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NCLB REAUTHORIZATION: STRATEGIES FOR ATTRACTING, SUPPORTING AND RETAINING HIGH QUALITY EDUCATORS

HEARING

OF THE

COMMITTEE ON HEALTH, EDUCATION, LABOR, AND PENSIONS

UNITED STATES SENATE

ONE HUNDRED TENTH CONGRESS

FIRST SESSION

ON

EXAMINING STRATEGIES FOR ATTRACTING, SUPPORTING, AND RETAINING HIGH QUALITY EDUCATORS

MARCH 6, 2007

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NCLB REAUTHORIZATION: STRATEGIES FOR ATTRACTING, SUPPORTING AND RETAINING HIGH QUALITY EDUCATORS

TUESDAY, MARCH 6, 2007

U.S. SENATE,
COMMITTEE ON HEALTH, EDUCATION, LABOR, AND PENSIONS,
Washington, DC.

The committee met, pursuant to notice, at 10:04 a.m., in Room SD–430, Dirksen Senate Office Building, Hon. Edward M. Kennedy, chairman of the committee, presiding.

Present: Senators Kennedy, Bingaman, Clinton, Brown, Gregg, Alexander, Isakson, Roberts, and Allard.

OPENING STATEMENT OF SENATOR KENNEDY

The CHAIRMAN. Good morning. We'll proceed if you would be good enough to take a seat. We've got a wonderful group of friends here this morning to engage us in terms of the conversation about an essential aspect of the whole educational system and how we are going to ensure that we are going to get good teachers that are going to be inspiring figures to help and assist—strengthen the educational system in our No Child Left Behind legislation and in schools across the country.

I think all of us on the panel understand the importance of having good teachers and in good teachers, we're thinking about not only those that have the very strong understanding in terms of the substance of the material that they are teaching young children but those special—those additional special qualities that I think each and every one of us can think of when we think about the teachers in our own lives that have inspired us. We want to somehow capture that kind of a magic and make sure that it is going to be available to children so that they can be inspired in terms of their own kinds of educational careers. It's really a challenging undertaking.

I don't think that any of us minimize the complexity and the difficulties in attracting people to the teaching profession. I don't think any of us minimize the challenges that we are facing in holding good quality people in the teaching profession, particularly in the areas of math and science.

We've seen the numbers of those that have gone into the profession, the serious numbers that have left teaching and we are very, very mindful, in particular, of attracting good quality teachers into the underserved areas and keeping them there to try and make a difference so that we can see—as we are trying to see the achieve-

ment and accomplishment and the enhancement of education among children in so many of the areas of our country and rural and urban areas that are challenged with the difficulties of poverty.

But what we have seen and we'll hear today are a number of different efforts that have been made locally that have been very successful and that is what we are very interested in hearing about. We want to hear about what is working. We are all familiar with the challenges that are out there but I think on this panel here this morning, we have some very creative, imaginative and worthwhile efforts that we can really benefit from here in this committee and hopefully the legislation can benefit from as well as we are going through and that is our real purpose. We want your ideas, we want your suggestions and we are going to invite you not only to be part of this meeting here this morning but as we continue to draft legislation particularly in these areas to get your suggestions and get your recommendations and get your ideas. We need your help.

So I will include my full statement in the record and ask Senator Alexander, former head of the Department of Education, a member of our committee who has a particular interest on the issues on education and could be willing to say a word.

[The prepared statement of Senator Kennedy follows:]

PREPARED STATEMENT OF SENATOR KENNEDY

I welcome our participants in today's roundtable discussion on the No Child Left Behind Act. I'm grateful to our colleagues on the committee, especially Senator Enzi and his staff for helping us to arrange this roundtable.

One of the major goals of the No Child Left Behind Act is to have a capable teacher in every classroom across the Nation. We all know that teachers are an especially important factor in student learning. They support, encourage, and inspire students to do their best and become the best they can be. I'm sure all of us here today have had great teachers whom we'll never forget.

International comparisons show that the United States is falling behind other countries in student achievement. The heart of the problem is the pervasive achievement gap between white students and other students. On the most recent test comparing students in industrialized nations, white students in the United States performed *better* than the average for all countries, while Hispanic and African-American students did worse. If we can close this achievement gap, and guarantee all students a good education, we can put America back at the top of the list.

Research also shows that the way to close this achievement gap is to see that all children have good teachers. One study found that having a high quality teacher for 5 years in a row can overcome the average 7th grade achievement gap in math between lower-income and higher-income children.

It's unacceptable that America's most at-risk students are too often taught by the least prepared, the least experienced, and the least qualified teachers. Students in high-poverty and high-minority schools are twice as likely to be taught by new, inexperienced teachers than students in less-poor and less-diverse schools. Such teachers are less likely to receive the pay and support they need

and they often leave their school or leave teaching all together, further destabilizing already struggling schools.

The teacher distribution gap exists for many reasons, such as poor working conditions, outdated facilities, large class sizes, inadequate salaries and benefits, and better support for individual teachers. These are all problems that can be solved.

It's especially troubling, given the global challenges we face, that we have such serious teacher shortages in math and science. Nearly half the math classes in high-poverty or high-minority high schools are taught by teachers without a major or minor in math or a math-related subject. From 1990 to 2002, the percent of public high school math teachers with full certification in math decreased from 90 percent to 80 percent. We need teachers well-trained in these basic subjects who can inspire students to study them.

Today we're here to discuss some proven strategies and innovative approaches to meeting these challenges.

Obviously, we need to do more to recruit better teachers for high need schools. They deserve better financial incentives, better training, better opportunities to advance in their careers, and stronger support in taking on the added challenge of teaching in high-need schools.

Retention of good teachers is also a problem. In the 2003–4 school year, nearly 270,000 public school teachers left the profession. The percent of teachers leaving the profession has risen steadily—from 6.6 percent in 1994 to 8.4 percent in 2004. In 2004, 28 percent of those who left the field had less than 3 years of experience. Workplace conditions, lack of support, and lack of opportunities for professional development are major considerations in their decisions to leave their schools. It's clear that what we're doing now to support and retain teachers isn't enough.

Today, we'll discuss some of the innovative models that schools are using to overcome these problems, reduce the teacher distribution gap, and strengthen teaching as a profession. We'll hear about the importance of strong leadership and better strategies for recruiting and retaining good principals in schools where they're needed most.

We'll also hear about how to measure teacher effectiveness. There is no scientific formula for what makes a great teacher. Excellent educators are produced by combination of factors—knowledge of content, good classroom preparation, the right personality, support from other teachers and communication with them, and continuous learning in and outside of the classroom.

Student test scores are not the only measure. A balanced approach is needed, so that we can direct training and other resources as effectively as possible.

All of you here today have much to contribute to this discussion of effective strategies to meet these challenges. We look forward to your insights, and we appreciate your willingness to be here today.

The roundtable format enables us to hear from more people and to have an interactive discussion. After Senator Enzi makes his introductory remarks, we'll ask each of our participants to describe the strategies that have been effective in their communities for recruitment and retention of teachers, and the types of support and

professional development that are most effective in high-need schools.

Once each witness has responded, we will open up the discussion so my colleagues can comment and ask questions. In order to keep the discussion moving, we request that all participants limit their responses to any question to 1 minute. If the need arises, we will vary the format a little to fit the discussion.

Thank you all again for being here today. Now we'll hear from Senator Enzi.

OPENING STATEMENT OF SENATOR ALEXANDER

Senator ALEXANDER. Thank you, Senator Kennedy. First let me thank you for organizing the roundtable in this way. This gives us an opportunity to do something Senators don't usually do, which is listen instead of talk so I don't want to interfere with that mode of operation.

I'm genuinely looking forward to this and I'd like to say it this way—yesterday Senator Bingaman and I and Kennedy and Gregg and a number of us who have been working about 2 years on how do we keep our brainpower advantage, asked the National Academy of Sciences what to do. How do we keep America's brainpower advantage? So please tell us in priority order what to do. So they did, they gave us 20 specific recommendations. A group of Nobel Laureates, teachers, business leaders—Norm Augustine headed it and the priority that they put it in, they didn't put the Research and Development tax credit first, they didn't put more funding for university research first. They put K–12 first and they put teaching first within K–12 and that's sort of my view of things. I have been going to education meetings for a long time.

My conclusion is that it mostly boils down to parents and teachers and principals and everything else is about 5 percent. Since I don't quite know how to have a perfect parents program, focusing on teachers is very important. I will be interested to hear about No Child Left Behind and rural teachers and special ed teachers and professional developmental programs.

I would be especially interested if those of you who have so much experience in the education community can help us see if we can encourage finding ways to reward outstanding teachings and outstanding principals. I know that's not easy to do. I've tried it myself. We had a career ladder program in Tennessee. We bemoan the fact that teachers and principals leave, yet we have a flat pay scale that goes like this and until we find a fair way to reward outstanding teachers and principals, we won't keep good men and women in the classroom.

Second, we won't really be able to assign and keep these very talented teachers to work on the low performing schools, Mr. Chairman, who are only about 15 to 20 percent of the schools but are where they really need to go to work. So we can't figure that out but perhaps you can help us do that and I'll especially be listening to your suggestions about that. Thank you.

The CHAIRMAN. I'll ask each of the panelists if they just have 3 or 4 minutes. We want to have a real discussion. This is really a strategy that we are following with our former Chair, Mike Enzi, and it seemed to have worked very well and that is the way we

will proceed, joined by Senator Gregg and Senator Bingaman and now we'll listen.

I'll introduce four of the witnesses, then hear from those four and then introduce the others because people might forget the good things I say about our second set of witnesses if I introduce nine of you in a row. We will try and keep the message as close to the individual as possible.

So, we will start over here with Professor Linda Darling-Hammond, Professor of Education at Stanford University. She will discuss the importance of professional development and strengthening the teacher workforce. She proposes an initiative similar to medical school training for education including residencies and extensive training.

After her, we will have Amy Wilkins, who is the Vice President of Government Affairs at the Education Trust. Amy will discuss the teacher distribution gap and how to get more qualified teachers in high-poverty and high-minority schools.

Then we will hear from Pam Burtnett who is President of the Lake County Education Association. Pam was a national board-certified teacher, 25 years of experience teaching 6th through 12th grade. She worked 12 years as a Professional Development Specialist at the district level, helping to improve teacher effectiveness, literacy comprehension and assessment. She also was a local site coordinator for the Lake County Effective Teaching Center for 10 years. Lets just start with those three and we'll start with you, Linda Hammond, please. Thank you.

STATEMENT OF LINDA DARLING-HAMMOND, ED.D., PROFESSOR OF EDUCATION, STANFORD UNIVERSITY, STANFORD, CALIFORNIA

Ms. HAMMOND. Thank you very much. It is a pleasure to be here. I'm delighted that you are tackling this hugely important topic. I agree with you, Senator Alexander that it's about the teachers and the principals and then bringing the parents along with that. So I'm going to basically argue for a systemic approach and for attention to retention as well as recruiting teachers. I've submitted written testimony that outlines a number of programs. I'm not going to spend a lot of time at the front end talking about them other than to put a couple of benchmarks that we could talk about later.

Let me note that this problem of recruiting and retaining teachers has been around since I entered teaching in 1973 on the NDEA Act and you may remember that we had a flurry of activity back then to try to recruit teachers and in contrast to other countries that we think of as peers or competitors that have a systemic approach and don't have ongoing shortages of teachers. We continue to have this problem and I think it is because we have not yet had a sustained coherent effort that has lasted over a period of time, in the way that we have for the medical profession or the Federal Government has had a set of initiatives for 45 years to ensure that we get doctors into shortage areas, that we train them in shortage fields, that we have medical programs developed in places where they are needed and I think we need a similar approach in teaching.

Other countries that we think of as peers that are high achieving have equal salaries for teachers with additional stipends for those that go to high-need areas. They have universal teacher education at State expense, high quality, including a year of clinical practice where you actually learn how to teach in schools that are organized for that purpose. Mentoring for every beginning teacher is the norm in other high achieving countries and ongoing professional development, which usually takes place in about 10 to 15 hours a week, where teachers work with each other on planning lessons and so on. So that's sort of an image where I think we need to go as we develop systems in this country.

By contrast, we have very unequal salaries and they tend to be lower where the kids are needier. We have unequal working conditions. We have teachers with varying degrees of preparation and mentoring.

The four factors that research finds matters most are salaries, working conditions, the degree of preparation—teachers who are better prepared stay in teaching longer. Those who have, for example, student teaching and know about learning are twice as likely to stay in teaching after the first year. And mentoring—those who get a coach who works with them in the first year of teaching are much more likely to stay in teaching. Retention turns out to be one of the biggest problems so we have at least 30 percent of teachers leaving over the first 5 years. It's more in cities and poor rural areas. The costs of attrition are estimated at about $15,000 per person who leaves. So for non-retirement attrition in this country, we're spending about $2.2 billion a year just to deal with the churn mostly of beginning teachers who come in and out.

When our strategies or solutions for teacher shortages do not give teachers enough preparation or mentoring, that just adds to the churn and adds to the cost of attrition.

So in my written testimony, I mention a lot of programs. I won't spend time talking about all of them but these are places that have made a significant difference in recruiting and retaining teachers all across the country.

I talk about the North Carolina Teaching Fellows, which is a program that has brought thousands of teachers in, high ability teachers who have stayed at rates of over 75 percent over 7 years and disproportionately in math and science and in other shortage areas. I talk about programs in California that have provided bonuses to national board-certified teachers for working in low performing schools that have successfully brought those accomplished teachers into districts and schools where they might not otherwise have been and programs that have put resources for incentives into hard-to-staff schools for improving working conditions, providing hiring bonuses and a variety of other strategies to both make those places better places to work and recruit accomplished teachers to those schools.

I talk about programs like the Urban Teacher Residencies in Chicago and Boston—we have Jesse here to talk about the Boston program—which are creating very strong schools in inner-city neighborhoods that are staffed by mentored teachers that are excellent places to teach high-need kids well. And then training teachers there solves one of our biggest problems because to teach kids who

have large levels of needs, you need to be in a place where master teachers are showing you how to do it. Those programs and professional development school programs that some universities have started could lead us into ways to develop an engine of supply for highly prepared teachers for high-need districts and also reward those mentor teachers who work there.

I talk about beginning teacher mentoring programs in States like Connecticut and California that ensure that all teachers get high quality mentoring and have reduced attrition as well as in districts where unions and management have negotiated programs that work for reducing attrition and ensuring greater competence.

The CHAIRMAN. Let me give you just a few seconds to wrap up, please.

Ms. HAMMOND. And finally, in my written testimony, I outline sort of a marshal plan for teaching, which for the cost of about 1 percent of the current engagement in Iraq, would I think, give us the capacity to ensure that we have well qualified teachers in all kinds of communities, through service scholarships, recruitment incentives for accomplished teachers to go into high-need schools, high quality preparation, universal mentoring and a teacher performance assessment. So I think that a systemic approach is possible and those are the elements I think would be very helpful.

[The prepared statement of Dr. Hammond follows:]

PREPARED STATEMENT OF LINDA DARLING-HAMMOND, ED.D.

With increased recognition that expert teachers are perhaps the most fundamental resource for improving student learning, there is growing interest in figuring out how to recruit and retain strong teachers, especially in high-need schools. Unfortunately, unlike other industrialized nations, especially those that are the highest-achieving, **the United States lacks a systematic approach to recruiting, preparing, and retaining teachers**. With few governmental supports for preparation or mentoring, teachers in the United States enter:

- with dramatically different levels of training—with those least prepared teaching the most educationally vulnerable children,
- at sharply disparate salaries—with those teaching the neediest students earning the least,
- working under radically different teaching conditions—with those in the most affluent communities benefiting from class sizes under 20 and a cornucopia of materials, equipment, specialists, and supports, while those in the poorest communities teach classes of 40 or more without adequate books and supplies,
- with little or no mentoring or on-the-job coaching in most communities to help teachers improve their skills.

Meanwhile, higher-achieving countries that rarely experience teacher shortages (such as Finland, Sweden, Norway, Netherlands, Germany, France, Australia, New Zealand, Japan, Taiwan, Singapore) have made substantial investments in teacher training and equitable teacher distribution in the last two decades. These include:

- High-quality graduate-level teacher education, at government expense, including a year of practice teaching in a clinical school connected to the university,
- Mentoring for all beginners in their first year of teaching from expert teachers, coupled with other supports like a reduced teaching load and shared planning,
- Equitable salaries (often with additional stipends for hard-to-staff locations) which are competitive with other professions, such as engineering,
- Ongoing professional learning embedded in 10 or more hours a week of planning and professional development time.

In order to make headway on the issue of recruiting and retaining teachers where they are needed most, a systemic approach is needed. There are a number of States and districts that have undertaken successful approaches that should be emulated.

Ultimately, a national teacher supply policy is critically needed.[1] To begin, the **nature of the problem** must be understood. In particular,

1. *There is not an overall shortage of teachers in the United States.* In fact there are many more certified teachers in the Nation than there are positions.[2] **There is, however, a maldistribution of qualified teachers across States and districts—and a shortage of teachers willing to work for low wages under poor working conditions.** Thus, part of the problem is how to equalize conditions across districts and schools and attract teachers to the places where they are needed. **The strategies of States and districts that have turned around shortages are detailed below. They include increased salaries alongside increased standards, stronger pipelines to teacher preparation, and improved teaching conditions, including mentoring and professional development.**

2. *There are specific fields, such as mathematics, science, special education, and teaching of English as a second language, which have real shortages and where strategic recruitment incentives are needed.* Unlike medicine, where the Federal Government funds medical schools to grow programs in high-need fields and provides service scholarships for candidates to go to into these fields and practice in high-need locations, there is currently no such national policy in teaching. Usually, preparation standards are lowered instead, which contributes to higher attrition (see below), thus exacerbating rather than solving the problem. It is critical to develop programs, like those described below, that increase the probability recruits will succeed and stay in the places they are needed, rather than adding to the revolving door of in-and-out recruits.

3. *Retaining teachers is a far larger problem than recruiting new ones and a key to solving teacher "shortages."* The main problem is an exodus of new teachers from the profession, with more than 30 percent leaving within 5 years, and higher rates of turnover in lower-income schools. An additional problem is the flight of teachers from less-affluent schools to more-affluent schools. This is strongly tied to **working conditions**—including administrative support and strong colleagues as well as tangible teaching conditions and **salaries**. Research also finds that teachers leave the profession much faster if they have **less** preparation before they enter and less mentoring support when they arrive. **The costs of teacher attrition are very high—estimated at $15,000 on average per recruit who leaves, or at least $2 billion annually.[3] These funds should be spent strategically on stronger teaching supports, rather than wasted on a fast-spinning revolving door.**

Below I describe specific programs that have been successful in addressing these issues. States and urban districts that have successfully transformed their teaching forces have used a comprehensive approach, including increasing salaries and standards simultaneously, pursuing aggressive recruitment and hiring, using subsidies to underwrite teacher preparation, creating teacher education pipelines, ensuring mentoring for beginners, and supporting professional development and improved teaching conditions. Several examples of these successes are included in Appendix A. Finally, I outline a proposal for a Marshall plan to improve teaching, which, for the price of less than 1 percent of the costs of the intervention in Iraq, could solve teacher shortages and establish the foundation for a teaching quality system in the United States that would provide a reliable stream of well-prepared teachers to the places they are most needed.

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[1] For a fuller treatment of the design of a national teacher supply policy, see L. Darling-Hammond and G. Sykes (2003). Wanted: A national teacher supply policy for education: The right way to meet the "highly qualified teacher" challenge. *Educational Policy Analysis Archives, 11* (33). *http://epaa.asu.edu/epaa/v11n33/*.

[2] In California, for example, there are about 1.3 million credentialed teachers and about 280,000 teaching positions. Nationally, of the estimated 200,000 teachers hired annually, no more than 125,000 are hired from the new teacher pool; the remainder are individuals who are moving or returning to teaching from the reserve pool. The number of new teachers currently prepared each year—roughly 190,000—is more than enough to satisfy this demand. Furthermore, despite shortfalls in some areas, the United States annually produces many more new teachers than its schools hire. Only about 70 percent of newly prepared teachers enter teaching jobs immediately after they graduate, and many report that they cannot find jobs.

[3] A 2000 study in Texas, estimated the costs of turnover at between $8,000 and $48,000 per recruit who leaves, depending on the cost model used (Texas Center for Educational Research, 2000). The organizational costs include those for termination, substitutes, searching, managing the selection process, new training, and lost skills. The study found that only 17 percent of this attrition was due to retirement. More recent estimates from personnel administrators put the range of costs between $12,000 and 20,000, with most around $15,000. National turnover rates are about 6–8 percent annually, with about 20 percent of that due to retirements. This amounts to about 150,000 non-retirees leaving a year, at a cost of about $2.25 billion.

RECRUITING WELL-PREPARED HIGH-NEED TEACHERS WHO STAY IN TEACHING

One of the most successful teacher recruitment initiatives over two decades is the **North Carolina Teaching Fellows program**. Funded by the State legislature since 1986, the Fellows program provides $26,000 in service scholarships ($6,500 per year for 4 years) to 500 high-ability high school seniors a year who enroll in intensive 4-year teacher education programs throughout the State, selected for their quality and augmented with additional training. The Fellows must teach for at least 4 years in North Carolina schools. The program has supplied over 8,000 teachers for the State's schools, a disproportionate share of whom are males, members of underrepresented minority groups, and in high-need fields like math and science. An evaluation following fellows over 7 years found that 75 percent were still teaching in the public schools in the State, and many of the remainder had advanced to educational leadership positions in schools or districts (Norris, 1998). Fellow felt very well-prepared, and principals reported that the Fellows' first year classroom performance far exceeded that of other new teachers in every area assessed (Berry, 1995).

A similar program in California, **the Governor's Teaching Fellowships**, targeted $20,000 service scholarships for high-ability college graduates who would prepare to teach in under-performing schools in particular, and recruited candidates entering 1-year graduate level teacher education programs. This program was successful in providing a supply of high-ability, well-trained candidates to high-need schools in a short-time period.

RECRUITING EXPERT VETERAN TEACHERS TO HARD-TO-STAFF SCHOOLS

California also has launched a program to attract **National Board Certified teachers to high-need schools** by paying a $20,000 bonus—paid out over 4 years—to teachers who become Board-Certified and teach in underperforming schools. This has drawn a number of accomplished teachers to these schools. Like the Connecticut BEST program, teachers who achieve the high standards set on the National Board's assessment of teacher performance have been found in most studies to be more effective in producing student achievement gains.[4]

Many studies find that districts paying less than the market wage in their local labor market tend to experience continual shortages, and that **raising salaries** to market levels can quickly transform the hiring pool if there is also a well-functioning hiring system. (See the examples of specific initiatives in San Diego, New Haven, CA, and New York City in the Appendix.) Some States have eliminated shortages in urban and poor rural areas by **equalizing salaries** so that poorer districts can compete in the labor market for teachers. (See the example of Connecticut's strategy in the Appendix.) Some districts have sought to use **salary incentives to attract teachers to hard-to-staff schools**, a strategy that has had mixed success in the few places that have tried it. In some places, this has proved a modestly productive approach. In others where overall salaries are inadequate and working conditions are poor, bonuses have not been enough to change the district pool or entice teachers to schools that are poorly run and dysfunctional. However, **re-designing schools** so that they are much more supportive of teaching and learning—including creating small, innovative high schools to replace failing factory model schools—and **improving working conditions** in hard-to-staff schools (by reducing class size, improving leadership, infusing resources for strong, curriculum innovations) has been successful in many districts. California created the **Teachers as a Priority Program, providing funding for improved working conditions in hard-to-staff schools** to attract and keep qualified teachers in these schools. The program supported class size reduction, curriculum reforms, mentoring, bonuses and other interventions to redistribute teachers.

