals to become teachers since 2000.

FIGURE 8: TEACH FOR AMERICA DRAWS MANY NEW RECRUITS INTO TEACHING, BUT STILL REPRESENTS A SMALL SHARE OF ALL NEW TEACHER HIRES

Teach for America's total new hires, by year



	2009	2010	2011	2012	2013	2014
% of all public school teachers hired*	1.6%	1.6%	1.9%	2.0%	2.2%	2.4%

*Based on estimates provided by the National Center for Education Statistics
Source: Teach for America, i3 request submitted to U.S. Department of Education

Training and certification. Critics contend that the traditional approach to preparing teachers has not been rigorous enough, devoting too much time to general theory. But a new focus has emerged on ensuring that educators have strong content knowledge in the subjects they teach, as well as the overall skills they need. For example, the Relay Graduate School of Education, an innovative program launched in 2011, emphasizes practical classroom experience and research-based teaching methods. Most significantly, Relay holds its degree candidates accountable for how their students perform. To graduate, candidates must document that their students have made a year's worth of academic gains in a year's time in school.

Induction. In the past, induction for new teachers might have included a short orientation and a few weeks of mentoring. But modern induction programs can last months or even years. Currently, 27 states require formal teacher induction programs, and 11 mandate that they cover two or more years.[34]

Hillsborough County Public Schools, in Florida, is one example of a district that has developed quality mentorship programs. There, each novice teacher is assigned a high-performing veteran educator as a mentor within 10 days of being hired by the director. New arrivals then participate in the new-teacher induction program for their first two years. The program includes structured activities in lesson planning, technology, and assessment. It also provides training sessions in crisis intervention and substance abuse, diversity, and professional ethics.

Evaluation and feedback. Between 2009 and 2012, nearly three-quarters of states approved laws or policies to overhaul teacher evaluation, according to a report from the National Council on Teacher Quality.[35] These efforts typically require that schools assess teachers more often and that the evaluations be more comprehensive. Currently, 27 states and the District of Columbia Public Schools (DCPS) require annual evaluations for all teachers, up from just 15 in 2009. In addition, 35 states and DCPS now require that student achievement be "a significant or the most significant factor in teacher evaluations."[36] (See "Tennessee at the forefront of new teacher evaluation systems" on p. 20.)

Compensation. During the 1980s and 1990s, schools piloted a variety of programs featuring merit pay for teachers as a way to motivate them. These early programs typically awarded extra pay to teachers in schools that demonstrated high scores on standardized tests or improved year over year. These were often based on school-wide measures that represented neither the contributions of individual teachers nor the progress students made. Results were mixed, and generally teachers did not have confidence in the measures used.

Recently, more sophisticated approaches to compensation reform have emerged and are gaining support, particularly in districts that have sought to engage unions more collaboratively in designing and implementing them. These new systems may increase a teacher's pay not only for student performance, but also for taking on additional responsibilities, such as mentoring new teachers, teaching at a high-needs school, or teaching in hard-to-staff fields such as science. These designs also base pay on subjective elements like classroom observations, not solely student test scores. Examples of these new compensation systems include Denver's ProComp system and the Teacher Advancement Program.

Financial support for these experiments has come from a variety of sources, including the U.S. Department of Education's Teacher Incentive Fund, which has received about $2.2 billion in federal appropriations since fiscal 2006[37] and was recently renamed the "Teacher and Leader Innovation Fund." According to the National Council on Teacher Quality, only five states plus D.C. currently tie teacher compensation directly to teacher evaluation results, and an additional 10 states support some form of performance-pay initiatives.[38] During the 2009–10 school year, approximately one-third of more than 100 large districts in a National Council on Teacher Quality database reported having a performance-pay plan in place.[39]

Professional development. Critics have long complained that professional development can have little measurable impact, despite large amounts of money and teacher time invested. Schools are, therefore, turning away from traditional one-size-fits-all professional development methods to develop systems that give teachers faster and deeper feedback from principals and mentors.

