An Assessment by Hoover Institution's Koret Task Force on K–12 Education

# American Education in 2030

## Contents





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# Foreword

In these essays, members of the Hoover Institution's Task Force on K-12 education, joined by several keen-eyed observers, blend prediction with prescription to paint a vivid picture of American primary and secondary education in 2030. What follows is necessarily speculative, and readers may judge portions to be wishful thinking or politically naïve. But none of it is fanciful-we're not writing fiction here-and all of it, in the authors' views, is desirable. That is to say, the changes outlined here would yield a more responsive, efficient, effective, nimble, and productive K-12 education system than we have today.

Readers should note, however, that each essay is complete unto itself; they were not written to yield a single coherent model in which all the pieces fit neatly together. Several cover overlapping territory (e.g., technology, which is apt to pervade our future), and others yield differing predictions about the same phenomenon (e.g., national standards and testing).

The opening essay by Paul Peterson seeks to show what education will be like in 2030 if nothing changes, that is, if today's trends are simply extrapolated.

The following essays are clustered into Curriculum and Instruction, Standards and Testing, Governance and Finance, and Privatization and Choice.

The set concludes with a recap by Chester Finn of what actually changed in American education from 1990 to 2010: evidence of what's possible during the next two decades.

# Only if Past Trends Persist Is the Future Dismal

Paul E. Peterson

Inasmuch as most predictions of future developments—whether economic or geological—are based on projections of past trends, any speculative thoughts about the future of American education might well begin with a simple extrapolation of current trends. Once that baseline is established, one can consider possibilities that could shift current trends decisively in one direction or another.

## Simple Extrapolation of Past Trends

Based on trends observed during the past forty years, one can predict the following developments over the next two generations:

Economically,

- Annual per pupil costs will triple in real dollar terms to about $36,000 per pupil.
- Pupil-teacher ratios will fall from fifteen pupils per teacher to fewer than ten pupils per teacher.
- The ratio of pupils to all school district employees—both professional and otherwise—will decline from eight pupils per employee to five pupils per employee.
- The local share of school financing will fall from 45 percent to about 33 percent of total costs.

Institutionally,

- Control over the determination of education policy will shift further away from local school boards to more distant governmental locales—states, courts, and the federal government.
- Bureaucratic regulations will become more complex as external agencies seek to extend their authority over school operations.
- Testing systems designed to hold schools accountable will expand to cover additional grades and subjects.
- Many states will bargain collectively with teachers' unions over compensation policies as well as a broad range of school practices and working conditions.
- The percentage of students served by charter schools will increase from 2 to 6 percent of the school-age population.
- The percentage of students attending private schools will remain at approximately 10 to 12 percent of the age cohort.

Politically,

- Power will oscillate between the two political parties. Democrats will be closely allied to public-sector unions, supporting larger investments in K-12 education

and not opposing the extension of collective bargaining practices to a larger set of policy domains. Republicans will oppose increases in educational expenditures and propose a variety of measures—school choice, merit pay, and the elimination of teacher licensing and tenure—designed to undermine union strength.

- Because no one party is likely to control all branches of government, policy innovation will be incremental.
- Organizations of public-sector employees will exercise increasing control over decisions made by school boards, state legislatures, and state departments of education. As the best organized, best-financed group with a vested interest in education policy, public-sector unions will be in a position to advance their interests.
- State and federal courts will bring a broader range of school activities under their jurisdiction, as they mandate "adequate" school funding, protect student rights, and regulate relations between districts and their employees. The Supreme Court will identify a federal constitutional right to an "adequate" education.

Performance levels,

- Test scores of those in the last year of high school (seventeen-year-olds) will remain essentially unchanged.
- High school graduation rates will decline from 72 to percent to 68 percent of those who entered ninth grade four years previously.
- Schools will remain largely segregated along racial lines.
- The average cognitive skills of minority students will trail those of white students by a margin roughly equivalent to the amount by which white cognitive skills trail those of Asians. (Between 1978 and 2008, the white-Asian gap in eighth grade mathematics grew by 12 points, from 2 to 14 points, whereas the black-white gap narrowed by 4, from 32 to 28 points. If recent trends continue, the two gaps will eventually come to resemble one another.)
- The performances in math and science of U.S. students will remain below the industrial world average.
- The percentage of students classified as disabled will rise from 15 to 22 percent of the school-age population.
- The quality of the teaching force will decline significantly (as indicated by the test score performances of teachers and the selectivity of the colleges teachers attend).

In sum, more money will be used to hire more people to work in schools, but their efforts will fail to translate into higher levels of student performance.

## The Political Economy of Education

A change in the U.S. political economy could disrupt these trends, however. During the past forty years, the United States has enjoyed substantial growth in labor productivity. Between 1970 and 1995, average productivity growth was 1.5 percent a year; between

1995 and 2008 annual growth shifted upward to 2.5 percentage points. That high rate of growth in labor productivity generated a prosperity that permitted a major expansion of the public sector without imposing heavy costs on taxpayers. If the 2.5 percent growth in labor productivity can be sustained during the next forty years, it will alleviate considerably the ever rising cost of education. But changes in the economy could induce a drop in the growth in labor productivity to as little as 1 percent annually, much as many European countries have experienced in recent years. Rising deficits, increased regulation of the economy, and increasing dependence on government programs are a likely concomitant of the division of power between the two political parties that has in recent decades precluded policy innovation. Neither party has been able to gain control over most institutional power centers except for limited periods of time. So if economic and political factors are decisive in shaping the future of the American school, then a simple extrapolation of current trends is as likely an outcome as any other.

## Potential for Technological Change

Any predictions of the future that do not take into account potential changes in technology are at risk of being dreadfully wide of the mark. At the dawn of the twentieth century, a London commission addressed the emerging transportation problems that the city would need to address. The recommendations focused mainly on removing horse manure. Given past trends, their focus was no less reasonable than the projections we have outlined above.

But several developments are now unfolding that could disrupt past trends in American education. Taken together, these developments could create an opportunity for the rebirth of American education. Consider the following possibilities:

- Information, curriculum, and instructional tools will become readily available over the Internet at low cost. As the cost of such materials declines exponentially, they will become virtually free. Most important, the open-source production of curricular and instructional materials, often by students themselves, has the potential to revolutionize student engagement in the academic process. Students will be able to learn at the time and place and pace they choose, and the best and the brightest may produce—free of charge—curriculum that their peers could profit by.

- This technological transformation could be hastened by the almost wholesale abandonment of high school by even the most capable adolescents, who are showing an increasing distaste for a conventional high school education. Selective colleges and universities may soon decide not to require high school graduation diplomas, provided that students performed well on advanced placement examinations. Already, homeschoolers are being admitted to those colleges and universities without degrees from brick-and-mortar schools. The opportunity to learn from peers may prove to be such a powerful alternative to

high school instruction that states will be forced to modify compulsory education laws, which have already become unenforceable owing to the power of the spreading homeschooling movement. To maintain local fiscal support, schools will emphasize those extracurricular offerings at which they had always done well: athletics, drama, music, and a wide variety of other activities that allow young people to work and socialize together in voluntary settings.

- Public resistance to the rising cost of education at both the K-12 and higher education levels may prove to be the final blow to the old system. As the price of labor continues to climb, and as state and local taxes continue to rise, tax revolts can be expected to spread from one community and state to another, forcing schools to adapt to the less expensive, online model of learning that is already sweeping through higher education.

In short, the rising costs public schools, the declining quality of instruction within the schools, and the technological changes that may make it possible for students to access information and instruction directly from low-cost sources may result in the creation of a hybrid system of education that combines online learning with some elements of the brick-and-mortar school. Teachers will become coaches who help students engage with the material presented by others. Changes will move from the college level downward through high school into the middle school. The elementary school, always the best part of the twentieth-century school, will also make extensive use of online curricular materials, though mostly in classroom settings.

# Curriculum Then and Now

Grover J. Whitehurst

This was only Adam's third college reunion since graduating in 2005. The twenty-fifth, however, seemed important enough to attend in person, even though the technology supporting virtual reunions made meeting up with former classmates actually easier online than on campus. Still, he preferred the real thing to cyberspace when tossing back a few beers and reminiscing.

Many of his friends from college had, like him, gone into teaching, but he was one of the few still in the field twenty-five years later. So many had dropped out because technology had transformed education in the twenty-first century just as it had other labor-intensive industries in the previous century. One of Adam's grandfathers had run a family farm; one had been a navigator; and yet another was a printer. For all intents and purposes, none of those jobs still existed.

Teaching had survived, but the days of standing in front of a class of students, being a sage on the stage, were pretty much over. That type of teaching position, now reserved for private schools for the rich, had succumbed to the triple whammy of unsupportable costs, the dramatic expansion of parental choice, and the marriage of cognitive science and instructional technology.

The nearly decade-long period of slow economic growth following the 2008 recession wreaked havoc on the revenues of state and local governments. After the string of federal stimulus packages ceased, those governments were forced to seek savings in the largest area of their budgets over which they retained control: public employees. Teachers were laid off or forced to take substantial salary reductions. At about the same time, the new choice provisions in the reauthorized federal Elementary and Secondary Education Act (ESEA) came into force. The new law required what we now take as given: open enrollment plans in public school districts with no default school assignments, interdistrict choice, nationally chartered virtual education providers, web-based information portals to the performance of education programs with respect to a variety of important student outcomes, and public funding for education programs determined by parental preference.

For a while, it wasn't clear whether this was going to result in anything other than the ability of parents to choose among options of declining worth. "I'll do my best to get my child into the least bad school" was the default choice strategy during time when schools were going about their business as they always had but with larger class sizes and less-well-paid teachers. That is when the innovations in curriculum and instruction that had been on the periphery of education reform for the previous twenty years began to take hold.

Those innovations, which we now label cognitive technology, married cognitive science and information technology. Cognitive technology, commonplace now, was a disrupter of the status quo in 2015, which is when Adam's cohort of teachers began to feel the pressure even though most had been teaching for ten years. The writing was on the wall: you had to either become an expert on the design and delivery of instruction through technology or become the equivalent of a hall monitor or a tutor for struggling students, with commensurate salaries. Adam's double major in computer science and psychology had positioned him well for his transformed profession; many of his former classmates with traditional education degrees weren't so fortunate.

In 2030 we are still in the early stages of the cognitive technology revolution in education. As we look to the future of curriculum, let us first take stock of the historical developments that got us where we are today.

Let's call the roughly 165 years of curriculum development before 2020 the age of paper. From *McGuffey's Reader* in the 1860s to the demise of the last of the great textbook publishing firms in 2020, the most common form of curriculum was a commercial textbook of which each student in a particular grade received a copy. Any technology was found in the ancillary materials and generally reflected the trailing edge of popular business tools of the day (e.g., overhead transparencies for use by teachers in the 1980s; electronic discussion boards for teachers around the turn of this century). These technology tools, however, were bells and whistles; the curriculum remained embodied in the textbook.

With the advent of the standards and accountability movement in the 1990s and the move to statewide adoption of textbooks in big states such as Texas and California, textbook publishers struggled to ensure that everything required by anyone was in the curriculum. The result was described by a critic at the turn of the century as curricula that were a mile wide and an inch deep. Even the best curricula lacked coherence, and the textbooks of the time became so thick that students developed muscle strains and joint problems from lugging them around in backpacks.

Notably absent in the paper-based curriculum were attributes that are now understood as state of the art. These include

**1. Empirical and logical back mapping**–This involves determining what the content of the curriculum should be at point $t$ from the content requirements at point $t+1$, both through logical entailment and by determining the knowledge and skills at point $t$ that predict favorable outcomes at point $t+1$.

The process of back mapping from logical entailment is powerful in content areas that have an inherent sequential logic, the best cases being mathematics and musical performance. The ability to carry out mathematical operations with

fractions, for example, entails fluency with whole-number arithmetic. Curriculum design based on logical entailment has a long history, but until about ten years ago it depended on the intuitions and deep knowledge of content experts. For example, expert mathematicians structured the curriculum sequence that students were to follow to prepare to take algebra. The breakthrough that has allowed logical back mapping to achieve its present power and its extension to the sequencing of topics at the level of individual lessons (called micro back mapping) came from the effort to program computers to meet the performance expectations of students at particular points in a curriculum sequence. This has not yet succeeded in creating machines that are intelligent enough, for example, to solve consistently the real-world mathematics problems that can be mastered by an advanced student in eighth-grade algebra. However, the programming endeavor, which has been successful in mimicking successful human performance on more routine mathematics problems, required detailed maps of the logical entailments of a successful performance at each stage of task completion. These logical entailments began with the intuitions of content experts but were automatically revised by the learning machines themselves as they attempted to solve the tasks in front of them. This has given us a detailed specification of the scope and sequence of knowledge and skills that are entailed by many of the performance outcomes expected of students in the school curriculum.

The process of empirical back mapping began with research in the 1990s to identify the preschool prerequisites for reading fluency in elementary school. Some of the findings were straightforward (e.g., the importance of early alphabet knowledge to later decoding skills). But some of the findings crossed domains, such as the importance of behavior and attention skills in preschool. Empirical back mapping has proven critical in such areas of the curriculum as history, in which logical entailments are weaker than in domains such as mathematics; in addressing horizontal effects across curriculum domains such as the reading prerequisites for successful performance in mathematics; and in addressing dispositional and motivation influences that map onto most curriculum domains.

Logical back mapping and empirical back mapping work best when combined. Logical back mapping identifies the content acquisition sequence that is necessary within a particular content domain; empirical back mapping identifies the many other factors that contribute to successful student performance.

**2. Personalization**–The curriculum of the paper age was largely lockstep: everyone in the same grade or class got the same book and was expected to go through it in the same sequence. Personalization was achieved largely by tracking students in different classes or course sequences. Thus the honors track might offer more advanced courses than the standard college prep track; students could also self-select into an advanced placement calculus class or a history course. But whereas education was personalized in the sense that different students had

different courses on their transcripts, within any single course it was still the same book and the same sequence for every student. Technology began to change this about twenty-five years ago by providing teachers with periodic assessments of the status of individual students, accompanied by suggested activities to address areas of individual weakness. The development of back mapping and the shift from teacher- to software-guided instruction pushed us from those primitive forms of personalization to what we have now: students moving at dramatically different paces and sequences through a curriculum until they have demonstrated mastery of various way points and end points.

**3. Cognitive science**–In the cognitive science revolution in curriculum and instruction, much of the pedagogy and some of the curriculum content are informed by findings in the cognitive sciences on how people best learn. The cognitive and neurological sciences experienced an explosion of growth and discovery during the last quarter of the twentieth century, and they continue to be at the forefront of advances in the basic sciences today. What changed at the beginning of the century was a significant investment in research at the federal level in the cognitive science of education. This enticed cognitive scientists to study student learning in authentic education settings and to address questions of value to educators and the general public. Large numbers of cognitive scientists took the bait. For them the days of doing research on artificial tasks of short duration with undergraduates as subjects were over. They began instead to study such things as how prerequisite skills affect the ability of middle school students to succeed in an algebra, how the degree of difficulty in formative assessments affects long-term learning, how to use error patterns in student responses to decide on the next step in instruction, how to best balance the time students spend reviewing material versus being tested on it, and so forth. The neuroscience development of brain-imaging sensors so small, nonintrusive, and sensitive that they could monitor learning in real time was quickly taken up by cognitive scientists working in education. By 2020, the first practical applications of neural imaging had been developed to drive the sequencing of curriculum content and pedagogy for individual students. This led to the development of new instructional modules wherein learning is assessed by the degree to which requisite neural changes have occurred in the brain.

A related development was the growing knowledge of how and when to use social agents to motivate learning. The Internet-based group interactive games that gained a strong hold on the leisure time of adolescents around 2005 turned out to be the platform for the web-based social supports for student learning that are prominent today. The distinction between interacting at a distance with a real person and an entirely software-produced and -directed avatar began to blur as people chose to hide online behind digital representations of themselves and as the ability to program and realize humanlike behavior online grew more sophisticated. The friends students interact with online today in the context of academic tasks are as likely to be machine representations as the real thing.

**4. Information technology**–The previously described developments in back mapping, personalization of curriculum, and the cognitive science of instruction occurred hand in glove with advances in information technology. The ability to deliver curriculum and instruction through virtual environments is why many buildings that were once public schools have become access points for information technology environments that are still too advanced and expensive to be deployed in residences. Students now go to these buildings to access the technology and to meet others in the public spaces, not to sit in classrooms.

**5. Micro impact evaluation**–The large-scale randomized trials of curriculum products that were the rage in education policy through 2015 created an appetite among policy makers for reliable evidence on which products worked best and a market among consumers of education for effective products and approaches. Both the appetite among policy makers and the market among consumers have grown. But the developments described above that led to the death of the curriculum textbook also eliminated the motive to determine the impact of a particular curriculum. To the extent that each student was receiving a personalized curriculum, there was no single product to be evaluated. What we evaluate today is the effectiveness of particular approaches to transmitting a skill or knowledge set as it occurs at a given point in the curriculum back map. Hundreds to thousands of such micro instruction opportunities exist within a given curriculum. Consider, for example, an elementary school-level student's confusion over comparative descriptors such as "fewer," "about the same as," and "much more than." Micro impact evaluations can examine the relative effectiveness of different approaches to dealing with such confusion. Because instruction in the curriculum is delivered online to thousands of students working asynchronously, the evaluators can substitute a new or tweaked instructional module to a randomly chosen subset of students and determine, in close to real time, whether students in general or students with particular characteristics progress more smoothly through the new module than the old one. The success of the new or revised module is expressed in savings in time and errors and sometimes in imaged changes in brain function.

Adam was pleased to have been promoted to a position in his school district in which he was responsible for the history content at the high school level. He spent most of his time selecting and adapting technology and software to the goals of the district and the needs of students. He rarely stood in front of a class of students, but then nobody else did either. He was still attracted to that role. But he imagined that his grandfather, the navigator, also bemoaned the invention of the GPS and missed the days when the fate of the ship depended on his skills in determining its location on the globe. Because of the GPS ships rarely crash into the rocks; because of cognitive technology students rarely failed to learn the core content of the curriculum. A college reunion was an appropriate place to reminisce about the good old days of education, but Adam knew that students were far better off today.

# Classroom Teaching in 2030

Daniel T. Willingham

In *Rip van Winkle* the title character awakes after a twenty-year nap to find his village much altered. The cliché in American education is that, had Rip awakened in a classroom twenty years later, he would have noticed no changes at all. It's true enough that classroom practice has changed little since 2010, at least as it meets the casual eye. Classrooms are still organized with rows of desks facing the same direction. The teacher stands before the students and does most of the talking.

But student scores on the National Assessment of Educational Progress (NAEP) have shown substantial increases in core subject areas. *Something* must have happened in classrooms during the past twenty years. Computer-aided instruction deserves some of the credit. Computers offer engaging, interactive methods of learning, and each student can work at his or her own pace. But students still spend only about an hour each day (on average) working in computer laboratories.

Here I argue that students have learned more because four obstacles that teachers faced twenty years ago have been removed. Those obstacles made the teacher's job needlessly difficult.