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[4] Bond, L., Smith, T., Baker, W., & Hattie, J. (2000). The certification system of the National Board for Professional Teaching Standards: A construct and consequential validity study (Greensboro, NC: Center for Educational Research and Evaluation); Cavaluzzo, L. (2004). Is National Board Certification an effective signal of teacher quality? (National Science Foundation No. REC–0107014). Alexandria, VA: The CNA Corporation; Goldhaber, D., & Anthony, E. (2005). Can teacher quality be effectively assessed? Seattle, WA: University of Washington and the Urban Institute; Smith, T., Gordon, B., Colby, S., & Wang, J. (2005). An examination of the relationship of the depth of student learning and National Board certification status (Office for Research on Teaching, Appalachian State University). Vandevoort, L. G., Amrein-Beardsley, A., & Berliner, D. C. (2004). National Board certified teachers and their students' achievement. *Education Policy Analysis Archives, 12* (46), 117.

Most important are models that can simultaneously improve teacher competence and retention and meet pressing supply needs. Because many teacher candidates choose to teach where they grew up or went to college, it is important to have strong programs in hard-to-staff urban and rural locations. This is why alternative programs, when they are well-designed and offer sufficient training, are useful for building teacher supply, since they recruit and train candidates specifically for the districts that sponsor them.

However, many alternative programs, and some traditional programs, fail to provide one of the most important elements of preparation—the opportunity to learn under the direct supervision of expert teachers working in schools that serve high-need students well. Teaching cannot be learned from books or even from being mentored periodically. Teachers must see expert practices modeled and must practice them with help. However, student teaching is too often reduced or omitted, or it is in classrooms that do not model expert practice, or it is in classrooms that do not serve high-need students—and what is learned does not generalize to other schools. This fundamental problem has to be tackled and solved if we are to prepare an adequate supply of teachers who will enter urban or poor rural classrooms competent to work effectively with the neediest students and confident enough to stay in teaching in these areas.

Poorly designed alternatives do not keep teachers in teaching. Studies find that teachers leave at much higher rates if they lack key elements of preparation. For example, teachers without student teaching experience or preparation in curriculum, teaching methods, learning, and child development leave at twice the rate as teachers who have had this kind of training.[5] A recent study[6] that documented these outcomes in New York City showed that students achieved less when taught by new uncertified or alternatively certified teachers and that these teachers left at higher rates. For example, between 2000 and 2004, more than 50 percent of New York City Teaching Fellows and other nontraditional entrants had left by their fourth year, along with 85 percent of Teach for America teachers. This compared to only 37 percent of college prepared teachers. Given the costs of attrition, these high turnover rates cost the city more than $50 million.

There are two kinds of initiatives that have tackled this problem successfully. One alternative is the **Urban Teacher Residency** designed in Chicago that has created new schools or completely re-staffed existing schools with highly expert mentor teachers and then placing mid-career recruits *in the classrooms of* these mentor teachers for a year while they complete coursework in curriculum, teaching, and learning at local universities. Rather than trying to teach without seeing good teaching in a sink or swim model, these recruits watch experts in action and are tutored into accomplished practice. These recruits receive a $30,000 salary during this year and a masters degree and credential at the end of the year. They are selected because they want to commit to a career in urban public school teaching and they pledge to spend at least 4 years in city schools. This model has already shown high retention rates in teaching and strong performance by graduates, who now staff other turnaround schools in the city.

A similar model, launched by a number of universities is the **professional development schools model**. Like teaching hospitals in medicine, these models partner universities with school sites that exhibit state-of-the-art practice and train novices in the classrooms of expert teachers while they are completing coursework that helps them learn to teach diverse learners well. Many of these new models are located in urban schools, creating a pipeline of teachers well-prepared to teach in these districts. Highly-developed models have been found to increase teacher effectiveness and raise student achievement.[7]

Such programs can solve several problems simultaneously—creating a pipeline of committed teachers who are well-prepared to engage in best practice for children in

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[5] For a review, see Darling-Hammond, L. & Sykes, G. (2003). Wanted: A national teacher supply policy for education: The right way to meet the "highly qualified teacher" challenge. *Educational Policy Analysis Archives, 11* (33). *http://epaa.asu.edu/epaa/v11n33/*; Henke, R., Chen, X., & Geis, S. (2000). *Progress Through the Teacher Pipeline:* 1992–1993 College Graduates and Elementary/Secondary School Teaching As Of 1997. Washington, DC: National Center for Education Statistics, U.S. Department of Education.

[6] Boyd, D., Grossman, P., Lankford, H., Loeb, S., & Wyckoff, J. (2006). How changes in entry requirements alter the teacher workforce and affect student achievement. *Education Finance & Policy, 1* (2); 176–216.

[7] For a summary of studies, see L. Darling-Hammond & J. Bransford, *Preparing Teachers for a Changing World: What Teachers Should Learn And Be Able To Do*. San Francisco: Jossey-Bass, 2005, pp. 415–416.

high-need schools, while creating demonstration sites that serve as models for urban teaching and teacher education.

HIGH QUALITY MENTORING

Retention is at least as important to solving teacher supply as recruitment. With 30 percent of new teachers leaving within 5 years (and more in urban areas), the revolving door cannot be slowed until the needs for beginning teacher support are addressed. Other high-achieving countries invest heavily in structured induction for beginning teachers: they fund schools to provide released time for expert mentors and they fund other learning opportunities for beginners, such as seminars, visits to other teachers' classrooms, and joint planning time. Such strategies have also been found effective in reducing beginning teacher attrition in the United States. A critical component is strong mentoring, which includes on-the-job observations and coaching in the classroom as well as support for teacher planning by expert veterans.[8] If even half of the early career teachers who leave teaching were to be retained, the Nation would save at least $600 million a year in replacement costs.

Districts like Cincinnati, Columbus, and Toledo, Ohio, Rochester, New York, and Seattle, Washington have launched **Peer Assistance and Review Programs**, which have sharply reduced attrition rates of beginning teachers by providing expert mentor teachers with release time to coach beginners in their first year on the job and evaluate them at the end of the year. Each program was established through collective bargaining and is governed by a panel of teachers and administrators. The governing panel selects consulting teachers through a rigorous evaluation process that looks for teaching skills and mentoring abilities. These mentors, or consulting teachers, work in the same subject area as those that they are assisting. They visit, observe, and consult with the beginning teachers at least weekly, and they meet regularly with one another to develop their skills as mentors and to share resources and ideas. In all of these districts, beginning teacher attrition has fallen as a result of this program: In each case, first year teachers leave at rates of no more than 5 percent—most because they have been discontinued through the evaluation process rather than because they have become discouraged. Some of the districts previously experienced beginning teacher attrition rates as high as 30 percent or more.[9]

The additional benefit of these and other mentoring programs is the new lease on life for many veteran teachers as well. Expert veterans need ongoing challenges to remain stimulated and excited about staying in the profession. Many say that mentoring and coaching other teachers creates an incentive for them to remain in teaching as they gain from both learning from and sharing with other colleagues.

On the State level, induction programs that are tied to high quality preparation can be doubly effective. **California's Beginning Teacher Support and Assessment (BTSA) Program**, which provides mentors and other supports for beginning teachers in their first 2 years, has shown that carefully designed mentoring systems can produce rates of beginning teacher retention exceeding 90 percent in the first several years of teaching. The State provides $3000–$4000 in matching funds per beginning teacher to support this program.

Connecticut—Beginning Educator Support and Training (BEST) program for beginning teachers has also stemmed attrition and improved competence. It requires districts who hire beginning teachers to provide them with mentors who are also trained in the State teaching standards and portfolio assessment system that were introduced as part of reforms launched in 1986. (See Appendix A for a fuller discussion of the reforms, which also greatly boosted supply and quality through subsidies for preparation, increased salaries and standards, and extensive professional development.) Beginning teachers must demonstrate that they can teach through a performance assessment modeled after the National Board for Professional Teaching Standards assessment. Studies in Connecticut have reported that teacher education and induction programs have improved because of the feedback from the assessment; beginning teachers and mentors also feel the assessment has helped them improve their practice as they become clearer about what good teaching is and how to develop it. Beginning teacher scores on the BEST portfolio have been found to predict teacher effectiveness in terms of influence on student learning

[8] A number of studies have found that well-designed mentoring programs improve retention rates for new teachers along with their attitudes, feelings of efficacy, and their range of instructional strategies (California Commission on Teacher Credentialing, 1992; Karge and Freiberg, 1992; Kolbert and Wolff, 1992; Darling-Hammond & Sykes, op. cit.; Luczak, op. cit.)

[9] National Commission on Teaching and America's Future, *What Matters Most: Teaching for America's Future*. NY: Author, 1996.

gains.[10] Thus, the program enhances teacher competence and effectiveness as it shapes and improves preparation and mentoring.

Although requirements for beginning teacher induction have proliferated, with more than 30 States now requiring some kind of induction program, many are not funded and do not provide the kind of mentoring and coaching described here.[11] Two recent analyses of a large-scale national teacher survey revealed that the most important predictor of teacher's ongoing commitment to the profession is the quality of the mentoring and support they receive, rather than the mere existence of a program, which often does not provide intensive coaching or planning support.[12]

WHAT CAN THE FEDERAL GOVERNMENT DO? A MARSHALL PLAN FOR TEACHING

A strategic Federal role is needed to create an infrastructure for strong teaching across the country. Individual innovative programs at the local level will not alone solve the problems we face. Federal strategies for enhancing the supply of teachers have precedents in the field of medicine as well as teaching. Since 1944, Washington has subsidized medical training to meet the needs of underserved populations, to fill shortages in particular fields, and to build teaching hospitals and training programs in high-need areas. This consistent commitment has contributed significantly to America's world-renowned system of medical training and care.

Intelligent, targeted subsidies for preparation coupled with stronger supports at entry and incentives for staying in high-need schools are needed to ensure that all students have access to teachers who are indeed highly qualified. A serious national teacher quality and supply policy could be accomplished for $3 billion annually, less than 1 percent of the more than $300 billion spent thus far in Iraq, and, in a matter of only a few years, could build a strong teaching force that would last decades.

In the long run, these proposals would save far more than they would cost. The savings would include the more than $2 billion now wasted annually because of high teacher turnover, plus the even higher costs of grade retention, summer school, remedial programs, lost wages and prison costs for dropouts[13] (increasingly tied to illiteracy and school failure)—all of which could be substantially lowered if we committed to ensuring strong teachers in the schools that most need them. Such a plan should focus on:

- **Increasing the supply and quality of teachers** targeted to high-need fields and locations through:

1. *Service scholarships for entering teachers*, with special focus on high-need fields and locations (40,000 @ $25,000 each = $1 billion annually).
2. Recruitment *incentives for expert, experienced teachers* to teach in high-need schools (50,000 teachers x $10,000 stipends ($500 million) + $300 million to improve teaching conditions in high-need schools = $800 million).
3. *Improved preparation* for teaching high-need students and for programs in high-need areas ($500 million, including $200 million for state-of-the-art "teaching schools" partnered with universities in hard-to-staff communities).

- **Improving retention and mobility of well-qualified teachers** through:

4. *Mentoring for all beginning teachers* through investments in State and district mentoring programs (150,000 @ $4000 each = $600 million).
5. A high-quality, nationally available *teacher performance assessment* to guide training, improve quality, and facilitate interstate mobility ($100 million).

INCREASING TEACHER SUPPLY AND QUALITY IN HIGH-NEED FIELDS AND LOCATIONS

While most States have long had surpluses of candidates in elementary education, English, and social studies, there are inadequate numbers of teachers trained in high-need areas like mathematics, physical science, special education, bilingual education and English as a Second Language (ESL), and there are problems getting well-prepared teachers to where they are most needed. Shortages in poor urban and rural schools are usually met by lowering standards—an especially dysfunctional response because the students in these schools need the most highly skilled teachers if they are to close the gap, and because high turnover rates for untrained teachers

[10] Wilson, M. & Hallum, P.J. (2006). Using Student Achievement Test Scores as Evidence of External Validity for Indicators of Teacher Quality: Connecticut's *Beginning Educator Support and Training* Program. Berkeley, CA: University of California at Berkeley.

[11] (NCTAF, 2003).

[12] Ingersoll, 1997b; Luczak, 2005.

[13] The costs of dropouts, in terms of lost wages and taxes, health and social welfare costs, plus incarceration costs (most inmates are high school dropouts and more than half are functionally illiterate) are estimated to exceed $50 billion annually.

cost urban districts hundreds of millions of dollars in attrition costs. Because fully prepared beginning teachers are twice as likely to stay in teaching as those who enter without complete training, district shortages could be reduced rapidly if such districts could hire better prepared teachers (as fewer would need to be hired each year to replace those who left and a more adequate supply would be available). Two kinds of targeted incentives are needed to attract qualified teachers to schools and areas that historically have been underserved.

1. First, the Federal Government should maintain a substantial, sustained program of **service scholarships** that completely cover training costs in high-quality pre-service or alternative programs at the undergraduate or graduate level for those who will teach in a high-need field or location for at least 4 years. (After 3 years, candidates are much more likely to remain in the profession and to make a difference for student achievement.) While some Federal grants are currently available, there are too few of them and they are too small in scope to serve as an adequate incentive to candidates.

Service scholarships (as opposed to post hoc forgivable loans) can be targeted to high-ability candidates who might not otherwise enter teacher preparation. These incentives can be used proactively to recruit candidates to the fields and locations where they are needed. Nearly all of the vacancies currently filled with emergency teachers could be filled with talented, well-prepared teachers if 40,000 service scholarships of up to $25,000 each were offered annually. These should be designed to cover up to 2 years of undergraduate or graduate teacher education, including alternative programs for mid-career recruits, and should be:

- Allocated on the basis of academic merit and indicators of potential success in teaching, such as perseverance, capacity and commitment;
- Targeted especially to areas of teaching shortage as defined nationally and by individual States; and
- Awarded in exchange for teaching for 4 years in priority schools, defined on the basis of poverty rates and educational needs (e.g. language minority status).

2. Second, **recruitment incentives for high-need schools** are also needed to attract and keep expert, experienced teachers in the schools where they are most needed, both to teach and to mentor other teachers. This requires a combination of salary incentives and improvements in working conditions, including the redesign of dysfunctional school organizations to support smaller pupil loads, and time for teachers to work and plan together.

Federal matching grants to States and districts should provide incentives for the design of innovative approaches to attract and keep accomplished teachers in priority low-income schools, through compensation for accomplishment and for additional responsibilities, such as mentoring and coaching. Five-hundred million dollars would provide $10,000 in additional compensation for 50,000 teachers annually to be allocated to expert teachers in high-need schools through State- or locally-designed incentive systems, recognizing teacher expertise through such mechanisms as National Board Certification, State or local standards-based evaluations, and carefully assembled evidence of contributions to student learning. (Matched by State and local contributions, this program would provide incentives to attract 100,000 accomplished teachers to high-poverty schools.)

To keep high-quality teachers in high-poverty communities, schools need to offer working conditions that support teacher and student success. An additional $300 million should be allocated on a State/district matching grant basis to improve teaching conditions, including, as warranted, smaller classes and pupil loads, administrative supports for necessary materials and supplies, and time for teacher planning and professional development—all of which attract and keep teachers in schools.

3. Third, just as the Federal Government has undertaken in medicine, the Marshall plan should fund **improved preparation** for teaching high-need students and for programs in high-need areas. For this purpose, the plan would allocate $300 million to improve preparation for teaching reading and literacy skills at all grade levels, mathematics and science, special education, and English language learners.

An additional $200 million of these funds should be targeted for state-of-the-art teacher education programs in hard-to-staff communities that incorporate "teaching schools" partnered with universities, including urban **teaching residencies** and **professional development school models**. In these programs, candidates would take coursework focused on teaching challenging content to diverse learners while engaged in practice teaching in schools staffed by expert teachers and designed to model state-of-the-art practice. Since many teachers have a strong preference to teach close to where they grew up or went to school, this approach would also enhance the pool of local college graduates prepared to teach in their communities.

Funding for 200 programs at $1,000,000 per year per program (for 5 years), each serving an average of 150 candidates annually, would supply 30,000 exceptionally well-prepared recruits to urban teaching each year who would provide long-term commitment and leadership in these districts.

IMPROVING TEACHER RETENTION AND MOBILITY

Most of the teacher supply problem in the United States is actually a problem of retention. Attrition is highest in the early years of teaching: About one-third of new teachers leave within 5 years, and the rates are much higher for teachers who enter with less preparation and those who do not receive mentoring. Current estimates average about $15,000 per teacher who leaves, totaling at least $2 billion each year. Because beginning teachers are generally less effective than those with 3 or more years of experience, continual high turnover of beginning teachers also significantly reduces educational productivity. Stemming this attrition is critical, as recruitment efforts are otherwise like pouring water into a leaky bucket, rather than repairing it.

4. Providing **mentoring for all beginning teachers** would reduce attrition and increase competence. A matching grant program could ensure support for every new teacher in the Nation through investments in State and district mentoring programs. Based on the funding model used in California's Beginning Teacher Support and Assessment Program, a Federal allocation of $4000 for each beginning teacher, matched by States or local districts, would fund a mentor for every 10–15 beginning teachers. At 125,000 new teachers each year,[14] an investment of $500 million could ensure that each novice is coached by a trained, accomplished mentor with expertise in the relevant teaching field.

5. Finally, this preparation and mentoring can be strengthened if they are guided by a high-quality, nationally-available **teacher performance assessment**, which measures actual teaching skill in the content areas, and which can facilitate interstate mobility. Current examinations used for licensing and for Federal accountability typically measure basic skills and subject matter knowledge in paper-and-pencil tests that demonstrate little about teachers' abilities to practice effectively. Furthermore, in many cases these tests evaluate teacher knowledge *before* they enter or complete teacher education, and hence are an inadequate tool for teacher education accountability.

The Interstate New Teacher Assessment and Support Consortium (INTASC), sponsored by the Council of Chief State School Officers, created teacher licensing standards adopted by most States and piloted performance assessments tied to the standards; several States, including Connecticut and California, have incorporated such performance assessments in the licensing process. These assessments have been found to be strong levers for improving preparation and mentoring, as well as determining teachers' competence. Federal support of $100 million for the development of a nationally available, performance assessment for licensing would not only provide a useful tool for accountability and improvement, but it would also facilitate teacher mobility across States, if it were part of an effort to unify the current medieval system of teacher testing that has resulted in 50 separate "fiefdoms" across the country. Because teacher supply and demand vary regionally, teachers need to get easily from States with surpluses to those with shortages, which requires license reciprocity.

With a purposeful focus, a Marshall Plan for Teaching could help ensure within only a few years that the United States has developed an infrastructure comparable to those in other countries for providing highly-qualified teachers to all children in all communities.

APPENDIX A.—LESSONS FROM STATE AND DISTRICT EXPERIENCES[15]

A number of States and local school districts have fashioned successful strategies for strengthening their teaching forces. A few are outlined here.

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[14] About 250,000 teachers are hired each year, but typically only 40–60 percent of them are new to teaching. The others are experienced teachers changing schools or returning teachers who are re-entering the labor force.

[15] This is drawn from L. Darling-Hammond and G. Sykes (2003). Wanted: A national teacher supply policy for education: The right way to meet the "highly qualified teacher" challenge. *Educational Policy Analysis Archives, 11* (33). *http://epaa.asu.edu/epaa/v11n33/*. Citations to research about these programs can be found there.

A. STATE APPROACHES

Beginning in the 1980s, Connecticut and North Carolina enacted some of the Nation's most ambitious efforts to improve teaching. On the heels of these efforts, these States, which serve sizable numbers of low-income and minority students,[16] registered striking gains in overall student learning and narrowed achievement gaps between advantaged and disadvantaged pupils. During the 1990s, for example, North Carolina posted the largest student achievement gains of any State in math and sizable advances in reading, putting it well above the national average in 4th grade reading and math, although it had entered the decade near the bottom of State rankings. Of all States during the 1990s, it was also the most successful in narrowing the minority-white achievement gap (National Education Goals Panel, 1999). In Connecticut, also following steep gains throughout the decade, 4th graders ranked first in the Nation by 1998 in reading and math on the NAEP, despite increased poverty and language diversity among its public school students. Its minority-white achievement gap, too, narrowed notably. The proportion of Connecticut 8th graders scoring at or above proficient in reading was first in the Nation. In the world, moreover, only top-ranked Singapore could outscore Connecticut students in science (Baron, 1999).

Among the reforms that contributed to such gains were the significant improvements in both States' teaching forces, including in inner cities and rural areas. How did they accomplish this? With ambitious teacher initiatives that introduced standards, incentives and professional learning for teachers, along with curriculum and assessment reforms for schools (Darling-Hammond, 2000a; Wilson, Darling-Hammond, & Berry, 2000).

Both States strengthened teacher education and licensure. For a teaching license, for example, Connecticut insisted on additional preparation at entry, meaning a major in the content area taught and more pedagogical training as well as learning to teach reading and special-needs pupils and passing basic skills and content tests before entry to teaching. The State also eliminated emergency licensing and toughened requirements for temporary licenses. Teachers must complete a master's degree and a rigorous performance assessment modeled on that of the National Board for Professional Teaching Standards to gain a professional license.

North Carolina likewise increased licensing requirements for teachers and principals, in the form of increased coursework in content and pedagogy as well as licensing tests, required schools of education to undertake professional accreditation through the National Council for Accreditation of Teacher Education (NCATE), invested in improvements in teacher education curriculum, and supported creation of professional development schools connected to schools of education. Both States also developed mentor programs for beginning teachers that extended assistance and assessment into the first year of teaching, and both introduced intensive professional development for veteran teachers.

These efforts were successful because both States created strong labor market incentives linked to their teacher standards. Among measures they adopted:

• **Increased and Equalized Salaries, Tied to Standards.** Both States coupled major statewide increases in teacher salaries with improved pay equity across districts. In Connecticut, for example, the average teacher salary climbed from $29,437 in 1986 to $47,823 in 1991, with the equalizing nature of the State aid making it possible for urban districts to compete for qualified teachers. Because Connecticut's State teacher salary assistance could be spent only for fully certified teachers, districts had greater incentives to recruit those who had met the high new standards, and individuals had greater incentives to meet these standards. North Carolina created standards-based incentives by adopting notable salary increases for teachers to pursue National Board Certification, so that North Carolina now has more teachers certified by the National Board than any other State.

• **Recruitment Drives and Incentives.** To attract bright young candidates, both States initiated programs to subsidize teacher education in return for teaching commitments. The highly selective North Carolina Teaching Fellows program, for example, paid all college costs, including an enhanced and fully funded teacher education program, for thousands of high-ability students in return for several years of teaching. After 7 years, retention rates for these teachers exceeded 75 percent,

[16] In the fall of 1999, Connecticut had 30 percent students of color, including the 12th largest Hispanic enrollment in the Nation, and in 2002, 36 percent of students attended Title I schools. In the same years, North Carolina had 38 percent students of color, including the 8th largest enrollment of African Americans, and 38 percent of students attended Title I schools (NCES, 2001, table 42; NAEP State Data, 2002, retrieved from *http://nces.ed.gov/nationsreportcard/statedata*).

with many of the remaining alumni holding public school leadership posts (NCTAF, 1996). Connecticut's service scholarships and forgivable loans similarly attracted high-quality candidates and provided incentives to teach in high-need schools and shortage fields, while the State also took steps to attract well-trained teachers from elsewhere. By 1990, nearly a third of its newly hired teachers had graduated from colleges rated "very selective" or better in the Barron's Index of College Majors, and 75 percent had undergraduate grade point averages of "B" or better (Connecticut State Board of Education, 1992, p. 3).