Just as teachers are using new technologies to help personalize the learning experience for their students (see below), districts are also using technology to customize teacher development. This can include remote coaching, online courseware, or Web platforms that allow communities of teachers to share information, techniques, and tools. For example, school districts are using BloomBoard to give teachers a suite of online development resources. On the BloomBoard portal, a teacher who wants to try a new approach to teaching an algebra concept can search for sample videos of expert educators teaching lessons on this topic. The videos are filmed in split screen. This allows viewers to see how students react to everything the demonstrating teacher says or does. The teacher can also use the portal to find curricular content, podcasts, webinars, lesson plans, or other topic resources.

Career progression. Countries with high student achievement tend to make better use of teacher leadership than the United States. But now, emerging programs in the United States are designating more experienced and skilled teachers as "lead" or "master" teachers. These programs give these outstanding teachers additional pay for mentoring rookie teachers, leading a teacher team, or directing a

Tennessee at the forefront of new teacher evaluation systems

Tennessee was one of the first states to implement a comprehensive statewide teacher evaluation system based on student outcomes. The new teacher evaluation system was a key part of Tennessee's First to the Top Act, which the state assembly passed in January 2010 with broad bipartisan support.

Teacher evaluation in Tennessee is based on two components: 50 percent on qualitative measures (such as classroom observations, student surveys, personal conferences, and reviews of prior evaluations and work) and 50 percent on student achievement. The student achievement measure is split: 35 percentage points are based on growth in student test scores, while the other 15 points depend on data selected by the teacher and supervisor from a list of state-approved options.[40]

The new system was launched in the 2011–12 school year and brought substantial changes. In prior years, tenured teachers were observed infrequently—twice every 10 years. Today, experienced educators are evaluated at least once annually using a much broader variety of measures, including up to six classroom observations, the aforementioned student surveys, personal conferences, and other factors.[41]

Evaluators score teachers on a five-point scale: Levels 1 and 2 are "below expectations," level 3 is "meeting expectations," and levels 4 and 5 are "above expectations." Teachers are now required to receive a score of 4 or 5 in order to get tenure.[42] They are also not eligible for tenure until after five years of teaching, instead of three.

Some educators like the new system, particularly its emphasis on more frequent observations, improving instruction, and helping teachers refine their practice. Yet the added observation load has been a considerable burden for some principals. Meanwhile, teachers have raised concerns about the fairness of the rubric used in observations as well as the objectivity of their evaluators.[43] Teachers in non-tested subjects (such as prekindergarten through 3rd grade art, music, and physical education, which make up 64 percent of teachers in Tennessee schools as of 2012) have expressed concern with using school-wide test scores to measure their effectiveness. In response, the Tennessee Department of Education, in collaboration with Tennessee educators, has developed alternative growth measures for many of these non-tested subjects, and districts have the option to use these alternative measures in lieu of school-wide scores.[44]

The Tennessee Department of Education has consistently communicated that the evaluation system is a work in progress, and its members have listened to critics and actively sought feedback. Indeed, department officials met with 7,500 teachers around the state and surveyed 16,000 teachers and 1,000 administrators for input. As a result, the department recommended a number of changes to the system, including allowing teachers who receive top scores to have a more streamlined evaluation the following year, while giving teachers with low scores additional observations and feedback from their principals.

The Tennessee State Board of Education is stepping up its emphasis on teacher effectiveness with a proposal that goes into effect in 2014-2015: All districts must implement a merit-based differentiated pay plan in order to be approved by the Department of Education. The plan must either reward teachers for working in hard-to-staff schools or hard-to-fill subjects, or reward performance as evidenced by their evaluation. Beginning in 2015, the state will pull the licenses of teachers whose students consistently fail to improve. The details of how that will be determined have yet to be worked out.

