EDUCATION**SECTOR** REPORTS

October 2009

TEACHERS AT WORK:

Improving Teacher Quality Through School Design

By Elena Silva

ABOUT THE AUTHOR

ELENA SILVA is a senior policy analyst at Education Sector. She can be reached at esilva@educationsector.org.

ABOUT EDUCATION SECTOR

Education Sector is an independent think tank that challenges conventional thinking in education policy. We are a nonprofit, nonpartisan organization committed to achieving measurable impact in education, both by improving existing reform initiatives and by developing new, innovative solutions to our nation's most pressing education problems.

1201 Connecticut Ave., N.W., Suite 850, Washington, D.C. 20036
202.552.2840 • www.educationsector.org

ACKNOWLEDGEMENTS

Many thanks to all of the teachers, principals, and other school staff who allowed me to visit their schools and share information about staffing and scheduling, including the staff at the Jacob Hiatt Magnet School and the University Park Campus School in Worcester, Massachusetts, the Gardner Pilot Academy in Allston, Massachusetts, Brooklyn Generation in New York City, and Louisiana Virtual School. Thanks also to Furman Brown and Jonathan Spear, who spent hours explaining the details of the Generation Schools model, and to principal Terri Grey, who took time to speak with me during the busiest time of the year.

Thanks also to those who offered valuable comments and insights during the development of this paper: Thomas Carroll and Elizabeth Foster of National Commission on Teaching and America's Future; Robin Chait of the Center for American Progress; Fairfax superintendent of schools Jack Dale; Jennifer Davis of Mass2020; Eric Demeulenaere of Clark University; Karen Hawley Miles of Education Resource Strategies; Timothy Knowles of the University of Chicago; Sabrina Laine of Learning Point Associates; Ben Lummis of Mass2020; Monica Martinez of New Tech Network; Geraldine Otremba of the U.S. Library of Congress; Susan Patrick of the International Association for K-12 Online Learning; Heather Peske, independent consultant formerly of the Education Trust; Emily Kalejs Qazilbash of Harvard University; Joel Rose of the New York City Department of Education; Mark Shellinger of the Jefferson County Public Schools in Louisville, Kentucky; John Sorrell of Louisiana Virtual School; and Judy Wurtzel, formerly of the Aspen Institute and now at the U.S. Department of Education.

Many thanks to all of my Education Sector colleagues, especially Kevin Carey, Andrew Rotherham, and Bill Tucker for their thoughtful comments on drafts of the report; Robin Smiles for her thoughtful and thorough editorial work; and Abdul Kargbo for the format and design of the report. Thanks also to Education Sector interns Marilyn Hylton, Caroline King, Chase Nordengren, and Parvathi Santhosh-Kumar for their research assistance, and to Joele Theagene and Tiffany Hsieh for their editorial assistance.

The Joyce Foundation provided funding for this project. The findings and conclusions are those of the author alone and do not necessarily represent the opinions of the foundation.

Furman Brown has spent over a decade figuring out how to design a better school. As a first-year teacher in South Central Los Angeles in the early 1990s, he got a taste of what was wrong with the traditional public school model: It was not designed to serve students *or* teachers well. Convinced there was a better way to organize and distribute work inside schools, Brown joined the staff of a start-up school in Brooklyn, New York, and slowly, over the years, pieced together the sides of what he calls the "Rubik's Cube" of school design. With his Generation Schools model and its pilot, Brooklyn Generation public high school, which opened in 2007, he thinks he may have solved it.

Brown's solution, along with the larger ideas behind it, comes at an important moment. State and federal policymakers, along with a wide range of philanthropists and education leaders, have rallied around the cause of improving the quality of teaching in the nation's public schools. Their proposed reforms center on two worthy goals: recruiting more talented people into the teaching profession, and raising the stakes and incentives for existing teachers—particularly those in high-poverty schools—to help students thrive and learn.

But these reforms are likely to disappoint if nothing is done to fundamentally overhaul the way the work of teachers is organized within schools. Better teaching, in the long run, will come not just from attracting a strong pool of talent and giving them boosts in pay, but from changing the nature of the job. And the teaching profession is in many ways defined by the way schools are designed. Today, most teachers' work is isolated and fragmented, with no defined pathways for career development, few mechanisms for feedback, and a schedule that is disconnected from the reality of what teachers actually do and what students actually need. As a result, many schools are insufficiently attractive to talented professionals, and they squander the talent of those they manage to employ.

The Generation Schools model, at its core, is about solving these design problems, primarily through the strategic use of people and time. It is a combination of several big ideas, borrowed and built, that are put together in just the right way. While it starts with recruiting the best available talent, it doesn't end there. "We get the best teachers we can," Brown says. "But then what do we do with them? We combine them, build on their differences."[1]

Instead of isolating teachers, the Generation Schools model organizes them into grade- and subject-based teams, designed to blend different types of expertise and levels of experience. The daily schedule and calendar are designed with time for regular and ongoing teacher collaboration and planning, giving teachers "time to learn from each other and to learn from their work," Brown says. In the mornings, all teachers teach 90-minute academic classes that average 14 students; afternoons are divided into shorter, larger elective courses and two hours of daily planning. Twice a year, grade-based teaching teams get a four-week break—three weeks to rest and one week to meet, plan, and observe colleagues. The breaks are staggered throughout the year, and while one group of teachers is on break, another team of their colleagues steps in to teach their students "intensive" monthlong literacy courses focused on career and college planning. The result is a school year that is extended to 200 days for students—20 more than the national average—without having to extend work time (and pay) for teachers.

All of this happens for the same cost as a regular school. "We do more with the same amount of resources," says Jonathan Spear, the nonprofit foundation's co-founder. "We work with the same budget; we have the same number of teachers. But we've reconfigured things to make it a school that works better for students and for

teachers." In this way, the model addresses the other major shortcoming of today's typical teacher reforms: They are terribly expensive to scale and sustain, particularly in a time of limited public funds.

Brown and Spear are classic reformers, eager to expand the model in New York City and eventually build a nationwide network of Generation Schools. The model has already won praise, earning the Echoing Green Prize in 2004 for being one of the "World's Best Emerging Social Innovations." So far, annual progress reports and school report cards from the New York City Department of Education show impressive scores that surpass those of schools serving similar populations of students.[2]

Generation Schools is just one model, and today, it is determining the outcomes of only one high school. But its design and the principles that it rests on—using people strategically and time intentionally—represent a new way of thinking about how to approach the teacher quality challenge in public education. As the student population grows increasingly diverse and the pressure to demonstrate results at the school and district level intensifies, teaching will only become more demanding, increasing the urgency to not just attract a new generation of workers, but to create more effective workplaces to receive and develop them. With both President Barack Obama and Secretary of Education Arne Duncan declaring teacher quality as a top priority, education leaders have an unprecedented opportunity to not only expand the pipeline to teaching but also to rethink the outdated design of teachers' work.

THE WAY IT IS

Teacher quality is a national problem, and one that is especially acute for poor children. Schools serving these children struggle to attract and keep highly qualified and effective teachers. Roughly 20 percent of the teachers who begin in low-income urban schools this fall will leave by the year's end.[3] Well aware of the persistent shortage of quality teachers serving poor children, and the devastating consequences of teacher turnover for student learning, education leaders are intent to find better ways to identify and attract talented staff to these "hard-to-staff" schools.