## Teaching and the Limitations of the Teacher's Mind

One need not be a brain scientist to observe that everyone has mental limitations. Some people have limited attention, and their performance suffers if they try to do too many things at once. Some people make mistakes when they are interrupted. Others perform complex tasks poorly when they first try them but improve with practice.

These less-than-startling observations about the human mind were ignored when it came to teachers. Before 2010 the teacher's job was configured in a way that did not respect normal mental limitations. Teachers were called on to perform four tasks that were beyond the capacity of most anyone to perform as expected. I refer to those as *mental obstacles.*

*Mental obstacle #1:* Teachers (or sometimes administrators) were expected to write coherent curricula—that is, to select which material students should be expected to learn for a given grade and to sequence it sensibly. Selecting the most important concepts in a field and putting them in an order that will make sense to students requires deep knowledge of a discipline—knowledge that most teachers or administrators simply did not have. In the absence of such knowledge, teachers could (and did) write curricula, but many of them were likely less than optimal. This problem was all the more challenging for elementary teachers, who were expected to provide

foundational knowledge on which later teachers could build and to do so for multiple subjects.

*Mental obstacle #2:* Teachers were expected to write their own lesson plans—that is, to plan the activities that fill each school day and will (presumably) fulfill the goals laid out by the curriculum. In 2010, first-year teachers did not graduate from schools of education armed with ready-to-go lesson plans; at that time about 80 percent of teachers reported writing more than 90 percent of their lesson plans. Writing lesson plans, like writing a curriculum, also requires vast knowledge but of a different sort. Writing a curriculum requires knowing what children need to learn next. Writing lesson plans requires knowing what children know *now* and the techniques that will get them from their current level of knowledge to the next one. Researchers differentiate between content knowledge (knowing mathematics) and pedagogical content knowledge (knowing how to teach mathematics).

*Mental obstacle #3:* Teachers were expected to cope with enormous diversity of student preparation. Some students were far behind, and others were far ahead. By the time those students reached junior high school they were often disruptive—out of boredom if ahead or frustration if behind. Teachers had few disciplinary methods available; because most taught more than a hundred students during a day, they could not get to know any of them well. The result was often a cycle in which the student would act out, the teacher would plead with or threaten the student, the student would quiet down for a few minutes, there would be another outburst, the teacher would reprimand the student, and so on. This sad game represents a cost to the teacher in terms of attention. The teacher often had to monitor disruptive students nearly continuously; some teachers reported that two or three students soaked up 75 percent of their attention, meaning that others in the class were inevitably shortchanged.

*Mental obstacle #4:* Teachers were expected to improve their craft without any opportunity to practice. One damaging misunderstanding was the confusion of "experience" with "practice." These are not the same thing. For example, my driving improved substantially during my first six months behind the wheel because I practiced driving. But during the subsequent thirty years I haven't improved much, although I've gained experience. Practice differs from experience: when we practice, we actively try to improve. We note what we are doing wrong and seek alternate ways of doing things. Practice also requires expert feedback; it's hard to spot what your own mistakes. A teacher may recognize that students are bored, but she may not always see why. In 2010, no procedures were in place to make practice part of a teacher's job. Teachers worked in isolation and so could not provide feedback to one another.

Teachers were expected to have extraordinarily vast knowledge of their subject matter, to have limitless attention when teaching, and to learn from experience in ways that other humans do not. Needless to say, they did not do these things. They completed all of the tasks set for them, after a fashion. The term *mental obstacle*

emphasizes that teachers found ways around these problems. They did create curricula, write lesson plans, and so forth. But that does not mean that the products of that work were the best they could be for students.

## How Teaching Was Made Easier

In the past twenty years three of these four mental obstacles have largely been removed, although not through planning or design. The initial impetus came in 2010, with the creation of a set of national standards that described what students should learn during each grade but did not specify the materials that should be used or how they should be sequenced, as a curriculum would. From its inception this initiative had the cooperation of nearly all of the states, and the standards that emerged were widely viewed as superior to almost any state standards then in place. Good standards, however, are probably necessary but not sufficient for good schooling. Before 2010, when each state had different standards, there was no correlation between the quality of standards in a state and the achievement of its students.

It seemed only natural that a national test should accompany the standards to assess whether states, districts, and individual schools were meeting the standards. The success of the standards project did much to quell opposition to the test, and educators were, in any event, accustomed to state testing; national testing simply took its place. The story might have ended there had the test been poor. Teachers and administrators would have been frustrated and resistant, and the whole effort would have petered out. Fortunately, the Department of Education wisely used the structure of NAEP as a model for creating, scoring, and scaling the test. (The NAEP had long been viewed as a model of political neutrality and educational quality.) The results were as follows:

*Teachers no longer write a curriculum:* Much as it had done in the mid-1990s in Massachusetts, the test forced teachers and administrators to take the standards seriously. Everyone was eager to teach to the test, but because the standards were rigorous and deep and because the test was sound, there was no way to game the system. The only way that students could score well (and thereby make a district or school look good) was by learning the required content and skills.

That situation made administrators (and, to a lesser extent, teachers) open to mandating a set curriculum that all teachers in a school or district would use. If a curriculum made it more likely that students would score well on the test, administrators were ready to sign up. Some states went as far as developing state-mandated curricula, aligned to the standards. Other states recommended that districts adopt a curriculum from a short menu of approved choices, some generated by textbook publishing companies, others created in districts that had motivated and talented teachers. Some states left districts to their own devices, but, once it became plain that a set curriculum closely linked to national standards helped students do well on the national test, most districts were eager to adopt one. Thus, the first mental

obstacle for teachers and administrators—writing a curriculum—was removed. Most students learned from a content-rich and sensibly sequenced curriculum, regardless of the teacher to whom they happened to be assigned.

*Teachers share lesson plans:* With a set curriculum in place, teachers within a school, across the state, or even across the country knew they were teaching the same material. Thus, for the first time, trading lesson plans became logical. By 2015 most young teachers had grown accustomed to sharing intellectual property, as observed in wikis, open-source software, and shared artistic products. Nonprofit internet portals were created where teachers could upload and download lesson plans, organized by grade and subject and tagged with relevant terms from curricula. These databases were local affairs, sometimes sponsored by a district or a collection of districts but more often organized by a technology-savvy teacher.

Classroom-ready lesson plans offered teachers tremendous advantages. The boon to beginners is obvious; they no longer had to write 180 days' worth of plans from scratch. But even older teachers could benefit from other teachers' experience. Teachers could know *before* they tried a lesson those parts students were likely to find confusing and how to address the difficulty.

Many early lesson plan databases were not moderated, relying on teacher-rating systems for quality control, but these soon became clogged with low-quality lesson plans. The successful databases used both ratings and expert gatekeepers to ensure quality. Textbook publishers and smaller dedicated companies sold packages of lesson plans that included elaborate supplementary materials and online support for teachers.

Inevitably, the lesson plan databases were consolidated. Teachers wanted to upload their lesson plans where they would be seen by many other teachers; teachers interested in downloading lesson plans naturally went where the selection was largest. That consolidation made it easy to research lesson plan effectiveness, which, not surprisingly, showed that some lesson plans were more effective than others.

Those findings prompted questions about teacher practice. Was it fair to children to allow a novice teacher to "exercise her creativity" in lesson planning when she could use lesson plans proven to, for example, reliably teach decoding to most children? This reasoning pitted autonomy—a cherished value among teachers—against student learning.

Even the mighty teachers' unions could not find a reasonable way around such logic. Requiring that teachers use effective lesson plans seemed inevitable. But the unions did get something in return for surrendering teacher autonomy: they insisted that this requirement apply only to novice teachers and that the gatekeepers (that is, those who selected the lesson plans that novices should use) be the more senior teachers. As it turned out, restricting the policy to younger teachers has made little

difference; once teachers had used the same lesson plans successfully for five years, they were motivated to continue using them. Thus, the second mental obstacle for teachers—preparing lesson plans—was removed.

*Chronically disruptive students exited the classroom:* The second part of the unions' bargain eventually removed the third mental obstacle, although that was not its intent. Teachers argued that the mandated lesson plans meant less flexibility for teachers and thus made classroom management more difficult. Something had to be done about chronically disruptive students. Union officials suggested that such students (identified by the principal) should be taught in separate classrooms with low student-teacher ratios that made heavy use of computerized instruction. Students were able to work at their own pace, which was crucial because most disruptive students are either far ahead or far behind the rest of the class. Those who were ahead of the class were no longer bored; those behind the class were no longer confused and publicly shamed.

A new specialty within the teaching profession was created to teach in those classrooms. Those teachers concentrated on methods of motivating students and keeping them on task. They had the advantage of getting to know each student well because of the small class size and because students remained in the same classroom throughout the day.

This program, first adopted in New York State, was an immediate success. Students selected for those classes learned much more than they had in mixed classes. Teachers of regular classes reported that the classroom atmosphere improved with removal of the disruptive students.

*Teachers begin to collaborate. . . almost:* Teachers' unions strongly supported the program because they saw it as a way to increase the demand for teachers. It did so, but it also led lawmakers in some states to contemplate increases in class size. When first implemented, class size averaged nineteen students, but if the disruptive students had been removed, couldn't a teacher handle twenty-four students? or even thirty? Legislation that was initially designed to save money by reducing the number of teachers was sidetracked by successful union lobbying. Class size increased by 20 percent, but the number of hired teachers also *increased* slightly because the teachers' unions successfully argued that increased class size would require more careful planning on the part of teachers and that teachers should therefore have a planning period each day.

This planning period *could* be the means by which to remove the teacher's fourth mental obstacle by being a time during which teachers observe and critique one another and collaborate on lesson planning. That has developed in some schools but remains the exception. Most schools do not have a culture that supports collaboration, and teachers work largely on their own.

## Conclusion

Although the changes of the last twenty years have been described as the removal of mental obstacles for the teacher, it should be borne in mind that the changes have had important consequences for students: classrooms that are less chaotic and instruction that follows a sensible, structured sequence within and across years, delivered via methods that have been tried and shown to work.

Those changes have not made U.S. educators the prophets of a new education. Rather, they have brought American educators closer to the methods long in use by those countries whose students routinely score at the top of international comparisons. A strong national curriculum, implemented through carefully prepared and vetted lesson plans, has been the norm in these countries for a generation or more. The irony is that American educators did not mindfully imitate these proven methods but rather adopted them through a series of accidents.

# Equality and Technology

John E. Chubb

Rasheed should never have graduated from the University of Pennsylvania; so the statistics said when he was born in 2009. Rasheed's mother had dropped out of West Philadelphia High—mere blocks from the prestigious university—as did more than half of her classmates. She gave birth to Rasheed when she was barely eighteen years old and single. Although she later completed a general equivalency diploma, her education left her unprepared for anything but low-skill, low-paying jobs. Rasheed was raised in the same dilapidated neighborhood as his mother, the norm in West Philly. Almost no one raised there—only 3 percent to be exact—finished college.

But finish he did, in four years, at age twenty-one. And Rasheed was not alone. Nearly a quarter of the kids he grew up with—like him, mostly poor and African American—earned college degrees in 2030. What seemed improbable when they entered the world was now attainable. High school graduation had also become commonplace; all but a tenth of the kids from his neighborhood earned regular diplomas.

What made this progress possible? West Philly remained a disadvantaged community. Parents were no better educated, to help their children learn. Public education had not benefited from a windfall of tax dollars. High school standards had not been dropped to make graduation easier. The University of Pennsylvania, like many American universities, remained the envy of the world and tough to get into. So, what happened?

Public schools finally improved.

## Shaking Up the System

Rasheed attended the same schools as his mother, beginning with Samuel B. Huey, a once esteemed K-8 school that had educated some of city's leading citizens in the 1950s. By the 1990s, however, the school, like the neighborhood, had been declining for decades. Two-thirds of Huey's students regularly failed state reading and math assessments. When they attended West Philadelphia High School, most, like Rasheed's mother, dropped out. The School District of Philadelphia tried to halt the slide but to no avail. In 2001 the state seized controls—the largest state takeover of a school system at the time.

Although it would not become apparent until years later—about the time Rasheed began school—this was a turning point for public education in Philadelphia. The School Reform Commission, created by the state to oversee the schools, acted boldly to improve them. (Its most outspoken advocate for change, James Gallagher,

had graduated from the Huey School and gone on to becomes president of Philadelphia University.) It hired a tough CEO—not a superintendent—Chicago's Paul Vallas, to get results. And it invited outside firms, reform organizations, and universities to run the forty-five lowest-achieving schools in the district, creating unprecedented competition for district schools.

The takeover worked—not in the sense of improving schools overnight but in getting them moving in a new direction. By 2003 test scores district wide were up significantly. In some schools scores rose dramatically, of which Huey was one. Supported by a private manager, its failure rate on state assessments dropped from 80 percent to 20 percent. More than half its students scored proficient, satisfying grade-level standards. The gains were largely made the old-fashioned way: clear standards, high expectations, a demanding curriculum, and a principal willing and able to attract, motivate, train, retain, and hold responsible a team of dedicated teachers. But the progress laid the foundation for more fundamental change already under way. Philadelphia was suddenly open to new ways of doing school.

## New Ways to Learn

As a kindergartner, Rasheed began school with the academic disadvantages of many children in his neighborhood. His home had few books, meaning he had little experience with them. His family was not well schooled and communicated with a limited vocabulary and nonstandard grammar. He would struggle to learn how to read. But Rasheed had something his mother had not. His family owned a computer. By 2010, the cost of computers had fallen to levels the disadvantaged could afford; half of all low-income homes had one. Rasheed had been playing with interactive toys and video games from the time he was a toddler. The computer was the next step up, and he naturally took to it.

Rasheed also had something different at school—really lots of things. Huey was changing steadily, as were city schools throughout the nation. Huey was improving because it had to. When the state introduced private providers into the Philadelphia school system, it was doing what other states had been doing since the early 1990s: providing competition for traditional schools and choices for families often stuck in schools that were failing.

Charter schools, public schools run independent of local school boards, were authorized by forty states and the District of Columbia. By 2009, more than 4,500 charter schools serving nearly 1.5 million children nationally had taken root, mostly in inner cities. Philadelphia was home to some sixty charter schools, alongside 280 district-run public schools. When Paul Vallas left Philadelphia to oversee the highest concentration of charter schools anywhere, in New Orleans, Philadelphia continued to embrace charters and the energy they brought to the system. Huey could either provide an attractive choice to parents or lose students and close down.

Huey chose to innovate, beginning with technology. Educational software, long relegated to supplementary roles in public schools, had begun sharply to improve. It was a matter of supply and demand. Nationally, as schools were given incentive and freedom to innovate, more of them began to adopt software with the potential to provide core instruction. Internationally, rapidly developing countries, such as India and China, turned to technology to meet education needs that traditional methods could never hope to satisfy. With low development costs and lots of engineers (trained in the United States), overseas technology firms were introducing new and improved instructional technology at a pace literally foreign to American schools.

By the time Rasheed entered Huey, a quarter of every student's day was being spent learning via technology. For primary children, beginning with kindergarten, the norm was an hour a day of one-on-one time with computers. By the middle years, grades six through eight, two or more hours were standard. The more children were able to learn independently of direct teacher instruction, the more they did so. Independence facilitated differentiation. The biggest challenge to traditional whole-class instruction is meeting the needs of students with differing strengths and weaknesses. In the inner city, the differences are often vast, from the few students who exceed their grade level to the many who struggle, sometimes years behind. Even the very best teacher cannot meet all those needs when instructing an entire class.

Computerized instruction allows each student to be taught exactly what he or she needs, in a fashion that each best comprehends. Computers present lessons to be read, heard, visualized, and interacted with. Students proceed at whatever pace necessary to master a skill or concept. Rasheed loved the phonics programs that first helped him decode words and later improved his fluency. He could practice speaking sounds and words into a microphone and, by hearing a voice through his headphones, fine-tune his pronunciation. The extra practice enabled Rasheed to read at grade level by the end of third grade. Research has consistently shown that achieving this milestone is one of the best predictors of high school graduation. Once students can read fluently, they have a chance to master history, science, mathematics, literature, and the rest—all of which inevitably involve reading.

Some of Rasheed's classmates who did not catch up as easily as he did had issues that required more refined interventions. Technology also helped them. Some required cognitive training to help them make the nuanced distinctions between letters and sounds that the English language requires. Computerized exercises, disguised as games, developed their capacity to make these distinctions automatically. Other classmates, who were reading above Rasheed's level, received instruction customized by technology. They read increasingly complex texts and wrote essays online; teachers sent them comments online almost immediately. The escalating challenges, frequent feedback, and daily practice allowed their individual acceleration.

## A New Kind of School

Technology not only changed instruction at Huey but changed the entire school. Children of Rasheed's generation, rich or poor, urban, suburban, or rural, embrace technology naturally and intuitively. From video games to home computers to cell phones to MP3 players to handheld devices that integrate all these, technology is where young people go for information, communication, and, of course, entertainment. Technology engages them in ways that conventional media—books, newspapers, and classroom instruction—simply do not. Schools once worried they would lose control if students didn't spend every minute of the school day in classes supervised by teachers. In fact, maintaining control in that fashion was the challenge—kids resisted it.

Huey knocked down classroom walls and built large multimedia rooms in which several classes of students could work individually or in small groups on computers—or use traditional resources. Students loved learning through technology and at their own pace because both were inherently engaging and well matched to their needs. Students, did, however, spend the majority of their time under the care and direction of teachers. In the primary and elementary grades, teachers provided core instruction and established the vital bonds with children that nurture their motivation. Technology provided the differentiation.

By the middle grades, teachers and technology shared core instruction. All students at Huey were taking Algebra I by the eighth grade; some began it in seventh or even sixth. All students took Algebra I online. All students also took their core science curriculum online in grades six through eight. Online instruction had come a long way from the early days, of lectures, Power Points, and textbooks delivered electronically. By 2020, online courses were rich, interactive multimedia experiences. The best teachers in the world presented lessons seen by children across the nation. Animation and video helped explicate concepts that textbooks and lectures could never do as well. Students could work "asynchronously," using only technology, or "synchronously," receiving direct help from teachers online. The mix of synchronous and asynchronous was determined student by student, optimizing the mix of teachers and technology that helps each student achieve.

Online education was also aided by important low-tech developments in public education. For years, public schools had been plagued by academic standards that varied state by state and, in most cases, were far below what students needed to succeed in the twenty-first century. Students were taught from textbooks that satisfied the lowest common denominator nationally and assessed with state exams that made it easy for schools to declare students "proficient."

About the time Rasheed was born, however, this situation had begun to improve. Most every state signed on to develop a common core of academic standards. By 2014, the nation had a credible definition of academic proficiency in the major subjects and

one set of (now higher) standards that most states embraced. With common standards to guide their work and a market including most of the nation, online education companies invested much of their resources in developing truly demanding instructional programs for core courses—once the sole province of textbooks.

Technology and online education helped Huey enormously. First, it brought directly to students high-quality content and instruction, the same quality students received online in the suburbs or other more-affluent areas. Second, technology reduced the number of teachers that Huey had once required: when students worked in large group settings with technology or took classes online, fewer teachers were needed for supervision or instruction. With fewer positions to staff, Huey could be selective in hiring and retention and thereby raise the quality of its teachers and their instruction. This was especially important in the fields of math and science, where top-notch teachers were hard to recruit, particularly to inner cities.