Whether through coincidence or a causal connection to this new system, the news is good for Tennessee—in 2012-2013, after one year of implementing its new teacher evaluation system, the state saw its biggest single-year jump in student achievement overall, as measured by the Tennessee Comprehensive Assessment Program (TCAP). Math and science scores, in particular, showed significant gains, with 55,000 more students at or above grade level in mathematics than in 2010, and 38,000 more students at grade level in science. Also encouraging were Tennessee's results on the 2013 NAEP. Nationwide, NAEP test scores in math and science for 4th and 8th grades largely remained flat compared to prior results from 2011. Tennessee was one of the few states that produced notable gains in both subjects and both grade levels. Tennessee's average scores rose 22 points on NAEP's 500-point scale across the four assessments.

school initiative. Peer review programs, such as those operated by the Toledo Public Schools and Montgomery County Public Schools, employ veteran educators as teacher evaluators for new teachers as well as experienced ones to help them improve their performance in the classroom. Programs like this typically award additional pay and release evaluators from their classroom teaching obligations. Such efforts to develop a cadre of teacher leaders offer talented teachers a way to earn more money, status, promotions, and other benefits, without leaving the classroom to become an administrator.

Unions. Though school districts and unions can still find themselves with conflicting views about how to improve schools, recent years have seen significant shifts in the outlook of the two major national teachers' unions. The platforms of the National Education Association (NEA) and the American Federation of Teachers (AFT) are more accepting of reforms, including new types of teacher evaluation, the Common Core, and changes in teacher preparation. Also, alternative teacher coalitions, such as Teach Plus and Educators 4 Excellence, have brought reform-oriented voices to the discussion.