Fixing the people problem is the right idea—the consequences of the nation's high-poverty schools lacking and losing good teachers are devastating, both for student learning and for school improvement. But recruiting more talent is just one strategy, and a limited one, because it is hard to identify talent before a teacher begins teaching. The few predictors of good teaching identified by research are self-evident: Effective teachers are well-educated, particularly in their subject area; they can communicate this knowledge well; and generally, they tend to be motivated and organized people. Teachers who have had strong academic preparation and have been certified to teach before entering the profession have been found to be more effective.[4] But even these factors predict only a small fraction of the large variance in effectiveness teachers display once they reach the classroom.[5]

It's not surprising that there is no definitive list of prerequisites for good teaching. The job is complicated, multifaceted, and difficult. Analyses of occupational data from the U.S. Department of Labor repeatedly show teaching to be one of the most complex occupations.[6] A recent study of these data found teaching to be most similar in skill set to the work of psychologists and social workers—jobs requiring a sophisticated blend of content expertise and people skills.[7]

But the typical design of teachers' work doesn't reflect its complexity. Instead of content expertise and people skills, time management is often the key decider of a teacher's success. Throughout the day, teachers' work (and student learning) is scheduled in peculiar increments of time—a 48-minute class period, a 21-minute recess, a 32-minute lunchtime, or a 7-minute stretch between classes. Work rules, most defined by contracts negotiated by unions and management, determine daily start times (typically 30 minutes before the first bell) and stop times (often 30 minutes after the last bell rings or bus departs). Governed by time, teachers always have one eye on the clock. In key ways, therefore, teaching mirrors some traits of low-status and unskilled occupations. Consider, for instance, the job of a retail cashier—work that is solitary, lacks growth opportunities, and is generally measured by time on task over quality of outcomes. The parallels with teaching are troubling.

Studies of the modern work force, across industries, show several markers of professional work.[8] For one, workers are networked in teams—in person or virtually. Teachers, however, typically work alone for most of the roughly 52 hours a week they spend managing, instructing, grading, and planning for hundreds of students with a wide-range of needs and skill levels. Even brand-new teachers,

nearly a fifth of whom have not had a single hour of classroom training prior to beginning, learn to navigate this complicated world of work by themselves.[9]

Left alone in their classrooms, teachers are not likely to play a major role in defining and improving the core features of their work, another marker of professionalism. Instead, most of a teacher's time is concentrated on direct instruction. On the surface, this seems like a good idea, maximizing the number of minutes students are taught. But this limits the time teachers have to prepare for that instruction. Among the nation's 100 largest districts, teachers only have an average of 45 minutes in the formal workday to plan for instruction.[10] It also limits the time teachers have to review standards and curriculum, craft new lessons, assess results, and consult with colleagues, students, and parents—all essential aspects of teachers' work that directly influence the quality and outcomes of student learning. Teachers know this isn't a good design. Inadequate time for planning tops the list of reasons for teacher dissatisfaction, with national survey data showing more teachers citing this than any other reason, including student behavioral problems, large class sizes, and poor salary.[11]

The United States stands out in concentrating teachers' time on direct classroom instruction to this degree. Studies of international data from the Organization of Economic Cooperation and Development (OECD) show that U.S. teachers spend more hours per year on instruction than any other developed nation. (Mexico is a close second.)[12] Despite fewer days of school, U.S. teachers spend more time, and a greater proportion of their time, in direct contact with students. In Korea, for example, students attend school for more than 200 days per year, and Korean teachers spend roughly 800 hours per year on instruction. Compare this to the United States, where the typical student is in school for 180 days and the typical U.S. teacher spends 1,080 hours on instruction. Indeed, teachers in many European and Asian countries dedicate far less working time to instruction and spend far more on preparation, planning, and grading, usually with colleagues in content- or grade-based teams. As a result, teachers in these countries tend to be given, and to accept, substantial responsibility for schoolwide outcomes. They develop standards and curricula, choose texts and tests, and often play a major role in developing school plans and budgets.

OECD-administered tests—the Progress in International Reading Literacy Study (PIRLS), the Program for International Student Assessment (PISA), and the Trends in International Mathematics and Science Study (TIMSS)—suggest that our world-leading investment in hours of direct instruction hasn't produced commensurate success in student learning. On the PIRLS test, which measures reading literacy of fourth-graders, the number of nations outscoring the United States increased from three in 2001 to seven in 2006. Results from PISA, which measures reading, math, and science literacy of 15-year-olds, show the United States is in the bottom quarter of participating nations. And while U.S. students have shown recent improvement on TIMSS tests, at least five Asian and European nations continue to outscore the United States.[13]

Being alone and in control of one's own classroom can seem like a good thing, a signal of earned independence and autonomy. Similarly, when teachers are trusted to do good work and, in turn, trust that their colleagues are doing the same, it feels like a mark of true professionalism. And as teachers develop their own strategies for motivating and managing students, they quietly celebrate the small feats and hide the hiccups along the way.

But the "you're on your own" approach ultimately leads to a career marked by no recognition of progress or achievement. The career progression of true professional workers, in contrast, is both expected and driven by defined signals of performance. Without adequate ways to measure their work, teachers know that their performance is managed—or mismanaged—by what organizational sociologists John Meyer and Brian Rowan once deemed the "logic of confidence"—where no scrutiny means no problems, and no problems mean no need for improvement or change.[14] As a result, teachers tolerate formal evaluations that are simplistic, superficial, and infrequent.[15]

Over time, teachers, therefore, can expect rewards that tend to be modest, fleeting, and mostly arbitrary. Outstanding teachers, if recognized, earn respect from colleagues and "thank yous" from students and parents, but little else. From school leaders these teachers might get tapped to lead a special program, to serve as a department chair, or to compete for a local or national "teacher of the year" award. But some of the most coveted prizes for teachers—a better classroom or a more desirable schedule—are temporary and can sometimes conflict with the best interests of students. Rewarding

good teachers with "easier" assignments, for example, is most damaging to the struggling students who need these teachers.

This flawed reward system may be one reason why many teachers—and both national teachers unions—are so resistant to the current push to reform tenure laws. Besides tenure and pay, there are few ways to distinguish a new teacher from a 20-year veteran.[16] Teachers are protective of tenure not only because it promises them job security but also because they are loath to risk losing their only formal signal of professional growth.

The idea of the lone, unexamined teacher, compelled by rule and convention to spend most of her time on direct instruction, also contributes to the high costs of conventional teacher reforms. Most such proposals either pay teachers more (for working harder assignments or working extra hours) or pay for more teachers (through class size reduction), or both. Given the scarcity of new resources and the exceedingly modest returns to student learning that conventional teacher reforms have achieved, we need to find a better way.

THE WAY IT COULD BE

Furman Brown's work at Generation Schools shows that teachers' work does not have to be this way. By using both people and time strategically, the school design model illustrates that teaching could live up to its complexity and become the profession it strives to be. Teachers at the nonprofit's pilot high school, Brooklyn Generation, experience a setting that is very different from the norm, one that combines talent and encourages collaboration, promotes different roles and career pathways, and gives teachers the chance to improve their work by making them a part of their own management and evaluation—all harbingers of professional work.

Combining Talent

The Generation Schools model is simple in structure. All work and learning is organized around three kinds of courses: foundations, which constitute core academic learning (English, math, science, and social studies); studios, which are electives like art, music, and foreign language; and intensives, which are monthlong career and college planning units.