Rasheed and his classmates benefited from the wholesale changes at Huey. Nothing is more important in traditional instruction than teacher quality—and Huey's teachers were now much better. A close second is a challenging curriculum, and Huey was able to keep the content demanding by raising teacher quality and supporting the toughest material technologically. Finally, Huey met the individual needs of each student, from learning how to read to mastering the academic subjects, via technology. As students left Huey for West Philadelphia High, most were on grade level.

## A New Future

For inner-city kids, high school was once a source of frustration and failure, an institution that they entered unprepared and left without finishing. For suburban kids, high school was like a shopping mall—to borrow a famous analogy—a place to hang out and get as much or as little you pleased, biding your time until college. For very few kids did high school provide an effective transition from the basics of middle school to the sophisticated knowledge and skills necessary in college or in a productive career.

By 2030, high school was the most changed institution in public education. Some of this was planned. National efforts, spearheaded by the administration's of both George W. Bush and Barack Obama, yielded new national standards for high school—as they did for the earlier grades. Schools were directed to help students achieve demanding objectives across a range of traditional and new fields—including technology—that were proven valuable to success in college and careers. High schools were given a clearer purpose for educating all students for a productive future and then held to account.

But there the planning stopped. High school was reshaped by the forces of technology and competition. Students become better able to learn independently as they mature. By high school, students have the capacity to master whole subjects

through media other than a teacher. Entrepreneurs, recognizing this, began investing heavily in online high school instruction. In the beginning, high schools turned to online teaching largely for courses--advanced placement, subjects with low student demand, summer school courses for students who failed the regular course, dropouts who needed an alternative to the classroom—that they could not easily or successfully offer the old-fashioned way. Students liked the technology, appreciated the opportunity to move at their own pace, and enjoyed the newfound flexibility of learning at times that suited their schedules—for online can be done at home as well as school.

But what drove online instruction into the mainstream was competition. Nowhere was this more evident than at West Philly High. Pennsylvania was not only an early adopter of traditional charter schools but was also *the* leading state in developing charter schools online. By the time Rasheed was born in 2009, Pennsylvania had eleven online charter schools, serving all grades, and ten thousand high school students enrolled in them. The city of Philadelphia lost four thousand high school students to cyber charters annually—a loss of nearly $50 million in revenue. All kinds of kids were flocking to online high schools: kids with jobs, kids who had been bullied, kids who were bored by the slow pace of traditional schools, kids with special needs, all types. The exodus to online schools only accelerated in the ensuing years, in Pennsylvania and elsewhere, as the schools gained acceptance and the technology and online teaching advanced.

Traditional public schools had to fight back or go under—and they fought back. Most kids still liked having a high school to attend: to socialize, play sports, perform in plays, and even learn with one another. Online social networks in cyber schools are great but so is face-to-face interaction. Traditional high schools steadily evolved into hybrid institutions. Kids took some classes led by teachers but more often their core instruction was online. Their work with teachers occurred for individual tutoring, group projects and seminars. Teachers also worked online, during school hours and evenings, honing new skills and meeting student needs in new ways. Schools required fewer teachers and their quality consequently rose. University faculty also taught high school online—for college credit. High school became more engaging, individualized, and most of all more effective.

## The Nation

Rasheed is a prime beneficiary of the forces that reshaped the schools of Philadelphia: accountability, competition, and technological change. His schools were driven to improve substantially, made all the more possible by technology. He learned to read fluently; earlier he would not have. He was taught more successfully, with technology meeting his needs in ways regular classrooms could not. His teachers were of increasingly high caliber. He not only graduated from high school but achieved at a level that gained him college admission to a highly selective institution.

When he was born, the odds were very much against Rasheed. But in Philadelphia, as in American cities everywhere, the probabilities were beginning to change. The public schools were being held accountable for student achievement for the first time in American history. Public education was being opened up to new providers, and competitive pressures were beginning to stimulate innovation and improvement. Achievement had begun to improve, especially for students who had historically achieved the least.

But none of this change, fundamental as it was, could have predicted the innovations that were to come, as technology made truly new forms of teaching, learning, and "going to school" possible. Technological progress took the opening that accountability and competition provided and drove unprecedented improvements in public education. Because technology is blind to income, race, and location—the historical dividers in public education and so much of American life—the benefits of technology have been greatest in cities such as Philadelphia, where poverty has long ruled. But wherever children live today—cities, suburbs, or rural expanses—their school experience is vastly different from what it was not long ago and far better too. Their schools are finally taking full advantage of the twenty-first century.

# Time Spent on Learning

Tom Loveless

Today, in 2030, American students spend more than on learning than at any other time in history. The change that has occurred in the past two decades represents a cultural shift of historical importance. The contemporary family spends most of its time, including evenings and weekends, focused on their children's success at school. Families with teenagers devote time and money to preparation for college. Students attend school about two hundred days each year and receive an average of seven hours of daily instruction. Nightly homework commands about two hours of the typical high school student's time. When needed, private tutors are hired to shore up academic weaknesses, and schools offer Saturday workshops for remediation.

It has not always been this way.

## Looking Back

For about a century, from the 1830s until the Great Depression, the rise of the common school created tensions between the two social institutions most directly involved with children: schools and families. At stake was who was to control children's time. Schools, which predate the U.S. government and the governments of every state, aligned themselves with governments to gain popular recognition as the primary social institution responsible for learning. Families, however, assisted by churches and communities, had fulfilled that function for all of human history. The transition did not please everyone. Many Catholics distrusted this new, publicly governed institution and created their own school system. In the latter half of the nineteenth century and beginning of the twentieth century, compulsory education laws that turned child wage earners into students were met with resistance by many families.

The resistance failed. In terms of national education efforts, the signature accomplishment of the twentieth century was getting children physically into schools. Attendance drove policy at all levels: federal, state, and local. The flow of school funding was based on average daily attendance. Truant officers were hired to patrol the streets. Attendance of five- to nineteen-year-olds rose from 51 percent in 1900 to 79 percent in 1950 to 90 percent in the 1960s. The leap in high school attendance was dramatic. In every consecutive decade from 1890 to 1940, the number of students enrolled in high school at least doubled. Twentieth-century teens who would have been working in fields or factories a century before found themselves sitting in classrooms.

Seat time was paramount, a logical extension of defining the ability to attend school as the basis of society's commitment to families. Student outcomes associated with seat time mattered most: course completion (in Carnegie units) and attainment

(diplomas earned or years of schooling completed). The amount of learning taking place largely escaped scrutiny. But the monopolization of children's learning time by schools had become institutionalized and thus an accepted part of modern life.

Gradually, attention began to shift from attainment to achievement. The 1966 Coleman Report (or *Equality of Educational Opportunity*) placed a spotlight on the academic results of schooling. The study examined correlates of learning. Variation in family characteristics, not school resources, appeared to matter most in predicting achievement. Coleman's 1982 study showing Catholic and other private schools' outperforming public schools in terms of math and reading achievement also supported a heightened emphasis on school outcomes. *A Nation at Risk* in 1983 and the accountability movement in the 1990s pushed the trend along, with the No Child Left Behind (NCLB) Act federalizing school accountability in 2002.

These efforts were not immediately successful, and the twenty-first century began with disappointment. Laws designed to enhance school performance—whether through parental choice, professional development, reduced class size, or accountability systems—produced mixed results. No amazing discovery in curriculum, pedagogy, or school management occurred to increase the efficiency of learning in classrooms.

One of the sturdiest findings of cognitive psychology is that the amount one learns is related to the time spent learning it. By 2010 it had become clear to Americans that raising achievement depended on increasing the amount of time children devote to learning. The additional time could come from longer school days and academic years, advocates argued, but it must also come from time outside school. Children in other countries spent a lot of time learning outside school; they had good reasons for doing so.

## Time and Learning in 2010

In 2010, attending school and studying consumed a small portion of American children's time. Students attended school 180 days a year for six hours a day from age five to eighteen, totaling about 12 percent of children's time—and about 18 percent of their waking hours.

Other nations had longer school days and longer academic years that increased students' exposure to academic content, a discrepancy noted in *A Nation at Risk*. The differences were even larger when out-of-school activities were factored into time spent on learning. The typical family in the world's developed nations was strongly motivated to devote family time to academic learning, especially on middle and high school kids. Adolescents prepared for high-stakes tests that would determine their future. Exam-based systems function like a network of locks and canals, channeling some students into prestigious high schools and colleges and lucrative careers and others into less fortunate destinations. They offered a powerful incentive for students to study at home

and fueled a huge demand for out-of-school instruction, sometimes called "shadow education" (Baker and LeTendre, 2005).

In Japan, two phenomena existed in 2010 that were unknown in the United States. The first, *kyoiku mama* ("education mother") was a derisive term for overbearing mothers so obsessed with educational success that they spent hours at home each night tutoring their children. The second was *juku,* or "cram school," attended by approximately two-thirds of Japanese middle school students after school and on Saturdays, receiving additional instruction on basic skills and help in preparing for an important exam. At the end of ninth grade, students selected a single public high school to qualify for via examination. The period of time between that examination and the exam three years later to get into college was often called "examination hell." A 1995 survey of Japanese parents found that two-thirds considered the exams stressful for their children and themselves.

Korea had a similar exam-based system, with Koreans spending an estimated $15 billion on cram schools in 2006. With about 2.8 percent of its GDP gross domestic produce going to private spending on education, Korea led all the Organization for Economic Cooperation and Development nations in such spending. Cram schools *(hagwon)* were enormously popular, and the industry continued to grow even during the severe economic downturn of 2008-9.[1] A booming company, Megastudy, held an informational event attended by 10,000 students in Seoul's largest indoor arena. As the teachers were introduced, they were met with thunderous applause. Korean tutors enjoyed rock star status; in 2007, a Korean teacher of English earned $2 million in royalties from the sale of online videos.

Not everyone admired the supreme value Asian societies placed on education. Many Americans considered it excessive, and even Japanese and Korean parents worried that students were under too much pressure. Along with legitimate enterprises, fly-by-night tutoring outfits operated in Korea and Japan. To the American way of thinking, the exam systems appeared too deterministic. Kids can change. The stakes also seemed too high. Why relegate a late bloomer to a less prestigious career path because of a single test taken at age fourteen? Like systems that held educators accountable, systems of student accountability were controversial.

But in 2010 Asian countries were not outliers. Exam systems with high stakes for students were the norm in Europe, Africa, and South America. The United States was an outlier. No other nation had such a lopsided system in stressing school accountability over student accountability.

[1] Kan Shin-who, "Hagwon" Mushrooming Despite Economic Slump, *Korean Times,* July 16, 2009.

## What Triggered the Change in the United States?

In the earliest years of the twenty-first century, Americans began to realize that students needed to spend more time on learning, especially at home. In 2008, an annual survey of college freshmen conducted by the University of California at Los Angeles (UCLA) found that time spent on homework had plunged to a forty-two-year low. Only 41.4 percent of the freshmen said they spent more than five hours a week on homework in their senior year of high school. Other activities absorbed more time. The percentage saying they devoted more than five hours a week to socializing with friends (71.0%), exercise and sports (44.9%), and working for pay (44.2%) exceeded the percentage spending that amount of time on homework.

If we assume that college-bound students are the most academically inclined high school kids, then academic pursuits probably commanded an even smaller portion of the typical American teenager's time than that indicated by the UCLA data. Data from the National Assessment of Educational Progress (NAEP) reinforce that assumption. In 2008, seventeen-year-olds were asked how many hours of homework they had had the night before: 28 percent responded that no homework had been assigned, and 12 percent said they had homework but didn't do it. That figure—40 percent of seventeen-year-old students reporting zero homework time—had remained about the same since 1999. On the other end of the spectrum, the number of students indicating a heavy load, more than two hours a night, also did not vary much: 12 percent in 1999 and 10 percent in 2008.

What about younger children? Evidence from the NAEP indicated that homework had increased only a little for nine- and thirteen-year-olds but not for kids who were already studying a lot at home. The percentage of thirteen-year-olds reporting more than an hour actually declined from 34 percent in 1999 to 27 percent in 2008, despite the pressures of NCLB and magazine cover stories about students overwhelmed by excessive homework. The increase in average homework was largely due to children who once said they had no homework assigned (or didn't do it) having some (less than an hour). At age thirteen, for example, 36 percent said they had no homework or didn't do it in 1980. In 2008, that figure fell to 30 percent. During the same time interval, those reporting having less than an hour of homework grew from 32 percent to 43 percent.

In addition to the catalysts described above—an historical trend toward education monopolizing children's time, achievement becoming the coin of the realm in terms of educational outcomes, an international norm of significant out-of-school time devoted to learning, and the realization that American kids spent little time on learning out of school—three other factors surfaced from 2010 to 2030 that motivated families to spend more time on education.

First, good models spread rapidly across the country. Knowledge is Power Program (KIPP) schools and other pioneers' extending the school day demonstrated that families, rather than rebelling, responded favorably to greater time demands. Here's how the KIPP website described it in 2009:

> One of the "Five Pillars" is more time. KIPP students are in school learning 60 percent more than average public school students, typically from 7:30 a.m. until 5:00 p.m. on weekdays, every other Saturday, and for three weeks during the summer. Rigorous college-preparatory instruction is balanced with extracurricular activities, experiential field lessons, and character development. In spite of the long hours, average daily attendance at KIPP schools is 96 percent.

Second, new technologies appeared. Technological advances placed accurate, individualized data in the hands of adults much more quickly than was previously possible. In the past, test results were delivered months after assessments had been given, rendering the data of little use in shaping instruction or in helping concerned parents at home. Handheld devices and tighter, faster Internet links between home and school exponentially increased the amount of information parents possessed on their children's learning. Knowing the topics on which children needed help encouraged adults to devote more time addressing academic weaknesses. In addition, online learning (discussed by others in this volume) meant that many homes came to resemble classrooms. Like parents of children schooled at home, parents with online learners not only became more aware of their children's educational activities but also assumed greater responsibility for their children's academic success. Parents managed family time more effectively to achieve that end.

Third, a cultural shift occurred. School improvement has its limits, mainly because schools themselves are limited. Coleman's argument in the 1980s that good schools create social capital, which undergirds learning, turned out to be prescient. One overlooked aspect of the theory identified families' use of time as a key source of social capital. The finding that Catholic schools were particularly good at creating social capital drew, at the time of the study's release, most of the headlines and debate. But Coleman also argued that social capital is fostered within families:

> One example illustrates what I mean by social capital within the family and how it differs from the more common concept of human capital. A school district where children purchase textbooks recently found that some Asian families were purchasing two. Investigation led to the discovery that one book was for the mother, to enable her to better help her child succeed in school. The mother, uneducated, had little human capital, but her intense concern with her child's school performance, and her willingness to devote effort to aiding that, shows a high level of social capital in the family.

## Conclusion

Education reform in the United States is conventionally viewed as an engineering problem, with a better functioning school system—through carefully crafted rewards and sanctions, teacher training, and more efficient use of resources—the key to higher quality. No doubt those are important elements. But what is also required is a cultural shift from thinking of education as something done to students, in which they are malleable objects that an educational system shapes into learned persons, to an accomplishment that students—and by extension, their families—bear a significant share of the responsibility for. Confucian cultures have no trouble with the notion; the content of learning is located outside the student, in the academic disciplines that contain their intellectual history. Learning takes place through practice and hard work. Effort is everything. Students are agents in their own education, not merely products stamped and polished by teachers and schools.

Americans now embrace the view that the amount one learns is inextricable from the time devoted to learning. That was not always the case. In 2010 academic learning took up a small portion of the time available to American children at home. There was room for that portion to grow, and it did. Families realized that more time devoted to learning leads to higher achievement and higher achievement leads to better lives for children—and to a better nation.

# Standards and Competitive Rigor

Williamson M. Evers

Today, in 2030, we benefit from K-12 schools in which academics are rigorous but not stultifyingly uniform. We have a half dozen national academic standards that schools and districts can choose from. Today's pluralism seems a natural evolution to us now–going all the way back to the federal push for state standards and accountability in President Bill Clinton's Improving America's School Act of 1994 and President George W. Bush's No Child Left Behind Act of 2001—and continuing to evolve in the aftermath of President Barack Obama's ill-fated project of creating one set of national standards. But that evolution might have been difficult to predict two decades ago.

Twenty years ago, in 2010, the American public was understandably worried that academic rigor in the public schools was in danger. But improving a public agency such as a school system had always been notoriously difficult. Whereas the strength of product or service in, say, the computer industry is determined by competitive pressures, a public school doesn't directly put prices on its services or face consumers who can make or break the enterprise.

American public schools are public agencies and creatures of the states, though operated at the district level by local superintendents chosen by elected local school boards. The national government has collected data about education since the 1860s and provided selective support to local school districts and, beginning in the 1960s, to schools with children from poor households.

## Background

To understand what has happened during the last twenty years (2010-30) of school reform, we need to look at what led up to those decades. Reformers had tried, beginning in the 1980s until the first decade of the twenty-first century, four approaches to improving academic rigor:

- Traditional conservatives proposed agitating at the local level for a rigorous curriculum and battling against soft curricula and content-light teaching. At the same time, they tended to oppose all reform efforts at the state and, particularly, the national level.
- Liberals called for more money for the existing system.
- Those reformers who called for standards and accountability drew up lists at the state or national level of topics the students should know at each grade level and then had the students tested on the material. Those reformers hoped to spur rigorous teaching of academic topics through public scrutiny of schools' test results

- Those reformers who called for parental choice sought structural changes such as opportunity scholarships and deregulated public schools (charter schools) to rescue children from failing schools, empower parents, and apply competitive pressure on public schools to perform better (again, through the rigorous teaching of academics).

Conservatives in the late twentieth and early twenty-first centuries spoke about the need to return education decision making to the local/district level. They had opposed Progressive Education from its inception; in the 1960s conservative California state superintendent Max Rafferty stressed phonics and "back to basics."

Nonetheless, traditional conservatives were unable before 2010 to mount grassroots pressure for high-quality public schools. Conservatives episodically succeeded in toning down efforts to upend traditional culture and mandate learn-through-play teaching. But there were no significant, long-term conservative organizations promoting solid education at the district level.

Despite public opinion in favor of academic excellence that came to the fore in the aftermath of the 1983 *Nation at Risk* report, there was no sustained grassroots, district- or state-level movement for content-rich academic curriculum in the period from the 1980s to end of the George W. Bush administration (2009). This is not to disparage either the phonics efforts of 1950s and 1990s or the solid math efforts of the 1970s and 1990s. But these were episodic, not sustained, efforts.

Adding to the problems of the proponents of content-rich curriculum, local school districts had been designed by Progressive-Era reformers in the early twentieth century (through off-year elections, nonpartisanship, and boundaries not coterminous with those of cities and towns) to block grassroots political influence.

Also, liberals were able to obtain, during the 1980s, 1990s, and the first decade of the 2000s, large increases in spending on the public schools both through extraordinary– and misguided—court rulings and through ordinary state budgetary processes. But all that money by itself did not notably improve academic achievement.