• **Support Systems.** Both States bolstered support systems that make a difference in stemming teacher turnover. North Carolina launched a mentoring program for new teachers that greatly increased their access to early career support (National Education Goals Panel Report, 1998). Connecticut provided trained mentors for all beginning teachers and student teachers as part of its staged licensing process. For existing teachers, North Carolina created professional development academies, a North Carolina Center for the Advancement of Teaching, and teacher development networks such as the National Writing Project and analogous institutes in mathematics. This was in addition to its incentives for National Board Certification. Connecticut, among other things, required continuing professional development, including a master's degree for a professional license.

Such teacher reforms began paying off early on. After Connecticut's $300 million 1986 initiative, for instance, the higher salaries and improved pay equity, combined with the tougher preparation and licensing standards and an end to emergency hiring, swiftly raised teacher quality. An analysis found, in fact, that within 3 years, the State not only had eliminated teacher shortages, even in cities, but also had created surpluses (Connecticut State Department of Education, 1990). Even as demand increased, the pool of qualified applicants remained solid. A National Education Goals Panel report (Baron, 1999) found that in districts with sharply improved achievement, educators cited the high quality of teachers and administrators as a critical reason for their gains and noted that "when there is a teaching opening in a Connecticut elementary school, there are often several hundred applicants" (p. 28).

These teacher initiatives occurred alongside other education changes—increased investments in early childhood education and in public schools generally, as well as wide-ranging, standards-based reform—which also contributed to the States' student achievement gains. There is little doubt, however, that higher-quality teachers supplied to all schools were substantial contributors to these other reforms as well as to the overall achievement increases. Both States sought to increase not only salaries and the quality of preparation for teachers, but also the incentive structure for distributing teachers to fields and locations. Both sharply reduced hiring of unlicensed and underprepared staff. Most notably, both held to the course of teacher improvement over a sustained period—more than 15 years in each case. They demonstrate what State policy in support of good teaching can accomplish.

B. DISTRICT APPROACHES

District success stories reflect the importance of recruiting, inducting and supporting qualified teachers using policy tools available at the local level and leveraging State assistance. Following are four examples of what urban districts have done.

New York City. New York City illustrates how a focus on recruiting qualified teachers, coupled with necessary salary increases, can have a large effect in a brief period. The city long had hired thousands of underprepared teachers, typically filling as many as half of its vacancies with uncertified applicants, many well after September. The State, however, pressured the city to hire qualified teachers and mandated that uncertified teachers could no longer teach in low-performing schools. This, plus awareness of pending NCLB requirements, led to the improvements. The district focused on more aggressive recruiting and hiring of qualified teachers and implemented a steep increase in salaries—averaging 16 percent overall and more than 20 percent for beginning teachers—to make them more competitive with surrounding suburban districts. With these policies, 2002–3 vacancies were filled by July, and 90 percent of new hires were certified, up from 60 percent the year before. The remaining 10 percent were in programs that would lead to certification by the end of the school year (Hays & Gendar, 2002).

Community School District #2. Much earlier, New York City's Community District #2 was an oasis widely heralded as a turnaround story, with a strategic emphasis on professional development for teachers and principals. But student achievement gains clearly relied on both a development recruitment strategy (Elmore & Burney, 1999). In 1996, after a decade of reforms focused on strengthening teaching, this "majority-minority" district—which serves large numbers of low-income and immi-

grant students—realized sharp achievement gains that ranked it 2nd in the city in reading and math.

Sweeping changes instituted by Superintendent Anthony Alvarado stressed continuing professional development for teachers and principals, coupled with a relentless concentration on instructional improvement. At the same time, Alvarado recognized the need for more talented and committed teachers and principals. Backed by the teachers' union, he replaced nearly half the teacher workforce and two-thirds of principals over a period of years through a combination of retirements, pressure and inducements. Meanwhile, the central office carefully managed the recruitment, hiring and placement of new teachers and principals. It ended the hiring of unprepared teachers and sought recruits from several leading teacher education programs in the city, forging partnerships for student teaching and professional development with these institutions as well. Similar programs for developing principals were launched. The district's growing reputation for quality also attracted other teachers. Salary changes were not within the district's purview. Its strategies, rather, involved recruiting aggressively, creating university partnerships to develop a pipeline of well-prepared teachers, and supporting teachers with strong mentoring and professional development.

New Haven, California. California success stories are particularly notable because that State in recent years has ranked first in the Nation in the number of unqualified teachers. In this high-demand context, with State policies that were, until recently, relatively unsupportive (e.g., low expenditures, lack of reciprocity with other States, restricted teacher education options), some districts have nonetheless achieved significant staffing improvements. New Haven Unified School District, just south of Oakland in Union City, which enrolls 14,000 mostly low-income and minority students, is one that has succeeded while neighboring districts have not. New Haven combined high salaries, aggressive recruiting and close mentoring with a high-quality training program worked out with area universities. Although not a top-spending district, it invested its resources in teacher salaries and good teaching conditions. In 1998, for example, New Haven's salaries were more than 30 percent higher than nearby Oakland's, where large numbers of unqualified teachers were hired, even though New Haven's per-pupil spending was below Oakland's (Snyder, 2002).

Thus, over an extended period it built a well-prepared, highly committed and diverse teaching staff. For the 2001–2 school year, 10 of its 11 schools had no uncredentialed teachers. The district averaged 0.1 percent uncredentialed teachers—while some neighboring districts averaged more than 20 percent (Futernick, 2001). New Haven uses advanced technology and a wide range of teacher supports to recruit from a national pool of exceptional teachers and to hire them quickly. The district was one of California's first to implement a Beginning Teacher Support and Assessment Program that assists teachers in their first 2 years in the classroom; all beginning teachers get help from a trained mentor, who is given release time for the purpose. In addition, New Haven collaborated with California State University-Hayward on the right kind of alternative-certification program, combining college coursework and an internship, including student teaching, conducted under the close supervision of university- and school-based educators. As a result of these initiatives, the district has a teacher surplus in the midst of general shortages.

San Diego, California. Using similar strategies, San Diego City Schools recently overhauled its teacher recruitment and retention system, aggressively recruiting well-trained teachers, collaborating with universities on new training programs in high-need fields, and creating smooth pathways with local schools of education. It offers contracts to well-prepared teachers as early as possible (sometimes as much as a year in advance of hiring) and reaches out to teachers in other States. In addition, the district streamlined the hiring process, putting the entire system online, improving its capacity to manage hiring data, vacancy postings and interviews that had slowed the process and caused many candidates to give up and go elsewhere. In the fall of 2001, districts like San Francisco and Los Angeles hired hundreds of uncredentialed teachers, and the State as a whole hired more than 50 percent of novices without full credentials. But San Diego filled almost all of its 1,081 vacancies with credentialed teachers, eliminating all but 11 of the hundreds of previously hired emergency permit teachers who had been assigned largely to high-minority, low-income schools.

The CHAIRMAN. Very helpful. Senator Roberts has a schedule conflict and asked to be able to say a word and of course, we'd welcome his words.

OPENING STATEMENT OF SENATOR ROBERTS

Senator ROBERTS. Mr. Chairman, thank you very much and thank you and Senator Enzi for holding this and I want to thank the panel members for taking time out of your very valuable schedule to come and give us your expertise.

As a former teacher myself, a drafted former teacher, my experience hopefully is not that unique but I had a newspaper in Phoenix on the West Side and one of the teachers became ill so the superintendent asked if I would simply take over, which I did. I was the journalism teacher and then found that I was the speech teacher and then found I was teaching English and then found I was in charge of the newspaper and then found I was in charge of the annual and then found I was in charge of the forensics competition and then was the assistant basketball coach.

[Laughter.]

Which would make Senator Gregg laugh, I know, because of our personal experience on the basketball court when we were in the House. But at any rate, I'm interested in the back door and that's just the basic speech that I want to make or comment that I want to make and I think that there are a number of very quality people, especially in math and science and I know under No Child Left Behind, we have troops as teachers and we tried a fast track to the certification process—it takes about 5 years in Kansas. The average teaching certification process takes 4 years to complete. I found after being drafted that the tail was wagging the dog. I was not only trying to run this weekly newspaper but I was also trying to teach during the day and then run the newspaper at night, et cetera, et cetera. That finally got to be impossible but it was quite an experience for me in gaining firsthand knowledge on the value of being a teacher and the time that you have to put in and I'm just trying to figure out if there is a better way on certification, if we couldn't get more career professionals in every segment of our society. It doesn't have to be military—it could be business, it could be education, it could be anything to become a teacher.

So my questions were to be more specially to Ms. Burtnett, who is a graduate of the every-optimistic fighting Jay Hawks and my question was, what components of the teacher certification process do you think are essential in initially preparing a teacher for the classroom and then Mr. Solomon, in your experience as a director of a teaching program, do you think there are ways to prepare a retired career professional at a quicker rate in order to get them into the classroom early. What I'm talking about is after I taught all those subjects and was—I think I was paid $5,200 for that experience and then $200 for the newspaper and $200 for the annual, et cetera, et cetera. You remember, I guess, those days but you know, Ed Psych I, Ed Psych II and then my favorite—Standard Deviation. Do you remember Standard Deviation? Have all of you taken this? Have you ever used it? Has anybody ever used standard—you have? Why on earth did you do that?

[Laughter.]

Who uses standard deviation? But it's under a course called Test and Measurement, Mr. Chairman and I would access that no Senator could possibly do this. Staff could do this. But it takes forever

to do this. This is the test and you are supposed to have criteria here so that you do standard deviation on all of your students when they take tests to figure out where the hell you are on the bell curve in terms of criteria, et cetera, et cetera—nobody uses this.

Then we have, of course, by E.F. Skinner, who figured out that—a long story short—if you have pop quizzes, that really will keep the students alert as opposed to one every Friday or one every whatever—I mean, if you're in the Marine Corp and you're going to have an inspection, your rifles are clean. If they inspect on Friday, they are clean on Thursday. If the DI comes in anytime, your rifles are clean all the time. And yet we had to have a whole course on that by Mr. Skinner, who is the God of Ed Psych II. I don't even—I think the man is still alive. I don't know if he is or not. I'm just trying to say that there has to be some way to figure out in a 2-year timeframe, where somebody could be a teacher that wants to come in through the back door—you know, that has a gift—that has a love for this because after all, that is a labor of love because of teacher salaries.

So if any of you have any ideas on the back door, on how we get people in that would like to be a teacher after they've had another profession and add to the cadre of very fine teachers that we have. I don't want to do anything to alarm anybody about the certification process, making the teaching profession a profession. I understand that. I know you have to go through all of the various hurdles to get your salary increased and I think part of that is good but part of it I think is totally unnecessary.

So that's my pitch and that's my rant and rave for this morning, Mr. Chairman. I've already posed the questions and I'm going to have to leave here pretty quick and I thank you for interrupting everybody here that was before me and certainly interrupting all the panels. But that's what I do on this committee.

The CHAIRMAN. Amen, Amen. Thank you, Senator Roberts. We always are interested in what your comments are and you raise some important questions and I hope our panel will respond to them if you are necessarily absent.

We'll go ahead with Amy Wilkins. We'll talk about that teacher distribution gap and particularly focus on qualified teachers in high-poverty areas.

STATEMENT OF AMY WILKINS, VICE PRESIDENT FOR GOVERNMENTAL AFFAIRS AND COMMUNICATION, EDUCATION TRUST, WASHINGTON, DC.

Ms. WILKINS. Thank you, Senator. I am sitting in this morning for Kati Haycock, my boss, who is sick and 3 minutes is probably more than I want to talk right now.

Good teaching makes an enormous difference, as Senator Alexander said and it especially makes an enormous difference for low-income kids who have less to fall back on at home. Research tells us time and again that highly effective teachers can outweigh the effects of poverty, can outweigh the effects of language spoken at home and is probably the single most important factor in student achievement, yet the very students who most need highly effective teachers are less likely to get them. The American education sys-

tem is virtually rigged to ensure that the students who most need highly effective teachers are the least likely to get them, sort of no matter how you cut it, based on whether the teacher is teaching in a subject area that she actually studied herself in college, whether that teacher is a novice teacher and whether that teacher is certified. Low-income kids always end up with the short end of the stick. Then we sort of wonder, well, why aren't they achieving?

If we really hope to close the achievement gap in this country, we have to do something to drastically change the teacher distribution patterns such that the kids who most need highly effective teachers indeed get them.

In our written testimony, there is a lot of theories that support those points but I want to jump directly to two big issues—what you try to do when you originally authorized NCLB and where that fell short and how you need to move forward from there.

NCLB was very, very, very important in the teacher distribution question in that it finally put the question on the table in a very real way. But there were really three problems with the law. The first was that the Department of Education all but refused to implement the provisions that you all passed. Second that the States resisted those provisions strenuously and third, there were some problems in the statute itself.

We hope that you use this reauthorization to fix the problems in the statute and also press the Department of Education for better implementation.

When you look at what the Senate and the Congress need to do in reauthorizing this law, we have several recommendations. One is that in order to identify the kind of effective teachers that Senator Alexander talked about, we can't begin to put really good teachers in our high-poverty schools until we're able to identify them. Dr. Sanders, along with others, has done some very pioneering work in value-added systems. We think that the States need to move to value-added systems to look at the effectiveness of their teachers. Since it seems that the States are clamoring for growth models to replace AYP, this is an opportunity to do that because the data that the States will need to go to growth models, if paired with teacher records, will give us information about the effectiveness of teachers and we can begin to distribute better teachers between high- and low-poverty schools.

You also need to fix title II. Title II was a huge opportunity to boost the effectiveness of teaching in our high-poverty schools. Since the law was passed, nearly $15 billion has been put into title II and instead of being targeted at improving teaching in high-poverty schools, it has become a slush fund at the district level, spread widely across districts, not only serving high-poverty kids but serving all kids and serving any number of program needs, according to a GAO study. So tightening the targeting on title II is also an important thing to do.

The last thing I'm going to mention is probably the most important—single most important thing you can do in reauthorizing this law, is to fix the comparability provisions of the law. The ESCA is based on a fiction. You all say that before districts can get title I money to provide extras to low-income children, districts have to demonstrate that they are indeed, with their own dollars, providing

an equal funding base across high- and low-poverty schools. The law requires that demonstration be made by demonstrating that the district has a single salary schedule—that is, all teachers are paid sort of lock-step. Well, what happens in fact and you can see this in almost every school district across the country, is that as teachers gain experience and as their salaries increase, they migrate away from high-poverty schools and start teaching, because of the prerogatives that the contracts give them, start teaching in sort of more desirable schools.

As they leave the high-poverty schools, they take those big paychecks with them, leaving lower paid, novice teachers at the high-poverty schools and that gap between what novice teachers are making at high-poverty schools and what the more experienced teachers are making at more affluent and more desirable schools, actually represent a theft from low-income kids and your title I dollars are not providing extras to low-income kids but are in fact, being used by districts to begin to fill the gap between their own dollars that are migrating.

You have to amend the comparability provisions in the law such that when districts are required to demonstrate comparability of funding across school districts, they require to count teacher salaries as part of that equation.

So with that, I'll shut up and we'll move on.

[The prepared statement of Ms. Wilkins follows:]

PREPARED STATEMENT BY AMY WILKINS, ON BEHALF OF KATI HAYCOCK

Mr. Chairman, Mr. Enzi, and members of the committee, thank you for providing me with the opportunity to testify before you this morning.

INTRODUCTION

Others on this panel will talk with you today about the pressing need to dramatically increase the effectiveness of America's teaching force. I could not agree more. For the record, though, I want to emphasize that much more is at stake than simply meeting the goals and timelines of No Child Left Behind. Literally mountains of research now tell us that our efforts to maintain world leadership in any number of spheres are fundamentally dependant on whether or not we have the courage to confront the issue of teacher effectiveness and to do what it takes to provide every student with quality teaching in every subject, every year.

As pressing as the overall teacher effectiveness issues are, however, my job this morning isn't to talk with you about the general problem, but, rather, about the very specific problem of teacher effectiveness in our high-poverty schools. For the sorry fact is that the American system of education is rigged to all but ensure that low-income children—the very children who need the most effective teachers to help them achieve their potential and catch up with their peers—don't get the teachers they need.

Certainly, there are some literally spectacular teachers teaching in our highest poverty schools. And their results serve as proof of how very big a difference strong teachers can make for even the poorest of children.

But these exceptional teachers are exactly that—exceptions. They willfully swim against the powerful, systemic tide that relentlessly sweeps our best teachers away from the kids who need them the most. Too often, they have to sacrifice pay and professional status to work in the most challenging schools instead of working at better-equipped schools with children who are sometimes easier to teach.

Our task as a country must be to match their private commitment with a public commitment: to turn that tide and create systems, supports and conditions that will attract a significant proportion of our very best teachers to work with and for the children who need them the most.

In passing No Child Left Behind, Congress made an historic and critical attempt to address this very need. Despite the sincere efforts of many on this committee, however, I think it is quite clear to all of us that the law has not been a sufficiently powerful tool in creating greater equity in teacher distribution. Some of the failure

is due to flaws in the statute itself, some is due to utterly inadequate implementation efforts by the Department of Education and some is due to massive resistance to equity from powerful adult stakeholders.

I urge you to use the opportunity that this reauthorization offers to fix the flaws in the law, to add more power to the teacher equity provisions, and to send a clear signal that this Congress will not stand by while the life chances of millions of children are diminished by teacher distribution systems that are fundamentally unjust and absolutely within our power to change.

GOOD TEACHERS MAKE AN ENORMOUS DIFFERENCE

While our inequitable patterns of teacher distribution are absolutely changeable, they are also deeply ingrained. Changing them will rile up all kinds of stakeholders and, accordingly, demand creativity and unflagging effort on your part.

This is tough stuff and not for the faint of heart. Accordingly, those of us who ask you to take up this challenge owe you evidence that all the hard work will make a difference.

Fortunately, the research evidence is overwhelming. In just the last 5 years alone, researchers all around the country have provided strong evidence from a wide range of communities that there is, indeed, a payoff in providing low-income students with great teachers. And it's a very big one:

• Researchers in Texas concluded in a 2002 study that teachers have such a major impact on student learning that ". . . having a high quality teacher throughout elementary school can substantially offset or even eliminate the disadvantage of low socio-economic background." [1]

• A recent analysis of Los Angeles data concluded that "having a top-quartile teacher rather than a bottom-quartile teacher 4 years in a row would be enough to close the black-white test score gap." [2]

• A second study in Texas showed that the teacher's influence on student achievement gain scores is *20 times greater* than any other variable, including class size and student poverty.[3]

BUT THE STUDENTS WHO MOST NEED GOOD TEACHERS DON'T GET THEM

Despite these and other studies that document the tremendous power that great teachers have to help students overcome the burdens of poverty and racism, we persist in providing those who need the most from their teachers with the teachers who have the very least to offer them.

• Nationally, fully 86 percent of math and science teachers in the Nation's highest minority schools are teaching out of field.[4]

• Students of color and low-income students are also twice as likely as white and affluent students to be assigned to inexperienced teachers.

• In Texas high schools with the most African-American students, ninth grade English and Algebra courses—key gatekeepers for high school and college success—are twice as likely to be taught by uncertified teachers as are the same courses in the high schools with the fewest African-American students. Similarly, in the State's highest poverty high schools, students are almost twice as likely to be assigned to a beginning teacher as their peers in the lowest poverty high schools.[5]

• And let's not just pick on Texas: Researchers reported recently that advantaged fifth grade students in North Carolina were substantially more likely than other students to be matched with highly qualified teachers.[6] Across the State, African-American seventh graders were 54 percent more likely to face a novice teacher in math and 38 percent more likely to have one for English, with the odds even greater in some of North Carolina's large urban districts.[7]

• In Tennessee, one of few States to have a "value-added" metric of teacher effectiveness, the Department of Education has been tracking which students are taught

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[1] Rivkin, S. G., Hanushek, E. A., & Kain, J. F. 2002. *Teachers, Schools, and Academic Achievement*, University of Texas-Dallas Texas Schools Project.

[2] Gordon, R., Kane, T. J., & Staiger, D. O., 2006. *Identifying Effective Teachers Using Performance on the Job*. Washington, DC.: The Brookings Institution.

[3] As cited by Fallon, D., 2003. *Case Study of A Paradigm Shift (The Value of Focusing on Instruction).* Education Research Summit: Establishing Linkages, University of North Carolina.

[4] Jerald, C. 2002. *All Talk, No Action: Putting an End to Out-of-Field Teaching.* The Education Trust. Available: *www.edtrust.org*.

[5] Fuller, E. (2004). Unpublished data. University of Texas at Austin.

[6] Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2006). Teacher-student matching and the assessment of teacher effectiveness. *Journal of Human Resources, 41*(4), 778–820.

[7] Clotfelter, C. T., Ladd, H. F., & Vigdor, J. L. (2005). Who teaches whom? Race and the distribution of novice teachers. *Economics of Education Review, 24,* 377–392.

by the high, average and below-average teachers. Poor and minority students are getting the worst when it comes to teachers' effectiveness. There, the "least effective" teachers in high-poverty, high-minority schools are even less effective than the "least effective" teachers in low-poverty, low-minority schools.[8]

• Education leaders in Florida also found inequitable patterns in the distribution of teachers in Florida, with schools receiving "F's" in the State accountability system much more likely than other schools to have concentrations of teachers whose student growth rates put them in the bottom 5 percent of the State.

• Recent research conducted by the Education Trust and stakeholders in Wisconsin, Ohio, and Illinois found similar inequitable distribution problems.[9] In Illinois, for example, 84 percent of the schools with the most low-income students were in the bottom quartile in teacher quality, with more than half in the very bottom 10 percent of teacher quality. Among low-poverty schools, only 5 percent were in the bottom quartile of teacher quality.[10]

• In 2000, teachers in the highest poverty schools in New York City were almost twice as likely (28 percent) to be in their first or second year of teaching compared to teachers in the lowest-poverty schools (15 percent). Similarly, more than one in four (26 percent) students of color were taught by teachers who had failed the general knowledge certification exam compared to only 16 percent of white students.[11]

THE EFFECTS OF THESE UNJUST DISTRIBUTION PATTERNS ON ACHIEVEMENT IS DRAMATIC AND DEVASTATING

• In high-poverty, high-minority high schools in Illinois with above-average teacher quality, students were almost nine times as likely to demonstrate college-ready academic skills as their counterparts in schools with lower teacher quality. Indeed, students who completed mathematics through Calculus in schools with the lowest teacher quality were less likely to be college ready than their counterparts who completed mathematics only through Algebra II in schools with medium teacher quality.[12]

• Research in Tennessee shows that teacher effects accumulate. Students who start the third grade at roughly equal achievement levels are separated by roughly 50 percentile points 3 years later based solely on differences in the effectiveness of teachers to whom they were assigned. Students performing in the mid-fiftieth percentiles assigned to three bottom quintile teachers in a row actually *lost* academic ground over this period, falling to the mid-twentieth percentiles.[13]

• What about students who start off low-achieving, as do so many low-income students? Researchers from the Dallas public school district concluded: "A sequence of ineffective teachers with a student already low-achieving is educationally deadly."[14]

NCLB: AN ATTEMPT TO CHANGE THE PATTERNS

Many of these effects were already clear when Congress passed NCLB. Common sense alone made it obvious that achievement gaps couldn't be closed without addressing gaps in teacher quality. Accordingly, there was strong bi-partisan consensus on the need to focus the attention of State and local education leaders on assuring teacher quality and turning around unfair and damaging teacher distribution patterns.