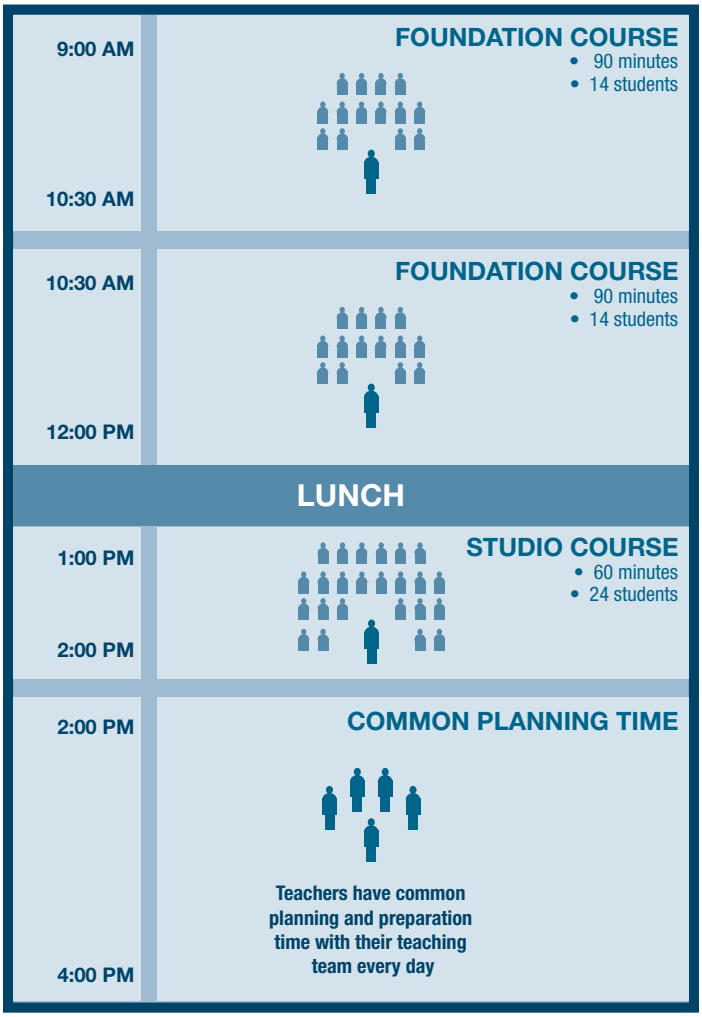
The model's simplicity is bolstered by its strategic use of people and focus on collaboration. Almost all teachers are responsible for both foundation and studio courses, typically teaching two 90-minute foundation courses in the morning and then one hourlong studio course in the afternoon. Teachers work together in a number of teams based on grade level, subject area, and course type. Teams are designed to recognize and maximize the strengths of each individual, bringing together new teachers with veteran teachers, science teachers with humanities teachers, ninth-grade teachers with 10th-grade teachers. The school's teachers are "strong to begin with, but they're strong in different ways," says Spear. "Their differences are assets."

The team approach at Generation Schools doesn't just pool the talents of individuals. It compels collaboration. Terri Grey, principal of Brooklyn Generation, explains that working together is by design, affixed to the daily and yearly schedules. After teaching the two foundation courses in the morning and one studio in the afternoon, teachers have the remainder of the day—two hours each day—for common planning and preparation. (See Figure 1.) And twice a year, while their students are engaged in the intensive courses, teachers get a full week to work with grade-based teams developing and planning curriculum and assessment across subjects and observing colleagues at their school and other schools throughout the city. "It's the structure that makes the difference," Grey says, comparing this to her experience in other schools.[17] "All the pieces were there at my last school, but here they are all put together and the structures drive the teachers."

"We are designed to be a community of teachers and learners," Brown says. In this way, he joins many other efforts to reduce isolation and combine teachers into "learning communities" and "communities of practice."[18] The idea that teachers should work together collaboratively in teams or "communities" is not new but has re-emerged recently as an unexpected way forward in some current policy debates, including teacher evaluation and performance pay.

Resistance to teachers being evaluated and paid based on the performance of their students is waning, with President Obama, among others, embracing the idea. But many groups, particularly teachers unions, still oppose the idea that some individual teachers in a school would be rewarded and not others. To the

Figure 1. Typical Day at Generation Schools



extent that they support performance pay, unions insist it should be schoolwide. School designs based on teacher collaboration, like Generation Schools, are far more compatible with politically palatable schoolwide performance bonuses. "Teaching is not an independent enterprise. It really is a collaborative activity," says Matthew Springer, director of Vanderbilt University's Peabody Center for Education Policy, which was recently awarded a $10 million federal grant to study the impact of performance pay in schools.[19]

Recent evidence shows that peer learning among teachers improves student achievement. Researchers C. Kirabo Jackson and Elias Bruegmann examined years of elementary school teacher and student data, documenting what they call the "spillover effect"—when teachers emulate the excellent teacher who works alongside them—and linking this peer learning of teachers to student achievement gains.[20] The strategic positioning of teachers, where the best ones work among and with the rest, may be as important as formal training or professional development.

Using teachers' talent effectively is just one aspect of the Generation Schools model, which also relies on the talent of those outside of the classroom and school. Generation Schools teachers do a lot, but the model is premised on the reality that they need support. Plugging in others when and where they are needed is essential. Generation Schools partners with the local community, nearby colleges, and with the nonprofit organization ReServe, which places retired professionals in schools and other organizations. The nonprofit is already benefiting from ReServists, one of whom, a retired auditor, serves as its bookkeeper. ReServists are not yet in the classrooms but Brown envisions this happening soon. Crucially, the model's simple design—foundations, studios, intensives—is set up for this. "We can plug people right into our design," adds Spear, "to help teach a studio course in music, or to help students with their internships."

Brooklyn Generation benefits even more so from its particular location. The school shares space with six other small high schools, all a part of New York City's small schools initiative, in what was once one of the city's largest schools.[21] The location isn't ideal—it's close to a mile from the nearest subway and still struggles against nearby gang activity. But sharing space with other small schools also means sharing resources, which fits perfectly with the Generation Schools model. An English language learning specialist, for example, can split time among the schools.

Most schools, by contrast, are not designed to accommodate the talents of those outside of traditional educational institutions. Beyond teaching, or the ubiquitous after-school volunteer tutor position, there are few existing options for career-changers to work in schools. And for most, teaching is not a real option. Deep content knowledge and often decades of relevant subject experience still do not meet the teaching requirements for most states, thirty-two of which still require a major in the subject they want to teach.[22]

As a result, schools are missing out on a boon of new talent and resources. The National Commission for Teaching and America's Future recently released statistics

about the number of teachers readying to retire.[23] Seventeen states, according to their state-by-state analysis of the National Center for Education Statistics' School and Staffing Survey, have more than half of their teachers eligible to retire within a decade. Indeed, elementary school teachers, secondary school teachers, and educational administrators are all among the top occupations cited by the U.S. Bureau of Labor Statistics to be affected by baby boomer retirement.[24] At the same time, the employment of workers ages 65 and older has more than doubled in the last 30 years, and surveys show that the majority of boomers nearing retirement hope to remain in the work force in some capacity.[25] This could mean fewer teacher retirees, but it also opens the door for a flood of new talent into schools, if schools are ready and willing to receive it.