Proponents of vouchers and charter schools made some progress in the 1990s and the first decade of the 2000s. Charters expanded slowly, but the education establishment curtailed their growth via state caps and jealous local boards. In 2002, the U.S. Supreme Court deemed vouchers constitutional; vouchers then made their way into Milwaukee, Cleveland, and, briefly, Florida. But the Democratic-controlled U.S. Congress defunded Washington, D.C.'s voucher program–despite proof that it was successful, and the Obama administration went along (for political reasons) with this dashing of parents' hopes. After that, any expansion of vouchers and tax credits stalled.

## Recent History (2010-2030)

In the early years of the Obama administration, the standards-and-accountability movement divided: one part pursued national standards, the other, teacher quality and school turnarounds. The proponents of national standards found the existing state standards uneven in quality and hoped that tough national standards could be combined with creative energy from the local states and districts under a regime of federal flexibility.

But the national standards promoted generic skills in English (with little relation to content knowledge), were too easy in math in the high school years (many states felt they weren't ready for Singapore-level rigor), and mandated Progressive Education teaching methods (because of Ed School influences and the ideologies of leaders of subject-matter groups). Many Republicans in the U.S. House of Representatives bitterly opposed the national standards because of their entrenched progressivism and perceived violations of the constitutional principle of federalism. Those Republicans were particularly hostile to national educational standards because of bad feelings arising from the polarized fight over national medical care in 2009-10.

Some said that "there are dangers inherent in setting unitary national standards in subjects such as history and English, where people hold divergent views. Americans don't want a distant government agency settling historical debates and giving official sanction to certain ideas, values, and policies, where the issues are debatable."*

The Obama administration generated further tension by requiring word-for-word adoption of the hastily prepared national standards and disappointing standards-and-accountability reformers by relaxing performance expectations, deadlines, and other accountability measures. Critics called the new standards "command-and-control instead of accountability for results."

The hoped-for federal flexibility on operations did not come about because members of Congress wanted initiatives that they could claim credit for, needing categorical programs, red tape, and regulatory rules to ensure the persistence of these distinctive efforts.

The national standards reformers were unable to promote rigor in the standards because they didn't have the support of the entire standards-and-accountability movement, whereas the education establishment had plenty of forces to deploy on all fronts in its efforts to promote vagueness, laxness, and progressive teaching methods.

The proponents of teacher quality and school turnarounds said that national standards were a diversion from the hard work of narrowing achievement gaps by getting and retaining effective teachers, firing ineffective ones, and turning around low-performing schools. Those reformers were likewise weakened because they also didn't

have the support of the entire standards-and-accountability movement, since some were concentrating on national standards..

Federally funded merit pay increases were proposed by the Obama administration and passed by Congress. But the bill Congress came to naught because it mandated union approval. Meaningful merit pay did not revive as a policy proposal until the competitive days of the 2020s.

Three important developments in the first decade of the 2000s paved the way for the new competitive rigor that began in the 2020s and that we enjoy today:

- **Parent groups**. Foundations that had been supporting reforms such as mayoral control, alternative teacher credentialing, and challenging standards realized that parental involvement was a necessary complement to any effort aimed at student academic success. Parents' groups independent of the education establishment had, in the past, rarely been able to overcome their tendency to die out because nonmembers hoped to "free ride" on the members' efforts and money. But the example of the Los Angeles Parents' Union and its Parent Revolution, launched in 2006, showed that parents' organizing and demanding results could be successful. In the following years, significant national parent networks arose based on foundation money and increased parental belief in the necessity of high academic standards. The growth of the new groups was facilitated by low-cost organizing via the Internet.

- **New testing capacities**. In the first decade of the 2000s, computer adaptive testing began. It hit some snags because of the unevenness of computer access in schools and difficulties in meshing the grade-level focus of the federal requirements for state accountability programs in the 2001 No Child Left Behind Act. In subsequent years, however, computer access became widespread, and accountability began to focus on annual student growth on a trajectory to proficiency. Under those new conditions, computer adaptive testing thrived because it was precise, because the same test could be used for teaching purposes and for accountability, and because the test could be adjusted to the individual student's level of learning. Formative assessments on computers became pervasive, being offered by descendants of testing companies and textbook publishers. The new close relationship of curriculum and formative testing made old complaints about "teaching to the test" irrelevant: the tests now test what is taught.

- **New teaching materials**. With growth of instructional software in 1990s and 2000s, entrepreneurial publishers turned increasingly into "bundlers," pulling together lessons that had proven effective (including computer-adaptive formative tests) from a variety of media (print, software, and video) and weaving them into a package of coursework. Previous textbooks had often not been field-tested because of the demanding schedules of the textbook adoption cycles in Texas and California, and teachers who devised their own lesson plans had no capacity for field-testing. But because the new instructional packages contained components that could last through future cycles and could be flexibly combined, field-testing was now both feasible and profitable. The new teaching modules paid special attention to effective teaching methods, with publishers emphasizing that lessons must be taught effectively if students were to learn and field-test results replicated.

  Increasingly, researchers studied these bundles of lesson plans and associated teaching methods in randomized trials or by examining the results when two groups were shown to have equivalent scores on a pretest measure of their knowledge and skills. Objective, positive results on the effectiveness of teaching materials meant that all teachers could have access to lessons that had been proven to work.

  Although many large publishers of tests remained in business, and some publishers who had not been in the testing business added that line of work, the new technologies facilitated large numbers of new entrants to the field of multimedia instructional materials. Most states with statewide adoption rules abandoned them because of the difficulty of managing the approval status of continuously updated, online textbooks.

New parent groups, new testing capacities, and new teaching materials changed the dynamic of public schooling in the 2020s. The presence of the parent groups meant that the push for rigorous standards was passionate and came from the bottom up, whereas previous state standards and the monolithic national standards effort had been subject to the shifting winds of politics. New testing capacities made it easier to have multiple standards that could be benchmarked to one another and to international achievement levels. The new capacities also overcame previous objections to standards and testing because of their one-size-fits-all inflexibility. Teaching materials that were modular and field-tested allowed made it easy to assemble curricula for multiple standards.

Whereas in the 2000s efforts to improve teacher quality had concentrated on recruiting graduates of Ivy League colleges or the equivalent, there just weren't enough such graduates to go around. The new variety of readily available, field-tested, detailed lesson plans for each academic topic, however, teachers who weren't recruited from elite colleges by Teach for America to achieve KIPP-level results. Although Teach for

America teachers had almost always reinvented lesson plans, it was wasted effort. With the new proven lesson plans packaged into a course by publishers, all teachers had at hand the resources needed for their students to succeed.

The new technologies also allowed public schools to be differentiated into thematic "magnet schools." But many schools simply endeavored, in the new, increasingly competitive environment, to provide standard course offerings using the best available teaching materials. Charter schools showed the way, and the proliferation of virtual schools in rural areas accelerated those changes.

An additional development in school finance further fueled rivalry for success. As more states adopted a "weighted student formula," in which students with disabilities or weak educational backgrounds received more money, schools now began competing for such students. In earlier days, weighted student funding had often been a proposal attractive to those who had advocated money per se as the solution to school reform. But the new flexible environment meant that weighted funding increasingly appealed to reformers calling for parental choice as well as those calling for standards and accountability.

## A Pluralism of Standards

After the ill-fated national standards effort of the Obama years, many states (especially in the Mountain States and the South) opted out of the proposed unitary national standards, complaining about vagueness, lack of academic rigor, compulsory Progressive Education features, and violations of state prerogatives under constitutional federalism.

Many advocates of educational excellence worried about duplicating the problems in math and reading seen in England and Wales after a national curriculum was adopted there in the 1990s. For their part, American educators complained about the inflexibility of unitary standards and the impediments they placed in the way of fine-tuning curriculum to meet local needs and deficiencies.

The failure of the monolithic national standards project led to a reunification of effort (now flowing in part through the parent groups) by the standards-and-accountability movement to push for rigorous standards, though now in multiple forms.

Congress, the U.S. Department of Education, and educational policy makers around the country began looking at alternatives. A half dozen rival national academic standards soon evolved from the bottom up out of Advanced Placement, International Baccalaureate, Core Knowledge, Common Core, the New Standards Project, state standards from the 1990s and 2000s, and other efforts. Some of these were private initiatives reminiscent of the role of the College Board in its early days.

Just as states now shied away from statewide textbook adoptions, they also became reluctant to mandate statewide academic standards. Instead, states called on public school districts to adhere to one of the half dozen national standards. Many states allowed such affiliation at the school level rather than the district level.

This choice of standards removed one longtime complaint about national and state standards: that they narrowed the curriculum. Now schools could choose a set of standards that covered the topics they felt were vital. At the same time, rivalry among the standards for district and school affiliations ensured that all standards were world class in content and academic rigor.

The new operationally open but standards-based regime has many attractive features. The pervasive formative assessment comes in objective, computer-adaptive-test form. A variety of readily available, field-tested, detailed lesson plans for each academic topic allows all teachers to achieve KIPP-like results.

A few parents had become acutely aware of the need for academic rigor during the standards wars of the late 1990s and the debate over unitary national standards in the Obama years. But now, in the new flexible, competitive environment, districts and schools are marketing themselves on the basis of academic rigor, and a multitude of rigor-conscious parents are choosing accordingly.

The new regime is consistent with and grows naturally out of American values of pluralism, decentralism, and local control. America now has "Asian tiger" achievement and has dramatically narrowed achievement gaps, having dodged the bullet of weak, centrally imposed national standards.

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*Cf. Diane Ravitch, National Standards in American Education, 2nd ed. (Washington, D.C.: Brookings Institution Press, 1995), p. 19.

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# An Evidence-Based World

Eric A. Hanushek

In 2010 there were many questions about testing students, including how the information would be used. Parallel questions asked whether performance on the existing tests even mattered. After all, the test were narrow and did not reflect either deeper thinking skills or other noncognitive facets that research was beginning to identify as important for job performance and participation in society.

Now, in 2030, these issues have been resolved. It has become clear that the performance of students matters. It is also clear that testing can now indicate how individual skills vary across the population. Perhaps most important, schools and teachers can and do now build their instructional programs around the observed results of students.

The 2030 system relies heavily on data–data available to and used by schools, teachers, and parents. One essential building block is systematic information on students' gains in learning as they progress through school. Parents find this tracking of their children's performance useful in working with their children and the schools and in deciding on which schools their children should attend. Teachers also benefit from the regular feedback throughout the school year in formulating learning plans for their students. They also have clear guidelines for what students should be learning from the learning standards and from the test diagnostics they receive. Schools also can use year-end and course assessments to help evaluate both programs and teacher performance.

This information has proved useful in raising student achievement. Performance has gone up both in absolute terms and in relative terms when compared to students in other nations–although such gaps still exist. Bringing about more equality in achievement by race and ethnicity or by income level, however, still remains a challenge.

Our current situation clearly differs dramatically from the No Child Left Behind (NCLB) era and the wars over testing and accountability. It pays to review what changed and why.

## The Nature of Testing

Businesses have long used various measures of their outcomes to decide what was working well and what was not. For instance, businesses use information on sales and revenues to identify which products are being demanded. Combined with information about production costs, the same data can indicate which activities are profitable and

which are not. Combined with goals or targets, those data can also be used to evaluate managers and production staff.

The innovation in education near the end of the twentieth century was a shift to regular measurements of student performance as an element of school management, seemingly a natural move paralleling the operations of businesses. But it met with surprising resistance from a variety of quarters. Some of the resistance represented legitimate concerns; others did not.

To understand how those concerns were resolved by 2030, let us begin with some notion of the 2002 testing situation (the point of introduction of NCLB). There had been precedents for NCLB in that it was built on extensive state experience with test-based accountability. At the time of passage, all but a handful of states had already established their own accountability systems, albeit with considerable variation across states.

The proliferation of state accountability systems was based on the popularity of the "standards movement." That idea was simple and powerful: states should specify what they expected students to know (by subject and grade), should build instructional programs around those, should measure the accomplishment of those standards, and should hold schools and teachers accountable for meeting those objectives.

Although logical and appealing, each step presented problems and challenges that coalesced into a national debate once NCLB highlighted the commonality of issues previously defined as state-specific questions. The development of standards was particularly contentious, as various people introduced their ideas of what should be identified, how specific those ideas identified should be, and, relatedly, how they should be taught. Part of the discussion had an ideological component, and part was simply an uncertainty about how to define such goals.

The debates about testing, however, were not as much centered on the underlying standards as on the tests themselves (and the uses to which the tests were put, discussed in the next section). Before NCLB states had used a variety of tests, including off-the-shelf norm-referenced tests and specially constructed criterion-referenced tests. The norm-referenced tests did not link specifically to the standards of any state and provided only relative performance measures when students were compared to a representative sampling of students. NCLB was focused specifically on lower-achieving students, consistent with the federal government's historical role in educating the disadvantaged; its device for bringing about reform was holding schools responsible for ensuring that all students were "proficient" according to state learning standards. By using proficient as a measure (something that sounded like an absolute measure of achievement), the federal statutes surrounding NCLB assumed (or required) criterion-referenced tests that matched state standards because the standards defined

what students should know. As a result of federal pressure, each state developed a separate set of tests for accountability purposes (because standards were themselves state-specific).

Several elements entered into developing the tests used for accountability, and the 2002 resolution was not optimal from an educational policy view. To begin with, tests are simply a set of assessment items that try to sample knowledge of the standards—but they do not necessarily perfectly measure all areas of the standards. Completely covering the areas of the standards in both breadth and depth would be enormously time consuming and expensive. To achieve efficiency in testing, therefore, tests are generally developed to be most discriminating at a particular level of performance and less at others as roughly indicated by the proportion of test questions. As a result, the immediate state reaction to the NCLB requirements was to develop tests that were "densest" near the level of proficiency that the state had set and thin at higher levels of performance. Such choices led to the charge that the standard tests were set at an inappropriately low level and thus should be dropped from use.

Another thing that entered into the general testing situation was that individual states were free to choose their own proficiency levels. Proficient has no simple definition, and the term was used very differently across different states, tests, and uses. The exact motivation for each state's choice has never been clear. Some states, such as Massachusetts, set high proficiency levels, perhaps to challenge all its schools. Other states, such as Texas, set low standards but then ratcheted up the requirements, perhaps encouraging schools progressively to improve. Yet others chose low levels and made no effort to adjust them. Still other states lowered their proficiency levels over time, perhaps evincing concern about too many schools "failing" under NCLB's accountability provisions. The varying levels of proficiency caused confusion if not discontent with the overall structure of test-based accountability.

Using standardized tests also bothered some, in that the tests focused on low-level facts whereas what was needed was the development of higher-order thinking and reasoning skills. These higher order skills, so the charge went, could not be assessed with multiple-choice, fill-in-the-bubble instruments.

## The Use of Tests

Nonetheless, the largest issue faced in 2002 and the subsequent years of debate over NCLB was not the tests themselves but the use to which they were put. NCLB, which set a goal of 100 percent proficiency within one schooling generation, set regular milestones for the level of performance of each school's students ("adequate yearly progress"). Schools consistently not meeting those goals faced increasingly stringent sanctions.

The structure of the accountability framework also led to situations in which suburban schools serving kids from well-off families looked systematically better than those serving disadvantaged populations. But it was never clear how much of the difference to attribute to schools and how much to attribute to the poorer preparation that disadvantaged students brought to schools. Comparing similar schools permitted some better comparisons, but the fundamental uncertainty about interpreting the source of observed differences remained.

The target of having all children proficient by 2014 was also questioned. Specifically, many doubted whether all children, regardless of background or disabilities, could meet the goal of full proficiency in the state-specific standards. To assess intermediate progress, judgments about schools were made on a disaggregated basis for subgroups by race and ethnicity, by special education status, by economic disadvantage, and by English-language learner status. Thus, the goal of 100 percent proficiency appeared even more stringent because it implied equal progress for groups that traditionally had lagged behind.

The accountability information did, however, provide the opportunity to trace student learning over time by linking year-to-year performance for each student. It was also recognized that, in principle, this kind of information could be linked to school programs and to teachers, thereby providing feedback on value added. The primary issue to emerge was political: the teachers' unions did not want test information used to evaluate teachers and resisted developing the appropriate data linkages.

Using accountability tests for management purposes, as opposed to fine-tuning classroom instruction, was often cited as the final drawback. Because accountability testing was generally done near the end of the school year, and because results were frequently unavailable until the summer, such testing was useless to that year's classroom teacher. Although next year's teacher might use such test information to identify learning deficits at the beginning of the school year, it provided no information during the school year in which the test was conducted.

## The Path to Today

The current situation is dramatically different. A variety of forces, emerging around 2010 when initial versions of NCLB were being reconsidered, pushed toward scraping the whole idea. Even though some gains in student performance had been observed, the opposition suggested that the gains were not large enough, that instruction had been adversely affected, that the system was very costly, and so on. Nonetheless, scrapping test-based accountability was not chosen.

A variety of factors preserved the underlying system of testing and accountability, although in the somewhat altered form we see today. Perhaps none of those factors was more important than the recognition that U.S. students were not

competitive worldwide. Although that information had been available even before NCLB, with the expansion of international testing around the turn of the century and with the attention testing received around the world, policy makers in the United States began to be increasingly concerned with U.S. of students' performance. For a time, it was argued that performance on those tests really did not matter, but public opinion shifted against this position as research began to show that such tests were important indicators of economic development. Moreover, many other countries–both those already developed and those then developing–confronted their own testing issues and began increasing their performance on international tests, thus raising the concerns of U.S. policy makers.

No one should doubt, however, the importance of the revelation of student performance to parents that was engendered by NCLB. Those early accountability data, although not warmly welcomed by many school personnel, were embraced by parents who saw them as providing information they had not previously had.

As a result, instead of trying to eliminate testing and accountability, policy makers launched new efforts to improve the design (and impact) of the experiments begun in the states during the twentieth century and subsequently codified nationally in NLCB. Those efforts led to significant changes that, although not yet complete, have shown the power of information and accountability to improve school outcomes.

## The Altered Shape of Testing and Accountability

Central to much of the early "redesign" work was recognition that the testing regimes could be significantly improved. First, the testing was dramatically expanded to a wider range of performance levels through adaptive testing. By using computerized testing that initially sorted individuals into levels according to the difficulty of test questions and then provided in-depth questions at the right level, it became clear that more valid and reliable test assessments were possible. Those new test regimes provide today's high-quality information with less time spent on the testing itself. Second, as computerized testing became ubiquitous, the test items expanded in numbers and quality. No longer was it necessary to have a single test prepared for each year, grade, and subject. Individual students are now given a random selection of test items in each major section of a test, thus eliminating much of the ability and incentive to cheat on the tests along with relieving intense concerns about test security. But an even more important element was the realization that the test bank itself could be made publicly available. By having a sufficiently large and encompassing set of questions, teachers no longer "teach to the test" in the pejorative sense; they now teach to the range of items on the test, which are better vetted for content and accuracy by their public nature. (One by-product of this development was the realization that many attacks on standardized tests were actually quite confused. Standardized tests were now developed that reflected deeper learning and thinking as

well as mastery of the basics, showing that standardized was not synonymous with low level or rote.)