The teacher-related provisions in No Child Left Behind embody three basic principles:

1. That all students are entitled to qualified teachers who know their subject(s) and how to teach them;

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[8] Tennessee Department of Education. March 2007. *Tennessee's Most Effective Teachers: Are They Assigned to the Students Who Need Them The Most?*. Research Brief.

[9] Peske, H. & Haycock, K. 2006. *Teaching Inequality: How Poor and Minority Students are Shortchanged on Teacher Quality.* The Education Trust. Available: *www.edtrust.org*.

[10] Presley, J., White, B., & Gong, Y. 2005. *Examining the Distribution and Impact of Teacher Quality in Illinois*. Illinois Education Research Council. Policy Research Report: IERC 2005–2. Available: *http://ierc.siue.edu.*

[11] Loeb, S., & Miller, L. C. (2006). *A Federal Foray into Teacher Certification: Assessing the "Highly Qualified Teacher" Provision of NCLB.* Available: *http://devweb.tc.columbia.edu/manager/symposium/Files/98*__LoebMiller__%20Nov%20Nov%201.pdf.

[12] Presley, J. B., & Gong, Y. (2005). *The Demographics and Academics of College Readiness in Illinois.* Illinois Education Research Council. Policy Research Report: IERC 2005–3. Available: *http://ierc.siue.edu/documents/College%20Readiness%20–%202005–3.pdf.*

[13] Sanders, W., & Rivers, J. (1996). *Cumulative and Residual Effects of Teachers on Future Academic Achievement.* Technical Report. University of Tennessee Value-Added Research and Assessment Center.

[14] Presley, J. & Gong, Y. (2005).

2. That parents deserve information on their children's teachers; and,
3. That States, school districts and the national government have a responsibility to ensure a fair distribution of teacher talent.

To accomplish these goals, Congress increased funding for teacher quality initiatives by 50 percent, from $2 billion to $3 billion per year—on top of significant increases in title I, which can also be used to improve teacher quality. These new dollars were targeted to high-poverty school districts, and local leaders were given nearly unfettered discretion to spend the money in ways that were tailored to local circumstances.

Most observers, I suspect, will agree that the law has focused unprecedented attention on issues of teacher quality and distribution. But most will also agree that these historic provisions have not had their full and intended impact.

Some of that is probably attributable to the sad fact that change in education always takes much longer than anybody thinks it should. But some of the problem can be traced to three sources:

- Poor quality implementation by the U.S. Department of Education;
- Massive resistance by some powerful adult stakeholders; and,
- Limits of the statute itself.

Flawed Implementation by the Department of Education

The teacher quality provisions of NCLB were supposed to stimulate States to revisit the question of whether they had appropriate definitions of teacher quality in place and whether there was an adequate supply of teachers in all subjects and for all students. The intention was to introduce a new bargain: if a school persistently had a problem recruiting and retaining enough qualified teachers, then the district and the State had a problem, too.

Unfortunately, for the first 4 years after NCLB was enacted, the U.S. Department of Education refused to exert any leadership in this arena. Though there were early signs that States were abusing the broad discretion granted to them in defining what constitutes a "highly qualified" teacher, the Department repeatedly failed to issue guidance. And when it finally did, the guidance was inconsistent and confusing.

Consider the seemingly straightforward issue of the application of the law to "new" and "not new" teachers. The law mandates that "new" elementary teachers demonstrate their knowledge of the subjects they teach by passing a test of content knowledge and teaching skills. Teachers who were "not new" to the profession were allowed to either pass a test or complete a State-developed HOUSSE process.

The clear intent of the law was to apply one set of rules to teachers who were hired after the passage of NCLB, and to reserve more flexible HOUSSE provisions for veteran teachers who had joined the profession before the law was adopted.

Unfortunately, the Department never issued guidance or regulations to clarify this definition. The consequence is that some States hire non-highly qualified teachers and then declare them to be "not new" to the profession under the highly qualified definition after a year of teaching. These teachers are then permitted to demonstrate content knowledge under the less-rigorous HOUSSE process that was designed for teachers who were in the profession prior to NCLB, rather than demonstrating their subject knowledge by passing a test or taking additional coursework. The Department's neglect has allowed States to ignore altogether the requirement that new teachers demonstrate they know their content.

Only recently, in the spring of 2006, did the Department actually begin to actively monitor the implementation of the teacher provisions. And, despite Congress' explicit command to focus on equality of opportunity, it was only in the past year that the Department even mentioned the teacher equity provisions, which extend well beyond the distribution of "highly-qualified" teachers. For a full 4 years, many States simply had no idea that these provisions existed, let alone that they were responsible for developing a plan to ensure that low-income and minority children were not disproportionately taught by unqualified, inexperienced, or out-of-field teachers.

Implementation of title II also represents lost opportunity on a grand scale. Congress recognized that certain schools would need extra resources to raise teacher quality—either through additional supports for current teachers or incentives to attract higher-caliber faculty. So Congress created title II, which has provided almost $3 billion per year since NCLB was enacted—close to $15 billion thus far—that was supposed to help States and districts to ensure students in high-poverty schools got their fair share of the best teachers and that teachers who didn't meet State quality requirements had the help they would need to meet those requirements.

Instead, according to GAO, the money mostly has been used for generic programs that weren't targeted to the teachers or schools that need the most help. The U.S.

Department of Education has issued no regulations, offered virtually no guidance, and conducted scant monitoring in how this money has been spent. As a consequence, instead of representing much-needed support for hard-to-staff schools and the teachers in them, title II money often has been used as State and district slush funds.

Widespread Resistance to the Spirit of the Law

NCLB granted States broad discretion in the area of teacher quality. Instead of using this latitude to innovate different approaches to the issue, far too many States took advantage of the USDOE's lax oversight and completely undermined the spirit and substance of the law.

Two years after the law was enacted, Education Trust staff examined State compliance with the teacher quality provisions. We found that many States had abused their discretion, papering over problems and making it seem as though all students had fully "highly qualified" teachers, when in fact many students continued to be taught by teachers with substandard preparation.

Take Wisconsin, for example, which had never had content-knowledge tests as part of its licensure/certification. Instead of trying to determine which teachers needed to take a test or some coursework in their teaching area, Wisconsin simply declared that any teacher who graduated from an accredited teacher preparation program had demonstrated content knowledge in whatever subject(s) they were assigned to teach—regardless of whether their degree or coursework was related to their teaching assignment. Wisconsin officials openly flouted NCLB, claiming that they were keeping internal records on teachers who weren't fully qualified and had created the watered-down definition merely for reporting compliance with Federal law.

California offers another example. The State lowered the bar for the "highly qualified" definition so far that requirements were virtually indistinguishable from the requirements for an emergency permit. Worse still, while California's emergency permit required teachers to be enrolled in credentialing programs, the "highly qualified" definition did not. Pretending that virtually all teachers were "highly qualified" allowed California to obscure well documented inequities in access to genuinely qualified teachers. It took Congressman George Miller's direct involvement, as well as a court order, to get California to revisit its definition. In many States, however, this kind of gaming has gone unchallenged.

These are not isolated examples: many States have resisted fully acknowledging their teacher quality problems. By deeming virtually every teacher highly qualified, these States have not only made raising teacher quality under the law all but impossible—they also blunted efforts to more fairly distribute teacher talent. Why? Because if virtually every teacher is highly qualified, the distribution problem vanishes into thin air.

In taking actions like these, States have snubbed their noses at congressional intent, blunted the impact of the law, and cheated their children out of the opportunity for academic success. Sadly, they've also cheated their own teachers out of the help that they deserve to improve their effectiveness. Congress should use this reauthorization to set things right.

Limits of the Statute Itself

In crafting NCLB, Congress rightly recognized that the term "Highly Qualified Teacher" needed to be defined before the businesses of distributing such teachers more fairly could be taken up effectively. Most of the details of such definitions were left to the States. But Congress did set parameters for State definitions, as well as identify certain teacher characteristics that it would monitor in its efforts to assure a fair distribution of teacher talent.

Limits of the research on teacher quality and effectiveness at the time the law was crafted forced members of Congress to rely on proxies of teacher quality (e.g. degree in field, State certification, novice status) rather than real indicators of teacher effectiveness. These proxies can tell us a lot about *broad patterns of distribution*, and there is no excuse for not acting on that information now.

But proxy measures are far less helpful in evaluating the quality of an *individual teacher* or the impact that she has on her students. Among other things, definitions based on proxies for effectiveness don't allow education leaders to account for terrific new teachers or, for that matter, burned-out veterans. As Congress moves toward reauthorization, you'll want to act on the core suggestion of the latest research: that, rather than looking just at qualifications, you incorporate measures of teachers' actual impact on student achievement.

The use of proxy measures, however, is not the only problem in the statute itself. It turns out that an even bigger problem is bound up in congressional willingness

to let the demands of adults too often trump the needs of students. Two examples will help illustrate what I mean.

The HOUSSE Provisions

The first of these surround the law's "High Objective Uniform State Standard of Evaluation" (HOUSSE) provisions. As members of this committee know, the HOUSSE provisions were included in the law to address concerns that teacher unions and others had about veteran teachers who did not possess proper credentials or "paper proxies" required to meet the definition of a "highly qualified teacher." The concern was that such teachers would be unduly burdened by a requirement to obtain them.

But the loophole created by these provisions turns out to be so large that it significantly undercuts the law's power to provoke change. Through broad (and unimagined use) of these provisions, States have been able to obscure the fact that many veteran teachers, especially in science and mathematics, lacked adequate content knowledge. In most States, almost every teacher has been deemed highly qualified and the status quo has been defined as satisfactory even though substantive challenges remain unaddressed.

Comparability Provisions

Title I is premised on the fiction that local school districts provide "comparable" opportunities in title I schools before the application of Federal funds, so that the Federal money can be used to provide additional time and support for low-income students. But the truth is that local budgets consistently shortchange high-poverty schools, and title I schools often get less money than schools with more affluent students in the very same school districts. This has to do with arcane budgeting rules that ignore differences in teacher salary across schools. Schools that are stacked with the most senior, high-paid teachers don't offset this expense elsewhere in their budget, and schools with novice teachers don't get extra money even though their spending on teacher salaries is much lower than other schools.

Federal law actually provides cover for these unfair budgeting practices in its comparability provisions. Indeed, NCLB includes a provision stating that if a school district has a single-salary schedule for teachers, which virtually every district does, then it has demonstrated compliance with the comparability requirement. This is a hold-over from another era, before research had documented so clearly the devastating impact of lower teacher quality in high-poverty and high-minority schools. The current comparability provisions work to perpetuate disparate and lower-quality educational opportunities in high-poverty and high-minority schools.

RECOMMENDATIONS

Ensure Data Systems for Evaluating Progress on Teacher Quality

A major impediment to meaningful improvement efforts is the lack, in most States, of data systems that are capable of analyzing teacher effectiveness and tracking the distribution of qualified and effective teachers. Indeed, when USDOE finally asked States to comply with teacher equity provisions in Summer 2006, most States were unable to report even the most basic information on whether poor and minority students were taught disproportionately by inexperienced and unqualified teachers.

Better data systems and technology will allow States to identify which of their teachers are most *effective*, and learn from them. Such systems also allow administrators to better target supports to teachers who need to improve their practice. Some forward-thinking districts such as Chattanooga, Tennessee are already using information generated by such systems in just this way. Unfortunately, the small, competitive grant program Congress has established to support longitudinal student data systems has not required longitudinal data on teachers to be included.

Congress should provide dedicated funds to each State for the development and operation of education information management system and set minimal requirements for such systems. One such requirement should be that the systems have the ability to match individual teacher records to individual student records and calculate growth in student achievement over time.

There could hardly be a better moment to take this step. As States implement growth models for accountability purposes, they will need to develop more sophisticated data systems. If the Federal Government allows this shift in accountability, it should insist that States simultaneously link student records to their teachers. It would be a shame to evaluate schools based on student growth but continue to ignore information on individual teachers' contributions to that growth.

Move From Measuring Teacher Qualities to Teacher Effectiveness

Research confirms that there are massive differences in the effectiveness of individual teachers, but the proxies that are currently most popular in measuring teacher quality have only limited power to predict who will be effective. To better and more fairly evaluate individual teachers, we need to move from measuring teacher *qualities* to teacher *effectiveness*.

Data on teacher effectiveness has implications for everything we do to raise teacher quality, from evaluating teacher preparation programs to ensuring that our most effective teachers are recognized and rewarded for their outstanding contributions.

Given that low-income students are more likely to be assigned to less effective teachers, Congress should be especially focused on using value-added information to ensure these students get their fair share of effective teachers. States and districts should be required to ensure that title I schools aren't disproportionately saddled with the least effective teachers.

Close HOUSSE Loophole to Ensure New Teachers Demonstrate Content Knowledge

It is not unreasonable to require teachers to demonstrate content knowledge in the subject(s) they teach. Teachers who join the profession today understand this expectation. Yet when the HOUSSE provisions are abused, as they have been frequently, States are allowed to ignore the reality that some teachers need help to shore up their content knowledge. As a consequence, teachers who need help don't get it. When NCLB is reauthorized, the HOUSSE provision should be stripped entirely from the law.

Overhaul Title II to Focus the Federal Investment on High-Need Schools

This $3 billion should be re-purposed to provide well-designed support and meaningful incentives to raise teaching quality in the highest poverty schools—and nothing else. Some of the money should be allocated for differential pay, so that hard-to-staff, high-poverty schools can provide generous incentives for effective teachers. Another portion should be used for research-based curricula and teacher professional development in how to implement those curricula.

Amend the Title I Comparability Provisions to Include Teacher Salaries

Federal investments cannot ensure meaningful equity in public education unless State and local districts use their own resources equitably. But, by not including teacher salaries in assessing comparability, current title I law allows school districts to shortchange students in high-poverty schools, to cover up this theft with opaque accounting practices, and in the end to redirect title I funds away from the low-income students Congress intends to help.

Federal law should not contain loopholes that exclude teacher salaries from the determination of comparability across schools. If Congress does nothing else in this reauthorization to improve teaching and learning in title I schools, it should amend the comparability provisions to ensure true funding equity at the district level by requiring that teacher salaries be included in the assessment of school-to-school comparability.

The CHAIRMAN. Good. That was very thoughtful. Pam Burtnett is President of Lake County Education, Florida and we look forward to your testimony on teacher development. Thank you.

STATEMENT OF PAMELA BURTNETT, PRESIDENT, LAKE COUNTY EDUCATION ASSOCIATION, FLORIDA

Ms. BURTNETT. Thank you. Mr. Chairman, members of the committee, thank you for inviting me to speak.

The CHAIRMAN. Bring that mic up a little closer, if you would, please.

Ms. BURTNETT. For inviting me to speak with you today. My name is Pam Burtnett and I am the President of the Lake County Education Association. It is an affiliate of the Florida Education Association, the AFT NEA.

It is with great pride that I tell you that I am and have been a classroom teacher of English Language Arts for over 25 years, in Kansas, Illinois and Florida. I earned my National Board for Pro-

fessional Teaching Standards certification and I've also—was the Lake County, Florida Teacher of the Year.

I am pleased to be with you here today to discuss what is of great importance to all of us—teacher quality. As all of you have said, teachers make a huge difference in the lives of children.

We're going to talk about the factors that help attract and retain a high quality teaching force in hard-to-staff schools, high quality professional development, growth systems, teacher incentive pay, mentoring and coaching and school leadership.

In addition, it is important to recognize that teachers want what is good for students. That is what they do. They want a safe environment and they want adequate facilities so that they can teach and children can learn. I want to focus my comments on two areas—teacher retention and professional development.

Lake County, Florida has three main programs that have been effective with teacher retention. I want to highlight one of these for you. The Lake County Effective Teaching Center was started 22 years ago as a combined venture between the Teachers Union and the School District. We used Foundation money to begin it. Every year, approximately 120 teachers are given 5 days of release time to participate in educational research and dissemination. This 5-day intensive learning opportunity helps the teachers build their knowledge, current knowledge, current research, to exchange ideas and to leave the Center and implement those ideas the following day. It also gives them time to network and learn from each other.

Senator Kennedy's Teacher Center's Act of 2006 recognized the importance that teacher centers like ours in Lake County can have in helping teachers help students.

I just want to mention one other small program. Due to the commitment in Florida, there is support for National Board process, the National Board Certification process. We now have 153 National Board-certified teachers in Lake County and those teachers help support the new teachers that come into the county. Last year, we had 350 new teachers so 153 board-certified teachers helped them. That mentoring is critical.

As a result of my experience, I believe States should require high caliber teaching induction systems, using mentor teachers as coaches and that because we expect new teachers to provide the same kind of teaching as experienced teachers. We expect that and so this is the way that we can bridge that gap.

Professional development cannot be looked at in isolation from the school environment. Teachers are no different from other professionals in what they would like and expect. They want a safe learning environment, up-to-date and adequate facilities, high quality research-based training, the opportunities to collaborate with knowledgeable leadership. Providing these basics will greatly support teachers and students in the classroom.

In terms of professional development, the No. 1 strategy boils down to time and timing. Leaders need to find the money and resources to give teachers time during their work day, their work week, their work year to focus on student learning and leaders must also provide resources needed so that teachers gain knowledge and data analysis.

Timing is a priority as well. Teachers are asked to make curricular decisions. If they do not have access to real time data, then they cannot make the best decisions for their students. In Florida, decisions affecting the classroom and curriculum, which often have professional development implications, are made in the summer after test scores are released and teachers go home. As a result, they are made by school and district leadership without teacher input, strictly based on test scores and not necessarily on curriculum.

We can and must do better. My written testimony contains recommendations on how the Federal Government can play a more meaningful role in improving teacher quality. I know from decades of experience that the one thing we do not need are additional Federal mandates and hoops for teachers to jump through. They need to spend time planning and delivering instruction for students, not recordkeeping.

If we are willing to have an honest conversation about what is right for students and better ways to attract and retain teachers, we need to discuss the benefits of providing enhanced professional development for our teachers, particularly those working in high-need schools and with limited experience. Thank you very much.

[The prepared statement of Ms. Burtnett follows:]

PREPARED STATEMENT OF PAMELA BURTNETT

Mr. Chairman and members of the committee, thank you for inviting me to speak with you today. It's with great pride that I tell you that I have been a classroom teacher of English Language Arts for over 25 years, teaching in grades 6–12. Additionally, I have taught in a middle school drop-out prevention program and was a coordinator in my district's staff development center. I have earned National Board for Professional Teaching Standards certification and have also been a Lake County, Florida Teacher of the Year. I graduated from the University of Kansas, Lawrence, Kansas with a Bachelor of Science in Education and hold advanced degrees from Wichita State University, Wichita, Kansas with a Master in Education, Theatre and Ohio University, Athens, Ohio with a Master in Fine Arts, Theatre. Currently, I am a full-time release President for the Lake County Education Association, which is an affiliate of the Florida Education Association and both the *National Education Association* and the *American Federation of Teachers*.

I am pleased to be with you here today to discuss what is of great importance to all of us in education—teacher quality—including factors to help ensure a high quality teaching force, professional development, attracting teachers to, and retaining them in, hard-to-staff schools, growth systems, teacher incentive pay, mentoring and coaching, and school leadership. In addition, it is important to recognize that teachers want what is good for students, a safe environment and adequate facilities. When teachers are given the resources to do their jobs, are respected for what they do, are excited about what they do and are given the time to collaborate and work together, they are put in the best possible position to help their students achieve at their highest potentials.

I was asked to focus my comments on two areas of questioning, as follows:

Question 1. What specific strategies, programs or polices have been effective in addressing the need for qualified educators in your community? What outcomes or progress—with respect to the recruitment or retention of these educators—have been made as a result of these strategies?

Answer 1. Lake County, Florida had three main programs that have been effective with teacher retention. They are as follows:

• The Lake County Effective Teaching Center was started 22 years ago as a combined venture between Lake County Education Association and the School Board using foundation money from the Conrad Hilton Foundation. Every year, approximately 120 teachers are given 5 days of release time to participate in an education research and dissemination program. The program focuses on pedagogy and helping teachers develop the deep understanding of how students learn. The information is timely, research-based and relevant; one can use the information immediately upon

returning to the classroom. It is concentrated time when teachers do not have students present and they can attend to developing their skills. This time element is of utmost importance because during the school day, the school year, opportunities for teachers to collaborate and share knowledge is painfully lacking. When students are present, teachers need to attend to them; they do not have the time for professional development. This 5-day intensive learning opportunity helps to build teachers' knowledge base while giving them the time to network and learn from each other. Senator Kennedy's Teacher Centers Act of 2006 recognized the importance that teacher centers like ours in Lakeland can have in helping students—particularly those in greatest need—reach their highest learning potential.

• The National Board Support System is another strategy that we have in place in Florida. The State provides money to districts in order to help Board certified teachers access additional professional development or learn how to become district coaches. As a Board certified teacher, I am able to use the knowledge and skills I have gained to assist other teachers and help them understand the importance of probing their own thinking about learning and examining curricular and instructional decisions before, during, and after lessons. This type of coaching is designed to help teachers reflect on their students' needs and where the students are on the trajectory of learning, and to then adjust their instruction to help students continue on the trajectory of achievement.

• Lastly, Lake County Schools has a curriculum department that offers professional development at school sites after school and during the summer. The district made a commitment—and has kept its promise—to provide an opportunity for educators to participate in professional development on a regular basis. Based on this commitment, schools implemented early release Wednesdays specifically so that educators can participate in professional development programs. This period of time is crucial for educators so that they have access to quality programs that help them improve their instruction on an ongoing basis throughout the school year.

These programs have had a positive effect on teacher retention, which research has shown to reduce teacher turnover. We know that support of teachers, particularly new teachers, is key for retention and helping them deliver high-level instruction. As a result, we have long argued that States should require high-caliber teacher induction systems to ensure that new teachers receive the support they need to provide effective instruction during their beginning years. The three programs described above demonstrate how supports can mean the difference for an educator.

There is more work to do, however, even though these programs have offered support and improved instruction. For example, the Lake County Effective Teaching Center re-energizes 120 teachers per year and gives them the skills and tools to be successful with children in the classroom. However, more needs to be done to change the school's culture and to provide more time for teachers to share the practices they learned at the Teaching Center. In addition, every teacher, paraprofessional, and school staff member needs to have access to these types of programs. Consequently, more energy should be devoted to making sure that the resources are available to provide all educators with opportunities for continual improvement and growth, as we have done in Florida through these programs.

Question 2. What strategies do you believe are the most effective in terms of providing professional development and support for educators in high need schools? Has professional development been targeted to educators to respond to their needs, and if so, on what criteria or data was the targeting based?

Answer 2. As a classroom teacher, I can tell you that professional development cannot be looked at in isolation from teachers' working conditions. Teachers are no different from other professionals in what they expect. They want a safe learning environment; up-to-date and adequate facilities; high quality, research-based training; and support from their leadership. Providing these basics will greatly assist teachers in the classroom.

Teachers need to work with a strong leader with a clear vision, and the time to collaborate as a team so they can focus and work together. If given the time, the resources, and a strong leader who can create a climate of collaboration, then professional development can achieve sustained results that have lasting effects on student learning.

The No. 1 strategy boils down to time and timing. Strong leaders need to find the money and resources to give teachers time during their school day—not after school or weekends—to focus on student learning; and obtain the resources necessary so that teachers can begin to understand how to analyze data and make decisions using the data. Timing is a priority as well because teachers may be asked to make curricular decisions, but if they do not have access to real-time data, then they may not be making the best decisions for the instruction of their students.

In addition, if educators are to do their best work, they must be viewed as valuable partners in the educational system. Policies should ensure that States, school districts, and schools actively involve teachers and other educators in the planning, development, implementation, and refinement of standards, curriculum, assessments, accountability and improvement plans because their training and experience represent a valuable resource in designing programs that work for students.