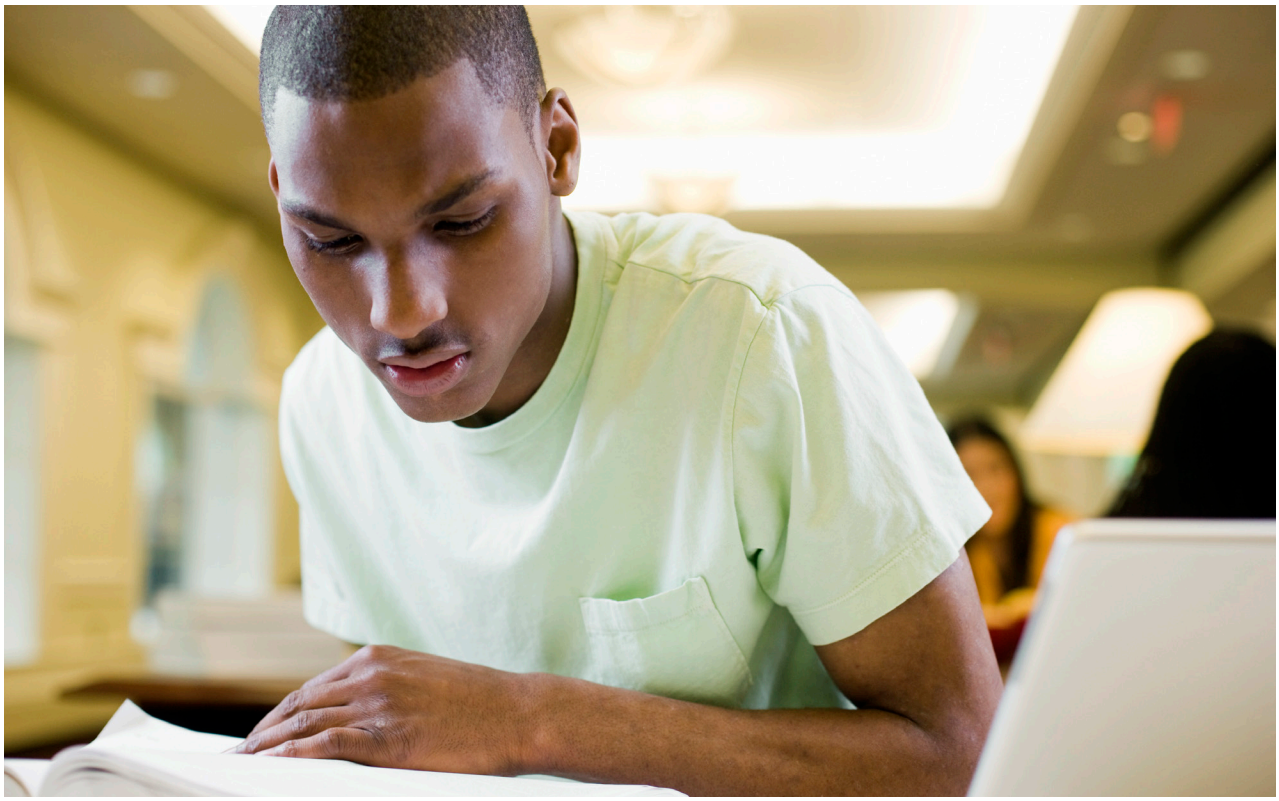
Quality curriculum

New teaching talent strategies, pressure from the Common Core, and the advent of new technologies have all set the stage for more effective curricula in America's classrooms. Curricular innovations are coming not just from established publishers but also from an invigorated ed-tech sector with great entrepreneurial energy. Some examples:

- Khan Academy, a nonprofit organization, has developed a virtual library of thousands of short video lessons and problem sets, mainly in math and science but in a growing number of other subjects. The Khan Academy web site has 10 million unique users per month, about two-thirds of them from the U.S., as of February 2014.[45]
- LearnZillion, a for-profit, teacher-founded company, is developing video lessons and assessments geared to the new Common Core learning standards.
- DreamBox Learning is developing adaptive online curricula that schools can use to differentiate instruction to meet students' individual needs and allow them to progress at their own pace. The software can recognize patterns in student responses and tailor activities to help them move to the next level of instruction.

Innovations are also changing how students and teachers interact with one another in the classroom. Tools such as SMART Board interactive whiteboards include handheld "voting" devices for each student that can help teachers take a quick pulse on what their students understand in the middle of a lesson. This is done by polling students to see what they know about, say, the U.S. Electoral College or by checking how many know the correct answer to a geometry problem.

These changes in curriculum tools herald the arrival of new ways of teaching and learning, promoting a promising movement toward what is often known as personalized learning.



Personalized learning

Great teachers have always personalized student learning, tailoring their instruction to the unique needs of each student or group. School systems, too, have tried to customize pathways for students. Examples include Advanced Placement courses for accelerated learners, vocational programs for those seeking a practical path to a technical field, or remedial programs for struggling students. But today, new technologies are creating unprecedented opportunities to customize the learning experience on a mass scale for every student.

A "multiple pathways" approach to personal learning combines existing educational choices in more flexible ways. Students can select from a menu of courses, internships, independent study projects, and other options—which allows them to earn their diploma in individualized ways. Students might also take a course at a local college, engage in a long-term independent study, or supplement their bricks-and-mortar education with online courses.

Other models use new digital content and tools. For example, "blended learning" combines online learning with in-person classroom instruction. In some versions, these activities take place in a school building. In others, the online learning component may occur at home, a drop-in learning center, or another location. Teachers may spend less time leading whole-class lessons and more time working with small subgroups of students to answer questions, review challenging concepts, or discuss a topic in greater detail. While the teacher is busy working with each small group, the remaining students can work independently at laptops or tablet computers. This type of approach is used by the Rocketship network of charter schools.

As envisioned, personalized learning would put less emphasis on *quantity* of content, seat time, and credits earned, and more emphasis on *quality* and *depth*. Schools would encourage students to develop deeper understanding and skills, rather than memorize and parrot back content. Students would take more responsibility for choosing and meeting learning goals. They might, for instance, have a "personal learning plan" as a road map to their diploma, delineating the requirements necessary to reach their destination.

Personalized learning requires that schools rethink how they employ all their resources—people, technology, curriculum, and the structure of the school day—to create unique experiences for each student. The potential for innovation is great, but the promise will be realized only if interrelated changes elsewhere in the ecosystem—more capable teachers, effective leaders, better allocated resources, and so on—are aligned with personalization.

