



Building a 21st Century U.S. Education System

Executive Editor
Bob Wehling

Associate Editor
Carri Schneider

Published by the National Commission on Teaching and America's Future

2007 Copyright © 2007 by Robert L. Wehling

Contents

Foreword	12
<i>Bob Wehling, Building a 21st Century U.S. Education System</i>	13
Voices from the Field	22
Chapter 1: <i>Rebecca Palacios, Education and Freedom</i>	23
Chapter 2: <i>Arlene Ackerman, Sustaining School District Success: An Urban Superintendent's Reflections</i>	27
Chapter 3: <i>David Hornbeck, The Missing Ingredient in School Reform: A Political Base</i>	32
Preparing and Supporting 21st Century Teachers	45
Chapter 4: <i>Thomas G. Carroll, Teaching for the Future</i>	46
Chapter 5: <i>Arthur E. Wise, Teaching Teams in Professional Development Schools: A 21st Century Paradigm for Organizing America's Schools and Preparing the Teachers in Them</i>	59
Chapter 6: <i>Linda Darling-Hammond, Building a System of Powerful Teaching and Learning</i>	65
Chapter 7: <i>Barbara Kelley, Teacher Recruitment, Preparation, Induction, Retention, and Distribution</i>	75
Chapter 8: <i>Ken Howey and Nancy Zimpher, Creating P-16 Urban Systemic Partnerships to Address Core Structural Problems in the Educational Pipeline</i>	87
Chapter 9: <i>Carri Schneider and Ted Zigler, View from the Trenches: Two Practitioners Reflect on the Need for a National System of Educational Leadership Preparation</i>	99
Political Context of 21st Century Education	109
Chapter 10: <i>Diane Ravitch, Ensuring Access to a World-Class Education</i>	110
Chapter 11: <i>Bob Sexton and Jacob Adams, Changing the Dynamics of Educational Governance: Why Improving America's Schools Requires More than Changing Who's in Charge</i>	112
Chapter 12: <i>Jim Hunt, Making Politics Work to Dramatically Improve American Education</i>	116
Chapter 13: <i>Richard Riley, Charting a New Course in American Education</i>	123
Education and the Global Economy	128
Chapter 14: <i>Ed Rust, Education and the Economy</i>	129
Chapter 15: <i>Kent Seidel, The World is Flat, and U.S. Education has Flat-Lined: Designing an Information Infrastructure to Support a Globally Competitive Educational System</i>	135
Creating 21st Century Learning Organizations	150
Chapter 16: <i>Mary Hatwood Futrell, A Nation of Locksmiths: Transforming Our Education System to Guarantee All of America's Children a Quality Education</i>	151
Chapter 17: <i>Peggy Siegel, Transforming Education: In Search of a 21st Century Solution</i>	160
Chapter 18: <i>James Kelly, Looking Back, Thinking Ahead</i>	170
Chapter 19: <i>Chad Wick, The Meek Shall Inherit the Public Schools: Who Will Be Left Behind in the Learning Economy?</i>	179
Conclusion	189
<i>Bob Wehling, Together We Can</i>	190
List of Contributors	193
Appendix	203

CHAPTER 6

Building a System for Powerful Teaching and Learning

Linda Darling-Hammond

"We propose an audacious goal.... By the year 2006, America will provide every student with what should be his or her educational birthright: access to competent, caring and qualified teaching."

What Matters Most: Teaching for America's Future

With these words, the National Commission on Teaching and America's Future summarized its challenge to the American public in September, 1996. The Commission sounded a clarion call to place the issue of teaching quality squarely at the center of our nation's education reform agenda, arguing that without a sustained commitment to teachers' learning and the redesign of schools, the goal of dramatically enhancing school performance for all of America's children will remain unfulfilled.

More than a decade later, the importance of teachers is widely acknowledged and many successful innovations have been launched, but unlike nations we consider peers or competitors, the U.S. has not yet been able to create a widespread system of support for high-quality teaching and learning that can provide top-flight education to all students.

