

Education Needs a Toyota: Using Systems Thinking and Management to Promote Innovation and Radically Redesign Our Schools¹

Robert L. Hughes, J.D.

President and Chief Executive Officer
New Visions for Public Schools

A prominent designer recently commented that Thomas Edison's genius "lay in his ability to conceive of a fully developed marketplace, not simply a discrete device. Edison understood that the light bulb was little more than a parlor trick without a system of electric power generation and transmission to make it truly useful. So he created that too."² In subsequent years, this insight—that products, services and systems must be imagined and constantly reinvented to foster innovation and produce transformative change—has driven improvement in fields as diverse as manufacturing and health care.

Education has largely avoided this trend. In the debates that have swirled around No Child Left Behind (NCLB), for example, partisans inevitably gravitate toward single issues or answers to improve schooling: standards, teacher quality, incentives, charter schools, and the like. Each strategy appears, at least superficially, aligned with the others. In communities and schools, however, parents, teachers and the students themselves rarely experience these strategies as an intentional or coherent system. Educators are left largely alone to interpret and translate policies into classroom practice.³ Like prior reform efforts, NCLB's strategies are variously "welcomed, improved, deflected, co-opted, modified, and sabotaged."⁴

Over the past five years, a few school districts, school networks and entrepreneurs have embraced systems thinking to drive design and innovation and improve performance. In New

York City, for example, high school reformers, working with the Department of Education (NYCDOE), the United Federation of Teachers, the Council of Supervisors and Administrators, and more than 200 community groups, closed failing schools and set clear accountability targets and goals. These reformers set an 80 percent graduation target for new small schools to ensure that students are career and college ready.⁵ They used student-focused data and accountability systems to define a pathway and critical benchmarks to meet this goal over four years for teachers and students, created new strategies to invest in human capacity, and designed new school models and redesigned districts' systems to meet these accountability targets. Through focusing on clear outcomes and systems-thinking, the result is stronger individual schools and better cross-school collaborations that are increasing test scores and graduation rates in some of the most impoverished City schools.⁶

What are the lessons learned from New York City and other entrepreneurs for federal policy makers? Although it has rarely been articulated in these terms, education reformers around the country are increasingly practicing Toyota or "lean" management to focus on instruction, interventions that reduce student failure and innovations that achieve greater performance. This work builds on management literature, beginning with writers like Edward Deming, Don Berwick, and Everett Rodgers,⁷ and has shown how industries and social service pro-

viders can use design and innovation to build systems of continuous improvement. Individual employees understand their role, the impact of their work at a given moment in time and on the overall process and quality of the finished product. Employees have flexibility and serve as key problem-solvers to improve process, increase efficiency and create a better product. Frontline staff, rather than isolated researchers, create hypotheses about problems and rapidly test different solutions in order to create better solutions to a particular problem in the process.⁸

This set of management strategies is now the norm in fields such as health care and social services improvement. What do these systems look like in education? How do we use them more effectively at the federal policy level to radically alter educational strategy? Transforming education requires a commitment to innovative, systems thinking. This means establishing clear grade-level definitions for student success and establishing school- and district-level systems and strategies that maximize the capacity of teachers and administrators to move students towards these benchmarks.

1. Use National Standards and Assessments to Define the Instructional Pathway for the Typical Student in Grades K-12.

American teachers and students do not have a clear understanding of the knowledge and skills students should learn as they travel from kindergarten through twelfth grade, and beyond to college or a career. Indeed, states and districts have been reluctant to define a pathway or roadmap for the typical student and work to increase the number of students who complete it. Instead, they create vague state standards that provide very little guidance to practitioners about what they should teach or expect of their students.⁹ In this void, many teachers rely on commercially available materials like textbooks or prepackaged programs to establish their curricula. Still others, the more industrious teachers, evaluate state assessments and ignore the standards to figure out what they should teach

and create homegrown materials.¹⁰ It is not surprising, then, that there is widespread variation in how teachers interpret and implement these standards, not only across districts but also among classrooms in the same school.¹¹