Generation Schools isn't the only organization taking advantage of outside talent in creative ways. The Gardner Pilot Academy, an elementary school serving the mostly low-income Latino community of Allston, Mass., just outside of Boston, is teeming with adults. The leadership of Gardner includes an extended services director, whose job is to coordinate the work of all of the various people and programs serving students and families. The school has more than 15 community partners, including Young Audiences, which offers arts and enrichment; Sports4Kids, which rounds out the physical education program run by the school's part-time teacher; and a local branch of the YMCA, which serves as the fiscal agent for Gardner's after-school program. In all, there are more than 40 additional people who play a variety of roles and work a variety of schedules to support core teaching staff inside and outside of the classroom. This kind of support, where aides and interns are assigned to oversee recess, lunch, and before- and after-school programs, means that teachers' work at Gardner can be designed almost entirely around improving instruction. (See Sidebar "Leading and Supporting Instruction" on page 7.)

Creating New Pathways

For Generation Schools, using people strategically starts with acknowledging that teachers are not all the same—they do not bring the same set of skills to the workplace. Teachers also don't share the same career goals. Yet, most career models for teaching presume that teachers enter with roughly the same set of skills and aspire to steadily advance along the same career continuum at the same pace. It is an absurd presumption in a work force of more than 3 million people. Even popular reform strategies like "career ladders" suffer from this weakness.

On the plus side, the typical career ladder gives teachers new opportunities for enhanced professional status by offering new titles and responsibilities, along with more pay, as they progress over the years from "novice" to "mid-career" and "veteran" status. For those who have completed their first several years and have reached the mid-career plateau of teaching, a chance to move into a new position can have a motivating effect. Studies of these so-called "second-stage" teachers—those with four to 10 years of experience—show that the challenge of new opportunities can be particularly rewarding.[26] For newer teachers, an established ladder can provide not only rungs to reach for but also a built-in structure to learn from more experienced teachers.

The problem with career ladders is that they're one-dimensional. They assume that all teachers should accumulate responsibility in the same way, that the natural—and only—sequence of professional advancement is from novice worker to management. This ignores the fact that some educators may be ready for management very early, while other highly effective and experienced teachers may prefer to concentrate solely on teaching. Overall, research on career ladders is mixed and offers little evidence that the work of teachers, particularly new teachers, is fundamentally improved.[27]

A step beyond the traditional ladder, and what Generation Schools appears to be working toward, is the concept of a two-dimensional "career lattice," a term coined by Ellen Galinsky, who directs the National Families and Work Institute, to challenge the notion that growth must occur along a straight line. As Galinsky's research shows, the career lattice concept has become popular in other industries, from nursing to engineering, largely in response to a work force that now expects opportunities for lateral as well as upward mobility.[28] Designed to fit talent to need, lattices have opened up space for workers to enter a workplace at various points—mid-career, for instance—and to move around in different ways, through new combinations of part-time, shared, and dual-role work. The concept requires flexibility at the organizational level but also requires individual workers to play a much bigger role in defining their own work. Studies conducted by Harvard University professor Susan Moore Johnson show that this is what teachers want.[29]

Leading and Supporting Instruction

The list of tasks that a typical teacher handles in a day is wide-ranging. The obvious ones—planning assignments, teaching lessons, grading papers—are often overwhelmed by the others—disciplining students, entering data, photocopying, ordering supplies, or overseeing lunches, recesses, and study halls. Most would agree that teachers would benefit from more clearly defined responsibilities. And better defined roles might serve as the salve in the debate over what teachers can and should be held accountable for.

But teachers would also benefit from more clearly defined roles of those that support them as well as those that lead them. Most public school teachers are supported, in some way, by teacher assistants or aides, also known as instructional paraprofessionals. While they garner little attention in policy and research, paraprofessionals are employed in 91 percent of public schools, with an average of eight per school, and represent more than one million workers and billions of public education dollars.[i]

The federal No Child Left Behind Act increased the focus on paraprofessionals by raising their requirements. New paraprofessionals hired after NCLB must have either completed two years of study at an institution of higher education, received an associate's degree or higher degree, or passed a rigorous local or state assessment.[ii] Still, the nature of their work remains a confusing catch-all. So-called "paras" wear many hats—tutoring regular education students, supporting special education students, organizing parents, serving as translators, and assisting teachers with numerous everyday classroom instruction and management activities. A panel of experts convened in 2005 by the Education Commission of the States recommended defining the roles and career pathways of paraprofessionals, as well as the all-too-vague supervisory relationships between paraprofessionals and teachers.[iii]

The United Kingdom recently penned a national agreement to differentiate the work of paraprofessionals and teachers. Signed in 2003, the National Agreement on Workforce Reform defined, task by task, which work duties were essential for teachers and which were not.[iv] Less important tasks are mostly administrative and clerical duties like taking attendance, collecting lunch money, and grading multiple choice exams. Under the United Kingdom's agreement, these tasks are reallocated to support staff leaving more time for teachers to plan, prepare, and evaluate their work.

The same clarity would also benefit school principals, who often oversee and evaluate an entire staff of more than 100 teachers and instructional and non-instructional paraprofessionals.[v] Principals are responsible for setting standards and goals; establishing policies; managing data analysis; reporting, hiring, and firing staff; and—with budgets tightening—for raising additional school funds. Although principals need (and in most cases want) to be leaders of *instruction*, upward of 75 percent of their time is spent managing the daily operational needs of schools.[vi] Some pass instructional leadership on to an assistant principal, if they have one. Others, like Brooklyn Generation's Terri Grey, can look to an intermediary nonprofit or foundation for help with some of the most time-consuming management tasks, like district reporting.

But balancing and prioritizing instructional and operational responsibilities remain real challenges for principals. One budding solution is the use of a School Administration Manager (SAM), a creative title for someone who provides operational support to the principal, while also helping them track and rethink how they use their time. The SAM position, first tried in Jefferson County, Ky., with support from The Wallace Foundation, is now being piloted in nine states. SAMs are essentially chief operating officers, or business managers. Many are recruited from business or military; others are retired school administrators or aspiring administrators who view the job as good training. Paid an average of $35,000 a year, roughly a third of a typical principal salary, SAMs are affordable.[vii] How effective they are remains to be seen. A preliminary look at student achievement in the Jefferson County schools with SAMS shows gains but evaluations of the SAM project within and across the nine states are still under way.

[i] Based on National Center for Education Statistics, "2003–04 Schools and Staffing Survey Data." See National Center for Education Statistics, *Description and Employment Criteria of Instructional Paraprofessionals* (Washington, D.C.: National Center for Education Statistics, June 2007) http://nces.ed.gov/pubs2007/2007008.pdf. Also see Bureau of Labor Statistics, "Occupational Outlook Handbook, Teacher Assistants," http://www.bls.gov/oco/ocos153.htm.

[ii] NCLB requires all existing instructional paraprofessionals Title I programs to have earned at least a high school diploma.

[iii] See Marga Torrence Mikulecky and Angela Baber, *From Highly Qualified to Highly Competent Paraprofessionals: How NCLB Requirements Can Catalyze Effective Program and Policy Development Guidelines From the ECS Paraprofessional Expert Panel* (Denver, CO: Education Commission of the States, December, 2005).

[iv] For an overview of the national agreement and related publications, see Training and Development Agency for Schools, "The National Agreement," http://www.tda.gov.uk/remodelling/nationalagreement.aspx.