Integrated wraparound supports

Children require basic supports outside of school to succeed—supports like food, medical care, a stable place to live, and caring adults to look after them.

Many schools are now joining forces with so-called "integrated wraparound support" programs to meet these needs. Such programs work with families to coordinate services so that children arrive in their classrooms ready to learn. Their staff take a holistic view of the child and family's needs and break down the barriers that too often separate educators, social workers, doctors and nurses, counselors, youth workers, and a variety of other professionals. Though such programs vary in their focus, Child Trends, a nonprofit research organization, has settled on a common definition: "a school-based approach to promoting students' academic success by developing or securing and coordinating supports that target academic and non-academic barriers to achievement."[46] The wraparound supports can range from traditional afterschool tutoring to connecting parents to health care, financial, nutrition, and employment programs.

In a recent report, Child Trends found that such programs today serve more than 1.5 million students in about 3,000 schools. The largest program, Communities in Schools, operates in nearly 2,200 schools. Child Trends reviewed 11 rigorous evaluations of integrated support programs and found emerging evidence that they can support improved academic achievement, through reduced dropout and in-grade retention rates, as well as increased attendance, math scores, and overall grade point averages (GPAs). (Findings for reading and English language arts achievement were more mixed.) More research needs to be conducted, in particular, using the "gold standard" of social-science research–randomized controlled trials. Nevertheless, the existing evidence is promising and aligned with what we know about child development and the many challenges at-risk students confront outside of school that can negatively impact their academic performance.

The Harlem Children's Zone in New York City, perhaps the best known model of wraparound service programs, offers a wide variety of programs serving 12,300 children from birth through college, as well as their families and the surrounding community in a 97-block area. These include "Baby College," a nine-week parenting workshop that encourages parents to read to their children and develop their literacy skills, and teaches them about child development, health, and positive discipline strategies, among other topics.

Harlem Children's Zone also offers preschool programs, after-school academic and enrichment programs for middle and high school students, and preventive programs for families at risk of having their children placed in foster care. It also offers health and fitness programs to combat the rise of childhood obesity, and its Community Pride program has helped create or rejuvenate 39 neighborhood block associations. Harlem Children's Zone also operates its own K–12 charter schools in addition to supporting seven district elementary schools located in the community. All of these efforts have yielded tangible results: According to Harlem Children's Zone, in the 2012-13 academic year, 95 percent of the high school seniors who participate in its programs were accepted into post-secondary education. These figures include both the students who attend the Harlem Children's Zone's charter schools as well as students who participate in its after-school programs but attend other public schools throughout New York City. The high school graduation rate for the charter school students alone was even higher: 100 percent in 2012 and 98 percent in 2013. The organization also offers ongoing programs to continue supporting the students during their college years.[47]

Beyond working with wraparound programs, school districts are providing a variety of other supports for children and families, including:

- **Universal preschool**, which guarantees access to high-quality early childhood education so that children arrive in kindergarten ready to learn;
- **Extended school days or years** to make sure students are getting additional academic support;
- **After-school tutoring programs** to help students who are falling behind; and
- **Positive behavioral interventions and supports programs**, which use rewards and other incentive systems to help elicit and reinforce constructive behaviors in students.

Engaged families

Great teachers, innovative curriculum, personalized learning, and wraparound supports are most powerful when students see their school experience reinforced at home. More than a decade ago, Karen Mapp of the Harvard Graduate School of Education and Anne Henderson of Brown University's Annenberg Institute for School Reform released a synthesis of 51 studies showing a positive link between family engagement and a variety of student outcomes. Among other benefits were reading at grade level, being placed in advanced classes, and pursuing higher education.[48] More recently, University of New Hampshire economist Karen Smith Conway concluded that schools would have to increase spending by more than $1,000 per pupil to attain the same achievement results as caused by parental involvement.[49]

New tools for family engagement are emerging rapidly, especially as digital technology has become an essential means of working and communicating. Beyond sending home Friday memos in students' backpacks, schools are using Facebook and Twitter accounts to announce school events or class projects. Web tools, such as VolunteerSpot and SignUpGenius, are helping PTAs and parent leaders organize parent volunteers to support classrooms or school-wide events. Though teachers and parents still meet for conferences, parents are also using online portals, such as Edline and PowerSchool, to get real-time updates on their children's grades and homework assignments.