Building on that theme, it is critical that educators be consulted when professional development programs are designed and selected for them. I think districts often try to respond to the professional development needs of teachers, but due to many factors, they miss the mark. For example, depending on a district's testing schedule, the data they are using in order to make professional development decisions could be last year's data—it may or may not be relevant to the current needs.

Furthermore, if educators are not involved in the decisions regarding their own professional development, the educators may not feel the programs selected for them are beneficial. In Florida, for example, decisions affecting the classroom, which often have professional development implications, are made in the summer after test scores are available when the teachers are not present and have no technological way to be connected to the school. As a result, decisions are made by the school and district leadership without teacher input—strictly based on test scores. Teachers usually are unhappy with the decisions that are made and some are not readily accepting of the professional development that follows from these decisions. We can do better—and we have to do better. Educators are partners in the system and should be viewed as such.

We all agree that recruiting and retaining accomplished teachers for high-needs schools is a difficult problem. Nevertheless, I think we can say that if accomplished teachers are given the time to collaborate, learn and support each other, are given the resources to teach the way they know how and respected for their expertise, are able to work with strong leadership, and are then supported with effective professional development, we will see more teachers not only staying in the profession, but also willing to go to and stay at high needs schools.

The Federal Government can play a meaningful role in improving teacher quality by including the following policies in the reauthorization of ESEA:

• Providing financial incentives to school districts to provide teachers with time for collaboration on a regular basis. Legislation such as S. 3710, the Teacher Center Act of 2006, introduced last year by Senator Kennedy, would give teachers across the Nation access to high-level, ongoing, high-quality professional development programs that are designed and delivered by expert, practicing teachers.

• Expanding support for high-quality, research-based professional development for all teachers. These programs should be developed in a collaborative fashion between school districts' leaders and the local teachers to ensure that teachers—and other educators—receive professional development that is directly linked to their and their students needs and tied to the school's and district's curriculum and instructional needs and strategies.

• Continuing to provide support for the National Board for Professional Teaching Standards to assist more teachers to obtain National Board Certification. In addition, the Federal Government could provide financial incentives for board-certified teachers to go to and stay in hard-to-staff schools.

• Supporting and funding high-quality induction programs for new teachers so they have the assistance they need to be successful in their jobs.

• Providing incentive grants to districts to develop peer assistance programs that focus on the improvement of staff knowledge and skills.

• Providing incentives for local districts to develop compensation systems for teachers and paraprofessionals that have a competitive base pay and benefits for all and, when supported by both management and staff, provide opportunities for staff to improve their salary through the performance of additional responsibilities.

• Providing financial incentives for districts to help recruit and retain high-quality teachers in hard-to-staff schools.

• Require States to develop a "learning environment index" for all schools, and require districts and States to address the problem areas identified for schools not making adequate yearly progress. Many of the schools not making AYP do not have adequate facilities, safe conditions, teacher retention incentives, and the financial and professional supports needed. The learning environment index should identify and measure teaching and learning conditions in each school.

• Title II (the Teacher Quality State Grant program) should be amended to allow districts to work with local teacher unions to survey principals, teachers, and other school staff about their working conditions. Such surveys can be powerful tools to obtain information that can identify improvements needed in schools throughout the district to help spur student achievement. North Carolina has been a leader in using

teacher working condition surveys. Other States that have utilized this tool include Arizona, Kansas, Nevada, and Ohio. Additional information on teacher working conditions surveys can be obtained from the Center on Teacher Quality at: *http://www.teachingquality.org/twc/whereweare.htm.*

• Directly support efforts to improve working conditions through grants for smaller class sizes, and school repair, renovation, and modernization.

I know from my decades of experience that the one thing we do not need are additional Federal mandates and hoops for teachers to jump through. Teachers are motivated by their desire to help their students learn. In addition, teachers are always open to improving their instruction because they know it will benefit them, and more importantly, their students. If we are willing to have an honest conversation about what is right for students, I believe we can find the strategies for success for providing professional development and support for educators in high-need schools.

The CHAIRMAN. Thank you very much. Thank you. We are going to move along as we're stretching a little beyond the 3 minutes and I think we're going to have a vote a little later in the morning. We want to make sure we have some good interaction with our members. So to the extent that we can—everything that has been commented on has been directly related to the subject matter so it is difficult to say that anything that's been said hasn't been absolutely on point but we'll see if we can move along.

Jesse Solomon, Director of the Boston Teacher Residency, has been Director since the program started in 2003. The program came about as a partnership between the Boston Public Schools and its strategic grant partners, which provided initial funding. Well, we've heard from those who completed the program just how valuable the residency year was. He'll discuss how induction of residency programs help prepare the teachers for the classroom so that they'll be more likely to succeed. It's good to see you. Thank you.

STATEMENT OF JESSE SOLOMON, DIRECTOR, BOSTON TEACHER RESIDENCY, BOSTON, MASSACHUSETTS

Mr. SOLOMON. Good morning and thank you for having me here this morning. I'm going to talk a little bit about a program called the Boston Teacher Residency, which is the Boston Public Schools' own teacher preparation program and I think the first question that we've been asked about this program is why would the Boston Public Schools need to start its own teacher preparation program? We have many, many institutions of higher education, many teacher preparation institutions within 10 or 15 miles of our central offices. The superintendent at that time, Superintendent Payzant, made the decision to start the Boston Teacher Residency, not because we had a shortage of teachers but because we had a shortage of the right teachers.

He was trying to address, I think, four problems. The first is that the teachers he was getting, as we've talked about this morning a little bit, were in the wrong areas. So we needed math and science teachers, we needed special education teachers, we needed ESL teachers, we need teachers of color and we were not getting those teachers in the numbers that we needed.

The second is that we, like most big cities, had a revolving door at the front end of our teaching profession. So we lost about 50 percent of all new teachers within the first 3 years. So coupled with the numbers that you are hearing, we calculated about $17,000 a

teacher that it was costing us to have each of those teachers walk out the door.

The third thing and in some ways, maybe the most difficult problem to address is that the teachers who were coming were often not prepared for the realities and demands of teaching in an urban school. They were often in for quite a shock when it came to what it would actually take to help all the students in their class reach grade level standards.

Finally, the folks that were coming did not necessarily know the district's work so they often spent their first year or two learning the district's curriculum, instruction, those kind of things instead of coming in sort of ready to hit the ground running.

So we run a 13-month so it's quicker than 4 years but it's—I don't know if it's quick enough but I was thinking maybe you were interested after you finished here and coming through our program and becoming a teacher up in Boston. So I'm not sure if that's——

The CHAIRMAN. Now, wait a minute——

[Laughter.]

Mr. SOLOMON. There's no recruiting?

The CHAIRMAN. I would take unanimous consent that we just don't have that.

Mr. SOLOMON. We're always recruiting as you can tell. So we run a 13-month teacher preparation program, which as Dr. Darling-Hammond described, is very much based on the medical residency model and I'll give you a couple of key features of the program.

First of all, we try to be quite selective on the front end. We take about one in seven applicants at this point, folks who come with their content knowledge pretty firmed up before they even set foot in the door. Our folks spend a full year in a classroom with a mentor teacher, a skilled, trained supportive mentor teacher and they work in partnership with that teacher for a full year, from before the date school starts to the last day of school so that they really have the experience of being in a Boston Public School for an entire year.

They work in cohorts and we prepare them from the moment they come to our program that the job of teaching, which used to be isolated and used to be a door closed can't exist that way and so that teaching really needs to be something that you do in collaboration with others.

The program is very rooted in practice so we try to get away from some of the courses you are describing and try to make our courses both literally and figuratively be based at the school site, based in practice so the things that people are learning about are the kinds of things that they are experiencing in their schools.

We make it affordable. Folks get a stipend to come, they get health insurance. We loan them the tuition for the program and then for every year they teach in the Boston Public Schools, we forgive a third of that loan. So if people do the program right, they don't pay us anything. They get a Master's Degree, they get a teaching license. They actually get a dual license in special education and they get that for free if they complete their 4-year commitment with us.

And finally, we're selective on the back end. We don't graduate everyone and we try to be very clear with people coming into the

program that getting into the program is not the same thing as getting out of the program—that what we have is we basically have a year-long job interview that is not done on the backs of kids the way sometimes first year teaching is done so that people have a chance to learn to teach but we also have a chance to see them in action before we make a hiring decision.

So far, they are staying. Our first big goal was retention. We have about 96 percent of our grads whom have stayed in teaching. We're early on in the program but that's exciting and the principals like them and want them. We survey the principals.

What's missing for us and what we are in the process of developing is a value-added model that actually gets at what kind of an effect on student achievement our grads have and one of the things we're advocating for in the State is for all teacher preparation institutions to be accountable for their graduates.

A couple lessons——

The CHAIRMAN. Go ahead, quickly.

Mr. SOLOMON. Okay. First is that we've found that this residency year allows our graduates to bypass some of the kind of first year jitters and they enter—I would say not as second-year teachers but they enter as sort of first and a half-year teachers. That's what principals report to us.

As I said before, they know how the districts work. They come in ready to hit the ground running. Finally, as a program, we're accountable for those people. We are based in the district. We work closely with the principals, with the human resources department. If we recommend someone, if they have our name stamped on them, if anything goes wrong with that person, if that person turns out not to be a great teacher, it comes back to us. So there is a higher level of accountability in terms of us recommending that person for licensure and recommending them for a job in the district.

I'll try to end with a few ideas, I think, that would be broader. The first is that I think all the work we do is rooted in practice and we've tried to be very clear about that. The second is that no amount of preparation is enough if folks are not constantly getting skilled, regular feedback in their classrooms about their teaching. So it's not enough to do workshops or PD outside of the classroom. It has to take place in a classroom. It has to involve regular feedback from skilled professionals.

And I think I will stop there.

[The prepared statement of Jesse Solomon follows:]

PREPARED STATEMENT OF JESSE SOLOMON

1. What specific strategies, programs or polices have been effective in addressing the shortages of teachers in your school or district? What outcomes or progress—with respect to the recruitment or retention of teachers—have been made as a result of these strategies?

Four years ago, Boston Public Schools (BPS) superintendent Thomas Payzant made the critical decision that the BPS would begin to recruit and prepare its own teachers. Frustrated by the inability of local institutions of higher education to help the district fill openings in high-needs areas, and facing a 50 percent turnover rate for teachers in their first 3 years, Superintendent Payzant decided that the district would compete directly with higher education. Payzant was concerned that too many of the teachers coming through existing routes were under-prepared for the realities of urban teaching and not committed to Boston for the long term. Further, existing routes were not producing enough teachers in the high-needs areas of math, science

and special education, and too few of the program graduates were teachers of color. Superintendent Payzant started the Boston Teacher Residency (BTR) to recruit and prepare the teachers the district desperately needed but was not getting. His aim was to recruit people committed to Boston, prepare them to know the district's work, and support them to stay in Boston, all the while pushing higher education to change its practices in response. Payzant's creation of BTR in 2003 has dramatically altered the way BPS recruits, prepares and retains teachers.

MODEL

BTR tackles a crucial urban school district problem in an innovative way: It places teacher preparation in classrooms rather than in the academy. A site-based school of education anchored in the BPS, BTR is highly selective, and recruits talented and committed people from diverse backgrounds who want to be urban teachers. [Last year, there were 425 applicants for 65 slots.] These aspiring teachers, called Teacher Residents, spend a full school year working with a Mentor teacher in a BPS classroom 4 days per week. Residents serve as interns under the supervision of the Mentor, they are not teachers-of-record. Residents participate in a specialized curriculum tailored to BPS's reform agenda on Fridays, after school, and in summer sessions before and after the school year. They earn a Massachusetts Initial Teacher License in their primary academic content area, partial credit toward dual licensure in special education, and a master's degree in education from the University of Massachusetts/Boston. During their preparation year, Residents receive a $10,900 stipend and health insurance (primarily supported through AmeriCorps) to help defray living expenses and incur no cost for the degree or licensure; in return, they commit to teach for at least 3 years in the BPS. BTR continues to support its graduates for these 3 additional years, helping them develop from novice teacher to teacher-leader with the goal of building a critical mass of like-minded, effective teachers equipped to bolster school and district improvement efforts. BTR is in the midst of an aggressive scale-up plan. Having prepared cohorts of 12, 36 and 48 teachers, BTR is currently preparing 60 teachers in SY2006–2007 and plans to grow to prepare 120 teachers in SY2008–2009, which represents an estimated 30 percent of the total teachers Boston will hire.

RATIONALE

Underlying BTR is the knowledge that there is one educational reform which we know works: good teachers. Using a medical residency model, BTR draws on the knowledge that effective teachers hold, just as medical interns learn from consulting physicians. BTR's structure marries practice and theory, requiring prospective teachers to wrestle daily with the real-world dilemmas of teaching in a high-pressure, high-support situation. By clustering cohorts of Residents at select host schools, BTR builds strong support networks for both Residents and Mentor teachers. BTR also changes the traditional consumer-producer relationship between school systems and institutions of higher education and ends BPS's total dependence on outside institutions for its teachers. BTR is structured to focus on meeting the BPS's particular needs, to support the Residents to stay in teaching and interrupt the cycle of high teacher turnover, and to raise the quality and consistency of new teachers. Given recent research by Thomas Kane, Jonah Rockoff, Douglas Staiger and others—which suggests strongly that teacher effectiveness increases over the first years of a teacher's career—BTR believes that high retention rates of our graduates will be directly connected to improved student outcomes. BTR also addresses the district's goals of recruiting teachers in high-needs areas—teachers of color and teachers of math, science, and special education—and to keeping them by finding Residents with a strong commitment to Boston and to teaching its children as a long-term career choice.

OUTCOMES

BTR measures its success through key outcomes:

1. *Resident placement.* **BTR has placed over 95 percent of all successful Residents in BPS teaching jobs.**

2. *Teacher retention.* Overall, BPS retains only 53 percent of its new teachers for a full 3 years. **BTR has to date placed 89 graduates in positions in the BPS; 86 are still teaching in the BPS (a 96 percent retention rate).**

3. *Recruitment in high-need areas.* **In its first four cohorts, over half of all BTR Residents have been people of color and over half of middle and high school Residents teach in the areas of mathematics and science.**

4. *Scale.* BTR aims to prepare 30 percent (120 of 400) of Boston's new teachers by SY2008–2009.

5. *Teacher Quality.* **In a recent survey, principals/headmasters considered 88 percent of their BTR-prepared teachers as or more effective overall than other first-year teachers at their school, and considered the majority (55 percent) to be "significantly more effective." Moreover, when asked to compare their BTR-prepared teachers to their teaching faculties overall, principals/headmasters rated the majority (64 percent) as or more effective than their overall teaching faculties, despite graduates' lesser experience as teachers.**

6. *Improved student achievement.* BTR has begun to develop a value-added system in conjunction with Professor Tom Kane at the Harvard Graduate School of Education to design a study to track student performance data for the students in its graduates' classes. BTR's ultimate measure of success is the academic achievement of the students in our graduates' classrooms.

There are a few key aspects of the program design worth emphasizing:

1. We do not allow un-chaperoned teaching. Because our ultimate goal is the academic achievement of our students, we are careful not to place the burden of preparing new teachers for our neediest students on the backs of those very same students. Instead, by pairing BTR Residents with excellent, veteran teachers, we seek to add to the experience of the students in the classrooms while preparing the next generation of teachers.

2. We do not graduate everyone; we believe that there is a healthy level of churn. We tell Residents that getting into the program does not guarantee that they will get out. We see the residency as a year-long job interview in which key district personnel can observe the Residents and make a determination as to whether they are strong enough teachers to receive an offer of employment in the district.

3. We need methods of measuring the value-added student achievement attributable to our graduates. As it now stands, our State does not have such a system. Further, there are many opponents who would point out the flaws in value-added systems. What this does is perpetuate a system in which institutions of teacher preparation cannot be held accountable for the quality of their graduates. We are working to develop our own such system. However, we would benefit from Federal help in this area: perhaps requiring States to establish such systems and funding their development.

4. A residency year working with a skilled mentor allows our graduates to bypass some of the first-year teacher challenges. Our graduates and their principals describe their first year of teaching as if it was their "first-and-a-half" year. The first year of teaching is difficult for all first year teachers regardless of preparation, there is no way to get past that reality. However, the fact that BTR graduates know the district's curricular and instructional initiatives, know the students and the city, and know how the district works, means that they do not face the same shocking experience as so many first year teachers. They are better prepared, they enter with a network of colleagues, and they are more likely to stay.

5. The fact that BTR is district-based allows us to advocate for and leverage other key changes in the district. For example, the district investment in teacher preparation has led it to re-think, and eventually radically overhaul, how it takes on teacher induction. BPS now has a comprehensive induction program for every new teacher hired.

2. What strategies do you believe are the most effective in terms of providing professional development and support for teachers in high need schools?

We now have three cohorts of program graduates working in BPS classrooms and are preparing a fourth cohort. We have learned a few key lessons:

• **Teachers need to be part of a strong cohort.** Working in a school with a cohort of like-minded colleagues is critically important to retention. Too many of our graduates report to us that the biggest issue they face in their schools is isolation. They want colleagues with whom they can share ideas and questions, test out hypotheses, and exchange critical feedback. Too often, school cultures do not support those types of interactions among teachers. As they work to change school cultures (a long-term goal), these recent graduates need a critical mass of colleagues with whom they can collaborate. The people that we are recruiting and preparing want to work in creative, energetic places with other smart people who are similarly dedicated and keep them growing and challenged. BTR works to place all of its graduates in cohorts once they are prepared and licensed. These cohorts then can in turn help change schools. We see the strong effect on certain schools of an influx of energetic teachers.

• **Teachers need regular, skilled, professional feedback based in their classroom teaching.** All new teachers—even the "best" teachers, the ones principals do not worry about—need regular feedback and opportunities to improve. Too many BTR graduates report to us that they rarely—if ever—have an experienced, skilled supervisor *in their classrooms* to observe and provide feedback. They wonder how they will improve as teachers without that kind of feedback. BTR provides all of our graduates with in-class coaching for 3 years following their residency.

• **Teachers need to see exciting and challenging career paths.** All teachers, and especially the most talented teachers, need to see a set of opportunities for leadership and career differentiation. The kind of people our urban schools want and need in teaching could do anything—they have the skills and credentials which would gain them entry in practically any company—and we need to make the teaching profession attractive enough for them to stay. We hear from our excellent second and third year graduates that they are looking around for ways to stay engaged and growing. They need to be given additional responsibility and reward for taking on critical tasks within their schools and the district. BTR creates roles for Mentors and Site Directors, which provide opportunities for a number of excellent, veteran BPS teachers. These roles need to be expanded and further formalized across the district.

The CHAIRMAN. That's good. Thank you very much. Barbara Maguire is a teacher and math instructional facilitator, Park Elementary School, Casper, Wyoming will talk about recruiting, supporting teachers from rural areas and strategies the State of Wyoming are implementing.

Yes?

Senator ENZI. Can I ask one question?

The CHAIRMAN. Sure.

Senator ENZI. What percentage of Boston teachers actually go through your program?

Mr. SOLOMON. Right now, it's about 10 or 15 percent. It will grow each year to reach about 30 percent.

Senator ENZI. Thanks.

STATEMENT OF BARBARA MAGUIRE, TEACHER AND MATH INSTRUCTIONAL FACILITATOR, PARK ELEMENTARY SCHOOL, CASPER, WYOMING

Ms. MAGUIRE. Good morning. Thank you for inviting me to be here. For a small town girl from Casper, Wyoming, this is quite an event.

Wyoming is a unique State with 510,000 people spread over 97,000 square miles. So we have some challenges that other States don't face and some benefits as well. Our State legislature funded with the oil and gas taxes, has been able to put forth a lot of money toward the teachers in Wyoming. They financed some pretty hefty raises last year, which certainly helped to attract some teachers. In my district, we were able to fill 170 positions between May and August. So for a city of 50,000 people that was a pretty tremendous event.

Also, they have begun to pay back teacher loans for teachers of math, science, foreign language and special education, again a way to attract some teachers to our State.

But in line with what some of the others have said, we have also been able to start an instructional facilitator and mentor program. So my work as a mathematics instructional facilitator means that as we implement new programs, I am working side-by-side with both new teachers and experienced teachers in the classroom to

make sure that those programs are implemented to the best benefit of children.

But instead of all of those programs that our State has talked about, I want to talk a little bit about the Wyoming National Board Certification Initiative, which is funded by the John P. Ellbogen Foundation, a private foundation led by a man whose dream was to make sure the best teachers were in the State of Wyoming. Mary Ellbogen Garland, whose daughter is the president of the foundation and I work for them as an instructional workshop facilitator and also as an advisory board member. What Mary and the Advisory Board have done is to fund the fees for National Board Certification for teachers, to fund workshops for National Board Certification process across the State and to provide professional development opportunities for our National Board Certified teachers.

I can tell you as a National Board Certified teacher that was, without a doubt, the most effective professional development for me in 26 years of teaching. I had to look at my teaching critically. I had to look at what I know about my kids and apply that information to my instruction. So we talk about raising test scores and we talk about the importance of those numbers but I think sometimes we miss the impact of knowing our individual students. Our kids are much more than a number and I think sometimes we get away from that personal piece and to me, that's where you get a quality teacher—somebody who cares so deeply about those kids that they will do absolutely anything to help their education.

One of the things that has been beneficial in Wyoming because of our rural nature is that this Board Certification Initiative has brought together teachers from around the State. We meet multiple times throughout the year. We talk about education. This past weekend, I worked with two teachers from about 150 miles away who came to Casper for the weekend only to talk about how to improve instruction in their writing process with their kindergarteners and how to integrate mathematics and science and those are the kinds of conversations that help to make our rural State seem not quite so big.

I would encourage anything we can do to help teachers take part in the National Board Certification process because it is one of those things that comes from the inside rather than being from external forces. Again, I would say that has been the most powerful piece for me and anything we can do to improve teaching in the sense of getting those master teachers out there to help our beginning teachers is going to be beneficial.

[The prepared statement of Ms. Maguire follows:]

PREPARED STATEMENT OF BARBARA MAGUIRE

Chairman Kennedy, Senator Enzi, and members of the Senate Health, Education, Labor, and Pensions Committee: It is truly an honor to share my experience as a teacher at this roundtable addressing Strategies for Attracting, Supporting, and Retaining High Quality Educators. I am a kindergarten teacher and mathematics instructional facilitator—I am living my dream.

Wyoming is in a unique position. Our State government provided funding a year ago to put programs into our schools which were designed to support and retain teachers. First, they funded a substantial pay raise. My district was able to fill 170 teaching positions between May and August of last year, largely due to the increase in pay. Many of those positions were new positions the legislature felt would increase student learning in our schools—instructional facilitators, tutors and men-

tors. Our district now supports an institute model of staff development, with intense training followed by regular support provided by the instructional facilitators in each school. Teachers are given continual support as new programs are implemented. In addition, instructional facilitators offer direct interventions for teachers who are struggling. Daily support, modeling and feedback from master teachers provide intensive, personal interactions designed for each teacher's specific needs. Administrators and instructional facilitators work hand-in-hand to build a "culture of coaching" where all teachers work together to impact learning in their schools. In addition to instructional facilitators, a cadre of experienced mentors works very closely with teachers new to the profession. These mentors meet with groups of new teachers to work through common issues and concerns. The support of mentors and fellow teachers alleviates some of the sense of isolation felt by new teachers struggling to juggle the responsibilities and pressures they face in this time of high stakes testing. Through these programs, we have made strides in improving the conditions teachers face in our schools.