[v] Nationally, there are about 150,000 principals and assistant principals in charge of more than 3 million public school teachers and a support staff—including teachers' aides, counselors, librarians, and curriculum and other specialists—that exceeds one million workers, not including food service, custodial, and security staff. Gregory A. Strizek, et al., *Characteristics of Schools, Districts, Teachers, Principals, and School Libraries in the United States: 2003–04 Schools and Staffing Survey*, NCES 2006-313 Revised, U.S. Department of Education, National Center for Education Statistics, (Washington, D.C.: U.S. Government Printing Office).

[vi] Wallace Foundation, *Leadership for Learning: Making the Connections Among State, District and School Policies* (New York: Wallace Foundation, September 2006).

[vii] Participating school districts agree to pay for the SAM positions over several years, and the foundation pays for training.

The Generation Schools design meets this need. Rather than strictly tie leadership opportunities to years in the classroom, the design makes room for *any* teacher to become a team leader, if teachers demonstrate the motivation and the ability to do so. "You don't always know who will emerge as what kind of leader," Spear says. "You have to be open to the idea that the newest teacher may want to take on a leadership role." This is different from the design of traditional teacher-leader programs, which align different roles and responsibilities with different experienced-based stages of a teacher's career.

Much of Brown's design is premised on the principal and teachers defining their own priorities. Under Grey's leadership, teachers have considerable control over and time for not just individual and team-based planning, but for their own professional development. "It's a shared process," explains Grey, who relies on her teachers to help evaluate the school's work and to plan and manage most of the school's professional development activities. Grey herself gets help from a coach through the city's principal leadership academy, and she works regularly with the other principals in the shared school site. "It's an ongoing conversation where we all have to ground each other in the reality of our work and our needs," she concludes.

Many other schools have found success with similar forms of teacher-led decision making, especially around professional development. Teachers at University Park Campus School in Worcester, Mass., for example, spend a lot of effort figuring out what they do well and what they need. "That's what teachers do at staff meetings—figure out what we all need and then figure out how to get it," says Ricci Hall, director of instruction. "We believe in professional development but only if it fits our needs. Who knows our needs? We do. And then it's worth the money if it's what's needed." With a single session of professional development costing a typical public school upward of $10,000, ensuring the relevance of these sessions for teachers is important.[30]

Using Time Intentionally

With substantial time for preparation, planning, and evaluation, teachers at Brooklyn Generation, it would seem, should have to spend longer hours and more days at work. But this is not the case. Although the calendar year runs 200 days for students—20 more days than the typical New York City school—it doesn't extend work time for teachers.

This is different than many of the extended time models emerging across the country. For most schools, expanding student time has meant expanding teacher time.[31] But many of these models are now grappling with teacher burnout and the high cost of paying teachers for extra hours. The Knowledge Is Power Program (KIPP), a nationally praised charter school network that has shown impressive gains with its low-income student population, has been successful in significant part because of its extended schedule. KIPP teachers are on the clock from 7:30 to 5:00 each day, "on-call" until late in the evening, and expected to work half days every other Saturday. Mostly in their 20s and 30s, these teachers are accepting, even enthusiastic, about the KIPP schedule. Still, as KIPP expands over time—it has grown from 66 to 82 schools in just the last year and aspires to reach 100 schools by 2011—it is having to confront the needs and costs of a much larger and more varied work force of teachers. As a result, many KIPP schools are designing work schedules that reduce daily hours for teachers.[32]

Massachusetts' Extended Learning Time (ELT) initiative, the leading experiment in extending school time and the driver behind the extended time efforts at more than 25 schools in the state, has also been rethinking teachers' schedules as it expands. The average teacher, nationally, costs about $400 every day.[33] To extend work for 10 teachers by 20 days would cost a typical school nearly $80,000. Most schools and districts find this cost prohibitive. Some, struggling with shrinking budgets, are even considering the opposite course—cutting time to save money. Earlier this year, for example, California Governor Arnold Schwarzenegger proposed cutting a week from the school year as a way to reduce staff costs and ease the state's budget crisis.

The Generation Schools design presents an alternative solution, a way to reorganize time-use throughout the day and year that increases learning for students, works better for teachers, and costs no more than schools with traditional calendars. At Brooklyn Generation, teachers' schedules are staggered throughout the year, with two four-week breaks, each made up of three weeks of personal leave and one week of team-based planning and professional development. Students, meanwhile, are engaged in their monthlong intensives, experiencing

career-based trips in ninth and 10th grade and internships and college application training in 11th and 12th grade. Like mini-sabbaticals, these four-week breaks are used for teachers to rest, regroup, and get ready for the next segment of the year. (Notably, some form of sabbatical leave is on the books in most districts. But it is rarely utilized by teachers, who are largely unaware of sabbatical opportunities, nor marketed by districts as a tool for recruiting or retaining high-quality teachers.[34]) And days are scheduled such that the most rigorous academic courses are scheduled early in the day, with an all-hands-on-deck approach. All teachers are present to teach these long blocks, reducing the student-teacher ratio to as low as 14 to 1. Afternoon "studio" classes are larger, typically 24 to 1.

Brown designed the calendar knowing that the traditional calendar, with lengthy summer and winter breaks, was not in the best interest of students. Start and stop transitions plague the traditional school year. The months before and after breaks—from December to January, May to June, and August to September—are often lost to chaos, when everyone is transitioning in most schools. Not so for the Generation Schools model, where smaller transitions throughout the year means there is never a time when everyone is in flux.

It is this very deliberate design and the intentional use of time that makes the schedule work for Generation Schools. As such, it has avoided falling into the trap of some other well-intentioned designs, where there is flexibility in everything and open systems reign. Consider the School of the Future in Philadelphia, created in 2006 through a partnership between the city school district and Microsoft. Designed around new technologies that promised to ease data management and make teaching and learning more adaptable and accommodating, the school adopted an ever-changing schedule of classes that varied sometimes on a daily basis for teachers and students. The lack of continuity and structure led to confusion and dissatisfaction among students and faculty. By the time the school began its third year, its design looked no different from most traditional schools.[35]

Facing Trials and Trade-Offs

More school days for students, more time for teacher planning, and smaller classes for academic subjects seem like they must be more expensive. But, according to Brown and Spear, the Generation Schools model can do more for the same cost as other public schools in New York City.[36] This creates the need for trade-offs. For instance, the school maintains a smaller roster of specialized and support staff. Nearly 90 percent of the full-time professional staff are teachers, most of whom play dual roles, teaching both foundation and studio courses. You won't find many physical education teachers who can't also teach a humanities, math, or science class. And support staff include primarily those providing *instructional* support—there are few deans of discipline or athletic directors or special program managers.

"It would be great to have everything all the time—to add a separate program for this and then that," says Brown, "but you just keep adding, and that's a very expensive strategy." Karen Hawley Miles and Stephen Frank, in their 2009 book, *The Strategic School,* explain the cost over time—financially and otherwise—of this add-on approach. Huge increases in specialized teaching staff, intended to support the work of teachers and better serve students who had traditionally been ignored, over time led to an unintended "cycle of specialization and isolation."[37] As a result of this cycle, where students are pulled out for special programs that then fill up quickly and create more demand and then more growth, the work of all educators in the school, including teachers, becomes more specialized and more isolated. Integrating teachers' work, connecting subjects and grades in some cohesive way, in turn becomes more difficult. But avoiding the add-on approach is difficult. "We want to make it better for everyone so we just pile on resources… It's a train that's hard to stop," says Hawley Miles.[38] This approach is not only more expensive, it contributes to the teacher isolation Brown is working to combat.