Such a system would not only prepare all teachers well for the challenging work they are asked to do, but it would also ensure that schools are organized to support both student and teacher learning, and that the standards, curriculum, and assessments that guide their work support the kind of teaching and learning needed in the 21st century.

Other nations are creating such teaching and learning systems as they have made enormous investments in education over the last 20 years and have left the U.S. further and further behind educationally. As a measure of the growing distance, the U.S. currently ranks 28th of 40 countries – on a par with Latvia – in math achievement on the recent PISA assessments, 20th of 40 in science, and 19th in reading achievement. And while the top-scoring nations – including previously low-achievers like Finland and South Korea – now graduate more than 95 percent of their students from high school, the U.S. is graduating about 70-75 percent, a figure that has been stagnant for a quarter century and, according to a recent Educational Testing Service (ETS) study, is now declining.¹

The U.S. has also dropped from first in the world in higher education participation to 13th, as other countries make massive investments in their futures. Although 60 percent of our high school graduates go off to college, only half of these are well-enough prepared and supported to graduate with a degree – far too few for the knowledge economy we now operate. So, while our own youth are often unprepared for modern employment, Silicon Valley businesses lobby for more H-1B visas to bring in skilled workers to fill high-tech jobs.

At the root of these concerns is the tremendous unevenness and inequality that characterizes education in America. While our most advantaged students in our most educationally supportive states do as well as any in the world, low-income students and students of color are achieving at much lower levels. For example, 13 year old black and Hispanic students are reading at the level of white nine-year olds, and the achievement gap has been growing rather than shrinking as inequality in funding has also grown, with schools serving large concentrations of “minority” students featuring lower budgets, larger class sizes, lower quality curriculum, and less-qualified teachers across the country.

Indeed, shortages in the supply of well-prepared teachers are the largest threat to the education of these students – especially in cities and poor rural areas where tens of thousands of underprepared teachers have been assigned to the most vulnerable students. Those who are most school-dependent are most likely to have teachers who have no training to teach them to read or learn math, who do not know how to teach new English language learners, who cannot adapt the curriculum to different learning needs, and who are most likely to blame the students and their families for their own lack of skills.

Lack of access to education is more dangerous for individuals and society than ever before. Those who are undereducated can no longer access the labor market. While the U.S. must fill many of its high-tech jobs with individuals educated overseas, a growing share of its own citizens are unemployable and relegated to the welfare or prison systems, representing a drain on the nation’s economy and social well-being, rather than a contribution to the national welfare.

Indeed, between 1980 and 2000, prison populations quadrupled across the nation, and state budgets for corrections increased by nearly 300 percent, while budgets for higher education increased by only 25 percent. Three times as many African American men were added to the nation’s prison systems during that time as were added to our colleges.² By 2005, two states – California and Massachusetts—spent as much on corrections as they spent on higher education. Most inmates are high school dropouts, and more than half the adult prison population has literacy skills below those required by the labor market. Nearly 40 percent of adjudicated juvenile delinquents have treatable learning disabilities that were undiagnosed and unaddressed in the schools. This is substantially, then, an educational problem associated with inadequate access to the quality of teachers and other resources that could enable young people to gain the skills that would enable them to become gainfully employed.

The nation can ill afford to maintain the structural inequalities in access to knowledge and resources that produce persistent and profound barriers to educational opportunity for large numbers of its citizens. Our future will be increasingly determined by our capacity and our will to educate all children well – a challenge we have very little time to meet if the U.S. is not to enact the modern equivalent of the fall of Rome.

Developing a High-Quality Teaching and Learning System

As Governor James Hunt notes elsewhere in this volume, we must make a quantum leap in the quality of American education. To do this, we will need to attend to the major features of a learning system that are too often left to chance in the patchwork quilt that characterizes U.S. education policy.