Linked to the expanded quality and range of the tests was an expanded concept of accountability. The first versions of accountability focused almost exclusively on basic skills. But with improved testing it was easy to develop reporting and accountability across a wider range–permitting a commensurate increase in incentives for performance at the top. The focus on proficient or not proficient led to a variety of distortions that raised the potential for teachers' concentrating most attention on kids close to the line as opposed to farther above or below the cutoff. By moving to a more continuous model of accountability, albeit one still weighted heavily on achieving minimal competency, these distortions in incentives have been removed.

It is surprising to many people who do not know its history that NCLB was not based on gains in achievement for individual students. As has been recognized for some time, the current system based on learning growth yields student performance data that are much more closely related to the actions and effectiveness of schools and teachers because differences in entering achievement are taken into account. Simultaneously, the term "proficient" has been dropped from the accountability vocabulary. Used instead is a standard of learning gains that yields high performance for all students (albeit at differing levels for each individual).

Some of the changes that we now take for granted actually occurred more gradually. As the system moved toward more-detailed and clear student performance measures, teachers and other school personnel realized that using those measures in evaluation and reward systems would be valuable to them and their students. Moreover, the pressures on schools from the public and from policy makers led the personnel to be more flexible. As a result, our current system–developed in close concert with school personnel–combines student gains on standardized tests with other direct evaluations including expanded peer evaluations. With everyone in the process having a clear objective, the development and subsequent improvement of personnel performance systems now works more cooperatively and smoothly.

An important cultural change also occurred in the period 2015-2020, when local school districts realized that the test-based accountability system was not the only management device available. As a result, today's local districts find it appropriate and useful to introduce other goals and objectives to ensure that the broader purposes of the schools–developing of students in more than just the tested areas–receive appropriate weight by principals and teachers.

A parallel development is related to accountability; for a while, efforts were actually made to expand the accountability system. Specifically, most observers at the beginning of the twenty-first century noted that regular information on student performance throughout a school year could be used to adjust instruction. By

employing formative assessments that measured performance on various blocks of material, a teacher could quickly determine student's comprehension levels and adjust accordingly. Because such instructional programs would be built on assessments related to the same content standards as the accountability system, it seemed reasonable to combine the systems. After years of failed attempts, however, the schools stopped trying to combine into a single system the management of achievement at the classroom level with the overall accountability system. Today's structure, which some still think is a compromise, uses ongoing feedback to students and teachers through a well-developed formative assessment system that is parallel to the system of annual accountability testing. The difference in the level of information, in the timing of informational needs, in the development of appropriate assessments for the different systems, and in the feedback mechanisms for the two purposes led people to see that developing a single system would be too cumbersome. Moreover, as is obvious in the educational marketplace today, developing instructional management systems has burgeoned into a competitive industry that has pushed development and innovation in instructionally useful ways.

The improved data on student performance, both within the school year (formative) and at the end of the year (summative), now provide schools and districts with the means to evaluate what is and is not working. Thus, the overall testing program introduced the basic data needed for a continuous improvement program in which programs, policies, and personnel are evaluated on the basis of performance. Large school districts have developed the capacity to modify what they are doing to improve performance. Smaller districts, however, have yet to do this effectively, relying instead on the general program evaluations of the larger districts.

## A Somewhat Uneasy Truce

One issue raised by the four decades' discussion of standards and accountability, but present since the forming of the Republic, remains on the table. The states by constitutional construction and by historical development have primacy in education, with the federal government serving a more limited role. This mix was in many ways challenged NCLB, which gave states the role of setting standards, testing, and proficiency levels and the federal government the role of specifying how any remedial actions should be accomplished–such as the use of choice programs or supplemental educational services.

After considerable debate, the historic role of the states in determining how to educate students and what to do if performance is unacceptable was restored. The majority of members of Congress came to realize that the 90,000 schools of the nation could not be effectively run out of Washington. As a result, we now see the federal government offering suggestions on how to improve schools, based on its research efforts, but having removed itself from telling individual schools and districts what

actions to take if they are not performing well. (This nonetheless does not eliminate the distrust by some of the actions and capacities of state and local officials.)

Accepting the idea that states and localities should be responsible for developing remedies for deficiencies in student performance has contributed to today's model, in which the federal government concentrates on what student should know. Many recognized that the United States was effectively a single economic market and that the economic health of the nation depended on the skills of its workers. This realization, present when NCLB was introduced, has fueled a continuing debate over whether there should be national performance standards. By subsidizing the development of consortia to devise standards and by paying for general test development, the federal government is today the de facto leader in defining the skills needed by all citizens. But the debate has not ended. Even though we do have more uniform standards, some states believe that this is too much federal intrusion and have refused to accept them. This position is reinforced by the ongoing disputes about the specifics of standards, the level of rigor, and the like–leading some to question the wisdom of putting all the weight on a single set of national standards.

## The Results

The results in 2030 are mixed. The improved accountability and use of data have improved overall test scores. Even though Finland, Hong Kong, and Canada remain ahead on international math and science tests, the gap for U.S. students has been reduced by half. Those gains represent a remarkable change relative to the stagnation that generally held between 1970 and 2010.

On the other hand, the distributional outcomes have only marginally improved. Although fewer minorities lack basic skills, the gaps with nondisadvantaged students have not closed, even as the schools have improved overall achievement across the spectrum. Thus the policy focus of the day remains on achievement gaps, particularly now that overall achievement has moved in a favorable direction. Those mixed outcomes for the more disadvantaged students also keep the federal government actively developing new educational programs.

# A New Education Federalism

Martin R. West

By 2010, the virtues of federalism in American K-12 education had long been more evident in political rhetoric than in governing reality. The nation's famously decentralized school system, with authority distributed across fifty states and more than fourteen thousand locally elected school boards, yielded remarkably little diversity in policy or practice. State and federal laws, regulations, and court decisions had eroded school district autonomy. These same forces, amplified by districts, constrained the decisions of school leaders. And the areas in which states retained exclusive control, most notably the content and rigor of academic standards and the preparation, licensure and tenuring of teachers, had become sources of national consternation rather than pride.

Yet the root problem was not simply excessive centralization—nor was the appropriate solution simply to devolve control over education policy to the states and, in turn, to local school districts. For one thing, Americans had rightly come to view their education system's stagnant performance as a national problem warranting a federal response. More important, local school boards, particularly in big cities, operated under the thumb of teachers' unions and other organized interests with a national scope. The notion that devolution under these circumstances would foster authentic local control, much less improved student outcomes, was misguided.

Fortunately, the past two decades have seen considerable progress toward a set of governing arrangements that capitalizes on the real—though not often realized—advantages of America's compound republic. Much to the dismay of most conservatives, the federal government in 2030 foots more of the total bill for public education than ever before. Yet this funding increment has made it possible to reorient the federal role in desirable ways. National standards and tests in core academic subjects are now used in all but a handful of states; a substantial share of federal money is allocated to states based on student performance; and the federal government has increased spending on education data gathering and research and development by an order of magnitude.

State legislatures, in turn, have shifted power away from dysfunctional school boards and empowered parents and the public at large to exercise more control over their local schools. To varying degrees they have encouraged the expansion of charter schooling and sundry forms of school choice, overhauled certification regimes limiting entry into teaching and school leadership, and altered school board elections in ways that have curtailed union dominance.

On the surface, these changes represent the culmination of a century-long trend toward more centralized control of American public education. Ironically, however, the latest round of centralization has yielded more variety in governance arrangements and more responsiveness to local needs and family preferences throughout the nation's education system. In short, it has revitalized education federalism.

## Federalism in the Age of No Child Left Behind

Defenders of federalism in American education claim that it offers a number of practical advantages that should boost academic performance. First, it enables states and districts to develop policies that respond to the distinctive preferences and needs of their populations. Second, states and districts may serve as "laboratories of innovation" for the development and testing of new reform strategies. Finally, a federal system allows each level of government to focus its energies on its areas of greatest competence, thereby enhancing efficiency through an appropriate division of labor.

That's the theory. And decentralized control indeed contributed to the rapid growth of mass education that, for a time, made America's school system the envy of the world. Whereas our more-centralized European competitors struggled to build national majorities in favor of investments in secondary education, all that was required in the United States was that a majority gain control of a particular district. As the value of a high school diploma increased, a dynamic of healthy competition between districts for residents and tax revenues promoted educational expansion. To be sure, decentralization also allowed for resources to be distributed inequitably and for the outright denial of civil rights—most egregiously by the segregated school systems of the Jim Crow South. Yet much of the federal government's early involvement in K-12 education attempted to redress those wrongs.

By the late twentieth century, however, federalism's supposed advantages were difficult to detect in the real world of education politics. The prevailing institutions of local education politics, a product of Progressive Era reforms, were designed not to enhance popular control but—in the name of virtue, expertise, and "taking the schools out of politics"—to limit it. As states and the federal government shouldered greater financial responsibility for public education, evermore detailed regulations narrowed the scope for local innovation. And the division of policy-making responsibility between the federal government and the states too often reflected tradition or political expediency rather than contemporary needs.

In 2010, with the landmark No Child Left Behind Act overdue for congressional reauthorization, almost no one was happy with the state of education federalism. Traditional conservatives continued to complain that the growing federal role amounted to an unconstitutional intrusion in a domain reserved to the states. Meanwhile, two distinct camps had emerged on the political left united only by their support for additional federal spending. On the one hand, teachers' unions and allied interest

groups representing the public education establishment wanted to see a softening of federal accountability requirements. On the other, many civil rights organizations and reform-oriented Democrats urged that federal accountability be expanded.

Yet what was needed was neither a narrowing nor an expansion of the federal role but rather a transformation. With No Child Left Behind, Congress had been at once too vague about the goals for school improvement and too prescriptive as to how those goals were to be achieved. It had established the clear, if decidedly utopian, goal that all American students be proficient in math and reading by 2014 but was utterly silent about the definition of proficiency. Facing the seemingly impossible goal of getting each student over the proficiency bar within a dozen years, most states reasonably concluded that they would be best off setting that bar low.

Meanwhile, the law mandated a uniform approach to evaluating schools based on student proficiency rates that simultaneously provided opportunities for gamesmanship (via the use of confidence intervals, minimum subgroup sizes, and the like) and prevented states from developing more sophisticated accountability systems based on growth in student achievement over time. And it prescribed a cascade of tough-sounding interventions for schools deemed "in need of improvement" but relied for the enforcement of those provisions on the same school districts whose behavior the law aimed to reform. Predictably, most district officials did little more than go through the motions.

No Child Left Behind's disappointing track record seemed to confirm fears that federalism in American education offered the worst of all possible worlds: each layer of government could frustrate the good intentions of the others but no layer could effect major changes on its own. Federalism, in other words, had helped to convert American public education into the stodgy, hidebound institution it had become.

## The Fiscal Turning Point

The long-run trend toward increased federal involvement in public education only accelerated in the wake of the global financial crisis of 2008-9. Facing widespread fears that the U.S. economy would fall into depression, newly elected President Barack Obama and Congress pursued an unprecedented program of federal domestic spending. Well more than 10 percent of the total $787 billion stimulus package was allocated to states and districts for the purpose of shoring up their K-12 education budgets. Almost overnight, the total federal investment in public schools effectively doubled.

The Obama administration initially emphasized the temporary nature of these funds and urged districts to use them on nonrecurring expenses that would boost their long-term productivity. Yet it also pressed districts to "spend funds quickly to save or create jobs." It was no surprise that cash-strapped local officials used the money

almost exclusively to avoid layoffs. Indeed, subsequent efforts to evaluate the use of stimulus funds revealed that it was impossible even to track the manner in which they had been spent—much less to evaluate their effectiveness in driving "reform."

But given double-digit unemployment rates and the administration's need to demonstrate economic progress prior to the 2010 midterm elections, the prospect of widespread layoffs in public education was politically untenable. As a result, Congress narrowly approved a second round of education spending for 2010 and 2011 as part of a job-creation package. By 2011, when No Child Left Behind was finally reauthorized, much of this additional funding was simply incorporated into spending authorization levels set forth in existing federal laws. The extraordinary—and purportedly temporary—federal investment in public education spurred by the largest economic downturn since the Great Depression had become the new status quo.

Of course, the centralization of education finance did not resolve the fiscal challenges facing American public education; it merely delayed them. Indeed, these challenges have intensified again in recent years due to the federal government's deteriorating fiscal situation and the nation's ongoing demographic transition. Between 2010 and 2030, the ranks of those over the age of sixty-five increased by 80 percent; those aged five to seventeen rose by less than 20 percent. The share of U.S. households with school-age children fell to 33 percent, down from 45 percent in 2010. Such changes have escalated the cost of age-related entitlement programs and reduced popular support for education spending. Meanwhile, college enrollment rates have continued to rise, placing the K-12 and higher education systems in direct competition for funds.

Yet the federal investment in K-12 education has continued to outpace both inflation and increases in state education spending, in part due to the renewed threat of school finance litigation in federal courts. As the federal financial role grew, school finance litigants developed a new interest in congressional appropriation decisions. Their ultimate aim is to convince the U.S. Supreme Court to find within the federal Constitution a previously unnoticed right to an adequate education—a trump card that would force Congress to prioritize K-12 spending over other commitments. In contrast, earlier federal school finance cases had involved within-state spending equity, as in *San Antonio v. Rodriguez* (1973), or on the level of spending required to fulfill specific statutory obligations, as in *Horne v. Flores* (2009).

All told, Uncle Sam now accounts for roughly one-third of total spending on education—a target set by the National Education Association in the 1970s. The local share, meanwhile, has fallen below 20 percent. Even this figure is inflated by a relatively small number of wealthy suburbs in which voters have chosen to maintain unusually high spending levels. In a majority of districts nationwide, schools now rely almost exclusively on state and federal resources.

## A New Division of Labor

In keeping with the golden rule of politics (he who has the gold makes the rules), this new federal spending facilitated the expansion in federal authority. The possibility that states might decline federal funding to avoid its accompanying mandates is no longer even discussed.

The most notable federal policy development has been the adoption of national standards and tests in reading, math, and science. (Persistent controversy over the content of proposed standards in history continues to prevent its inclusion in the national program, much to the detriment of the time devoted to and quality of instruction in that subject.) The general public had grown comfortable with the idea of national standards before the economic downturn, with more than 70 percent consistently expressing support by early 2008. Republicans (and a few anti-testing Democrats) in Congress continued to object, but they were able to ensure only that the adoption of standards remained voluntary in states willing to bear the cost of developing and administering their own tests. Even those states still opting out are required to administer the national tests regularly to a representative sample of their students and to make certain that the fraction of students deemed proficient by their own test is no greater than would be the case under the national one. Moreover, the U.S. Department of Education makes its tests and detailed performance data available to parents online, enabling individual families to administer the computer-adaptive assessment at home and gauge their child's standing relative to students nationwide.

Having rationalized the nation's educational standards, Congress defied expectations by taking a more hands-off approach to reform in other areas. Indeed, this step was essential to winning a modicum of Republican support for national standards and for the spending increases that were Democrats' top priority. No longer does Congress dictate the specific methods to be used to evaluate schools or the specific interventions to be made in schools deemed underperforming. Instead, it provides incentives for state-led reforms by basing roughly 25 percent of federal education spending on states' relative progress against equity- and excellence-oriented benchmarks for student outcomes. A key impetus for this approach was the stimulus-funded Race to the Top grant program of 2009-10. The eagerness with which states rewrote laws to become more competitive confirmed the ability of even limited discretionary funding to change state policies in times of fiscal stringency. Yet Congress was unwilling to provide the secretary of education with that much authority on an ongoing basis, and the Department of Education's inability to ensure that victorious states followed through on the changes outlined in their applications highlighted the advantages of basing grants on measurable outcomes rather than on lofty promises of reform.

The final aspect of the new federal role is its increased investment in education research, a clear national priority that has only recently begun to receive its requisite

share of attention. The Institute for Education Sciences, created in 2002, has maintained its political independence and earned a reputation for scientific rigor comparable to that of the National Institutes of Health. It has overseen the development of common standards for state and district longitudinal data systems that have increased the portability of information on individual students' academic backgrounds across states and the utility of that same information to specific schools. Its guides to evidence-based curricula in core academic subjects are widely used by state education officials, school districts, and especially charter management organizations. And its research and development funding has helped facilitate the improvement of virtual instruction technologies, which are in the process of revolutionizing the delivery of K-12 education.

## Education Federalism in the States

State-level governance changes during the past two decades, though no less important, are more difficult to generalize about owing to the variegated approaches that have been taken across the fifty states. But that alone is a sign of progress—evidence that our federal system has again become a proving ground for fresh approaches to reform.

The common element tying together recent policy changes in nearly every state is that they transfer power away from elected school boards and into the hands of individual schools and parents. This is most evident with charter schooling, which states have continued to encourage by creating nondistrict authorizers and selectively eliminating caps for authorizers with established track records. Brick-and-mortar charter schools now enroll 10 percent of students nationally and much larger percentages in almost every major city. Another 10 percent of students take advantage of nondistrict schooling options available to them through statewide virtual schools, tax credit-funded scholarships, or voucher programs. Together, these programs ensure that school districts once again face authentic competitive pressure.

At the same time, state legislatures have freed up school districts to compete by lifting restrictions on their ability to perform their most important task: managing their educator workforces. The proliferation of second-generation alternative certification programs provided a new template for entry into the teaching profession that is in the process of rendering traditional certification regimes irrelevant. These programs allow nontraditional candidates to enter the classroom immediately and require minimal coursework; however, they oblige new teachers to demonstrate success in raising student achievement before receiving a permanent license. The granting of tenure to teachers has also been delayed and, in a few places, altogether eliminated. By enacting statewide guidelines requiring that teacher compensation and evaluation be linked to student achievement data, states have effectively narrowed the scope of collective bargaining and increased school boards' managerial flexibility. Teachers' unions have resisted all of these changes, often successfully, but their influence has been eroded over time by new technologies that, in the extreme, threaten to substitute

instruction by local classroom teachers with virtual instruction piped in from around the globe.

Some state legislatures have gone so far as to alter the political incentives facing school boards by modifying the mechanics of their elections. In particular, they have mandated that board elections be held on the same day as regular primary or general elections to boost turnout and minimize interest-group dominance, a move that not incidentally enhanced legislators' influence in local politics. Where such steps have been taken, they have reduced the extent to which the material interests of district employees and their unions trump the public's interest in getting the most mileage from its tax dollars.

In some places, the changes stimulated by these reforms proved to be too little or too late. The growth in federal spending was not enough to eliminate the structural problems in many district budgets—especially in big cities. Declining enrollments due to demographic trends and the continued growth of charter schooling reduced state revenues. Meanwhile, now-empty buildings required upkeep, pension and retiree health care obligations continued to mount, and taxpayer resistance made it impossible to close the gap with local funds. With numerous urban districts teetering on the brink of bankruptcy and student achievement continuing to falter, state officials were all but forced to step in.