Also difficult is dealing with the downside of collaboration—when everyone works together, it's harder to separate out who does what. Generation Schools still struggles with this challenge—ensuring that its team approach doesn't come at the expense of individualized growth or accountability. With collaboration comes the managerial challenge of recognizing the specific contributions and areas of needed improvement of each individual teacher. "We're getting better at this," explains Grey, pointing to the city's new online Achievement Reporting and Innovation System as an important tool for teachers to both share information and track their individual work.

"Yes, there are trade-offs," says Brown. "But we're gaining more than we're giving up." He goes on to compare a conventional school to a crowded garage. "Take everything out and carefully repack. Suddenly there's room for your car."

THE WAY FORWARD

Brown's is more than an innovative school design. It is a nod to the possibility that teaching could actually become the profession it strives to be, where the design of work is at once more effective for teachers and more attractive to new pools of talent. It is also a reminder that many of the most heated debates in teacher policy—from tenure reform to pay for performance—will remain unresolved if they fail to address the longstanding design flaws of teachers' work.

The central thesis of the Generation Schools model—that people and time can and should be used more effectively and efficiently—represents a new way to approach the teacher quality problem in public education. The current focus on enticing more talent into the system—to pushing effectiveness in—is not wrong, just incomplete. Better designs for teachers' work will not only draw more effective workers into the system but will also improve teacher effectiveness from within. These designs should appeal to those, such as teachers unions, who are deeply committed to elevating the status of teachers to that of true professionals. They are also affordable at a time when states, districts, and schools are struggling to improve performance with limited or even declining resources.

Still, Generation Schools is just one design. And design, by itself, is not enough. Without an effective principal like Grey and an organization like Generation Schools, even the most innovative designs will struggle to create the conditions that make teachers better and make teaching a more appealing job option. The Generation Schools design also requires teachers who can work in teams and teach multiple subject areas. While most teachers don't come ready-made to do all of this, one of the lessons of Generation Schools is that a work force of talent is more often made than found. By combining different skills and expertise into teams and providing common planning time, the design is built to maximize existing talent and to develop new talent. Brown and Spear are also in the midst of creating a residency-type program that will give new teachers support in their first years and provide teachers with single certifications the chance to become dual-certified.

As with any reform, context also matters. New York City, the home of Generation Schools, is a big and bureaucratic district, responsible for more than 1,500 schools and more than a million students. But it has also made its mark in the last decade as an eager sponsor of reform, encouraging the expansion of charter schools, the creation of small high schools, and more recently in 2007 moving to a "fair-student" funding system that gives schools more discretion over how funds can be spent.[39] For Brown and Spear, this has created more space to take their model from conceptual to operational. Still, says Brown, operating an alternative model under the New York City Department of Education and under a contract with the United Federation of Teachers requires a lot of what he and Spear call "bridge work"—building relationships with the district and union.

"It's a lot of calling people and meeting with people and figuring things out together," says Spear, who shoulders most of this work and is quick to acknowledge the organization's key role as an intermediary support for the school. "We had to decide to spend our time pushing up against everything, or trying to move with it," says Brown. They chose the latter, which Brown says made a big difference. "I'd like to think we're helping the system become nimble," he concludes.

Support for new designs is growing. Alternative staffing and scheduling designs are quickly gaining ground, due in large part to the expansion of charter schools, virtual schools, and extended time experiments.[40] The National Center on Time and Learning, an offshoot of Massachusetts 2020, the nonprofit that began and now leads the state's Extended Learning Time initiative, has even developed a database to track the growing use of alternative schedules and calendars in schools. And unions, both locally and nationally, have embraced many new school designs, especially those like Generation Schools that re-allocate rather than extend teachers' time.[41]

Reworking the work of teachers is fundamentally a local challenge that rests on the shoulders of school leaders. But states, districts, and unions—traditionally risk-averse and more comfortable with inertia than change—all have a major role to play in removing barriers to reforming the way schools utilize their most important assets: people and time.

State leaders, many of whom are debating alternative school schedules and calendars, need to ease restrictions on when the school year must start or end. Schools in Florida, for example, cannot by state law begin earlier than 14 days before Labor Day without going through the extra step of applying for a waiver.[42] Laws like this require districts and schools to expend extra energy to do the right thing: shorten the long summer break, which has been shown to be a major contributor to the achievement gap between poor and more affluent students.[43]

State policymakers should also rethink how they define minimum hours of instruction. Currently, most states require a set number of "instructional" hours and days per year and specifically define what type of activities count as instruction. In Rhode Island, for example, instructional time cannot include "pre- and post-teacher time" or any common planning time.[44] Defining teachers' work by direct instructional minutes and hours, and restricting how these minutes and hours can and cannot be spent, keeps teachers in a compliance mode, where they feel neither in control nor accountable for what they do.

States should also encourage rather than restrict local experimentation with new design models like Generation Schools. Right now, how states regulate school funding is a major barrier to this type of innovation. Researchers at the School Finance Redesign Project at the University of Washington's Center for Reinventing Public Education have documented how complicated and confusing school finance regulations can be, and how little discretion most schools have over how funds are spent.[45] Their research found local educators hamstrung by regulations that prevented even the most basic adjustments in staffing. Teachers funded out of one line item, for example, were in some cases prohibited from working, even temporarily, in another capacity. Trade-offs like those Brown describes are difficult, if not impossible, if funding mechanisms are not more transparent and decisions about resource use are not in the hands of school leaders.

States should also consider amending requirements for licensure, many of which rely on a combination of tests and coursework, which can be time- and cost-prohibitive for talented career changers who might consider teaching or paraprofessional roles. Online teaching, for example, particularly for hard-to-staff subjects and schools, could create an entirely new career option for some teachers or would-be teachers—one that capitalizes on expertise over classroom presence. (See Sidebar "Flexible Space and Time" on page 12.) Creating preparation programs that lead to dual- or multiple-subject credentials, or additional special education or English language learner credentials, would also help schools develop more strategic and efficient staffing combinations.

Districts also need to give principals and teachers a greater role in defining their professional development needs. Too many districts still require a suite of pre-determined professional development activities that do little to improve instructional practice, but can cost more than $5,000 per teacher per year.[46] New York City, in contrast, devolved professional development funding to schools in 2007 so schools can now provide their own or purchase professional development that targets their needs.

Contract provisions that limit school-level discretion in hiring also have to change; school leaders cannot create strategic teams of teachers if they have no control over who they can hire. Most districts currently operate under a contract, or collective bargaining agreement, that grants seniority-based preferences in layoffs and transfers—so decisions about where teachers stay and go are made at the district-level with little attention to the individual skill sets of teachers and specific needs of schools. Partnerships between union leaders and district management suggest a slow but growing change in this practice, with both sides recognizing the need for differentiated teacher roles.

Teacher quality has never seen so much attention, and a variety of efforts to improve it from the federal level on down are under way. The U.S. Department of Education spends several billion each year on improving teacher quality, and U.S. Secretary of Education Duncan has proposed billions more to improve the effectiveness of all teachers and to ensure that all children get access to effective teachers. This intensity of focus offers an extraordinary opportunity to invest in and evaluate new designs that will lift the teaching profession to its deserved status and reinvigorate public education.