What are the elements of such a system? To begin with, most high-achieving countries provide high-quality universal preschool and health care for children. They also fund their schools centrally and equally, with additional funds to the neediest schools. Thus students come to school ready to learn and they encounter schools that are equally well-equipped to help them do so. Furthermore, they support a well-prepared teaching force – funding competitive salaries and high-quality teacher education, mentoring, and ongoing professional development for all teachers, at state expense. These teachers work in schools where they have continuous access to their colleagues for planning and fine-tuning curriculum and to professional learning opportunities inside and outside the school.

Finally, high-achieving nations increasingly focus their curriculum on critical thinking and problem solving, organizing teaching around a curriculum focused on deep understanding. They use examinations that require students to conduct research and scientific investigations, solve complex real-world problems in mathematics, and defend their ideas orally and in writing. This focuses students' and teachers' attention on the skills that will matter in higher education and 21st century jobs. All of these elements need to be in place in every school to support high-quality teaching and learning.

Support for Teaching

A long line of studies has established that the single most important school influence on student learning is the quality of the teacher.³ Students lucky enough to have teachers who know their content and how to teach it well achieve substantially more. And the effects of a very good (or very poor) teacher last beyond a single year, influencing their students' learning for years to come. Indeed, expert teachers are the most fundamental resource for improving education.

This lesson has been well-learned by societies that top the international rankings in education. The highest-achieving countries around the world—Finland, Sweden, Ireland, the Netherlands, Hong Kong, Singapore, South Korea, Japan, Australia, and New Zealand – have poured resources into teacher training and support over the last decade. These countries routinely prepare their teachers more extensively, pay them well in relation to competing occupations, and provide them with lots of time for professional learning. They also distribute well-trained teachers to all students – rather than allowing some to be taught by untrained novices – by offering equitable salaries, sometimes adding incentives for harder-to-staff locations.

In Scandinavian countries like Finland, Sweden, Norway, and the Netherlands, all teachers now receive two to three years of graduate-level preparation for teaching, completely at government expense, plus a living stipend. Typically, this includes a full year of training in a school connected to the university, like the professional development school partnerships created by some U.S. programs, along with extensive coursework in pedagogy and a thesis researching an educational problem in the schools. Unlike the U.S., where teachers either go into debt to prepare for a profession that will pay them poorly or enter with little or no training – these countries made the decision to invest in a uniformly well-prepared teaching force by recruiting top candidates and paying them to go to school. Slots in

teacher training programs are highly coveted and shortages are unheard of.

Finland has been a poster child for school improvement since it rapidly climbed to the top of the international rankings after it emerged from the Soviet Union's shadow. Leaders in Finland attribute these gains to their intensive investments in teacher education. Over 10 years the country overhauled preparation to focus more on teaching for higher-order skills like problem solving and critical thinking. Teachers learn how to create challenging curriculum and how to develop and evaluate local performance assessments that engage students in research and inquiry on a regular basis. Teacher training emphasizes learning how to teach students who learn in different ways – including those with special needs. The egalitarian Finns reasoned that if teachers learn to help students who struggle, they will be able to teach all students more effectively and would indeed leave no child behind.

Policymakers also decided that if they invested in very skillful teachers, they could allow local schools more autonomy to make decisions about what and how to teach – a reaction against the oppressive, centralized system they sought to overhaul. This bet seems to have paid off. Teachers are sophisticated diagnosticians, and they work together collegially to design instruction that meets the demands of the subject matter as well as the needs of their students. Finnish schools are not governed by standardized tests, which are absent until the very end of high school, but by teachers' strong knowledge about how students learn.

Top-ranked Singapore, by contrast, is highly centralized, but it treats teaching similarly. When I recently visited Singapore's Institute of Education – the tiny nation's only teacher training institution – nearly everyone I spoke to described how they were investing in teachers' abilities to teach a curriculum focused on critical thinking and inquiry – the 21st century skills needed in a high-tech economy. To get the best teachers, students from the top third of each graduating high school class are recruited into a fully paid four-year teacher education program (or, if they enter later, a one- to two-year graduate program) and immediately put on the Ministry's payroll. When they enter the profession, teachers' salaries are higher than those of beginning doctors.