Where the fiscal and academic crises facing school districts were most severe, states took them into receivership. Lacking the capacity to operate large numbers of schools directly, however, state education officials contracted with private nonprofit and for-profit entities to manage networks of schools on their behalf. A more common response has been to assign control of the school district to the mayor or city manager, many of whom have also chosen to rely heavily on charters and contracting. In both cases, elected local school boards have been eliminated—yet local control is as strong as ever.

Student achievement in 2030 is markedly higher and somewhat more equitably distributed than in 2010—and the pace of improvement is increasing. The governance changes described here were not the proximate cause of this important national accomplishment. But the revitalization of education federalism did create an environment in which technological innovations, pedagogical improvements, and organizational reforms could emerge and flourish.

# Reinvented School Districts

Paul T. Hill

## In 2030

In 2010 nobody could have imagined that, in the vast majority of localities with more than ten thousand students, the dominant school district model would be totally replaced by one in which

- Districts do not run any schools at all but sponsor them via chartering, contracting, and other partnership agreements with providers of all kinds, including teacher cooperatives, colleges and universities, nonprofits, and professional management companies.

- Districts' core mission is to manage a portfolio of schools by setting common performance standards, analyzing common student performance information to identify low-performing schools that need to be improved or replaced and high-performing schools that could be replicated, transferring responsibility for school operation from low- to high-performing operators, and encouraging formation of innovative new school providers. Districts also supervise school admission processes to prevent discrimination on the basis of race, income, or student ability.

- In twenty states, laws passed by the legislature limit school boards in districts with more than five schools to performing only the portfolio management functions described above. School boards do not have the authority to hire anyone other than a superintendent and a small central, technical support staff.

- Districts do not employ teachers or principals, schools do. Moreover, districts do not set pay or benefit levels and do not accumulate pension or retiree benefit obligations. The existence of schools and the jobs of teachers and administrators are all contingent on performance.

- Districts do not provide professional development, warehousing, or other services to schools. Schools buy such needed services from independent vendors or join mutual support networks or education management organizations that provide services for schools with similar instructional approaches.

- Families have unrestricted choice among all local publicly funded schools.

- Money flows to schools based on their enrollment, and schools pay all their own expenses, including facilities rental, instructional support, and teacher professional development, from enrollment-based income.

- Schools include not only traditional brick-and-mortar all-day instructional programs but also online instructional programs and hybrid programs under which students receive their basic instruction online but meet frequently with teachers for diagnosis, tutoring, and group work.

- Schools can purchase or rent facilities or not use facilities at all. Districts have sold off their school buildings to real estate trusts that offer school buildings for lease; these trusts have folded the money formerly reserved for capital expenditures into the amount that follows every student to the school she attends. Schools therefore limit spending on facilities; because no one was willing to pay for Taj Mahal school buildings; these have been abandoned or sold off.

- To encourage development and expansion of new forms of schooling and uses of technology, schools can make profits as long as they meet high standards of student performance.

- Teacher unions, unable to control a whole district with one collective bargaining agreement, have adapted by organizing individual schools and becoming training organizations and hiring halls, as predicted decades earlier by the authors of *United Mind Workers*. Within-school union militancy about hours of work and task assignments is tempered by the need to avoid driving out parents and skilled school leaders. Recognizing that a sharp line between labor and management is no longer sustainable in a professional organization, unions seek charters and contracts to manage schools.

In these districts, the conflict over privatization versus government control of schools has been resolved by adopting features of both. Elected officials (mayors, chancellors, in some cases school boards) oversee schools on the basis of measurable performance and take responsibility for abandoning failures and finding alternatives. Independent organizations of all kinds run schools on a performance-contingent basis.

As these changes in district role and mission emerged, educational innovation and individualization to the needs of students and neighborhoods have grown. The opportunities for entrepreneurship are drawing increasing numbers of "Teach for America-style" graduates of elite schools into teaching in inner-city schools; many of these have stayed on to become heads of innovative new schools and founders of school support networks and education management organizations.

Opportunities for the full use of technology have led to developing new kinds of schools that need fewer teachers and rebuilding the teacher role around the functions of diagnosis, remediation, and enrichment. Schools' ability to pay teachers for what they add to student performance has led to a smaller, higher-paid teaching force in which subject-matter mastery, the ability to complement technology-driven instruction, and leadership are rewarded far more than longevity. Mastering those skills has led to revolutions in teacher training, led first by new proprietary teacher training schools but quickly adopted by university-based schools of education.

Big cities have again become beacons of quality and innovation in public education. Although smaller districts cannot attract innovators as effectively as the big cities, they can and do hire the best school providers from nearby cities and from across the country. As a result, increasing numbers of suburban and medium-size districts have also become home to diverse mixes of schools, rather than vertically integrated bureaucracies.

## What Existed in 2010

The school districts of 2010 were built for another time, when it was an accomplishment just to provide a desk and a teacher for every student, expose all students to basic skills plus a little science and civics, and sponsor some extracurricular activities. When school districts were established, nobody expected every student to graduate or every graduate to be eligible for bachelors' degrees and professional jobs.

Beginning in the 1970s, expectations increased for school facilities, recreational facilities, student transportation, and extracurricular activities. Federal education programs created expectations for special compensatory tutoring for students who lagged behind and individualized programs for developmentally disabled students, all of which led to increased staffing at district and school levels. Union bargaining for smaller classes, fewer minutes of student contact, more aides, and more paid time out of school for teacher training further padded the staffing of districts and schools. By the 1980s, "good" schools were more expensive and better staffed than ever before.

Student achievement, however, did not improve over time. Even students who were supposed to benefit from special instruction (e.g., as funded by federal programs) benefited slightly if at all. Using a more demanding standard of "goodness" (i.e., performance), schools were no better though more expensive. Using another measure, productivity, schools were actually worse; they got about the same results as before but at higher cost.

School districts had also lost the freedom to solve problems. Although federal and state programs provided extra money to support particular programs, they required districts and schools to build their administrative structures around those programs. Program rules also dominated decision making about which instructional programs

schools would offer, how students would be assigned, and how students and teachers would use their time.

Teacher union contracts also took away district freedom of action. Unions came to dominate state legislatures, which then strengthened collective bargaining, made it easy for teachers to get tenure, and linked pay to longevity, not performance. Unions then used the threat of strikes to bargain for greater control over hiring, assignment of teachers to schools, class size, teachers' duties, length of school day, and investments in performance improvements.

The results were weakened district and school leaders who had lost control over teacher hiring, assignment, workload, and pay, as well as how students could be grouped for instruction. Teacher collective bargaining agreements determined how nearly sixty cents out of every dollar were to be spent; most of the remaining forty cents were controlled by state and federal program rules and court orders.

District leaders, concerned about school performance, had to work within many "givens": a fixed set of schools and teachers, strict salary policies, state mandates to spend exact amounts of money on particular functions, and required central office administrative structures.

In big cities local heads of business would occasionally offer to mentor the superintendent, giving advice that presumed the superintendent was a CEO and thus could reallocate funds, start and terminate programs, and hire, fire, reward, and punish based on performance. Superintendents, however, had little power, other than to exhort or inspire, and few could hold their jobs long enough to make a difference.

## Forces for Change

Even when defended by laws, regulations, and teachers unions, the dysfunctional arrangements evident in 2010 could not last forever. Traditional public school districts were beset from many sides. Beginning in the late 1980s, the education standards movement, premised on the idea that every child must be educated well enough to have choices among higher education and remunerative forms of work, shone a spotlight on the huge gaps in achievement between middle-class and low-income students. The persistent low performance of big-city districts was unmistakable. And though states that had embraced standards-based reform policies shied away from their promises to hold schools and districts accountable for performance, the facts ultimately led to change.

In 2002, the federal No Child Left Behind Act took the states up on their commitment to standards by requiring districts to provide options for children in the lowest-performing schools. Although the federal government did little to enforce these requirements, and some states made low-performing schools disappear by lowering

standards, district leaders everywhere knew that their days of freedom from performance pressure were numbered.

Beginning in the late 1980s, businesses and foundations, looking afresh at local schools, were astounded at how inflexible and intellectually impoverished they were. In most metropolitan areas it was obvious that the school district had walled itself off from many valuable educational resources. Big-city districts hired from the bottom of the pile of local college-educated adults and made no use of the talents and learning opportunities available through local colleges and universities, orchestras, museums, businesses, foundations, and other nonprofits.

Chicago was the first to attempt wholesale transformation of its school district. But Chicago's first initiative, crafted by a coalition of foundation and business groups in 1989, misfired. State legislation creating elected local governing councils for every school reduced the power of unions and bureaucracy, but so-called democratic localism made many schools into interest-group battlegrounds, with different neighborhood and racial factions vying for control of jobs and money.

The failure of Chicago's first effort revealed that some school districts are too weak and too divided to fix themselves. The result in Chicago, however, was a new schools initiative, which opened up the school system to nonprofits, civic groups, and cultural institutions that wanted to develop new schools. The enactment of charter school laws gave Chicago an additional tool with which to create new schools.

Chicago and other districts embraced charter schools as a way of creating options for their students. In addition, charters approved by entities other than school districts grew rapidly in metropolitan areas. Soon districts from Oakland to Boston found themselves losing students–chiefly poor and minority students who previously had no alternatives other than district-provided schools—to charter schools.

Combined with slow reductions in inner-city populations, the loss of students to charters created financial crises in many districts. Chicago, Oakland, San Francisco, Cleveland, Dayton, Detroit, St. Louis, Seattle, Denver, and Dallas (to name just a few) found themselves in permanent deficits. Their obligations to maintain unneeded school buildings and pay fixed numbers of teachers and administrators meant that costs exceeded income. Many districts were also burdened by permanent benefits to retirees (Los Angeles's $10 billion retiree health-care liability, for example, could claim the first $2,000 of the roughly $10,000 available annually to pay the cost of each student's instruction). Districts had become pyramid schemes, able to sustain themselves only if student populations grew indefinitely. As soon as student population growth ended, they were broke.

City districts also faced accelerating competition from online schooling offered by community colleges and private schools.

All these economic, political, and regulatory forces came together to set the stage for the transformation of big-city public education that took place between 2010 and 2030. Changes did not just happen, however; aggressive, entrepreneurial leaders made them happen by seeking new legal authorities, taking control of previously wasted funds, building new sources of support among parents and nonprofit groups, and subjecting all schools to competition and performance pressure. Initiatives combining these features, called *portfolio strategies*, are described above.

At first the key leaders of portfolio strategies were mayors—Bloomberg in New York, Daley in Chicago, and Fenty in D.C.—and a state superintendent, Pastorek, in New Orleans. But as the new district model became better defined and more familiar, less senior leaders were able to be effective: visionary superintendents (e.g., Bennet and Boasburg in Denver), school board members and parent advocates in Los Angeles, and local foundation heads in New Haven and Cleveland.

In the ensuing twenty years, traditional district structures throughout the country were swept away by a trio of forces–competition from charter and private schools, reductions in public funding, and federal and state pressures for higher school performance–and replaced by public entities with very different structures and missions.

In 2030, there are still mechanisms for public investment in and oversight of elementary and secondary education. These, however, are dramatically more flexible, more competitive, driven to seek higher performance, and more open to innovation than current school districts.

## Results by 2030

In the first districts to adopt portfolio-style management of public education (New York, Hartford, New Orleans, Chicago, and Denver), performance increased incrementally at first because new schools were concentrated in neighborhoods with terrible schools. Over time, however, student test scores and other outcomes (e.g., high school graduation, readiness for college) have increased districtwide, as competition and imitation of best practices lead to continuous improvement.

Although growth in government spending has been slow, increased private investment in new technologies and school provider organizations has led to steady growth in overall spending on K-12.

In 2030 there are still achievement gaps between high- and low-income students, though these are less than half the size evident in 2010. Moreover, the numbers of students with extremely low levels of proficiency have been greatly reduced. As a result, high school graduation rates approach 90 percent, and the proportion of students needing remediation on entry to college has dropped to half that of the 2010 level.

Although there is continued agitation to return to the good old days of input control and job security, governors and public officials are determined to sustain the continuous improvement processes at the core of the new school district model.

# A New Politics of Education

Terry M. Moe

## A New Politics of Education

In 2010 the American education system was doing what it did best. It was surviving. For decades, it had been subjected to blistering—and well-justified—criticism for its relentlessly poor performance. But thanks to powerful defenders in politics, it had weathered the storm like a rock, virtually immune to the efforts of reformers to bring about major change.

The school system of that era really had two problems. It had a performance problem. That much was obvious. But it also had a political problem—which, in the grander scheme of things, was more fundamental than the performance problem itself because it prevented the performance problem from being addressed and resolved. Reformers had been butting their heads against a wall of power, winning a few battles along the way but consistently losing the war. The system was a disappointment. It was failing the nation. But it was strong and resilient where it counted—in power politics—and it doggedly prevailed.

Unbeknownst to almost everyone at the time, however, the American education system of 2010 was in the early stages of a revolution. The ingredients of change were barely visible, and the revolution would unfold slowly over a period of decades. By 2030, though, it was virtually complete: radically changing the education system and shattering the structure of political power that had long preserved a failing status quo. It was a revolution in education. But it was also a revolution in politics—without which the revolution in education could never have succeeded.

How did all this happen? In particular, how did the system's power structure—so formidable for so long in blocking change—come tumbling down, and what did the new politics of education that replaced it really mean for children and schools?

## The Politics of Education in 2010

In 2010, the structure of power that protected the educational status quo had been in place for roughly three decades. Before then, the leaders of public education had traditionally been its local superintendents, but they lost their preeminence during the 1960s and 1970s, when many states adopted laws to promote collective bargaining for teachers and other public sector workers. When the dust cleared by 1980 or so, teachers in virtually all school districts of any size (outside the South) had been organized, and unionization—and union power—had become the norm.

The teachers unions were now the political leaders of public education. And they were far more powerful than administrators had ever been, by orders of magnitude: with millions of members, enormous financial resources for campaign contributions and

lobbying, small armies of activists who manned the electoral trenches in virtually every political district in the country, and sophisticated organizations for taking aggressive action at the federal, state, and local levels.

In a twist of historical fate, the teachers unions were consolidating their power at the same time that *A Nation at Risk* was warning of a "rising tide of mediocrity" in America's schools and mobilizing the nation for a reform movement that would prove unprecedented in scale and scope. These efforts to vastly improve the public schools went on for decades,and they became the defining feature of the modern era in American public education.

Yet if this was an era of reform, it was also an era of disappointment. Indeed, the die was cast from the very beginning. Reformers were dedicated to bringing fundamental change to public education. But the teachers unions, driven (as all unions are) to protect the occupational interests of their members, found real change to be threatening and used their enormous power to try to prevent it. Throughout, they were aided by the checks and balances built into American government, which made new laws difficult for reformers to enact—and relatively easy for powerful opponents to block.

Over the decades, the unions proved to be maestros of political blocking. When "reform" happened, it was almost always because the unions had opened the political gates for mainstream efforts that they found acceptable: greater spending, smaller classes, higher standards, more professional development, and the like. Reforms that promised major change were either blocked entirely, or they were so weakened that their potential was never seriously tapped. By 2010,

- Accountability, even as strengthened by No Child Left Behind (a rare union defeat), had few real consequences for poorly performing schools—and none for bad teachers

- Charter schools labored under severe restrictions on their numbers and funding and, despite sky-high demand, enrolled just 3 percent of public school children

- Voucher programs for disadvantaged families were small and uncommon, and the few in existence were continually under union attack—leading to the demise of programs in Colorado, Florida, Arizona, and Washington, D.C.

- Pay for performance plans were aggressively resisted and, when adopted (which was exceedingly rare), relied on criteria that had little or no connection to how much students actually learned in the classroom

- Efforts to get bad teachers out of the classroom—which required simple modifications of state laws and local union contracts—went absolutely nowhere.

After a quarter century of "reform," what the nation got from its political process was an overflow of rhetoric, lots of pointless legislation, and a gigantic bill for untold

billions of dollars. The system in 2010 continued to perform poorly. It continued to disappoint. And reformers were largely impotent. The politics of blocking had them beat.

## The Politics of Education in 2030

Although few were aware of it, the politics of education was then at a tipping point. In the years that followed, the teachers unions were caught in a slow downward slide. And as their power declined, they were less and less successful at standing in the way of reform. By 2030, the politics of blocking was largely a thing of the past and the nation was on its way to quantum-level improvements.

In the normal course of events, this wouldn't have happened. Power, after all, is its own protection. For it not only allows the teachers unions to block or weaken major reforms of the education system. It also allows them to prevent reforms—of collective bargaining laws, for example—that would *take their power away*. So it isn't taken away. And they stay powerful. And they continue to block. This is the Catch-22 that perpetuates the status quo in normal times.

But because of an accident of history, the times were not normal. And change did come. In 2010, the nation was in the midst of a historic revolution in information technology that was profoundly transforming the fundamentals of human society throughout the world: how people interact and communicate, how they collect information, how they seek knowledge, how they transact business, and much more. This revolution couldn't help but have profound implications for the way students learn, teachers teach, and schools are organized. And as John Chubb chronicles in his chapter, these things came to pass: the explosion in technology brought with it a vast array of dazzling innovations for education, and they were enormously beneficial—and transformative.

Needless to say, the teachers unions fought the advance of technology, just as they had fought all other fundamental changes. And in the beginning, they were fairly successful—for they were hugely powerful, and technology was new and untried. But technology was also different from other reforms. Indeed, it wasn't really a reform. Its ideas—and the excitement about them—were everywhere, and they couldn't ultimately be blocked. They were so forceful and pervasive that they were beyond anyone's control and were being thrust upon the education system from without. Even in its early years, as a result, technology seeped into the system—slowly and incrementally at first, but inexorably. And then the seepage gave way to bigger, more fundamental change over the decades, generating a wholesale transformation. Here, basically, is how it happened.

Online learning made it possible for education to be customized to each individual child and for underserved constituencies—kids who wanted AP courses, remedial courses, additional credits for graduation, access to specialized coursework, and on and on—to greatly expand their opportunities. So there was a huge demand that only grew with time and quickly expanded to core academic courses in the mainstream curriculum. The implications for social equity, meantime, were profound:

for wherever kids were located—from Detroit to Appalachia to Oakland—and whatever their social class or ethnicity, they increasingly had access via technology to the best curricula and educational opportunities the world could make available.

On the supply side, the *costs* of these dramatic innovations were stunningly *lower* than those of traditional education because they involved the pervasive substitution of (relatively cheap) technology for (incredibly expensive) labor—which had never been possible before in the history of American education. The entrepreneurial energy was explosive, as new firms flooded into the marketplace, legions of smart people were recruited to work on educational innovations, mavericks within the public sector—entrepreneurial superintendents, future-minded governors—embraced change, and new interest groups (including nonprofits and foundations) lobbied state legislatures to adopt tech-friendly laws promoting online education. New forms of schooling sprouted up like mushrooms. States set up state-level virtual schools, allowed for a diversity of other providers—some private, some public—and gave all kids the legal right to take as many classes as they needed online. Online charter schools proliferated, attracting millions of students from all across the states—and the nation. Districts began offering their students more and more online options, and they were getting more bang for their bucks by contracting with outside suppliers.