Flexible Space and Time: A Whole New World of Work

One of the fastest growing new avenues for the alternative use of time—and space—is virtual teaching and learning. Thirty states now have some sort of state-led program that offers full online courses to K–12 students, and eight other states are poised to do so in the next year.[i]

Currently, most students who take online courses are just fulfilling a class they couldn't otherwise take, usually because of a scheduling conflict. But Susan Patrick, who heads the International Association on K–12 Online Learning, describes a much grander vision for online teaching and learning.

"If every teacher were trained to teach online, a principal could think about new staffing models for brick and mortar schools very differently. Think about it. Students could take online courses in the library, or media center, at any time in the school day. You'd have different students taking different classes with the librarian or media specialist—or a combination of part-time staff—as the on-site instructor. But the teacher could be anywhere. The teacher could, in fact, be at another media center 100 miles away, teaching students in media centers all over the district, or beyond."[ii]

For students, Patrick's vision offers more access to a wide range of courses and, most importantly, to experienced and high-quality teachers that they might otherwise never know. For teachers, it opens up a whole new world of work.

John Sorell is one such teacher. A full-time teacher for Louisiana Virtual School, he now teaches physics from his home to students five hours away in rural Shreveport and at a charter school in the heart of urban New Orleans.

"It gives me flexibility to do what I do best," Sorell says. "I'm a teacher. I want to interact on a more academic level, and teaching virtually means my time is not stretched and spun in a dozen different directions."[iii]

Sorell is an advocate for virtual teaching and learning now, but he is quick to acknowledge its limitations. "If you have an experienced teacher like me, with all the tricks of the trade, it's hard to beat a traditional brick and mortar classroom experience. You can't beat face to face. But the way it is now, you can't get me there. You can't get me to all the kids in all the places that otherwise would never get to take certain subjects like physics and definitely wouldn't get exposure to a masters-level physics teacher."

Patrick's vision of online learning is still far from total realization. Licensing teachers for online teaching, and regulating what will inevitably mean teaching across district and state lines, are unresolved concerns. But virtual teaching has the potential to become a cost-effective and efficient way to get more education to more kids. At the same time, it has the potential to become one of the most desirable elements of alternative work models for teachers.[iv]

[i] Anthony Picciano and Jeff Seaman, *K–12 Online Learning: A 2008 Follow-up of the Survey of U.S. School District Administrators* (Newburyport, MA: The Sloan Consortium, January 2009) http://www.inacol.org/research/reports.php (accessed August 2009). Also see Cathy Cavanaugh, *Getting Students More Learning Time through Online Learning* (Center for American Progress, May 2009).

[ii] Susan Patrick, in discussion with author, March 2009.

[iii] John Sorell, in discussion with author, April 15, 2009.

[iv] Bill Tucker, *Laboratories of Reform: Virtual High Schools and Innovation in Public Education*. (Washington, D.C.: Education Sector, 2007).

Endnotes

1 Furman Brown and Jonathan Spear (Generation Schools) in discussions with author, March–August, 2009.

2 Brooklyn Generation serves roughly 240 ninth- and 10th-graders, mostly black or African American (86 percent) or Latino (8 percent) and low-income (the school has a 76 percent poverty rate). The school scored proficient overall and in all categories in the 2008–09 School Quality Review. See *Quality Review Report 2008–2009* document at http://schools.nyc.gov/OA/SchoolReports/2008-09/QR_K566.pdf.

3 Heather Peske and Kati Haycock, *Teaching Inequality: How Poor and Minority Students are Shortchanged on Teacher Quality* (Washington, D.C.: Education Trust, 2006).

4 Daniel Boyd, et al., "How Changes in Entry Requirements Alter the Teacher Workforce and Affect Student Achievement," *Education Finance and Policy*, 1, no.2, (2006), http://www.mitpressjournals.org/toc/edfp/1/2.

5 National Council for Teacher Quality 2004 meta-analysis of teacher effectiveness research. Also see Dan Goldhaber and Emily Anthony, "Can Teacher Quality Be Effectively Assessed?" (CRPE Working Paper No. 2004-6).; Douglas Harris and S.A. Rutledge, *Models and predictors of teacher effectiveness: A review of the literature with lessons from (and for) other occupation* (Madison, WI: Teacher Quality Research, 2007). Thomas Kane, Jonah Rockoff, Douglas Staiger, "What Does Certification Tell Us About Teacher Effectiveness: Evidence from New York City" *Economics of Education Review* 27, no. 6 (2008): 615.

6 Author analysis of occupational network (O*NET) data, U.S. Department of Labor, 2009.

7 Anthony Milanowski, "What Professions Compare with Teaching?" *Principal Leadership: High School Edition* 9, no.7 (2009): 9.

8 U.S. Department of Labor, Bureau of Labor Statistics Office of Survey Methods Research. Working papers, including Wouter Dessein and Santos Tano, "The Demand for Coordination." (NBER Working Paper No. 10056, 2004). Also see Peter Cappelli and David Neumark, "Do 'High Performance' Work Practices Improve Establishment-Level Outcomes?" *Industrial & Labor Relations Review* 54, no. 4 (2001): 737.; Michael Gibbs, Alec Levenson, Cindy Zoghi, "Why Are Jobs Designed the Way They Are?" (NBER Working Paper 382, June 2005).

9 A recent analysis by the National Comprehensive Center for Teacher Quality, using data from the 2003–2004 School and Staffing Survey, found that just over 60 percent of teachers had received 12 weeks or more of "practice in the classroom"

before entering their own classroom. More than 17 percent had not had any practice time in the classroom.

[10] National Council on Teacher Quality, Teachers' Rules, Roles, and Rights (TR3) database, http://www.nctq.org/tr3/ (2009).

[11] Richard Ingersoll and David Perna, "The Mathematics and Science Teacher Shortage: Fact and Myth (working paper, The Consortium for Policy Research in Education, Madison, Wisconsin, March 2009), http://www.cpre.org/images/stories/cpre_pdfs/math%20science%20shortage%20paper%20march%202009%20final.pdf

[12] In OECD nations, the number of teaching hours in public schools averages 812 per year for primary and 667 for secondary but ranges from less than 600 in Korean primary schools and 400 in Danish secondary schools to 1,080 hours for both primary and secondary schools in the United States. *Education at a Glance 2008: OECD Indicators* (Paris: Organisation for Economic Co-Operation and Development).

[13] Patrick Gonzales, David Miller, and Stephen Provasnik, "U.S. Performance Across International Assessments of Student Achievement: Special Supplement to The Condition of Education 2009" (U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, 2009), http://nces.ed.gov/PUBSEARCH/pubsinfo.asp?pubid=2009083

[14] John Meyer and Brian Rowan, "Institutional Organizations: Formal Structure as Myth and Ceremony." *The American Journal of Sociology* 83, no.2 (1977): 340.

[15] Thomas Toch, *Rush to Judgment* (Washington, D.C.: Education Sector, 2008).

[16] Daniel Weisberg, et al., "The Widget Effect: Our National Effort to Acknowledge and Act on Differences in Teacher Effectiveness," The New Teacher Project, July, 2009.

[17] Terri Grey (principal, Brooklyn Generation) in discussion with author, September, 2009.

[18] See National Commission on Teaching and America's Future's initiative on learning communities; Also see Etienne Wenger, *Communities of Practice: Learning, Meaning and Identity*, (Cambridge University Press, 1998).

[19] Rachel Abbey, "Bonuses Based on Grade-Level Foster Teamwork" (Cleveland, Ohio: Catalyst Ohio, December 2008).