As in other highly-ranked countries, novices are not left to sink or swim. Expert teachers are given released time to serve as mentors to help beginners learn their craft. The government pays for 100 hours of professional development each year for all teachers in addition to the 20 hours a week they have to work with other teachers and visit each others' classrooms to study teaching. Currently teachers are being trained to undertake action research projects in the classroom so that they can examine teaching and learning problems, and find solutions that can be disseminated to others.

And teachers continue to advance throughout their career. With help from the government, Singapore teachers can pursue three separate career ladders that help them become curriculum specialists, mentors for other teachers, or school principals. These opportunities bring recognition, extra compensation, and new challenges that keep teaching exciting.

In these and other high-achieving countries, schools are organized to support teacher success. Typically, teachers have 15 to 20 hours a week to work with colleagues on develop-

ing lessons, participating in research and study groups, and engaging in seminars and visits to other classrooms and schools. Meanwhile, most U.S. teachers have no time to work with colleagues during the school day: they plan by themselves and get a few “hit-and-run” workshops after school, with little opportunity to share knowledge or improve their practice. In their study of mathematics teaching and learning in Japan, Taiwan, and the U.S., Jim Stigler and Harold Stevenson noted that “Asian class lessons are so well crafted [because] there is a very systematic effort to pass on the accumulated wisdom of teaching practice to each new generation of teachers and to keep perfecting that practice by providing teachers the opportunities to continually learn from each other.”⁴

A Focus on Higher-Order Learning

Having well-prepared teachers who focus on continually improving instruction is only part of the solution. Teachers need to work with students on critical skills that will allow them to transfer and apply their knowledge to new situations, and enable them to learn how to learn. The transmission curriculum that dominated schools for the last 100 years – which assumed a stable body of knowledge could be codified in textbooks and passed onto students who could “learn” it by remembering all the facts – is counterproductive today.

Recognizing that the top ten in-demand jobs projected for 2010 did not exist in 2004, we need to realize that we are currently preparing students for jobs that do not yet exist which will use technologies that have not yet been invented to solve problems that we don’t even know are problems yet. Indeed in the four years from 1999 to 2002, the amount of new information produced approximately equaled the amount produced in the entire history of the world previously.⁵ Rigid approaches to defining knowledge are sure to hold our students back. They need an education that will help them learn how to learn in powerful ways, so that they can manage the demands of changing information, knowledge bases, technologies, and social conditions.

Unfortunately, in the United States, our curriculum is still defined by standards and textbooks that are, in many states, a mile wide and an inch deep, and by tests that focus on recall and recognition, rather than production and application.

Most high-achieving countries teach (and test) fewer topics each year and teach them more thoroughly so students build a stronger foundation for their learning. Their assessments focus on critical thinking and problem solving, whether they are developed nationally (as in the small countries of Japan and Singapore), at the state or provincial level (as in larger countries like Australia, Canada, and China, where Hong Kong and Macao score well) or locally (as in top-ranking Finland).

In most cases, their assessment systems combine centralized (state or national) assessments that use mostly open-ended and essay questions with local assessments given by teachers, which are factored into the final examination scores. These local assessments - which include research projects, science investigations, mathematical and computer models and other products - are mapped to the syllabus and the standards for the subject and are selected because they represent critical skills, topics and concepts. They are generally designed, administered and scored locally.

By contrast, our multiple-choice tests – which focus the curriculum on low-level skills – are helping us to fall further and further behind. Whereas students in most parts of the United States are typically asked simply to recognize a single fact they have memorized from a list of answers, students in high-achieving countries are asked to apply their knowledge in the ways that writers, mathematicians, historians and scientists do.