Many are now calling for national or state-based core common standards that are fewer, clear and higher.¹² Federal policy makers, working with the states, should support these efforts and ensure that these standards are based on economic criteria identified by business leaders as well as academic goals identified by educators. Students must graduate with the skills and aptitudes that enable them to be successful in the 21st century economy.¹³ But the federal government and the states must go even further by pushing for the development of an array of complementary materials, including curricula, anchor assignments, formative and summative assessments, other supporting materials that “define the education pathway,” and establish clear academic knowledge and skills in concrete terms for students by subject and grade. Just as judo has levels represented by belts or Scouts have merit badges for successfully accomplished tasks, so too standards must clearly set out the knowledge and skills students need and make those expectations transparent to teachers, students and parents.

2. Invest in School-Based Strategies to Train and Build the Capacity of Teachers Over Their Entire Careers Around Raising Student Performance.

Most schools of education, as well as state-level teacher and principal licensing requirements, lack alignment with the core challenge confronting urban education—improving student achievement. Elite schools of education are neither using research nor thoughtful practice to train teachers but are “trying to teach an ideology to teachers” that evinces a “profound suspicion” for accountability and content-rich curricula.¹⁴ Recent empirical research demonstrates that (1) we cannot predict who effective teachers are prior to their entry into the classroom and must

do so after several years of teaching; and (2) teacher credentialing correlates poorly, if at all, with a teacher's impact on student achievement. In the face of this compelling evidence, we need to overhaul the way we train and support teachers and principals in several key areas.¹⁵

First, we need different pathways into teaching and certification that are organized around improving student achievement. Teach For America, the New York City Teaching Fellows, Teacher U and emerging Urban Teacher Residency programs provide examples of school-based models of teacher preparation that put student achievement growth at the center of professional training.¹⁶ Federal policy makers should radically deregulate this area and permit schools and districts to select teachers from any source, or develop their own pathways—so long as graduates of programs are consistently judged effective by multiple measures, including growth in student achievement as measured by national standards and assessments, as well as observations and peer evaluations. They should affirmatively preempt state policies that prevent high-quality, non-university preparation programs from operating within state and district systems as well as laws that prevent new teachers from being evaluated with value-added data.

Second, we need better ways of increasing teacher growth and collaboration in classrooms. In Los Angeles, New York, Oakland and Boston, districts and schools are using an inquiry model of professional collaboration to increase teachers' capacity over the course of their career.¹⁷ Teams of teachers, frequently working with a principal, identify students with poor performance and formulate hypotheses about the barriers to students learning in a particular subject area. They collectively fashion and implement strategies rapidly, in one- or two-week increments, to test the impact of their intervention on students. The impact of this iterative process is multifold—teachers shift from a focus on abstract professional development to more aggressive understandings and strategies to address the concrete needs of indi-

vidual students in their classrooms; they innovate to accelerate student learning. Of equal importance, these teams begin to see the broader systems that limit student achievement—low standards, lack of coordination between academic or guidance interventions, and others—and take actions to reinvent systems and accelerate all students within the school. Preliminary analysis by researchers at Stanford University and other places is encouraging.¹⁸

Federal policy makers should build on this emerging work and provide fiscal support to professional development efforts that encourage collaborative innovation at the school or school-network level. Inquiry strategies require a paradigm shift away from “best practice” replication to an innovative, problem-based strategy by teams of teachers to address specific and intractable problems at the school. Against a framework of national standards and assessments, schools, school networks and districts should be provided with funding to establish themselves as innovation labs and receive further funding if they continue to show improvement in student achievement.

Finally, federal policy makers should use this focus on principal-teacher teams to drive innovation by encouraging new forms of collaboration between educators through technology. In multiple fields, open source platforms and digital curricula are enabling collaboration among professionals to find solutions to difficult social problems. Federal policy should build on this emerging infrastructure and look to the emergence of open source technologies to begin to tap the knowledge of the schools themselves and use this information to drive system reform.¹⁹

3. Federal Policy Should Permit Much More Radical Experimentation and Innovation at the District and the School Level.

It is axiomatic in the design literature that systems produce the results they were designed to produce. For the past fifty years, while the