We are fortunate to have great financial support for public schools in Wyoming, but we face unique challenges as well. Our population of 510,000 people is spread over 97,000 square miles. Many of our teachers work in rural communities, where isolation becomes a frustration. There are fewer colleagues with whom to work and many teachers are asked to teach in subject areas for which they are not well prepared. In addition, traveling to conferences or workshops is often limited because of the great distances involved. We must create our own professional development or bring it in to our communities at great cost.

In addition to the support of our legislature, a private foundation has come to the forefront in supporting professional development in our State. Throughout his adult life, John P. "Jack" Ellbogen believed profoundly in the importance of quality education for all Americans. He also believed that quality classroom teaching was key to superior student learning. During the later years of his life he became most concerned over continuing international tests that showed American students were falling behind in learning and comprehension, especially in math and science. Observing this trend, he felt a strong obligation to get involved in the public school education process. His research indicated that the program for National Board Certification of teachers was considered a proven professional development vehicle to improve teaching skills. In March 2004 The John P. Ellbogen Foundation, led by Jack's daughter Mary Ellbogen Garland, began a statewide initiative for Wyoming National Board Certification. This initiative provides funding for certification application fees, statewide workshops and support for candidates, and recognition and leadership development for National Board Certified Teachers.

To achieve National Board Certification a teacher must complete four portfolio entries, three of which are classroom based with videos and/or student work provided as part of the entry. In addition, the teacher must demonstrate content knowledge in response to six exercises developed for each certificate area. These 10 exercises are evaluated based on evidence of accomplished teaching as defined by the National Board for Professional Teaching Standards. It is a rigorous process. Independent studies have shown that students of National Board Certified Teachers do better on standardized tests than students of non-National Board Certified Teachers. For example, students of National Board Certified Teachers score 7 to 15 percentage points higher on year-end tests than students of non-National Board Certified Teachers (D. Goldhaber, University of Washington) and students of National Board Certified Teachers showed learning gains equivalent to spending an extra month in school. (L. Vandervoort, Arizona State University) The research also shows that National Board Certified Teachers consistently outperform their peers in knowledge of subject matter, ability to adapt instruction and ability to create challenging and engaging lessons. (L. Bond, University of North Carolina, Greensboro)

Without hesitation I will say that the National Board Certification process is the most powerful professional development I've experienced in my 26 years as an educator. I critically examined my teaching, connecting the knowledge of my students' individual needs to my instruction. I began to reflect on my practice, looking for strategies that were effective and changing those that were not. I became painfully aware that every decision I made had consequences, forcing me to be very deliberate in my decisionmaking. Most importantly, I learned how to analyze lessons "on the fly" so that I could provide the most effective instruction possible for my students.

Currently, I am a member of the Advisory Board of the Wyoming National Board Certification Initiative, as well as its lead workshop facilitator. Since 2004, the initiative has made great strides in promoting National Board Certification in our State. We have 77 National Board Certified Teachers in Wyoming and 197 teachers presently registered as candidates. The work of the Initiative has created a National Board "family." Candidates come together at workshops in the summer or early fall

to learn the specifics of the process and begin work on portfolios. A work session in January gives candidates another chance to come together to discuss teaching and learning. Many of Wyoming's NBCTs have worked together as candidate support providers to help those presently in the process. This work in collegial groups has helped to lessen the feeling of isolation so common in Wyoming. We are creating a network of teachers who understand the importance of continuing to challenge ourselves. We are helping good teachers become great teachers.

In addition to providing ongoing professional renewal through the National Board Certification process, the Initiative is dedicated to supporting leadership development for National Board Certified Teachers. For those needing a career advancement track, National Board Certification can open doors and provide opportunities for teachers to take leadership positions while remaining in the classroom. An annual incentive bonus coming from the State may also help retain good teachers, as it is only available to those in full-time teaching positions.

Most professional development funded by my school district is based on student needs drawn from scores on State and local assessments. These opportunities are not responsive to the individual needs of students or teachers. The training tends to be impersonal and often ineffective, as teachers fail to see the connection between new learning and their students. National Board Certification addresses both student assessment data and the connection to the students. It comes from a teacher's inner desire to grow personally and professionally, rather than being driven by external demands. It requires teachers to analyze instruction and its effectiveness, and use personal knowledge of students along with assessment data to make decisions for teaching.

As evidenced by the National Board Certification process, the measure of a teacher cannot be made through test scores alone. While local, State and national assessments provide information about how we're doing, they cannot stand on their own. It is important to recognize our children and our teachers as individuals, and work to find ways to meet their unique needs. We know that we can learn new strategies and skills for teaching, but we must also value our teachers as artists, as they nurture the medium that is our youth.

The CHAIRMAN. Thank you very much. Dr. Beverly Young, Assistant Vice Chancellor of Academic Affairs at Cal State University. Dr. Young works at 23 campuses in the Cal State system to improve teacher preparation, particularly in math and science. She also serves as a representative in the California Commission on Teacher Credentialing and Dr. Young will discuss the critical need to increase the number of math and science teachers, focusing on what Cal State is doing to meet the challenge.

Dr. Young.

STATEMENT OF BEVERLY YOUNG, PH.D., ASSISTANT VICE CHANCELLOR OF ACADEMIC AFFAIRS, TEACHER EDUCATION AND PUBLIC SCHOOL PROGRAMS, CALIFORNIA STATE UNIVERSITY, LONG BEACH, CALIFORNIA

Ms. YOUNG. Thank you and thank you, Chairman Kennedy and members of the committee. Thanks for inviting the Cal State University to talk about our work. I have to say that the work of this committee has so many areas I'd love to talk with you about, that I've heard about and that—the definition of a highly qualified teacher, the NCLB provisions, the distribution of teachers that Amy was talking about, program accountability and evaluation, which the CSU is very much into, the issues of college and career readiness, value-added models of accountability—all of those things I'm so interested in but——

The CHAIRMAN. Okay, for the panel. We are focusing, obviously, you know, on the teacher but you all have experience in these other areas. We'd welcome your comments on those, too, if you want to submit additional comments. You just listed an important list so we'd welcome having the additional but we're giving the focus on

this topic today. But for others that want to give recommendations to the committee on these other items, we'd welcome them. Thank you.

Dr. Young.

Ms. YOUNG. Okay. Well, I'll stick to the math and science. I won't even talk about standard deviations but maybe I'll come to back to some of those other things.

[Laughter.]

The CHAIRMAN. Thank goodness.

Ms. YOUNG. The California State University is the largest 4-year university system in the country. We award about 84,000 degrees every year and about 13,000 teaching credentials, which represents about 10 percent of the country's total. In math and science, we've launched a new initiative to increase the number of fully qualified math/science teachers and have increased our production by almost 38 percent over the last couple of years. We have about 1,000 new math and science teachers graduate from the CSU every year.

As part of this initiative, we've identified seven strategies. They are all outlined very specifically in the written testimony that provide a comprehensive, systematic approach to this. I'm going to describe three of these central strategies for you.

The first, our campuses have focused very heavily on——

The CHAIRMAN. Move your mic just a little closer, if you would, please.

Ms. YOUNG. On developing new pathways, new potential routes for math and science teachers who will be fully trained and their credential preparation includes a full major in their discipline—math and science teachers who really understand math and science and how to teach math and science.

In California, they've developed a new credential for math teachers that bifurcates the requirement that allows math teachers who are only going to teach up to middle-school level math, to have less preparation, less math background than high-school math teachers, who are teaching things like advanced calculus and statistics and standard deviations. We've increased our production of middle-school math teachers by 84 percent, which is a huge shortage area, middle-school math teachers.

The second approach we've taken is a collaboration with community colleges. California has 109 community colleges and that represents the largest pool of future teachers. Seventy percent of our graduates start their educational career in the community college. A huge, diverse pool for our math and science teachers—we've developed articulation for seamless 2- and 4-year programs to reach into the community college and bring those people into the CSU and into credentialing.

We rely a great deal on those efforts on National Science Foundation grants and opportunities there.

The third approach we focus on is provision of financial aid and support for math and science teachers. We use scholarships, grants, loan cancellation—these are all critical for math and science teachers. We use loan assumption programs to cancel student debt. We feel that students preparing for math and science teaching careers should have their tuition and fees covered as they earn their credential. We use NSS—Scholarship Program. Eleven

of our campuses participate in that program and more are currently applying.

Finally, in math and science, I would mention two elements about professional development that are also critical. Math and science both are fields that are constantly changing. It's not enough to get more good qualified teachers out there. We need to keep them current in their field and keep them motivated to stay. Two strategies that we find that are particularly effective for that are long-term partnerships between the universities and the school districts so you are providing professional development that is based in research but grounded in practice. Second, sustained professional development within teacher learning communities that allow the teachers to participate in the development of their programs.

I think I'm at the red light. I'll stop. But I look forward to answering any questions you may have.

[The prepared statement of Dr. Young follows:]

PREPARED STATEMENT OF BEVERLY YOUNG, PH.D.

INTRODUCTION

Chairman Kennedy, Ranking Member Enzi, and members of the committee, thank you for inviting me to discuss the efforts of the California State University (CSU) system to double its production of credentialed math and science teachers. The CSU commends the committee for its attention to this critically important task.

THE CALIFORNIA STATE UNIVERSITY—BACKGROUND

Few, if any, university systems can match the scope of the CSU system. The CSU is the largest 4-year university system in the country, with 23 campuses, approximately 417,000 students and 46,000 faculty and staff. The CSU's mission is to provide high-quality, affordable education to meet the ever-changing needs of the people of California. Since the system's creation in 1961, it has awarded about 2 million degrees. We currently award approximately 84,000 degrees and 13,000 teacher credentials each year.

The CSU plays a critical role in preparing outstanding candidates for the job market. Our graduates help drive California's aerospace, healthcare, entertainment, information technology, biomedical, international trade, education, and multimedia industries. The CSU confers 65 percent of California's bachelor's degrees in business, 52 percent of its bachelor's degrees in agricultural business and agricultural engineering, and 45 percent of its bachelor's degrees in computer and electronic engineering. The CSU also educates the professionals needed to keep the State running. It provides bachelor's degrees to teachers and education staff (87 percent), criminal justice workers (89 percent), social workers (87 percent) and public administrators (82 percent). Altogether, about half the bachelor's degrees and a third of the master's degrees awarded each year in California are from the CSU.

One key feature of the CSU is its affordability. For 2006–7, the CSU's systemwide fee for full-time undergraduate students is $2,520. With individual campus fees added, the CSU's total fees average $3,199, which is the lowest among any of the comparison public institutions nationwide.

Close to 60 percent of the teachers credentialed in California (and 10 percent of the Nation's teachers) each year are prepared by the CSU. Chancellor Charles Reed and the CSU Board of Trustees have made high-quality teacher preparation one of the highest priorities of the system. Following a decade of unprecedented growth and reform in public K–18 education, the CSU Board of Trustees in 1998 embraced systemwide efforts to improve teacher preparation in a policy entitled *CSU's Commitment to Prepare High Quality Teachers*.

THE CALIFORNIA STATE UNIVERSITY AND MATHEMATICS AND SCIENCE TEACHER PREPARATION

The California State University (CSU) has brought together its range of programs in science and mathematics leading to a baccalaureate degree and to a teacher education credential to address severe teacher shortages in these fields. In 2005, CSU awarded 651 math, 1,930 biological sciences, and 516 physical sciences (chemistry, geosciences, and physics) undergraduate degrees. Although these are only some of

the fields that are precursors to teaching credentials in mathematics and science, they provide evidence of an institutional capacity to address the challenges the State faces.

THE CSU MATHEMATICS AND SCIENCE TEACHER INITIATIVE [1]

As a system, CSU's goal is to at least double the production of math and science teachers during the next 5 years. This means increasing from a baseline figure of approximately 750 new math and science teachers produced annually to a minimum of 1,500 new teachers produced in these fields by 2009–10.

CSU's Math and Science Teacher Initiative began in 2004–5 through a planning process involving all of its 23 campuses. A seven-part action plan was developed that is focused on meeting "one goal through diverse pathways." Each campus is committed to a specific plan based on regional needs and strengths. Plans designate a numerical goal for increased credential production. They include a variety of promising strategies and programs for reaching goals.

Component #1. Comprehensive Recruitment Aimed at Expanding and Diversifying the Pool of Candidates

Objective: To significantly expand recruitment of new math and science teacher candidates.

Programs: Comprehensive, sustained, and innovative recruitment and marketing initiatives.

The first component of CSU's action plan is directed toward substantially expanding and diversifying the pool of qualified candidates for math and science teaching. It is a broadly-based recruitment effort targeted to college students and recent graduates, community college and high school students, mid-career and pre-retirement professionals, recent retirees, and teachers with the potential to change fields. Campuses are using a wide range of print and electronic tools for comprehensive and innovative marketing and recruitment approaches using a variety of media. The CSU Teacher Recruitment Projects, for which $75,000 of lottery funds are allocated annually to each campus, offer advising, test preparation, and financial aid to students.

Component #2. Creation of New Credential Pathways

Objective: To establish multiple new pathways to mathematics and science teaching credentials.

Programs: A broad range of new programs beginning at the freshman level and continuing through fast-track post-baccalaureate options.

A central part of the CSU strategy to expand math and science teacher production is the creation of new credential pathways. The purpose is to establish multiple points of entry into these fields for individuals at different educational and career stages. New pathways include, for example, (1) the new Foundational Level math credential for middle school teachers and (2) blended programs for undergraduates in which an academic major and teacher preparation are integrated in an articulated program of study. These blended programs are particularly promising because teacher preparation begins well before California's traditional post-baccalaureate program, and college students can typically complete these programs in slightly more than 4 years.

Several campuses are planning new pathways that will enable professionals in math and science-based fields to transition to careers in math and science teaching—including efficient, fast-track paths to the State's recently established specialized science credentials. These enable individuals with Ph.D.s to earn a teaching credential rapidly. Other approaches are focused on assisting credential candidates initially enrolled in different fields and current teachers in other fields to obtain a teaching authorization in math or science.

Component #3. Internet-Supported Delivery of Instruction

Objective: To create systemwide Internet-supported math and science credential preparation resources.

Program: A new online-supported teacher preparation program in mathematics and science.

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[1] See *http://www.calstate.edu/teachered/MSTI.*

To accommodate the needs of diversified pools of candidates, flexible preparation options are needed. Anytime, anyplace instruction is particularly advantageous for candidates who are career changers and currently fully employed. Learning from the infrastructure created for CalStateTEACH (the CSU statewide site-based credentialing program), CSU's initiative includes development of Internet-supported instruction to be available to candidates and programs statewide. California Polytechnic University at San Luis Obispo is leading the development of this effort.

Component #4. Collaboration with Community Colleges

Objective: To implement integrated 2-year/4-year math and science credential preparation programs with California's community colleges.

Programs: Partnerships with community colleges that align lower division and upper division math and science teacher preparation and institutionalize early recruitment and academic advising in these fields.

California's community colleges represent one of the largest potential recruitment pools of future math and science teachers in the State. A central component of campus plans is collaboration with community colleges in integrated 2-year to 4-year programs that provide an articulated and continuous sequence of preparation for math and science teaching. CSU campuses are working with their regional feeder community colleges to establish articulated programs. The Chancellor's Offices of the CSU and of the California Community College System have entered into a Memorandum of Understanding (MOU) that identifies the system-level strategies to be implemented in support of 2-year to 4-year articulated pathways.

Component #5. Financial Support and Incentives

Objective: To provide financial support for new math and science teachers through the full array of available fiscal mechanisms.

Programs: Scholarships, loan assumption programs, paid tutoring, service learning, school district internships.

An important component of CSU's strategy—one essential for its success—is having sufficient support for candidates through scholarships and loan assumption/cancellation programs, paid tutoring, and internship opportunities that will make teacher preparation financially attainable and attractive for college students of all backgrounds. This is particularly important because students from underrepresented groups, those most often in need of financial assistance, must increasingly be a substantial part of the math and science teacher work force. Expanding their participation within these professions is a central component of CSU's strategy.

A major effort has been undertaken by CSU in collaboration with the California Student Aid Commission to foster maximum utilization of California's Assumption Program of Loans for Education (APLE). Outreach efforts ensure that all CSU students know of this important State program for future teachers, which provides up to $19,000 of loan forgiveness for new math and science teachers. CSU campuses have awarded loan cancellation funding to more than 4,000 teacher education students in the past year, enabling them to enter the teaching profession in math, science, and other teaching shortage fields with little or no debt.

Tutoring is another important vehicle providing financial support and additional recruitment benefits. Research shows that the desire to assist others is a primary factor in recruitment into math and science teaching and that the opportunity to do so enhances the quality of new teacher preparation in these fields. On a number of CSU campuses, both service learning and paid tutoring are being integrated with math and science teacher recruitment. Using community service learning to foster interest in math and science teaching is a priority of the CSU system.

An additional approach for providing financial support to candidates is through paid internships in lieu of student teaching. These internships are typically followed by full-time teaching positions in the same school or school district. Numerous CSU campuses have arrangements with surrounding school districts that provide paid internships for math and science candidates. CSU campuses provide significant support for their teacher candidates in intern positions in order to ensure that they have the kind of guidance and assistance they need to be successful.

Component #6. Supporting and Evaluating Promising Approaches Having Scale-Up Potential

Objective: To identify cost-effective math and science teacher recruitment and preparation approaches.

Programs: Implementation and examination of a range of different expansion approaches.

The CSU strategy is a carefully planned effort aimed at supporting, refining, and scaling up especially promising and cost-effective approaches for preparing highly qualified math and science teachers. Priority is placed on identifying, supporting, and examining strategies for increasing credential production that have clear potential for replication at multiple campuses.

An example is seen in campus programs that prepare candidates for the new Foundational Level math credential. The credential is designed particularly for middle school math instruction, a field in which a very large shortage of qualified teachers exists in California and nationally. There is a need for teachers with the new math credential in all regions of the State, and CSU campuses are piloting a range of promising approaches preparing individuals to earn it.

The Chancellor's Office has begun identifying especially effective approaches implemented by campuses for achieving growth in math and science teacher production. These approaches are being examined thoroughly and will be described in detail for adoption by other campuses.

Component #7. Partnerships with Business, Industry, and Federal Laboratories

Objective: To institutionalize partnerships that enhance the attractiveness of teaching careers in math and science.

Programs: Partnerships with business, industry, and Federal laboratories enriching math and science teachers' career opportunities.

Long-term success in increasing production and retention of math and science teachers requires the active participation of corporate leaders and partnerships with Federal laboratories. They can assist to bring about fundamental changes in the societal value-accorded math and science teaching and in the attractiveness of careers in these fields.

Business and industry involvement often includes scholarships for future math and science teachers. The CSU system has a longstanding partnership with the Boeing Company, for example, through which scholarships have been provided to future math and science teachers. Federal Department of Energy Labs in California have provided opportunities for paid summer laboratory experiences for CSU teacher candidates in ongoing research, and plans are in motion to expand this effort. In collaboration with education programs at the Jet Propulsion Laboratory (JPL), CSU established the CSU–NASA partnership several years ago. It enables CSU campuses to connect with the Nation's most advanced applications of technology as they prepare future math and science teachers.

REPORT OF INITIAL RESULTS OF CSU INITIATIVE: MARCH 2007

Progress to date indicates that CSU's initiative is on course for achieving intended outcomes. Since launching of the initiative 2½ years ago, credential production has increased 37.6 percent, from 768 to 1,057. Production increased 64 percent in mathematics and 16 percent in the sciences. In math, more than two-thirds of the increase is attributable to growth in the new Foundational Level credential. In the sciences, more than one-quarter of the increase has been in the newly authorized specialized credentials. Both of these patterns of gain demonstrate the importance of creating new credential pathways. Increases have occurred in the severest shortage fields: more than 15 percent of the increase in the sciences has been in the physical sciences (physics and chemistry), fields particularly in need of increased production.

To sustain long-term growth, recruitment efforts are needed that significantly increase pools of credential candidates from all backgrounds. CSU campuses have made significant efforts to raise scholarship funds to assist in recruitment. Last year, four additional CSU campuses were awarded prestigious National Science Foundation (NSF) Robert Noyce Scholarship grants for mathematics and science teachers. This program has been a priority for CSU campuses, and a total of 11 now have been awarded these NSF grants.

A significant issue requiring long-term, sustained attention is math and science teacher retention. The majority of CSU campuses host professional development programs for teachers, targeted especially for high need schools. CSU campuses will be expanding their efforts in this area with support through *No Child Left Behind* Title II funds to institutions of higher education in the State. These programs typically include intensive summer institutes accompanied by creation of learning communities during the school year. Programs of this nature have been shown to be effec-

tive in providing support for teacher effectiveness and growth. The CSU programs have been based on thorough needs assessments that identify local teachers' needs.

Expanding professional development roles of campuses is important to CSU in relation to its commitment to place math and science teachers in high-need schools. CSU has entered into a partnership with the California County Supervisors Educational Services Association in a $2.87 million project aimed at addressing this issue by recruiting math and science teacher graduates to consider teaching in the highest need schools in the three largest regions of the State.

CSU TEACHER EDUCATION EVIDENCE AND ACCOUNTABILITY SYSTEMS

The CSU annually conducts the largest and most comprehensive evaluation of the outcomes of its teacher education programs in the Nation. The annual *CSU Systemwide Evaluation of Teacher Education Programs* has been in place since 2001. It consists of a comprehensive outcome evaluation of interrelated components of teacher preparation that, taken together, provide a rich and detailed picture of program quality and effectiveness. It has to date included analyses of:

- the level of each graduate's preparation during his or her initial years of K–12 teaching, as reported by CSU's teaching graduates;
- the effectiveness of programs as reported by the school site supervisors of CSU graduates during their first years of teaching; and
- the placement and retention of CSU teacher education graduates in teaching careers.

Beginning in 2007–8, the annual evaluation will include data on the effects of CSU teacher preparation programs, including its math and science programs, on the learning gains of K–12 pupils, enabling the CSU to further assess the success of its math and science teacher initiative.

CONCLUSION

The CSU and its campuses have initiated a wide range of strategies that have substantial promise for increasing the size and the quality of the mathematics and science teacher workforce. We thank you for your interest in the CSU and our efforts to prepare the substantial numbers of high quality teachers in these fields who are essential if we are to continue to compete in the global economy. I will be pleased to answer any questions you might have, and look forward to working with you in this critical area in the future.