In the United States, a typical item on the 12th grade National Assessment of Educational Progress, for example, asks students which two elements from a multiple choice list are found in the Earth's atmosphere. An item from the Victoria, Australia, high school biology test (which resembles those in Hong Kong and Singapore) describes how a particular virus works, asks students to design a drug to kill the virus and explain how the drug operates (complete with diagrams), and then to design and describe an experiment to test the drug – asking students to think and act like scientists.

Locally, students in other countries also complete required assessments like lab experiments and research papers that help evaluate student learning in the classroom. These assessments, which together count at least half the total examination score, allow the testing of complex skills that cannot be measured in a two-hour test on a single day. They ensure that students receive stronger learning opportunities. And they give teachers timely information they need to help students improve – something that standardized tests that produce scores several months later cannot do.

These assessments in other nations are not used to rank or punish schools, or to deny promotion or graduation to students. (In fact, several countries have explicit proscriptions against such practices.) They are used to evaluate curricula and guide professional learning – in short, to help schools improve.

By asking students to show what they know through real-world applications of knowledge, these other nations' assessment systems promote serious intellectual work that is discouraged in U.S. schools by the tests many states have adopted under No Child Left Behind (NCLB). Although some states, such as high-scoring Connecticut, Maine, Vermont and Nebraska, have created assessments that resemble those in other countries, the requirements and costs of NCLB have led an increasing number of states to abandon their challenging performance assessments for more simplistic machine-scored tests.

A growing body of research has shown that as more stakes become attached to such tests, teachers feel pressured to teach a multiple-choice curriculum that does not produce skills as they are used in the real world. Fully 85 percent of teachers in a recent poll said they feel the tests encourage them to teach in ways that are counterproductive.

As one teacher put it:

I have seen more students who can pass the (state test) but cannot apply those skills to anything if it's not in the test format. I have students who can do the test but can't look up words in a dictionary and understand the different meanings. ... As for higher-quality teaching, I'm not sure I would call it that. Because of the pressure for passing scores, more and more time is spent practicing the test and putting everything in test format.⁶

Studies confirm that as teaching looks more like testing, U.S. students are doing less writing, less science, less history, reading fewer books, and even using computers less in states that will not allow their use on standardized tests.⁷

Indeed, as state test scores have gone up under NCLB, scores on other tests measuring broader skills have not. Scholastic Achievement Test scores have gone down for the last few years. Data on the National Assessment of Educational Progress show that the rate of improvement in math achievement has slowed considerably since NCLB passed in 2002, and reading achievement has completely stalled, with declines at the eighth-grade level. This is likely because a test prep curriculum in the early grades does not provide the foundation that students need to do higher-level work later on.

Creating a Strong Teaching and Learning System in the United States

Clearly we need more than a new set of national goals to mobilize a dramatically more successful educational system. We also need more than small-scale pilot projects, demonstrations, innovations, and other partial solutions. We need to take the education of poor children as seriously as we take the education of the rich, and we need to create systems that guarantee all of the elements of educational investment routinely to all children. This means creating systems of curriculum and assessment that point our nation at the kind of learning our children will need for the 21st century and equalizing access to critical educational resources, especially a steady supply of well-prepared and well-supported teachers to all communities.

How might this be done? A new paradigm for national education policy should be guided by twin commitments to support meaningful learning on the part of students, teachers, and schools and to equalize access to educational opportunity, making it possible for all students to profit from more productive schools.

Support Meaningful Student Learning and School Progress

A new federal education policy should start by helping states develop world-class standards, curriculum, and assessments, and use them for improving teaching rather than punishing schools. We should return to the more productive approach of President Clinton's Goals 2000 initiative, which stimulated richer curriculum and more performance-based assessments in many states, like Connecticut, Vermont, Nebraska, Maine, Oregon, and Kentucky. Studies found that student learning increased in response to the assessments they developed, which included hands-on performance tasks and portfolios of student work in reading, writing, and mathematics.