Throughout the country, the modal solution that emerged was the "hybrid" school—many of them charters, some run by districts—in which kids still "went to school" at a physical place, interacted face-to-face with teachers and other students, and continued to participate in art, music, and sports but took roughly 80 percent of their academic classes online. Their teachers no longer had the job of teaching a standardized curriculum to classrooms of thirty kids; instead they had a much more differentiated profession—some teaching online, some overseeing large numbers of kids in computer labs, some tutoring kids one-on-one, some dealing mainly with parents, some in charge of software development, and on and on. The traditional sameness of teaching thus gave way to a much more productive division of labor.

These changes did not happen all at once. They happened gradually—and in the beginning, they were seriously weakened by the unions. Yet the slow seepage was unstoppable. And as it continued, it began to have major *political* consequences: consequences for the unions' power—and for their ability to block. This is the second side of the technological revolution. For as things turned out, technology carried with it not only the capacity to transform the way American children were *educated* but also the capacity to transform the *politics of education*—and, with it, the levers of authority and law that had long allowed the unions to keep the lid on.

Specifically, as computers and software increasingly took on some (not all) of the teaching, the relentless substitution of technology for labor led to a continuous drop in the ratio of teachers to students and thus of union members to students. This was precisely what the unions had been trying to prevent all along, and it took a big organizational toll. Their *power* in the past had been hugely dependent on the fact that American education was extremely labor-intensive—which is what kept their membership numbers and dues revenues so high. But with technology taking on so

many educational functions previously performed by teachers, the unions' nightmare increasingly came true: there just weren't as many workers to organize anymore.

As this substitution was occurring, moreover, technology was also breaking down the *geographic basis* of schooling because students and (many) teachers—now meeting in cyberspace—no longer needed to be in the same physical location. This dispersal of the teaching force presented the unions with increasingly difficult and insurmountable challenges: with teachers no longer conveniently concentrated in one physical place—easy to get at, in constant social contact with one another, doing the same jobs in the same way—they were increasingly much more fragmented and diversified, making them *much more difficult for the unions to organize*. Another big blow to their power.

In addition, technology supercharged school choice. Indeed, it became the single greatest force for school choice in the nation's history: far surpassing the earlier movements for charters and vouchers, generating a vast array of attractive new options to regular public school classrooms—and causing students, money, and jobs to flow *out* of these traditional union strongholds. The connection between technology and choice, then, dealt another body blow to union membership—and to union money and power. At the same time, technology was also supercharging the movement for school accountability: generating new data systems and sophisticated new methods of measuring performance, putting the spotlight on poor performance by schools and teachers, and stimulating powerful coalitions—particularly those speaking for disadvantaged kids in big urban districts—to rise up and oppose the unions for resisting productive change. Because of technology and its connection to accountability, the unions increasingly became unpopular and isolated—and doomed to fight their battles alone.

In 2010 the teachers unions had well over four million members and all the money and power that goes along with massive organizations of that size. But technology changed all that. By 2030 the unions had *less than half* as many members—and (in inflation-adjusted dollars) less than half the dues money. It didn't happen overnight. But year by year, the unions found their political power ebbing away—and the educational world they had long controlled slowly slipping away from them.

Throughout, no one factor was fatal or decisive. All these ramifications of technology worked together, in the same direction and at the same time—and it was their *combination* that proved so consequential in loosening the unions' grip on the political process. They were also aided, along the way, by a positive feedback effect. For as union power declined somewhat with time, and as they became less able to block, technological innovations and other sources of change were more likely to make it through the political process—and as they did, they undermined union power still *further,* making it even more difficult for them to block and even easier for reforms to get adopted. This was a process that fed on itself. By 2030, the unions had essentially been swept aside as major obstacles to change.

The world of American public education is wholly different as a result. With the politics of blocking substantially weakened, the door is now open to a *broad range* of reforms—not just those that involve online schooling or are somehow high tech. Without union obstruction, the way is paved for the design of more effective accountability systems: systems that have meaningful consequences for poor performance and are purposely built to hold schools and teachers accountable for teaching kids what they need to know. The way is also paved for more expansive charter systems, backed by rules and financial arrangements designed to encourage (rather than undermine) their success; for additional voucher and tax credit programs that give new options and desperately needed financial assistance to disadvantaged kids; for sensible new pay systems that reward productive teachers and abandon the archaic single salary schedule; for new laws and personnel rules that make it easier to get mediocre teachers out of the classroom; and on and on.

Technology, then, has proven to be much more than a source of promising innovations for student learning. In the grander scheme of things, its real importance is that it has literally been a *force of liberation*. It has freed policy makers from the unions' iron grip, and it has allowed them for the first time in decades to put children first—and to insist on a school system that is truly organized to provide the best education possible.

# Vouchers Thrive

Herbert J. Walberg

To be clear, a voucher as the term is used here is a publicly or privately funded scholarship awarded directly to families to pay the costs of the private school they choose for their children. By 2030 vouchers had displaced failing public schools, which had long yielded poor results at high costs and had monopolistically confined children to failing public schools. Although based largely on facts established by 2010, this essay provides an admittedly speculative account of the rising prevalence of vouchers from the present through 2030 from the hypothetical perspective of 2040.

Because they know best and care most about their children, vouchers appropriately gave parents their choice of schools. With vouchers, parents could choose their children's schools just as they chose their names, food, doctors, and much else. No longer could competing federal, state, and local government officials decide what's best for students. Just as in competitive markets, vouchers provided incentives and rewards to educators for successes that were missing from public schools. Schools that were most appealing to parents thrived and multiplied; the least appealing shrank and closed. The voucher system put in place standards and accountability for both private schools and parents.

Voters demanded that legislators remove dysfunctional programs and regulations that unfairly advantaged some industries, firms, and public organizations over others, including the near monopoly of public schools. Even egalitarians changed their minds about public schools when they realized that traditional public schools contributed financially less to students from poor and minority families, often in big cities, who often attended poorly performing schools and tended to drop out early.

The seemingly radical, vastly increased privatization was in keeping with traditional American ideals of freedom, individualism, and self-determination, making use of Americans' world-beating optimism and strengths in invention, entrepreneurship, and pragmatism. As a consequence, the private provision of schooling, as in other fields, produced much better achievement outcomes. Following stunning Asian examples of high achievement and fast economic growth, the American economy made commensurate economic strides.

Unlike for-profit organizations, government-provided services and their agencies had been gigantically difficult to change constructively, efficiently, and peaceably. Dominated by traditions, special interests, and subsidized nearly to the point of monopoly, they lacked capitalism's incentives to invent, improve, and compete to serve customers. An example was the U.S. Postal Service, a subsidizer of unwanted junk mail

nearly destroyed by e-mail and such private providers such as Federal Express and United Parcel Service.

In response to government inefficiencies, privatization of services began as early as the 1970s—for good reasons. Voluminous evidence showed that private organizations generally yield better results at lower costs. Various experiments in privatizing government services by private nonprofit and for-profit organizations showed that, compared to public agencies, they are more attractive and satisfying to their customers and their employees. Carried out in the United States and other countries, studies of successful privatizations involved airlines, banks, bus service, debt collection, electric utilities, hospitals, insurance, railroads, savings and loans, utilities, and weather forecasting. Governments even privatized prisons, police, fire protection, and public pensions. In the same way that firms outsourced, so too did governments, with better, less costly results.

The downfall of repeatedly failing public schools accelerated in 2015 not only because of poor results and parent dissatisfaction but because of their threat to the American economy and society. The resilient U.S. democracy sometimes performs best in a crisis. By 2015, citizens had more fully recognized the country's misfortune; they wanted efficient government, lower taxes, and more control over their lives. Government-financed and -operated school failures became better known, leading citizens and parents to induce policy makers to more fully privatize K-12 schools.

Private and semiprivate schools predominated by 2030 because distinctively American traditions had reasserted themselves, including the exceptional American preference for individuals' responsibility for their own lives and prosperity. Americans were disillusioned about government control and optimistic that individuals could succeed on their own initiative.

Privatizing schools may sound nontraditional and even un-American, but early one-room schools run by nearby citizens were in keeping with the views of the American Founders and the early immigrants who wanted to be free of centralized government control. Later immigrants came for the same reason as well as to attain the prosperity possible in the nation's largely free economy.

But beginning a century ago, the control of schools became increasingly centralized, defying the long tradition of local control. Often in conflict, federal, state, and local officials increasingly ruled the public schools. In such a complex and unaccountable system, powerful and sophisticated special interests, particularly public-sector unions, overpowered the interests of local citizens and parents and undermined the well-being of students. Boards of consolidated and increasingly larger school districts also failed to represent the students' best interests.

Even in the for-profit sector, large multilayered firms falter and fail when their boards and senior executives lose touch with their customers. Some firms learn to do away with dysfunctional layering and thus respond more fully to consumer preferences, reducing costs to turn themselves around. If not, bankruptcy or a takeover by another firm can result, as in the cases of the once-proud Pan American World Airlines and Chicago's Marshall Fields, originator of the department store. With lean management and superior logistics, Wal-Mart threatens to destroy today's less-efficient competitors.

Because thy rarely run such risks, repeatedly failing public schools and school districts seldom closed. Similarly, multibillion-dollar federally mandated school programs for poor, handicapped, and English-language learners continued largely unreformed for decades even though large-scale evaluations had demonstrated their failure.

By 2015, citizens understood the public school crisis and its prospects for worsening. Even before the turn of the millennium, national surveys showed they had astonishingly strong views about what to do, including demanding more accountability from schools, educators, and students. Many thought students in repeatedly failing schools should be allowed to transfer elsewhere; others saw a need for replacing the faculty or closing such schools altogether. More than eight in ten favored requiring students to pass an examination before moving to the next grade, and 85 percent supported passing an examination to graduate from high school.

Like the public, students thought their schools lax and lacking standards. For example, a Public Agenda national survey of high school students showed that three-fourths believed stiffer examinations and graduation requirements would make students pay more attention to their studies. More than 70 percent said schools should require after-school classes for those earning Ds and Fs.

Given the public school failures of the last half-century, the substantial progress needed required far more substantial reforms, including the technologies described by John Chubb and Terry Moe, who saw the promise of innovative organizations geared to the new technologies. One discovery of their impressive research was the demand for and rapid growth of virtual, or "cyber," schools that deliver much of their content and instruction over the Internet. By 2010, such virtual schools served some 187,000 students in twenty-four schools, including 62,000 in the Utah Electronic High School and 54,000 in Florida's Virtual School. As described in this essay, another piece of the evidence is equal or better achievement outcomes but lower costs from private schools.

The most important evidence for K-12 privatization was that charter schools, private schools, and vouchers definitively promoted student achievement gains, cost efficiency, and parent satisfaction. Contrary to what some had feared, or alleged that they feared, students in charter and fully private schools were no less "socialized" but rather more often participated in voluntary charitable activities such as tutoring younger

and hospitalized children. While in school and as adults, they tended to more often engage in civic affairs such as voting and writing letters to newspapers.

The most definitive studies were the randomized field trials carried out by Paul Peterson on vouchers and Caroline Hoxby on charter schools. They compared the achievement of students in oversubscribed schools into which they were selected by lottery to that of students in the public schools who applied but were not selected in the lottery. Perhaps equally important was the oversubscription itself; the ardent desires of parents to get their children into private and charter schools were an important indicator of school success.

As John Merrifield points out, however, the potential of school choice and privatization had been underestimated, perhaps because the relatively small numbers of choice schools were insufficient to produce strong competitive effects on other schools. Individual private and charter schools and their organizations, moreover, typically remained small and gained little in economies of scale (that is, lower per-unit costs as they grew larger). Charter schools had also been constrained by some of the same federal, state, and local district regulations that made traditional public schools dysfunctional. Most private and charter schools, moreover, lacked the productivity-raising profit motives that lead to superior results.

In its report series "Education at a Glance," the Organization for Economic and Cooperation and Development (OECD) compiled school trends among its economically advanced member countries. It reported that East Asian countries with large private school sectors and popular for-profit tutoring schools continued to excel on achievement examinations and graduation rates. South Korea, for example, was one of the poorest education performers in the 1970s. By 2010 its high school students' scores in mathematics and science were near the top. Among the industrialized OECD countries, moreover, South Korea ranked first in high school completion rates of adults aged twenty-five to thirty-four: 97 percent.

Unlike the United States, South Korea, Japan, and other East Asian countries funded privately governed schools directly, without the administrative complications of charters and vouchers. Most impressive, however, were the tuition-funded tutoring schools that were free of government regulations. Unlike most public and private schools in the West, South Korea's for-profit tutoring firms made use of the nation's Internet service—fastest in the world— and paid teachers for their individual performances, often sharing with them the student tuition they generated.

Perhaps even more astonishing was India. Second only to China in population size and economic growth, Indian for-profit firms provided tuition-funded schooling for as little as $6 a month. But these are East and South Asian countries. Could such things happen in Western countries?

The Swedish government in 1993 required all local education authorities to directly fund privately run schools of choice at a per-student cost close to that of traditional public schools. New schools had to meet several basic requirements, including an open-admission policy, which required schools to admit all applicants regardless of ability, ethnicity, or socioeconomic level.

New private schools were established in a broad cross section of neighborhoods, including high-income areas as well as locales with predominantly working-class and immigrant populations. Indicating bottled-up demand, the number of private schools rose fivefold. The new policy led to increased competitiveness, improved student achievement, and greater parental satisfaction. Unexpectedly, private chains of for-profit schools were founded and grew quickly. In 2008, ten chains each operated more than six schools, and five ran more than ten schools.

It was ironic that, among Western countries, "socialist" Sweden rather "capitalist" America successfully pioneered parental choice of primary and secondary education. But even in 2010 the United States had two huge advantages that would allow it to take the lead in consumer choice in K-12 education by 2030: the long-standing American preference for citizens' self-determination over government control and Americans' spirit of invention, innovation, and entrepreneurship.

# School Choice

Chester E. Finn Jr.

## Where we came from

Back in 2010, some 30 percent of U.S. children did *not* attend the district-operated public school in their neighborhood. Instead, they and their parents exercised the right to attend schools of their choice: public, private, and many a hybrid and variant.

In truth, the fraction of youngsters benefiting from some form of school choice was closer to half, as it properly included millions more—24 percent of all K-12 families, reported a federal survey—who attended a neighborhood school but whose parents had moved into that neighborhood *because* of its schools. In other words, they chose the school first, the neighborhood second—and had the means to affect that choice.

Americans had largely embraced the principle that society's obligation is to ensure that all children get a good education, not simply for government to operate a network of public schools and slot youngsters into them. By now, most of the political and policy battles that roiled the land when it came to education choice concerned which varieties of schooling would qualify for public funding, the terms and amounts by which that support would be provided, and the conditions that would accompany it.

School choice had come to span a spectrum of education providers and arrangements, from plain-vanilla district and private schools to the exotic tang of homeschooling. In between were at least the following ten additional flavors:

- **Magnet schools.** Usually district based—Houston alone had more than a hundred by 2008—these are specialty schools with distinctive themes: music and art, science and technology, Hispanic cultures, and so on. Racial integration has long been an important objective of many such programs.

- **Alternative schools.** Developed primarily for hard-to-educate and troublesome youngsters and former dropouts, these are not so much programs that parents seek as they are schools that districts offer to young people who don't fit comfortably into conventional classrooms.

- **Intradistrict choice.** A growing number of districts permitted families to select their schools from among multiple offerings, though such options were often circumscribed by court orders and desegregation formulas, as well as by classroom-capacity constraints.

- **Interdistrict choice.** By 2010, more than twenty states had followed Minnesota's lead and enacted some form of open enrollment or interdistrict transfer policy. The most generous permitted youngsters to, in effect, enroll anywhere in the state. Others were restricted to contiguous districts, and some required the assent of the "sending" or "receiving" district or both.

- **Charter schools.** These ranged from back-to-basics models to Montessori to "expeditionary learning" to schools for disabled youngsters, with numerous variants along the way. Some five thousand charters were run by a remarkable array of civic, education, parent and business groups, a handful of them even by a teachers' union.

- **Schools-within-schools.** That a building can house more than one education program inspired the pioneering public school choice program in East Harlem's District 4 in the 1970s. It later inspired a sizable though flawed effort by the Gates Foundation to divide large dysfunctional schools into several small ones, but it holds promise for rural areas with few school buildings.

- **Minischools.** Encouraged by philanthropists and reformers convinced that, when it comes to education, small size matters, minischools—usually high schools—sprang up in the early twenty-first century, many again supported by Gates and cast in an "early college" mold that also seeks to palliate student ennui by providing college-level courses to those ready to attempt them.

- **Tech-prep schools.** In many cities, community colleges joined with high schools to blend the last two years of K-12 education with the first two years of college, often leading to an associate degree as well as a high school diploma. This arrangement is particularly suited to young people keener on jobs than on further academics. More academically inclined students could enter "dual-enrollment" programs that enable high school pupils to take university courses before graduating. (Burgeoning Advanced Placement and International Baccalaureate courses serve a similar purpose.)

- **Virtual schooling.** Why should kids come to school if it can come to them? By 2010, technology was facilitating this on a modest but growing scale. Via Internet and e-mail, students could interact with teachers (and with lessons, homework assignments, and so on) without leaving home. In an influential book, scholars John Chubb and Terry Moe reported that (as of 2008) more than half the states were operating state-level virtual schools and that about 190 "cyber charters" in twenty-five states had enrolled some 100,000 students.

- **Hybrids.** Some youngsters attended school—perhaps a charter school—part-time and did the rest of their studying at home. Several states required districts to allow homeschooled (and private school) children to participate in any part of

the public school program, from physics class to the soccer team. A handful of charter schools specialized in such arrangements.

Yet despite all these options, that half of U.S. students exercised school choice in 2010 also meant that half did not and, predictably, that many of the latter were poor and minority youngsters trapped in ill-functioning urban schools without viable means of escape. Although some states targeted their charter schools (and a few voucher programs) to low-income children and neighborhoods, the American K-12 education system, taken as a whole, was far better at conferring choice on the fortunate than on the needy.

The other big cloud over school choice in 2010 was its mixed academic results. Rival studies came to different conclusions about whether youngsters in charter schools and voucher programs fared better than those who remained in district schools, and information was sparse regarding the effectiveness of other forms of school choice.

The political situation was no walk in the park either. Despite widening acceptance of the principle of choice, traditional stakeholders of public education still strove to contain its spread, working through elections, legislative lobbying, litigation, public relations, collective bargaining, regulation, budgets, and many other ways to limit the emergence of new forms of schooling and children's access to them.

Most of this push-back was self-interested, but some critics, such as E.D. Hirsch, Sol Stern, and Diane Ravitch, also voiced concerns about social and cultural balkanization, curricular chaos, civic fragmentation, resegregation, an ill-functioning marketplace in which too many parents made unwise selections, and so forth.

Vouchers to assist children in attending private schools remained the bloodiest battleground in the school choice wars in 2010. Although supporters had made modest headway—the Supreme Court opened a constitutional pathway with the 2002 *Zelman* decision, and 2005 brought both a lifting of the cap on Milwaukee's program and the expansion of Cleveland's to all of Ohio—they also lost ground. No ballot initiative on behalf of vouchers won in any state; litigation was widespread; courts in Colorado and Florida voided those states' voucher programs; and congressional Democrats (with the assent of the Obama administration) were bent on terminating the District of Columbia program. In other states, constitutional provisions ("Blaine amendments") placed voucher-style programs beyond legislative reach. Although tax credits and similar forms of indirect financing continued to make slow gains, outright vouchers were rebuffed almost everywhere, the main (but still limited) exception being programs confined to disabled youngsters.