Supplemental Attachments to Testimony

CSU Mathematics and Science Teacher Initiative: 2005-06

Campus Projects and Activities: 2005-06	
Campus	**Primary Activities**
Channel Islands	Recruit Career Changers; Offer Fast Track Specialized Science Credentials; Foundational Level Math Credential; K-12/Business Partnership
Chico	Hands-on Lab for K-12 Recruitment; Blended Programs in Math, Physical Science; Foundational Level Math; Service Learning
Dominguez Hills	Recruit Career Changers; Blended Programs in Math, Science; Community Colleges–Recruitment/Articulation with 8 LA Campuses
Fullerton	Integrated Programs in Math, Biology, Chemistry, Geosciences, Physics; Foundational Level Math; Specialized Sciences Credentials; Innovative Technologies
Humboldt	Math Education Minor for Teacher Candidates; Blended Programs in Math, Sciences; Service Learning; Dedicated Dormitories, Student Interest Groups
Los Angeles	Blended Programs in Science; Foundational Level Math; Specialized Math, Science Credentials; Expedited Summer Study; Community College Bridges Program
Northridge	Comprehensive Recruitment and Strategic Marketing; Expand Upper Division/Transfer Students in Blended Math Program; Recruit from Private Colleges in Region
Pomona	Community College Integrated Programs in Math, Science; Foundational Level Math; Recruit from Agriculture, Engineering Majors; Service Learning
San Diego	Community College Recruitment via Paid Tutoring; Foundational Level Math; Specialized Sciences Credentials; Systemic Alignment with EAP and Other Outreach
San Luis Obispo	Blended Programs in Math, Biology, Chemistry, Physics; Online Programs for Math and Science Credentials; Foundational Level Math; Specialized Science Credentials
Additional Private Sector Support: 2005-06	
Boeing, Edison, State Farm Insurance	Campus Project Support; Scholarships for Math and Science Teacher Candidates; Support for Teacher Professional Development; Grants for Service Learning/Tutoring

CSU Mathematics and Science Teacher Initiative: 2006-07

Campus Projects and Activities: 2006-07	
Campus Math and Science Credential Pathways Growth	
Increase Blended Programs	
Technology Infused Programs	
Expand Quality Internship Programs	
Expand Current Credential Pathways	
Campus Recruitment Efforts	
Recruit Undergraduates, Community College Students, Career Changers	
Flexible and Accelerated Credential Options	
Campus Website Development and Publicity Activities	
Website Development	
Media, Publicity, Events	
Statewide Support Activities	
Conferences, Meetings	
Statewide Web Support and Development	
Statewide Publicity Campaign	
Additional Major Support Related to Initiative: 2006-07	
State of California Budget Act	Mathematics and Science Teacher Recruitment Project Targeting High-Need Regions of State CSU Partnership with California County Superintendents Educational Services Association
NCLB Title II State Higher Education Funds	Mathematics and Science Teacher Retention: Summer Institutes and Academic Year Follow-Up Through CSU California Science Project and California Mathematics Project Sites

CSU Math and Science Teacher Initiative:
Examples of Promising Campus Strategies
California State Polytechnic University, San Luis Obispo

California Polytechnic State University, San Luis Obispo (SLO) *has embarked on a distinctive multidimensional university-wide strategy for more than doubling its preparation of math and science teachers. This strategy reflects the capabilities of the campus and the related state and national leadership of its President. The approach builds on the capacity of its University Center for Excellence in Science and Math Education and the capabilities of the campus and CSU system for online delivery of credential programs and student services.*

New Credential Pathways and Credential Growth Strategies	• New blended programs in chemistry, biology, physics, and math leading to BA/credential in 4 years + 1 term • New Specialized Credentials in Biology, Chemistry, and Physics (rapid pathway for Bachelor's degree holders) • Community College transfer programs for junior year entry • Credential completion for Continuing Education Adult Degree Program Completers • Innovative online delivery of instruction and student services through hybrid model
Recruitment Strategies	• Target new populations: – Math and science majors and minors – Engineering majors (including new Engineering Education Option for undergraduates) – Community College transfers, including Continuing Education Adult Degree Program completers – Students from across the state interested in online credential coursework • Expand regional outreach with print and electronic recruitment information • Develop campuswide advising; draw on strength of University Center for Science and Math Education • Attract undergraduates and K-12 students through professional programs of Math and Science Clubs • Extend the geographical range in which student teachers can be placed • Extend the use of online tools and Web-based technologies in recruitment • Provide CSET test preparation workshops • Offer campus tours; provide math, science, and engineering outreach to K-12 schools • Collaborate with MESA and AVID to provide high school and community college academic support • Outreach via email(s) from Admission Office focused on math and science teaching to a broad audience • Financial Aid Offices include focus on math and science teaching
Community College Strategies	• Host multiple activities for community college students; present math and science teaching pathways • Publicize junior year blended programs suitable for community college transfers
Fiscal Incentives and Strategies	• Stipends for Science Education Club Tutors and EAP Math Mentors • Websites for students to access financial aid directly from a range of departments and Admissions Office • Use of online tools for disseminating information about loan assumption and scholarships • Teacher as researcher industry/federal lab model for new teachers
Community Service Learning	• Preparation of EAP math mentors for tutoring roles • Early field experience in K-12 schools for student clubs

CSU Math and Science Teacher Initiative:
Examples of Promising Campus Strategies
California State University, Fullerton

California State University, Fullerton (CSUF) *initiated a comprehensive, university-wide program involving 10 academic departments—with ongoing involvement of the President. Its goal is to more than double math and science teacher production; its strategies include recruitment of undergraduates from SMET, business, engineering, and other fields. It has integrated online learning tools to help candidates strengthen their content knowledge and pass the California Subject Examination for Teachers (CSET). It has created flexible scheduling, including late afternoon, evening, and summer courses. It has been selected as a Case Study in conjunction with the national project being undertaken by the National Association of State Universities and Land Grant Colleges.*

New Credential Pathways and Credential Growth Strategies	• Expand enrollments in foundational level math credential; provide online learning tools in math • Offer integrated bachelor's degree and credential program with reduced units to graduation • Assist credential candidates in other fields to switch to math or science • Encourage math and science majors and SMET-related majors to enter teaching • Teach classes at flexible times and offer innovative summer programs
Recruitment Strategies	• Recruit from multiple/single subject/special education candidates, current teachers • Recruit new specialized science credential program candidates from recent graduates, current teachers, and career changers • Offer summer sections of *Methods of Teaching Foundational Mathematics* and *Methods of Teaching Science* • Attract new populations from STEM and related fields: – Promote teaching careers in science and math departments – Recruit majors in biology, chemistry, geology, environmental science, and physics and minors in natural sciences – Encourage science majors to earn teaching credential with Master of Arts in Teaching (MAT) in Science – Distribute information in business, computer sciences, engineering, information science buildings • Recruit high-achieving math and science students in local high schools; sponsor future teacher field trips to CSU Fullerton • Offer online CSET test preparation with Orange County Department of Education: pay test preparation costs and test fees • Recruit/advise Elementary candidates with math and science backgrounds • Identify and recruit teachers who need to establish subject matter competence to meet NCLB "highly qualified" criteria • Provide outreach through EAP contacts with schools; distribute Future Teacher brochures and APLE information
Community College Strategies	• Recruit community college students into articulated programs at Fullerton, Santa Ana, and Cypress community colleges • Provide academic advising, publicize math and science programs at community colleges • Arrange teaching of prerequisite courses at local area community colleges; align syllabi
Fiscal Incentives and Strategies	• Assist students with APLE loan cancellation awards and scholarships • Increase math and science intern placements (candidates are paid by school districts) • Pay full or partial costs for math and science courses in University Extended Education

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CALIFORNIA STATE UNIVERSITY MATHEMATICS AND SCIENCE TEACHER SUMMIT MEETING CALIFORNIA'S CHALLENGE—MARCH 2, 2006[2]

PURPOSE OF SUMMIT

The *Recruiting and Preparing Mathematics and Science Teachers Summit* held on March 2, 2006 helped to launch the California State University (CSU) Math and Science Teachers initiative (MSTI). It engaged leaders throughout the CSU system in a wide-ranging discussion of strategies for significantly increasing the production of mathematics and science teachers—thereby laying a foundation for each campus' role in expanding math and science teacher preparation. The Summit, in this fashion, addressed the most significant human resource issues that California and its science- and technology-based industries face today.

[2] The complete agenda and presentations from the Summit are available at: *www.calstate.edu/teachered/msts.*

BACKGROUND

Leaders across American society have recognized the critical importance of recruiting and training more and better-prepared mathematics and science teachers for the Nation's schools. This was a central conclusion of *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future,* the recently issued report of National Academy of Sciences' Committee on Prospering in the Global Economy of the 21st Century.

The committee, which included among its members several current and former industry chief executive officers, university presidents, researchers—including three Nobel prize winners and former presidential appointees—reported as the highest priority action to be taken: Annually recruit 10,000 science and mathematics teachers. Its second priority action was: Strengthen the skills of math and science teachers through training and education programs. And its third priority action was: Enlarge the math and science pipeline by increasing the number of students who take advanced science and mathematics courses during high school.

The recommendations of this National Academy of Sciences Committee conform closely with the design the California State University is initiating within its landmark Mathematics and Science Teacher Initiative. The May 2004 compact between Governor Schwarzenegger and California's higher education community identified the critical shortage of K–12 mathematics and science teachers as a major priority. A commitment was made by the California State University system to double the production of mathematics and science teachers by the year 2010.

SUMMIT PARTNERS AND PARTICIPANTS

The California State University Chancellor's Office co-sponsored the Summit with a number of partners, including Apple Computer, The Boeing Company, the California Space Authority, the California Council on Science and Technology, the Center for the Future of Teaching and Learning, Edison International, the Majestic Realty Company, Morgan Stanley, Jet Propulsion Laboratory, and State Farm Insurance. The attendees included representatives from throughout the CSU system, California's other K–12 and higher education institutions, and business, foundation, and governmental agency leaders.

MEMORANDUM OF UNDERSTANDING—PATHWAYS TO MATHEMATICS AND SCIENCE TEACHING [3]

California faces a shortage of fully credentialed and qualified mathematics and science teachers and has within its current teaching workforce in these fields a much smaller proportion of teachers from diverse backgrounds than are represented in the K–12 student population.

California's community colleges enroll half of all freshman college students in California and the majority of underrepresented college freshmen. Coordinated efforts between the California Community Colleges (CCC) and the California State University (CSU) can help to increase the number of credentialed teachers in mathematics and science, including teachers from underrepresented backgrounds, and to ensure alignment between community college programs of study and subsequent university preparation for teaching in these fields.

Therefore, the CSU and the CCC agree to implement the following provisions of this Memorandum of Understanding:

1. CSU and CCC will collaborate in publicizing the significant need for mathematics and science teachers in California and the opportunity to complete an articulated program of preparation that begins with lower-division preparation at the community college and is completed at the CSU.

2. CSU and CCC will make available Web-based resources that provide recruitment, academic advising and financial aid information to CCC Transfer Center Directors, CCC Counselors, and CSU Teacher Recruitment Project Directors for supporting community college students interested in teaching careers. Financial aid resources will provide details on relevant grants, scholarships, and loan assumption programs and include assistance to community college students in acquiring APLE loan repayment awards upon transfer to a CSU campus with 60 semester units.

3. CSU and community college campuses will involve their respective mathematics and science faculty in aligning programs and coursework for community college students interested in teaching. They will (a) identify at least six units of lower-division coursework in the mathematics and science Lower Division Transfer Pat-

[3] This summary includes the primary substantive provisions of the complete Memorandum of Understanding.

terns (LDTP) relevant to preparing for teaching, and (b) include in this coursework, as appropriate, experiences that foster understanding of K–12 teaching, but do not reduce or eliminate course requirements either of the community colleges or necessary to maintain articulation with 4-year institutions.

4. CSU campuses will establish regional Mathematics and Science Teaching Pathways Advisory Committees. These Advisory Committees will generally be established in connection with Teacher Recruitment Projects. The Advisory Committees will assist in the planning of recruitment activities and in the design of programs and courses in mathematics and science for transfer students. The Advisory Committees shall include representatives of community colleges, CSU mathematics, science, and education faculty, and other educators as appropriate.

5. CCC and CSU will actively promote cross enrollment and dual admissions programs for community college students interested in mathematics and science teaching. Examples of effective practices will be jointly disseminated by the respective Chancellor's Offices.

BUILDING EVIDENCE SYSTEMS FOR ACCOUNTABILITY AND IMPROVEMENT IN TEACHER EDUCATION: THE CALIFORNIA STATE UNIVERSITY'S CENTER FOR TEACHER QUALITY

BACKGROUND

With 23 campuses and an annual enrollment of more than 400,000 students, California State University (CSU) is the largest public university system in the world. Central to its core mission is the preparation of the education workforce in California. Close to 60 percent of the teachers credentialed in California each year are prepared by the CSU. Chancellor Charles Reed and the CSU Board of Trustees have made high-quality teacher preparation one of the highest priorities of the system. Following a decade of unprecedented growth and reform in public K–18 education, the CSU Board of Trustees in 1998 embraced systemwide efforts to improve teacher preparation in a policy entitled *CSU's Commitment to Prepare High Quality Teachers*.

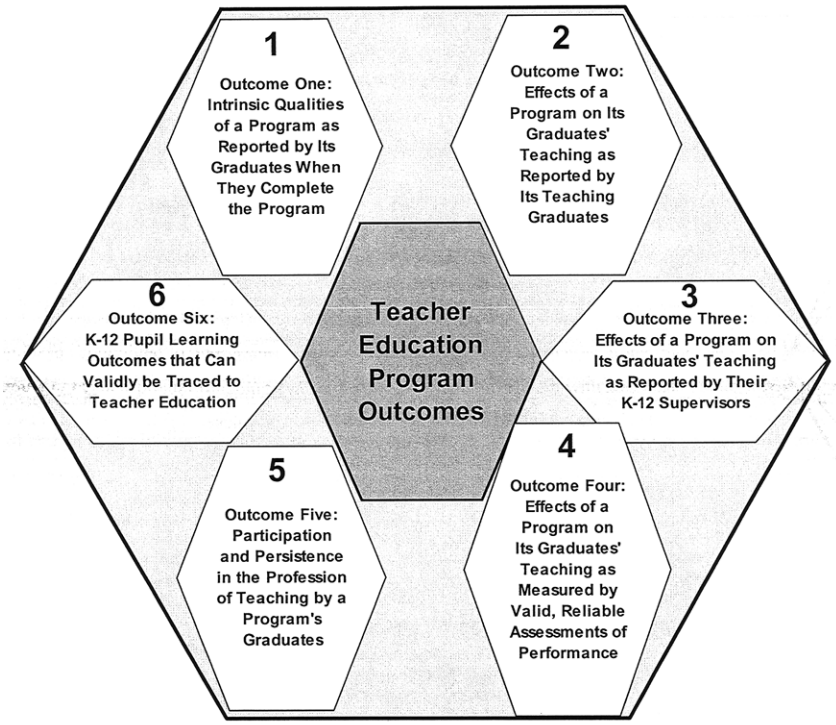
Beginning in 2001, each CSU campus participates annually in the Systemwide Evaluation of Teacher Education Programs. A central purpose of this evaluation is to provide information that the Deans and other campus leaders can use in making improvements in teacher education programs. Rather than viewing the evaluation as a one-time event, the Deans committed to an ongoing evaluation that would provide them with fresh data about the quality of their programs each year.

As a partner with public schools in the education enterprise, the CSU uses feedback information at two levels: Individual CSU campuses make improvements in teacher preparation programs based on the many specific evaluation findings, and the CSU system undertakes systemwide initiatives when evaluations reveal systemwide needs. The CSU credits teachers and administrators for these opportunities to strengthen the teaching profession.

The CSU knows of no other system of 4-year universities that has relied on teacher and administrator feedback for so many years. CSU teacher education programs have benefited richly from the advice and guidance of K–12 professionals.

The CSU Systemwide Evaluation consists, structurally, of the six interrelated sets of activities and outcomes of teacher preparation shown in Figure 1 below. Taken together, the evaluation of these six areas provides a rich and detailed picture of program quality and effectiveness.

Figure 1



The CHAIRMAN. Thank you. Very helpful. Wanda Watkins, Principal, Thurgood Marshall Elementary School, Richardson, Texas. Wanda has worked in Richardson Public Schools more than 20 years as a Spanish teacher, guidance counselor, assistant principal and principal. She is currently the principal at Thurgood Marshall Elementary School, which opened in 2005 and is a teacher at the Advanced Program School. So we thank you very much and look forward to your testimony.

STATEMENT OF WANDA J. WATKINS, PRINCIPAL, THURGOOD MARSHALL ELEMENTARY SCHOOL, RICHARDSON, TEXAS

Ms. WATKINS. Thank you, Chairman Kennedy and I thank the other members of the committee for having me here today. It is indeed a great honor; in fact, it's an awesome wonder that I'm here and I'm excited to share with you the experiences that we have enjoyed at Thurgood Marshall Elementary.

I am so happy to say that we do have a program, the Texas Advancement Program, that is in place and it is really focusing on every child. We embrace No Child Left Behind. We don't do standard deviation and study that but our focus is on every single student and value-added gain and as we look at the challenges, I want you to just for a moment, walk through my challenges with me, because in that way, even though I outlined them for you in the writ-

ten testimony, when you hear them, I think you will get a better feel for what has been accomplished at Thurgood Marshall Elementary.

It is in the heart of an area surrounded by apartment complexes and it is like an inner-city school and it has the challenges of an inner-city school. You know, I was around years ago when we talked about how little Johnnie could not read and everybody was concerned that little Johnnie could not read. Well, I have a lot of children in my school and they are little Johnnie's children and little Johnnie's grandchildren and little Johnnie, unfortunately, has joined the ranks of those in prison or he's been lost to the streets and now we have his children, who last year could not read and thanks to a program that attracted effective, quality teachers and thanks to a program that worked very diligently with the job embedded plan to teach teachers weekly, the strategies that they needed to address the needs of those children who could not read. We saw some great gains over the past year.

And what is so wonderful about it is that not only has it built collegiality among my staff members, something that I tried for years to accomplish and could not do, as I outlined for you in the written testimony, it has done that. It has addressed the needs of those children and we have enjoyed just tremendous, outstanding growth for children who came to us from Louisiana, when the hurricane hit there and from other parts of the city, from inner-city Dallas schools where moms where trying to escape to an area—they had heard that the school district was great in Richardson. They wanted to be a part of that. They were looking for better housing, which Richardson does provide. And so they came to us but they came to us with a lot of needs. They came to us with a lot of children who had been sat in front of the television set as a babysitter and those children come to us without a whole lot of experiences, without background knowledge and our teachers have to learn how to address those needs so that those children can succeed, so that they can be successful.

And I'm very passionate about education so it's going to be very difficult to speak about something I'm so passionate about in such a short time. I'm also very convinced that the Teacher Advancement Program has made a big difference in the school and it's going to be difficult to briefly talk about such an outstanding program that has done so much for my children.

When they came to us last year, they had so many needs and teachers were so frustrated and I was opening a brand new school and it was so difficult to try to build relationships and instill trust, administrator to teacher and teacher to teacher and then teacher to children and even peer to peer. Nobody knew anybody and the school was open to alleviate the crowded conditions that existed in high-needs area in the Richardson Independent School District. So just briefly speaking, I want to just quickly say that the Teacher Advancement Program, as we interviewed teachers and tried to recruit teachers to staff this huge new school, one of the things that we saw is their countenance just totally change and light up. When we talked to them about how they were going to have a mentor who was going to address strategies that had been proven effective. They were research-based. They were going to help those children

to make gains over 1 year of time and they knew they were not in it by themselves.

I could so much relate to that because as a teacher in the trenches, I had gone to so many staff development sessions where I had to sit and listen and try to go back to my school and implement everything that I heard. Often they were wonderful, wonderful strategies that I knew would work. But without a mentor to guide me through that, without somebody to coach me and to walk me through it and to show me how to implement it in my classroom was just an outside consultant who was not gathering data on my own personal children. I was quite overwhelmed often and did not know how I was going to go back in the classroom and implement those strategies that I really believed would work. So I often did what many educators do—all of the materials went on my shelf and I thought, I'll get to it sometime. And the tragic result of that was no change in classroom practices.

With what the Teacher Advancement Program does for children, with the ongoing coaching and the weekly classroom meetings to address needs and to talk to teachers about data that they gathered—the master teachers—as they work with their students. That makes a huge difference because those master teachers go in and team teach with the teachers. They go in and model for the teachers. The teachers get to see that and then they coach them through it when they go back and observe them. They provide data on children that those teachers teach and they get great effective buy-in.

So for those reasons, to have a job-embedded program that does not ask exhausted teachers to attend another staff development session at the close of a day or at the end of a week on a Saturday, has been most effective. I totally embrace it. It does not leave children behind.

I would like to share the great gains but I know I don't have time but I must not close without saying that just yesterday, I learned that a high stakes test in Texas that accesses children's knowledge and skills, which we took in February, I am so, so proud to report that 80 percent of the students in third grade this year, having taken a high stakes test like that for the first time, have passed that test after only the first administration. That is far greater than what we did last year at this time, when only 55 percent of them had passed.

So the Teacher Advancement Program has maintained its high standards for excellence and I'm just thrilled to talk about a program that focuses on the child and that really ensures that that child does not get left behind and that he experiences those opportunities in school that he does not get in his home.

[The prepared statement of Ms. Watkins follows:]

PREPARED STATEMENT OF WANDA J. WATKINS

I would like to thank Chairman Kennedy, Ranking Member Enzi, and the other members of the committee for inviting me to testify here today. It is a great honor, and I am delighted to have the opportunity to share with you some of our experiences at Thurgood Marshall Elementary School. We are located in the Dallas metropolitan area in Richardson Independent School District.

1. What specific strategies, programs or policies have been effective in addressing the need for qualified educators in your community? What outcomes or progress—

with respect to the recruitment and retention of these educators—have been made as a result of these strategies?

THE CHALLENGE

I would like to start by noting that as a high-need urban school with very high student mobility rates, we face the challenge of *making more than a year's academic growth* with many of our students on a consistent basis. Teachers in our school must be able to make these kinds of academic gains with students to meet our goals as educators, and those articulated by Congress in "No Child Left Behind." This means our teaching staff must be consistently exemplary, and we must create an environment that encourages them to remain at Thurgood Marshall.

Thurgood Marshall Elementary School has a very high-need student population. Our free and reduced lunch percentage is approximately 90 percent. Of the 540 students we serve, African-American students comprise 80 percent of our student population with Hispanic students comprising 19 percent of the population. The school is located in an area that is surrounded by apartment complexes. One would naturally surmise that the children from those neighboring apartment buildings would make up my student population. Quite the contrary is true! The boundary lines have been configured so as to allow a minimal number of the Thurgood Marshall students from nearby apartment buildings to attend. Most of our students come from apartments that are located on the opposite side of a very busy freeway; thus these students ride buses to the school. As a result, many of our students and parents are not able to attend after school extra curricular activities or receive additional assistance because they lack transportation. Teachers who would provide additional aid to children before and/or after school are unable to do so because students are not available.

Moreover, many of our students come from one parent homes, and an extraordinary number of those parents are very young single mothers. These families tend to have very limited income, which results in frustrated young mothers who are sometimes abusive to their children as they strive to cope with their own personal struggles. Teachers encountered a great number of young mothers who were not capable of appropriately conferencing with teachers regarding their children's academic and/or disciplinary issues, etc. Frequently, they resorted to the use of intimidating behaviors, which included shouting, cursing, and threatening. Most of the teachers were quite intimidated, and chose to avoid calling parents rather than confronting such challenges.

Many of our students have fathers who are either imprisoned, or simply uninvolved in the lives of their children. Also, families most often consist of children whose siblings have different fathers. As a result, the students struggle with some emotional issues that often interfere with their ability to totally focus on learning. Due to their circumstances at home, they tend to be quite transient. Our mobility rate for 2005–6 was approximately 124 percent, which is quite frustrating to teachers because they find themselves making progress, only to lose students with whom they have worked so diligently. Not only that, but some of our students leave, stay away 2 months or more, and then return. Teachers then have to practically start all over again with those students.

Our first year of operation was very much that type of environment, and after Hurricane Katrina hit Louisiana, we received an influx of those evacuees because the spacious new school could more readily accommodate them. At one point, our student population was 10 percent Katrina/Rita evacuees. Those students' arrival to Thurgood Marshall Elementary greatly augmented our challenges and presented us with some emotionally disturbed children who had been trapped in a dome for days, after having faced the very traumatic ordeal that would naturally evolve from such an experience. In addition to continually working with an already existing high-need population, the teachers then had to adjust their instruction to tailor fit the needs of students who had even bigger learning gaps to close. (Accountability differs greatly from State to State.)

Not only did the evacuees arrive in need of some intensive instructional adjustments, they also came with these issues:

1. Children who had been diagnosed as AD-HD, MR, etc. had lost their medication during the violence of the storm.

2. Parents often could not give us information that would aid in appropriate placement of their students, and some of those students had been receiving special services.