The federal government should provide support to enable states to develop systems, based on standards developed by professional subject matter associations, that include multiple measures of student learning; use assessments that are performance-based; and include school-based components—such as research papers and presentations, science experiments, mathematical models, and exhibitions—that, like those in other countries, are embedded in the curriculum and scored by teachers using common criteria, providing information that continuously improves teaching and learning.

School progress should also be evaluated on multiple measures – including such factors as student progress, continuation, and graduation from school, as well as classroom performance on tasks beyond multiple choice tests. Gains should be assessed by how individual students improve over time, rather than school averages that can be influenced by changes in who is assessed. Schools should be judged on whether their students make progress on multiple measures of achievement, including school-based measures that assess higher order thinking and understanding, provide useful diagnostic information, and ensure appropriate assessment for special education students and English language learners, guided by professional testing standards.

And “opportunity-to-learn standards” specifying the provision of adequate materials, facilities, and teachers, should accompany assessments of student learning, creating benchmarks for the pursuit of equity.

Pay Off the Educational Debt

A new federal policy must also finally address the deep and tenacious educational debt that holds our nation’s future in hock, ensuring that every child has access to adequate school resources, facilities, and quality teachers. Federal education funding to states should be tied to each state’s movement toward equitable access to education resources. Furthermore, the obvious truth—that schools alone are not responsible for student achievement—should propel attention to programs that will provide adequate health care and nutrition, safe and secure housing, and healthy communities for children.

Major investments must be made in the ability of schools to hire and support well-prepared teachers and leaders. While NCLB sets an expectation for hiring qualified teachers, it has not included policy supports to make this possible. If we are serious about leaving no child behind, we need to go beyond mandates to ensure that all students have well-qualified teachers. A focused and purposeful Marshall Plan for Teaching could ensure that all students are taught by well-qualified teachers within the next five years for an annual cost less than that of one week in Iraq.

Effective action can be modeled after federal investments in medicine. Since 1944, the federal government has subsidized medical training to fill shortages and build teaching hospitals and training programs in high-need areas—a commitment that has contributed significantly to America’s world-renowned system of medical training and care. Intelligent, targeted incentives can ensure that all students have access to teachers who are indeed highly qualified. Such a plan would:

1. Recruit high-need teachers, through service scholarships and forgivable loans for those who agree to train in shortage fields and practice in high-need locations. As in North Carolina’s successful Teaching Fellows model, scholarships for high-quality teacher education can be linked to minimum service requirements of four years or more – the point at which most teachers who have remained in the classroom have committed to remaining in the profession. Because fully prepared novices are twice as likely to stay in teaching as those who lack training, shortages could be reduced rapidly if districts could hire better prepared teachers. Virtually all of the vacancies currently filled with

emergency teachers could be filled with well-prepared teachers if 40,000 service scholarships of up to \$25,000 each were offered annually.

2. Improve teachers' preparation through incentive grants to schools of education focused on strengthening teachers' abilities to teach a wide range of diverse learners successfully (\$300 million). An additional \$200 million should expand state-of-the-art teacher education programs in high-need communities that create "teaching schools" partnered with universities. As in teaching hospitals, candidates study teaching and learning while gaining hands-on experience in state-of-the-art classrooms. Effective models have already been created by universities sponsoring professional development schools and by school districts offering urban teacher residencies. These residencies place candidates as apprentices in the classrooms of expert urban teachers while they earn a stipend and complete their coursework, repaying the investment with at least 4 years of service. Such programs can create a pipeline of teachers prepared to engage in best practice in the schools where they are most needed, while establishing demonstration sites for urban teaching. Funding for 200 programs serving an average of 150 candidates each at \$1,000,000 per program per year would supply 30,000 exceptionally well-prepared recruits to high-need communities each year.
3. Support mentoring for all beginning teachers to stem attrition and increase competence. With one third of new teachers leaving within 5 years, and higher rates for those who are under-prepared, recruitment efforts are like pouring water into a leaky bucket. By investing in state and district induction programs, we could ensure mentoring support for every new teacher in the nation. Based on the funding model used in California's successful Beginning Teacher Support and Assessment (BTSA) Program, a federal allocation of \$4,000 for each of 125,000 beginning teachers, matched by states or local districts, could ensure that each novice is coached by a well-trained mentor.
4. Create career ladders in teaching that recognize accomplishment, use the skills of expert teachers to improve schools, and reward commitment to the neediest communities. Recruitment and retention can also be supported by encouraging the development of career ladders that reward teachers for deep knowledge of subjects, additional knowledge in meeting special kinds of student and school needs, high levels of performance measured against professional teaching standards, and evidence of contributions to student learning. These approaches would also encourage teachers to learn needed skills, enhance the expertise available within schools, and improve learning for many traditionally under-performing student groups.