## Where we got to

By 2030 nearly two-thirds of U.S. children enjoyed some form of school selection. Four more states operated voucher programs focused on disabled pupils or low-income children or both whose public schools were chronic low performers. The brick-and-mortar charter sector now served about 5 percent of all students and harvested major gains in academic performance as states—spurred by federal law—cracked down on bad schools and heedless authorizers.

The greatest expansions of choice occurred in cyberspace, in homeschooling, and in hybrid education delivery systems. Harvard Business School's Clayton Christensen proved prescient in forecasting that half of all U.S. high school courses would be delivered online (though this milestone was reached in 2027, not 2019), but most such learning still occurred within brick-and-mortar schools. Although the teachers' unions deplored this substitution of technology for tenured teachers—and their forceful political efforts certainly slowed its spread—a combination of budgetary pressures, education quality concerns, the profit motive, and the inexorable march of technology meant that—as Moe and Chubb had foreseen—their traditional defense mechanisms were unable to block it altogether.

By 2030, about 6 percent of American pupils studied fulltime at home or other nonschool setting (e.g., parents' workplace, day care centers, Boys and Girls Clubs, college campuses, church Sunday-school classrooms, etc.), and another 3 percent availed themselves of hybrid arrangements that entailed both time in brick-and-mortar schools and time elsewhere. Internet-delivered courses and other electronic assists simplified such blending, as kids could now "take" courses—and do research, participate in supplemental programs and extracurricular activities—via a host of cheap hand-held wireless devices, social networks, and so on, as well as via traditional computers (now costing no more than traditional textbooks and fitted with cameras, microphones, speakers, and other forms of interactivity as well as lightning speed and near-infinite capacity).

Other hybrids also emerged, such as "Catholic charter schools"—former parochial schools that converted into public charter schools that are secular (and taxpayer financed) during the core instructional day but that, early in the morning and late in the afternoon, offer (voluntary, privately financed) religious education classes, worship, and activities on the same premises.

Another high-profile organizational evolution was the spread of national "brand-name" schools, mostly run by sophisticated private firms, both for- and nonprofit. Part entrepreneurial venture and part virtual school system, they figured out how to replicate schools that adhere to specific models, supplying them with financial and human capital, providing essential business and curricular services, developing shared technologies and instructional materials, and affixing names that are gaining national

recognition. Whereas Americans once thought of school systems as local and bureaucratic (e.g., the Dayton Public Schools), these new systems are far flung. A child whose family moves from Baltimore to Denver can transit painlessly from one "Gold Star" or "Green Dot" (or Edison, KIPP, High Tech High, etc.) school directly into another. Our education industry, like our hospitality, retailing, and communications industries, is developing recognizable brands that have spread across the nation and overseas, not unlike Holiday Inn, Macy's, and CNN. KIPP, for example, now has fifty-seven schools in India; High Tech High has thirty-two in metropolitan Shanghai alone. Edison is said to be working on the Portuguese translations that will enable it to tackle Brazil.

From the consumer's standpoint, the K-12 education marketplace in 2030, though far from perfect, is vastly easier to navigate thanks to improved data systems, transparent academic performance and other school-specific information, and a host of user-friendly interfaces, such as those pioneered by GreatSchools.net.

Besides selecting among *schools,* educational choice assumed additional forms by 2030, with students and parents enjoying new opportunities to pick their courses, delivery systems, teaching styles, even teachers, all of which is facilitated by technology, of course, as are the many education supplements, alternatives, and extras now available to families outside schools. Lots of youngsters learn art, music, and languages, for example, via technology-based programs that parents can purchase for home use or that for- and nonprofit organizations offer in their own settings.

**What's wrong with this picture?**

School choice in 2030 looks good compared with two decades earlier yet still suffers from five vexing shortcomings.

First, there is not nearly enough venture capital to seed the entrepreneurial initiatives that would give rise to further choices, improve their functionality, and facilitate the development of improved models and delivery systems. Government has again proven inept at catalyzing and supporting such activity—despite the infusion of billions of federal stimulus dollars during the great recession of 2008-11—and neither philanthropy nor private investors have gotten the job done. K-12 education in America is now a $2 trillion enterprise, yet it still spends a relative pittance on research and development and invests peanuts in ventures that haven't yet proven themselves.

Second, though weakened, "establishment" resistance remains dogged. Because teachers' unions and their allies have lost many direct confrontations, they've opted to shackle, Gulliver-like, the various choice efforts with innumerable regulatory tethers and have striven, with much success, to organize the workforces of charter schools, virtual schools, even private schools. Their particular bête noire is for-profit school operators.

Unexpectedly assisting them is the tendency of established providers of school choice to discourage further competition from rivals and start-ups.

Third, due in part to choice foes, as well as a host of highly publicized scandals (the much ballyhooed federal "Race to the Top" program of 2010, for example, wound up lining lots of private pockets, and a half-dozen states could not fully account for where the money actually went), the regulatory-and-inspectorate raj remains robust in K-12 education, and for the most part it still focuses on inputs and processes rather than results. Most states still mandate "certified" teachers in schools of choice, for example, and most still judge schools' adequacy by the number of days or minutes they're in session rather than by the track records of their alumni/ae.

Fourth, the education marketplace remains flawed. Would-be operators have trouble launching. Efforts to replicate good schools often falter. Even among brand-name schools, quality control is uneven and performance varies alarmingly. Would-be consumers have access to more school information than before, but much of it they do not know how to interpret or apply. As a result, millions of parents still select their children's schools chiefly on nonacademic grounds.

Finally, despite three more revisions of the main federal education law (the 65-year-old Elementary and Secondary Education Act, now dubbed the Student Achievement and School Improvement Act, or SASI), the poorest and neediest youngsters in America still have the skimpiest access to decent school options and the least help in wisely exercising the choices they do have.

## What might make a difference?

The best thing about predicting the future is that, having glimpsed the likely outcome of continuing current practices and extrapolating current trends, one can consider alternate courses of action that might alter the result. (Else planes would overshoot their destinations, cars would drive off cliffs, and those who have gained a pound or two would end up weighing tons.) In fact, several key changes in education policy between 2010 and 2030 could mitigate the problems noted above and alter the likely scenario. Assuming that our goal is to widen access to quality school choices, strengthen the education marketplace, foster innovation, and boost productivity, the following changes could make a big difference.

Federal and state tax regimes could provide incentives to encourage private venture capital investment in the entrepreneurial side of education, not unlike the inducements given to producers (and consumers) of renewable energy, fuel-efficient vehicles, and businesses that reduce their carbon footprints.

Also in Washington, a radical overhaul of the Elementary and Secondary Education Act could change the formula-bound distribution, which now channels dollars

to traditional state and local education agencies, and instead deliver the money directly to individual schools on the basis of the number (and characteristics) of children enrolled in them. A parallel shift in state finance systems toward fully portable "weighted student funding" should be combined with strong performance incentives for schools and pupils alike.

States should also rewrite their compulsory attendance laws to define "school" more flexibly, such that students may satisfy the statute in various settings. (There is precedent for this in the exemptions already given to homeschoolers.) The state's principal interest should shift from attendance to academic achievement.

As that policy transformation occurs, an authorizing body is needed to approve and monitor schools and other education providers, but this responsibility need not be confined to traditional public school systems. They ought not function as both service providers and regulators of their competitors. Instead, independent sponsorship entities—perhaps operating on a multistate or nationwide basis—should become viable alternatives.

Also needed are independent audit-and-data units responsible for honest reporting on student, school, and district performance across multiple variables: academic, financial, and so on. These, in turn, should be accountable to governors or state auditors rather than education departments; this work, too, might be outsourced to multistate or national bodies.

A spine of national standards, tests, and core curricula is needed to hold all this together, furnishing common goals, metrics, and benchmarks against which the many diverse providers can be tracked and their performance compared across the entire nation and aligned with similar international measures.

The future, in other words, need not result from an extrapolation of present-day trends. It could—and in this realm should—be different and better. But that's not likely to occur spontaneously.

# What Can Happen in Twenty Years?

Chester E. Finn Jr.

Are "education years" more like "dog years" or "people years"? Is twenty of them a long time or a short time? How much can happen in education in two decades? More, it seems, than one might suppose.

Yes, the K-12 enterprise is slow to change, full of inertia and sameness. Yes, much about today's schools resembles the schools attended by their pupils' parents, even grandparents. Few can rebut the familiar comment that if Rip Van Winkle awoke in America today after a snooze of twenty years or longer, the two institutions he would find most like those that existed when he fell asleep would be our churches and our schools.

At the same time, primary and secondary education is so awash in fads, nostrums, and innovations that it sometimes resembles a ping-pong game or pool table on which the instructional ball bounces off one notion, then caroms on to the next new thing.

Indeed, part of what keeps our educational system more dysfunctional and less effective than it ought to be is its weird blend of timeless and trendy, static and fluid, rigid and random.

Despite all that, much that's significant can change in this system over twenty years, both for better and for worse. Some developments are straightforward and predictable, like the phases of the moon. During a two-decade period, an entire generation of children matures from infancy to college. Some sixty million Americans earn high school diplomas—and maybe twenty million more drop out. Those who entered kindergarten at the beginning of the period will possess graduate degrees at the end of it—well, some of them will. Millions of teachers and tens of thousands of principals will be replaced by people not currently employed in those positions. Urban school districts will run through a half dozen superintendents each. States will elect up to five governors.

Yet more profound changes can also occur during such a time span, changes that alter the norms, ground rules, or operating arrangements of the system itself. They may not all be positive, and they surely won't have the same impacts everywhere at the same time. But they may still be fundamental.

One way to gauge what could occur in American K-12 education between 2010 and 2030 is to recall some of what *did* occur over the previous two decades, that is, between 1990 and 2010. Here I recount ten such developments. All were in some sense

national, but only three engaged the federal government to an appreciable degree. The others seeped, slithered, morphed, and metastasized from place to place via mechanisms that have more to do with the culture of education than with its formal governance.

First, observe the extraordinary traction that was gained by standards-based reform at both state and national levels. One could fairly say this began with *A Nation at Risk* in 1983—and I'll note with some satisfaction that Diane Ravitch and I were embarked on such a mission via the Educational Excellence Network as early as 1981. (One could also argue that James Coleman sowed the seeds in 1966.) But the enterprise really took off after the 1989 Charlottesville education summit attended by President Clinton and the governors, and it gained momentum when America's first-ever national education goals were announced in early 1990. The development of academic goals, standards, assessments, tracking metrics, and accountability systems began to be a big deal across the land—and this shows no sign of abating. We now judge schools (and districts, states, etc.) primarily by their results, not by their inputs, services, or intentions. That certainly wasn't true two decades ago.

Second, the era of standards-based reform has wrought big-time changes in federal policy. In 1990, for the most part Washington's aid to education was just that—additional money to state and local school systems so they could provide added services of various sorts, primarily to needy and disabled youngsters. Strings were attached, to be sure, but these had more to do with the distribution and use of dollars than with reforming the schools. Beginning in a big way in 1994, however, with the passage of both the Goals 2000 Act and the Improving America's Schools Act, the federal government began deploying its funds in efforts to transform the performance of U.S. schools, primarily by setting goals and standards and measuring the progress toward them. During this twenty-year period, Uncle Sam shifted from "help" to "implore" to "push" to "require," and although the money continued to flow, indeed in ever-larger amounts, the strings attached to it were now very different. This process reached its apogee—some would say nadir—with the No Child Left Behind Act of 2001 and the Race to the Top portion of the 2009 economic stimulus package.

Third, besides fundamental alterations in the nature of education aid, Washington transformed its key monitoring system, the National Assessment of Educational Progress (NAEP), aka the "Nation's Report Card." The reauthorization of NAEP in 1988—which took effect around 1990—changed what had been a poky and obscure testing program that yielded only general information into a modern performance-monitoring system that includes semi-independent governance, more frequent testing of more subjects at key grade levels, far greater transparency in reporting results and trends, bona fide state-by-state comparisons, and a semblance of uniform national standards by which to track *and judge* the academic prowess of young Americans and the performance of their education system.

Fourth, charter schools were invented, spread across the land, and won a measure of legitimacy. These independent public schools of choice are operated by myriad private entities rather than traditional districts, yet (unlike private schools) are financed by taxpayers, open to all comers, and accountable for their results to public authorities. Although they bear some resemblance to private schools, magnet schools, alternative schools, and other earlier arrangements, they are also something fundamentally new under the education sun. The first one opened in Minnesota in 1992; by 2010 they numbered some five thousand schools serving 1.5 million youngsters in thirty-nine states. Hundreds were run by statewide, regional, even national management organizations (some of which were starting to reach overseas), and the United States was seeing the emergence of chains of "brand-name" schools (e.g., KIPP, Achievement First, High Tech High, K12) that crossed traditional district and even state borders.

Fifth, charters turned out to be the tip of an iceberg of school choice that, when tallied in all its variety, touched roughly half of all students by 2010. That is, five in every ten pupils were enrolled in schools that they or their parents had played an active role in selecting rather than passively being assigned by a district bureaucracy with geographically based attendance zones. To be sure, the 50 percent estimate (some analysts say it's more like 60) includes the millions of families that exercise choice via the real estate market (i.e., kids attend neighborhood schools in neighborhoods that their parents moved into because of the schools). But more than one in three were being educated in bona fide schools of choice of many sorts—including learning at home from their parents or from a widening array of distance-learning and virtual education providers.

Some even attended private schools with the help of publicly financed vouchers, these having passed a key federal constitutional test with the Supreme Court's 2003 *Zelman* decision. (Voucher advocates continued, however, to face many hurdles in state constitutions and legislative chambers.) Although tens of millions of youngsters still had no viable options other than neighborhood-based and district-operated schools—which served some of them well but yielded educational tragedy for others—America by 2010 had changed a fundamental ground rule: school was now something you could expect to select for yourself rather than be assigned to by the system.

Sixth, the operation of individual schools was not the only core education function that witnessed the entry of unconventional and entrepreneurial providers. Although most teacher preparation still took place in traditional colleges of education and most of their graduates were still certified by states in familiar ways, many more alternatives were visible by 2010. Many states had pathways into public school teaching that did not pass through colleges of education, at least not in advance of one's first teaching assignment. A number of school systems ran their own preparation-and-certification programs as did at least one charter operator (California's High-Tech High). National nonprofit groups such as Teach for America and New Leaders for New Schools

recruited, prepared, and placed talented individuals in classrooms and principals' offices who otherwise would not likely have gotten there. And dozens of for-profit firms (e.g., Kaplan, Wireless Generation, Tutor.com, SchoolNet) supplied schools with data systems, tutoring programs, curriculum packages, and more. Although traditional education groups continued to hold their enormous conclaves, anyone who set foot in the annual summit organized by the New Schools Venture Fund might well think he had entered a different century if not an alternative universe.

Seventh, hoary patterns of governance and leadership also underwent revision—at least in some places. Governors asserted themselves in state-level K-12 policies and operations in ways that most had historically shunned. In several major cities, mayors assumed control of their school systems. And where formerly the title of district superintendent was invariably bestowed on a career-long educator who had climbed the well-worn ladder from teacher to principal to assistant superintendent, and so on, the leadership mantle in a handful of pioneering communities was now conferred on such heterodox characters as Joel Klein, Paul Vallas, Michelle Rhee, David Bennet, Arne Duncan, and Alan Bersin, none of whom is a career educator.. Some state superintendents, too, now hailed from the ranks of noneducators (e.g., California's Jack O'Connell, Texas's Robert Scott).

Eighth, as we might expect—because much the same thing was happening in nearly every other sector of our lives—technology wrought major changes in education delivery and management. Whether taken in school under the teacher's eye, at home under a parent's supervision or through organizational hybrids such as the Florida Virtual School or Ohio Virtual Academy, online courses spread far and wide, and management gurus such as Harvard's Clayton Christensen prophesied dramatic growth in the years ahead. Improved data systems made it possible to track pupil and classroom performance, to evaluate teacher effectiveness, to provide parents as well as teachers and principals with instant access to information about children's progress, and much more. E-mail enabled parents to communicate with teachers, and the Internet enabled teachers and students alike to access vast troves of information and materials. A vibrant market in both hardware and software meant that, at least for individuals and families that could afford it, teaching and learning of one kind or another could now occur anytime and anyplace.

Ninth, change even edged into how America *pays* for public education. Although school finance in most places remains an amalgam of federal, state, and local tax dollars channeled through innumerable formulas and programs, a few states (e.g., California, Michigan, Indiana) essentially shouldered full responsibility for paying for their public schools—not counting the federal parts—and several communities experimented with weighted funding that varied with children's educational needs. There was even a sea change in litigation over school finance, with the controversial concept of adequacy replacing the much-fought-over principle of equality as activist attorneys made their way into courtrooms in their ceaseless campaign to get the third

branch of government to change the flow (and quantity) of dollars in ways they usually could not accomplish through the first and second branches.

Tenth, schooling began to lose its long-standing isolation, both from other levels of education and from other social services. Instead of viewing K-12 education as a hermetically sealed function of government, state after state explored ways of integrating it more fully with preschool and postsecondary education as well as with other sectors such as health, housing, child welfare, and criminal justice. New data systems eased the isolation from other levels of education—it began to be possible to track individuals' educational progress from early childhood to graduate school—and altered governance arrangements simplified closer alignments with other social services. (Nothing like having all those agencies and programs under the governors' or mayors' aegis) Although it was premature in 2010 in most of the country to term these developments more than exploratory, the path to the future seemed reasonably clear.

Yes, a great deal of change can occur in two decades, even in so stodgy an enterprise as public education. That's why our prognostications for the year 2030 may not be so wild-eyed or blue-skied as readers may initially suspect.

# About the Authors

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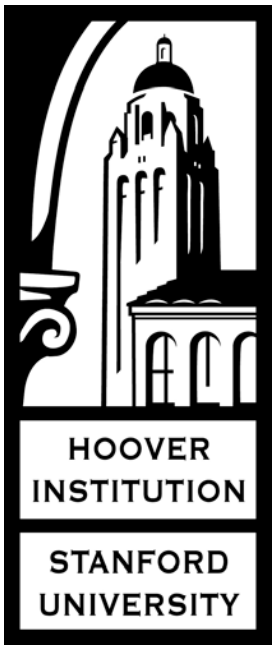


## Koret Task Force on K–12 Education

The K–12 Education Task Force focuses on education policy as it relates to government provision and oversight versus private solutions (both within and outside the public school system) that stress choice, accountability, and transparency; that include systematic reform options such as vouchers, charter schools, and testing; and that weigh equity concerns against outcome objectives. Its collaborative efforts spawned a quarterly journal titled *Education Next*, one of the premier publications on public education research policy in the nation.

Chester E. Finn, Jr. serves as chair of the Task Force on K–12 education.