Educating parents on the pathways toward college and careers is particularly important as students reach higher grades. This has been a priority at New Visions for Public Schools, a nonprofit organization that prepares teachers and works with 75 district schools and six charter schools in New York City.[50] The organization has created tools to help parents determine whether their children are on track for college, beginning when the students are in 9th grade. It has also trained parents to make sense of their child's academic data.

Schools are also doing more to involve parents in curriculum and policy-related issues. The Charlotte-Mecklenburg Schools in North Carolina, for example, offers a range of free courses through its Parent University on topics such as the Common Core State Standards. Through organizations such as Stand for Children, parents are advocating not only for their own children, but also for quality public schools for all students. In recent years, Stand for Children members have become especially active in educator effectiveness issues, lobbying for such policy changes as performance-based compensation in Indiana and a new teacher and principal evaluation framework in Arizona.

While family engagement in schools takes many forms, Henderson and Mapp also note in their book *Beyond the Bake Sale: The Essential Guide to Family–School Partnerships* that district leaders are the key to creating a school culture in which educators value families as partners.[51]

Many schools are linking family engagement to school improvement plans and appointing high-level staff members to focus on family involvement. Such actions send a message that parents are welcome, respected, and integral to their children's success in school.

Parents are integral to their children's success in schools.

Helping to accelerate change: The unique role of business

The PK–12 system must once again serve as an engine of economic development and opportunity in America. Positive forces of change are providing a powerful impetus, but success is far from assured. The most far-reaching innovations—such as the Common Core and personalized learning—are still early in their development and sometimes face determined political opposition.

Another danger looms if states and districts pick and choose among "hot" ideas without an understanding and strategy for how the pieces fit together for *systemic change*. The best personalized learning technologies will not work without effective teachers and principals. Data systems and performance dashboards are irrelevant if the data are not used to enhance instructional strategies. School choice will have little effect if strong accountability systems don't ensure that high-quality school alternatives are available. Cities like Denver are making progress because they have united behind a coherent strategy for change.

The experiences in Denver, New York City, New Orleans, and many other cities make a larger point clear: while state and federal agencies can set the stage, it takes sustained focus at the *local* level for changes to take root and flourish. The transformation of America's schools must happen city by city, town by town. For example, the Common Core will carry weight only if individual school districts roll out high-quality, aligned curricula and assessments. Charter schools will have the greatest impact only if local districts hold them accountable for results and embrace them as laboratories of district-wide innovation.

Whether we will become a nation with excellent schools in every community will depend largely on the quality of education leadership at the local level. Leaders must take the long view. They need to develop a sustainable plan and inspire people to change and improve. And as the work progresses, they must be willing to stay the course in the face of inevitable opposition and setbacks.

Education leaders cannot do it alone. They need the support and partnership of leaders throughout the community. Among civic leaders, businesspeople are uniquely positioned to play a major role in this educational transformation. Many business leaders are accustomed to innovating and taking a long-term perspective. Many know how to think systemically. Many have long experience in operational best practices that can help educators manage large systems. And, as employers, they often wield considerable influence at the local level.

How can business leaders have the greatest positive effect? Our companion document, *Lasting Impact: A Business Leader's Playbook for Supporting America's Schools*, describes how business executives can best partner with educators to help improve schools and assure our common future. Specifically, business leaders can employ their expertise most effectively in three ways, by:

- Joining with educators and civic leaders to **lay the policy foundations for education innovation**.
- Helping to **expand programs that boost student outcomes**, taking them to national scale.
- Collaborating with a variety of stakeholders—from school district leaders and local community organizations to parent groups and labor associations—to **reinvigorate the entire education ecosystem** in selected cities and towns.

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