Federal matching grants could be used to leverage the additional compensation associated with such a career ladder for expert, experienced teachers who serve as mentors, master teachers, and coaches, especially in high-need schools. For \$500 million annually, stipends of \$10,000 could be provided to 50,000 accomplished teachers who help improve practice in high-poverty schools. An additional \$300 million in matching grants could be used to improve teaching conditions in these schools, including smaller pupil loads, adequate materials, and time for teacher planning and professional development — all of which keep teachers in schools.

In the long run, these proposals would save far more than they would cost. The savings would include the more than \$2 billion dollars now wasted annually because of high teacher turnover, plus the even higher costs of grade retention, summer school, remedial programs, lost wages and prison sentences for dropouts (another \$50 billion, increasingly tied to illiteracy and school failure). If NCLB is to be anything more than empty rhetoric, we will need a policy strategy that equalizes access to school resources, creates a 21st century curriculum for all students, and supports it with thoughtful assessments and access to knowledgeable, well-supported teachers.

Endnotes

1. NCTAF What Matters Most: Teaching for America's Future.
2. For a summary of these issues, see Linda Darling-Hammond, "The flat earth and education: How America's commitment to equity will determine our future," *Educational Researcher*, September 2007.
3. Justice Policy Institute (2002). Cellblocks or classrooms. Retrieved from <http://www.justicepolicy.org>.
4. For a review, see Darling-Hammond, L. (2000). Teacher quality and student achievement: A review of state policy evidence. *Educational Policy Analysis Archives*, 8 (1): <http://epaa.asu.edu/epaa/v8n1>. See also, Ferguson, R.F. (1991, Summer). Paying for public education: New evidence on how and why money matters. *Harvard Journal on Legislation* 28(2), pp.465-498.
5. Stigler, James W. and Stevenson, Harold W. (1991, Spring). How Asian Teachers Polish Each Lesson to Perfection," *American Educator*, pp.12-47.
6. Varian, H. and Lyman, P. (2003). How Much Information? 2003. University of California at Berkeley, School of Information Management & Systems (SIMS). Retrieved on 9/22/07 from www2.sims.berkeley.edu/research/projects/how-much-info-2003/printable_report.pdf.
7. Haney, W. (2000). The myth of the Texas miracle in education, part 6, p. 10. *Education Policy Analysis Archives*, 8 (41): Retrieved [Oct. 31, 07] from: <http://epaa.asu.edu/epaa/v8n41/>.
8. Darling-Hammond, L. & Rustique-Forrester, E. (2005). The Consequences of Student Testing for Teaching and Teacher Quality. In Joan Herman and Edward Haertel (eds.) *The Uses and Misuses of Data in Accountability Testing. The 104th Yearbook of the National Society for the Study of Education, Part II*, pp. 289-319. Malden, MA: Blackwell Publishing.

Building a System for Powerful Teaching and Learning, by Linda Darling-Hammond, © 2007 Linda Darling-Hammond