[20] C. Kirabo Jackson and Elias Bruegmann, "Teaching Students and Teaching Each Other: The Importance of Peer Learning for Teachers" (NBER Working Paper No. 15202, August 2009).

[21] South Shore High School, with dwindling enrollment (from over 6,000 in its 1970s heyday to 1,600 in 2007) and a host of other problems, was converted in 2007 as part of New York City's small schools movement. Begun in 2003, and spurred by the Carnegie Corporation's New Century High Schools initiative and the commitment of newly elected Mayor Michael Bloomberg and his appointed schools chancellor Joel Klein, the movement was crafted in response to the failings of large traditional high schools.

[22] *National Council on Teacher Quality 2008 State Teacher Policy Yearbook*, (Washington, D.C.: National Council on Teacher Quality, 2009).

[23] Richard Ingersoll, *The Aging Teaching Workforce: A Snapshot Age Distribution of Public School Teachers, By State 2003–2004* (Washington, D.C.: National Commission on Teaching and America's Future, 2009).

[24] The others are secretaries; heavy truck drivers; janitors and cleaners; registered nurses; bookkeeping, accounting, and auditing clerks; farmers; and college and university teachers.

[25] Compared to an increase of 59 percent for all workers between 1977–2007, U.S. Department of Labor, Bureau of Labor Statistics, 2008. The 2005 MetLife Foundation/Civic Ventures "New Face of Work" survey, Civic Venture, San Francisco, June 2005.

[26] M. Donaldson, "Angling for Access, Bartering for Change: How Second-Stage Teachers Experience Differentiated Roles in Schools," *Teachers College Record* 110, no. 5 (2008):1088.

[27] See for example D. Mayrowetz and M. Smylie, "Work Redesign That Works for Teachers" in Yearbook of the National Society for the Study of Education 103, no. 1 (2004): 274-293; Benjamin J. Keys and Thomas S. Dee, "Dollars and Sense: What a Tennessee Experiment Tells Us About Merit Pay," Education Next 5, no. 1 (2005); and Susan Moore Johnson, Jill Harrison Berg, and Morgaen L. Donaldson, "Who Stays In Teaching and Why: A Review of the Literature on Teacher Retention" (Washington: NRTA Educator Support Network, 2005).

[28] Ellen Galinsky, et al., *When Work Works: 2008 Guide to Bold New Ideas to Make Work Work*, (New York, NY: Families and Work Institute, 2008).

[29] Susan Moore Johnson and the Project on the Next Generation of Teachers, *Finders and Keepers: Helping New Teachers Survive and Thrive in Schools* (San Francisco: Jossey-Bass Educational Series, 2004).

[30] Elizabeth City, *Resourceful Leadership: Tradeoffs and Tough Decisions on the Road to School Improvement* (Cambridge, MA: Harvard Education Press, 2008).

[31] Beth Peabody, Megan Horst, and Fran O'Reilly, *Evaluation of the Expanded Learning Time Initiative: Year One Report 2006–2007* (Cambridge, MA: Abt Associates Inc.).

[32] Jay Mathews, *Work Hard. Be Nice: How two inspired teachers created the most promising schools in America* (Chapel Hill, NC: Algonquin Books, 2009).

[33] Elizabeth City calculated the cost of teachers' time per day at $408 (average teacher compensation with benefits, $82,271, divided by 1,206 total annual teacher hours for average cost per hour of $68, multiplied by 6 hours per day). City, *Resourceful Leadership*

[34] Eighty four of the 100 biggest urban districts offer some type of sabbatical option to teachers, but they vary widely in purpose and design—for continuing education, either to benefit the individual teacher or the district, or both; for length of service or seniority; or for demonstrated excellence in performance. National Council on Teacher Quality, "TR3 Database," 2009.

[35] Dale Mezzacappa, "Teaching at the School of the Future" (Prepared for and presented at the American Enterprise Institute conference, "Educational Innovation and Philadelphia's School of the Future," Washington, D.C., May 28, 2009) and Matthew Riggan and Margaret Goertz, "Reboot: Sustaining Leadership at the School of the Future" (Prepared for and presented at the American Enterprise Institute conference, "Educational Innovation and Philadelphia's School of the Future," Washington, D.C., May 28, 2009). Riggan and Goertz also point to the departure of Superintendent Paul

Vallas, the school's main advocate, as a reason the school failed to reach its vision.

[36] The pilot Brooklyn Generation, which began with only one grade of less than 100 students, still carries start-up costs that push its per pupil spending above the model budget, which is based on four grade levels of 112 students per grade using the New York state 2008–09 allotment for charter schools. (Although Brooklyn Generation is not a charter, this is the simplest way to calculate costs.) With its numbers jumping from 150 students in 2008–09 to 240 students in 2009–10, the school is poised to reach its model size—448 students—in the next two years.

[37] The need for specialized instruction resulted primarily from the advent of Title I and IDEA. From 1960 to 1997, the proportion of regular classroom teachers dropped from 84 percent to 39 percent of instructional staff. Karen Hawley Miles and Stephen Frank, *The Strategic School* (Thousand Oakes: Corwin Press, 2009). Also see Regis Ann Shields and Karen Hawley Miles, *Strategic Designs: Lessons From Leading Edge Small Urban High Schools* (Watertown, MA: Education Resource Strategies, Inc.), which offers frameworks, assessment tools, and sample schedules for alternative resource use.

[38] Karen Hawley Miles, in discussion with the author, March 2009.

[39] More than a dozen other districts including Houston, Denver, Chicago, Oakland, and Baltimore have made similar moves to give local schools more discretion over their budgets. For more about fair-student funding, also called weighted student funding and student-based budgeting, see Lisa Snell, *Weighted Student Formula Yearbook* (Los Angeles, CA: The Reason Foundation, 2009), and Jay Chambers et al., *A Tale of Two Districts: A Comparative Study of Student-Based Budgeting and School-Based Decision Making in San Francisco and Oakland Unified School Districts* (Washington, D.C.: American Institutes for Research, October 2008).

[40] See Jane Coggshall and Sabrina Laine, *Toward the Structural Transformation of Schools: Innovations in Staffing*, (Learning Point Associates, August, 2009).

[41] The American Federation of Teachers, partnering with four of the largest funders in the nation—the Bill and Melinda Gates Foundation, the Eli and Edythe Broad Foundation, the Charles Stewart Mott Foundation, and the Ford Foundation, recently created a $2.8 million innovation fund that includes extended time and innovative school designs among its competitive selection criteria.

[42] Florida Legislature H.B. 7087 (Section 11) from "Recent State Policies/Activities: Scheduling/School Calendar," (Washington, D.C.: Education Commission of the States, 2007).

[43] Doris Entwisle, Karl Alexander, L. Olsen, "Lasting Consequences of the Summer Learning Gap," American Sociological Review. (Washington, D.C.: 2007).

[44] Kathy Christie and Michael Colasanti, What Cannot Count Toward Official Instructional Time? (Washington, D.C.: Education Commission of the States, October, 2007).

[45] Paul Hill, Marguerite Roza, and James Harvey, "Facing the Future: Financing Productive Schools." Final Report from the Center on Reinventing Public Education on the School Finance Redesign Project (Bothell: University of Washington, Bothell and Center on Reinventing Public Education, December 2008).

[46] Karen Hawley Miles, et al., "Inside the Black Box of School District Spending on Professional Development: Lessons From Five Urban Districts," *Journal of Education Finance* 30, no. 1 (2004): 1–26.