3. We had no way of getting students' records, medical records, immunization history, etc.

4. Students were exceedingly more volatile and exhibited a greater need for social reform.

5. Thurgood Marshall's currently enrolled students and the evacuees had to learn how to coexist, and they sometimes "missed the mark" on that one.

6. Such sudden changes greatly impacted the teachers and their existing learning environment.

7. Teachers suddenly had to cope with these issues until the district could procure the funding that would allow for more personnel to aid in instructing these students to get these students closer to their grade level performance.

8. To keep things even more interesting, another hurricane—Rita—hit Louisiana and Southeast Texas to add a few more students and challenges to our numbers.

9. The evacuees were in the habit of returning intermittently to Louisiana and coming back to Thurgood Marshall, which increased both our mobility rate and teachers' challenges.

The above challenges were added to (a) opening a new school that was implementing a new program—the Teacher Advancement Program (TAP), (b) striving to build morale and interpersonal employee relationships with a group of teachers who were unknown to each other, (c) striving to build employee and student relationships in a new school where students knew none of the adults and few of their peers, (d) striving to instill trust (administrator—employee; teacher—teacher; student—student; and adult—student) in such a new environment, and (e) acclimating so many novice employees to the particular policies, curriculum, methodology, etc.

We faced all of these challenges continually, and the first semester was filled with very long days as we put in hours of work to plan, collaborate, and continue the pattern of preparing for every next day of learning. These days came after very long hours of summer days filled with interviewing and screening applicants, receiving shipments to fill an empty school that was to open soon, working out logistics and details regarding first day enrollment, how to receive and dismiss students (of whom approximately one-third ride the quit bus), fire drill/evacuation/disaster drill guidelines, and a myriad of other tasks. The interviews themselves were long and draining because we had to present the Teacher Advancement Program in addition to screening/attaining the necessary information to make an informed decision. Although it was a very good problem to have, the Teacher Advancement Program inevitably led to more questions, discussion, and interest; thus, the interviews grew even longer! We persevered because we know, and research has confirmed, that teacher quality and effective instruction is what can ultimately lead to student achievement gains.

THE TEACHER ADVANCEMENT PROGRAM

The key for us is recruitment, retention, and *development* of effective teachers. We must have a system in place to help teachers to become outstanding, and our teachers are looking for that support. The professional support system provided by TAP, as I have alluded, was one of the key elements in my ability to attract teachers to Thurgood Marshall when it opened as a new school.

In a high-need school there is a tremendous need to implement a support structure that enables teachers to continually improve the effectiveness of their instruction if students are going to continue improving academically. TAP had achieved this success with similar students in other high-need schools. Research showed us that 64 percent of TAP schools with 30 percent or more of students receiving free or reduced price lunch, and 54 percent of these high-need schools increase their percent of students at proficient or above from 2003–4 to 2004–5. This evidence is why we chose to implement TAP.

The method for achieving these results is an intensive focus on increasing teacher quality through a comprehensive program that includes (1) school-based professional development led by Master and Mentor teachers, (2) career opportunities for teachers to take on additional roles and responsibilities with additional pay, (3) a fair, rigorous, and objective evaluation system for teachers and principals, and (4) performance-based pay incentives. Thurgood Marshall began implementing TAP in the fall of 2005. I have included a summary of our program below.

TAP at Thurgood Marshall

1. **Building the Capacity of Teachers and Principals Through Professional Development** that is directly aligned to content standards and elements of effective instruction takes place during the regular school day, so educators can constantly improve the quality of their instruction and increase their students' academic achievement. This allows teachers to learn new instructional strategies and have

greater opportunity to collaborate, both of which will lead them to become more effective teachers.

2. **Additional Roles and Responsibilities** allow teachers to progress from a Career, Mentor and Master teacher—depending upon their interests, abilities and accomplishments. This allows good teachers to advance without having to leave the classroom and provides the expert staff to deliver intensive, school-based professional development that supports more rigorous course work and Texas standards.

3. **A Fair, Rigorous and Objective Evaluation Process** for evaluating teachers and principals. Teachers are held accountable for meeting standards that are based on effective instruction, as well as for the academic growth of their students, and principals are evaluated based on student achievement growth as well as other leadership factors. Evaluations are conducted multiple times each year by trained and certified evaluators (administrators, Master and Mentor teachers) using clearly defined rubrics which reduces the possibility of bias or favoritism.

4. **Performance-based Compensation Based on Student Achievement Gains and Classroom Evaluations of Teachers Throughout the Year.** Student achievement is measured using "value-added" measures of student learning gains from year to year. Performance pay is based on TX standards and TX assessment—both valid and reliable measures of student achievement that are used to calculate progress under NCLB.

THE RESULTS

Outcomes That Have Been Achieved

The TAP allowed us to attract such qualified teachers that students progressed very quickly. The support that these qualified teachers received from the TAP Master Teachers, coupled with their existing proficient skills, benefited students greatly. With all staff members unified across the building to teach the TAP Cluster strategies, the team of educators was able to close students' learning gaps at an extraordinary rate. Therefore, students at the school continually demonstrated progress on teacher made assessments, Master Teachers' post testing instruments, campus and district benchmarks, and the State's high stakes standardized tests.

Student Achievement Results with TAP in the First Year

During its first year of existence, Thurgood Marshall met AYP and received Recognized status from the State of Texas for our student achievement scores. Thurgood Marshall's Texas Growth Index (TGI) score was 18 percent. The average TGI values for comparison groups of similar schools are rank ordered. Thurgood received Gold Performance Acknowledgement because we fell within the first Quartile of the comparison group (meaning our students did better than 75 percent of similar schools in producing student achievement gains). Thurgood Marshall also had a schoolwide value-added gain in 2005–6 its first year of existence of a 5—showing the school met more than a year's worth of growth.*

By fostering a culture of continuous professional growth and reflection, creating multiple career paths for teachers, and rewarding effective teaching and student achievement, TAP has been instrumental in building a professional learning community at Thurgood Marshall where teachers feel both supported and challenged to refine and deepen their craft. The introduction of weekly TAP cluster groups along with bi-monthly interim assessments has ensured continuous monitoring of student progress and given faculty the data and skills to tailor instruction to areas of academic need.

It is the Richardson Independent School District's custom to administer benchmarks intermittently throughout the school year. Last year we noticed tremendous gains much earlier in the year than students at my former school had achieved. Students' learning gaps were closing at an astounding rate! At some grade levels, the newly opened school was quite competitive with other schools across the district that did not have the same challenges that our school faced. For example, our fourth grade students of 2005–6 had a higher rate of students passing the Math Benchmark than some schools whose demographics were totally different than ours. Not only was I thrilled, but the RISD central office personnel were also impressed. Teachers noted that their students were progressing quite rapidly in the classroom,

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* In evaluating TAP teachers and similarly TAP schools, SAS EVAAS calculates the effect of each teacher on student progress as assessed by the difference between the growth scores of the teacher's students and the average growth scores of the control group, which defines a year's growth. We then place each teacher (TAP and control) in one of five categories.

Teachers in categories "1" and "2" produced less than an average year's growth with their students, and teachers in categories "3", "4", and "5" produced a year's growth or more with their students.

and Master teachers noticed their progress as they modeled/taught in the classrooms. The ultimate results came when we received students' scores from the Texas Assessment of Knowledge and Skills, our high stakes test. The results are the following:

2006 School Accountability Rating: **Recognized****

Gold Performance Acknowledgments: Commended on Mathematics
Comparable Improvement: Reading/ELA & Mathematics

READING—82 percent of students passed
MATHEMATICS—78 percent of students passed
WRITING—99 percent of students passed
SCIENCE—71 percent of students passed
SDAA II (State Developed Alternative Assessment—for student who don't take TAKS)—97 percent of students passed

Not only are overall passing rates commendable, but since implementing TAP, Thurgood Marshall has made significant progress with groups that are most in need. The percentage of At-Risk students who passed the TAKS increased 25 percent on writing (75 percent to 100 percent) and 10 percent in math (from 60 percent to 70 percent). Similar increases were seen among those categorized as economically disadvantaged (14 percent writing and 9 percent in math).

National TAP Results

At the national level, TAP schools that have been implementing the program for a number of years demonstrated student achievement results. A report released recently by the National Institute for Excellence in Teaching, the non-profit organization that developed and oversees TAP, concluded that teachers and schools participating in the program produce higher student achievement growth than their control counterparts. Comparisons also show TAP's meaningful results in terms of adequate yearly progress (AYP), and its support among teachers as an effective professional development program. The full report can be found at *www.talentedteachers.org*.

The report shows that TAP teachers demonstrate higher achievement growth than control schools. In every TAP State, TAP teachers outperformed similar non-TAP teachers in producing an average year's growth or more in their students' achievement.

In addition, more TAP schools outperformed similar non-TAP schools in producing an average year's growth or more in both reading and math achievement.

RECRUITING

I have seen several changes in the recruiting effort. Applicants become very interested in working at Thurgood Marshall Elementary when they hear about the amount of support they will get from the TAP Master and Mentor teachers. My team and I have conducted interviews where we observed the applicant's countenance immediately change when we started to discuss that there would be weekly staff development trainings in TAP Cluster Meetings to teach them strategies to use in the classroom. As we explained that these would be research-based strategies that have been proven effective, the applicant usually became even more inquisitive and excited. This was true with both highly experienced teachers as well as those with little or no experience.

All except one (out of approximately 80 applicants) expressed a desire to attend those kinds of meetings if it would mean that a Master Teacher would followup with modeling in their classroom, team teaching with them, and/or coming into their rooms to observe them teach the strategy. The applicant we lost to disinterest expressed her need to have her classroom time alone with her students without the presence of guests. All others are very enthusiastic even about the followup coaching that Master Teachers provide after observing TAP Career Teachers teaching the TAP strategy.

The Teacher Advancement Program was instrumental in my ability to recruit 8 teachers from my former school, 3 from schools within the district, and 33 teachers from other locations.

**STATE OF TEXAS RATINGS: To be rated as "Exemplary," a school must have 90 percent of its students passing.

In 2005–6, at least 70 percent of students had to pass for a school to have a "Recognized" rating; this year (2006–7) it is raised to a 75 percent passing rate.

Academically Acceptable = 60 percent passing Reading, Writing, and Social Studies; 45 percent passing Mathematics; 40 percent passing Science.

Low Performing = 35 percent passing.

REDUCING TEACHER TURNOVER

One of the most costly challenges facing schools is high teacher turnover. Nationally, more than 50 percent of new teachers leave before they have been teaching 5 years. In the Dallas area, we have an even higher teacher and principal turnover rate in our high-need schools. This makes it very challenging to provide continuity for students of poverty—who need stability in the teaching force to achieve.

After recruiting very interested, qualified teachers, we were able to retain many of them. Some found, however, that they were not capable of effectively (a) interacting with the students' apathetic and frequently volatile parents, (b) coping with the issues that arise when working with a very transient population of children, (c) interacting with children who had serious problems associated with hygiene, (d) interacting with students who lacked appropriate social skills, and (e) giving the necessary tireless efforts everyday that are essential when closing academic learning gaps of low socio-economic students.

Of the teachers who left, two of them moved to another TAP school in the district (promotions); a TAP Master Teacher moved back to teaching and remained in the district, and five of them sought work with a different student population. Of that five, one of them transferred within the district because she was dissatisfied with the students' inability to manage their own discipline. Additionally, seven teachers moved to other positions within our school. It is also worth noting that two teachers chose to stay home with their expected babies, one Master Teacher relocated when her husband had to transfer, one left to work in her husband's church, one left because her daughter was seriously ill, and yet another teacher relocated to get married. Since only two teachers were non-renewed due to their ineffective classroom teaching practices, *I maintain that implementation of the Teacher Advancement Program allowed for us to attract a majority of qualified teachers to our opening school and to build our faculties' skills over the course of the year.* It is extremely rare to hire such a large number of qualified teachers when there is a need to staff a building for its first year of operation.

COLLEGIALITY AND PERFORMANCE PAY

As a building principal, I have made so many ineffectual attempts to build collegiality, all of which have failed until TAP. No matter how many games we played prior to a large staff development faculty meeting, and no matter how many ice breakers I tried throughout the year, teachers continued to return to their own special groups when the meetings ended. Through its weekly cluster group meetings, TAP provides a way for grade level teachers to come together with Master and Mentor teachers, support teachers such as librarians, and educators who teach Special Education courses or Special Areas teachers. They establish positive relationships as they work together toward a common goal: student achievement! This is evident when, for example, a P. E. teacher talks with a second grade teacher about using a TAP "Cluster Group" strategy that focuses on word meaning when teaching students how to dribble a basketball.

For the first time in my 7 years as an administrator, I had the joy of learning that a large group of my teachers were going to Las Vegas together to enjoy their spring break. The most surprising part of that news was that the teachers were a mixed group of both primary and intermediate teachers, and usually that twain never meets.

While teachers last year rarely mentioned the TAP payout for performance, they were very excited when they received their bonus pay in the fall of 2006. The district's TAP Director and central office personnel held a special ceremony to celebrate those teachers who received the bonus checks, and the teachers seemed to really appreciate the honor. It was their time to be recognized for their diligence, and they enjoyed the time of celebration. For several weeks, I heard talk of how the money would be spent, and it ranged from weddings to vacations! After that time, it was back to work, and oddly enough, I hear hardly anything at all about the payout bonus. There is, by far, more discussion about students' needs, how to meet them, specific TAP Cluster Group strategies, and ultimate student achievement.

FUNDING TAP

The Teacher Advancement Program at Thurgood Marshall is funded in the following ways:

- Title V (NCLB)—grant for innovative programs
- Title I (NCLB)—a State grant
- Priority Funds—local tax dollars
- Title II (NCLB)—a State grant for teacher quality and recruitment

BUSINESS AND COMMUNITY SUPPORT

Here's a quote from a community person who serves on our Local School Council, "I am so very impressed with what I see going on in this school. The hard work of the teachers is incredible! It is amazing to watch these teachers working with the students."

This is a quote from a parent, "I really hate living in this area, but the school is so good that I don't want to leave it. You all have helped my children so much, and they love it."

2. What strategies do you believe are most effective in terms of providing professional development and support to educators in high-need schools? Is professional development being targeted to educators to respond to their needs and, if so, on what criteria or data was the targeting based?

PROFESSIONAL DEVELOPMENT

Weekly cluster meetings provide the primary vehicle through which professional development is implemented within a TAP school. Clusters are weekly job-embedded meetings attended by a group of teachers with similar students and are led by a master or mentor teacher that is part of the school faculty. This is an important element of TAP clusters in that they are led by a teacher with personal knowledge and understanding of the needs of the students and teachers at the school as opposed to an outside trainer who does not have this personal knowledge.

During these weekly professional development meetings, a master or mentor teacher models effective implementation of a strategy targeted at an identified student need represented by the cluster members' students. Throughout a cluster cycle, teachers continually analyze and utilize student work as they develop the strategies learned for their specific students and content area. Everything in the Cluster Group is driven by student work and student needs. This includes needs identified through standardized tests as well as through benchmark assessments and informal assessments by teachers, and through analysis of individual student work.

When we opened Thurgood Marshall Elementary in the fall of 2005, we had to pre-test all of our students because they came from so many different areas of the city, cities, and even States. Some are from Louisiana, Oklahoma, and Mississippi. We used our data to not only drive our decisionmaking concerning school goals and cluster goals, but to also drive instruction. This continues to allow teachers to learn new instructional strategies and have greater opportunity to collaborate, both of which will lead them to become more effective teachers.

When the evacuees arrived, we had to pre-test them as well to determine where they were academically so that we could better tailor small group instruction to fit their needs. Then we had to screen applicants and hire additional part-time employees to pull students out of the regular classrooms and provide that instruction.

TAP does not adhere to the traditional mode of professional development of teachers. Traditionally, teachers attend professional development sessions throughout the course of the school year. They attend, sit, listen, and get a ton of new ideas and materials to use in their classrooms. Unfortunately, they are often either fearful to try it or overwhelmed by it all because they have no idea of how to implement into their lesson design/planning. Thus, they usually end up placing all the new materials on a bookshelf or in some cabinet, and they push all the innovative ideas to the back of their minds. The result is too often that teachers learn about some effective classroom practices, but nobody ever utilizes any of them. The tragic result: classroom practices do not change.

The TAP, on the other hand, introduces the critical attributes of research-based, proven effective classroom strategies, the master teacher models the teaching of the strategies (even creating a simulated classroom setting where the teachers who are learning the strategy become the students), and then the master teacher follows up by either modeling the strategy again in the actual classroom setting or team teaching with the career teacher. This method of training removes the guesswork for the teacher and supports the teacher throughout the entire process. Finally, there is opportunity for post-conferencing and coaching to further address any needs or concerns. The ultimate result to the TAP model: effective classroom practices that yield student success!

EVALUATIONS

Another important input to professional development is provided through TAP's comprehensive system for evaluating teachers and rewarding them for how well they teach their students. Every teacher in our school is evaluated at least four times each year by trained and certified evaluators who are the master teachers,

mentor teachers, and the administrators. Evaluations are based on research-based standards in four areas: planning instruction, learning environment, responsibilities, and implementing instruction. Teachers are given this detailed rubric and are well prepared for their evaluation. In addition, pre- and post-conferences are held with each teacher to design strategies for growth, and coaching is provided throughout the year.

CAREER OPPORTUNITY

TAP allows teachers to pursue a variety of positions throughout their careers—career, mentor, and master teacher—depending upon their interests, abilities, and accomplishments. As they move up the ranks, their qualifications, roles, and responsibilities increase—and so does their compensation. This allows good teachers to advance without having to leave the classroom.

Master and mentor teachers must have expert curricular knowledge, outstanding instructional skills, and the ability to work effectively with other adults. They take on additional responsibility and authority, and are required to have a longer work year. Master teacher stipends are approximately $8,000, and Mentor teacher stipends are approximately $4,000.

In order to provide quality, school-based, job-embedded professional development, there must be a qualified team of individuals to provide this training. TAP allows for instructional leadership within a school to be shared among members of the TAP Leadership Team (Principal, Assistant Principal, and Master and Mentor Teachers) in a participatory leadership model. I believe there is a positive relationship between employees' motivation and their ability to advance within their career. The consensus in this research is that employees who have opportunities for career advancement are motivated to improve the quality of their work. In my experience, TAP's combination of fiscal and work opportunity incentives creates a total package that appeals to teachers.

CONCLUSION

To summarize, the Teacher Advancement Program is an effective model for these reasons:

- It offers support to career teachers, especially to those teachers who are new to the educational arena. Since universities often provide knowledge, more so than effective classroom practices, graduates in the teaching field are frequently unequipped to provide educational opportunities that allow all children to grow.
- TAP develops good teachers into outstanding teachers and retains them in the field of education. It attracts those teachers who come with a good knowledge base, some skills, and hones those skills. Since teaching is such a vital profession that pays so little, TAP augments teachers' salaries.
- TAP builds collegiality within a school's learning environment.
- TAP effectively trains teachers while offering them the necessary support to ensure successful careers.
- TAP supports teachers in delivering a more rigorous curriculum.
- And, most important, TAP offers the low socio-economic student an opportunity to learn that might otherwise have been forfeited.

Successful teachers automatically produce successful students. Successful students ensure a brighter future for America. Thank you for the opportunity to speak with you about our work at Thurgood Marshall.

The CHAIRMAN. Very impressive. Thank you, Wanda. Jon Schnur, who is the Chief Executive Officer, New Leaders for New Schools. Jon co-founded New Leaders for New Schools in 2000. He plans to expand the nonprofit work. The organization has trained more than 200 school leaders who now work in several cities across the country. We're delighted to have you here, Jon. He was the Special Assistant to the Secretary of Education, Richard Riley, as well. Glad to have you. Thank you.

STATEMENT OF JON SCHNUR, CHIEF EXECUTIVE OFFICER, NEW LEADERS FOR NEW SCHOOLS, NEW YORK, NEW YORK

Mr. SCHNUR. Thank you very much, Chairman Kennedy, members of the committee. I'm thrilled to be here. I have a lot to say

in 3 or 4 minutes so I'm going to try to do three things in these 3 or 4 minutes.

No. 1, try to argue that the principal quality strategy, a school leadership quality strategy is absolutely indispensable in this country to ensure quality of teaching. Without that, we can't have quality teachers.

No. 2—I'll share with you a little bit of background about New Leaders for New Schools and some of the progress that we've made and some of the learnings that we've made and some things we don't know about the principalship. We have a lot of humility about what we know and don't know and want to share that because No. 3, I want to then offer some recommendations for Federal policy that rooted both in the sense of urgency about having great principals but also a sense of humility about what we do and don't know about how to ensure great principals at scale.

So No. 1, principals matter a lot. The research is really clear and Senator Clinton has been a pioneer in the efforts on school leadership and the Senate authored the first school leadership programs. Senator Kennedy, you've been an advocate, Senator Alexander has been an enormous advocate, nationally and in Tennessee. But don't think it pervades the Elementary and Secondary Education Act yet. The research is clear. The most important in-school factor affecting student achievement in high-need schools is the quality of the teacher as has been said earlier and Amy said that and of Amy's work and others.

The second most important factor is the quality of the principal. It's No. 2, so we try harder. But you actually can't have a quality teacher strategy without a quality principal because principals control many of the levers about teachers. They hire teachers, they select teachers, they provide professional development to teachers, they support and hold teachers accountable so not only is it No. 2 but it is actually indispensable to No. 1. The best schools have great principals. You've seen that and the research backs that up.

The challenge is how do you take that simple idea that you can't have great schools without great principals to scale in this country, in a large complex nation where you have limited knowledge about how to do this at scale.

The second point, New Leaders for New Schools is one example of an effort to make progress against this issue. Our focus is high achievement for all children, especially in urban schools, urban or public schools. We recruit and train and support very talented people to become principals of urban public schools at scale. We currently work in nine cities. New Orleans was just launched 2 weeks ago as our ninth. We're in New York City, Memphis and other cities across the country. We do three things. We recruit and select individuals who have the characteristics associated with the highest performing principals. The research is clear what characteristics principals have and we try to recruit and select individuals for that.

Jesse Solomon made the point earlier that you have to focus on selection if training is going to be effective. We got 5,000 applications for our first 330 fellows. So we've selected 7 percent of candidates and we don't think any more than that 7 percent could actually become a high quality principal. In fact, only 80 percent of

our people, I think, are on track to become great principals. There needs to be an important focus on recruitment and selection.

Second, we train and develop principals. We have a lot of intensive work to train and develop principals, barring the best of work both in the educational world, the business world and elsewhere and third, you can't leave a principal alone on the job without on the job support. So we have really intensive supports to help principals on the job.

Very briefly, what we know about great principals, they do three things. No. 1, they lead data-driven effective teaching and learning. A principal must be an instruction leader who uses data to drive improvements in teaching and learning.

No. 2, a principal drives really strong consistent school culture in a school, aligned to the value—at least one value that every child, regardless of background, can and must achieve at high levels—where you do not have a principal who is pushing that into the culture, you don't have high expectations in a school, you don't attract and retain good teachers who focus on that.

The culture is key. No. 3, is a good principal ensures good management and organization effectiveness to ensure that the best instructional vision actually gets implemented. So we've seen the best principals do those three things well. There are only a few, a small number that we've seen who do this exceptionally well and I could give you some examples in New York City and Chicago and Newark and elsewhere—I don't have time but what I would say the implications for policy are we do not know how to do this at scale. While I feel urgency to have a national principal policy, it could drive quality principals to scale. I don't think we know how to do that so my recommendation overall on the policy front is that the next 5 years, I would recommend a real kind of golden era of learning about the principalship and then I would recommend that there be a serious research and development effort with putting 1 percent of what is spent on No Child Left Behind into an R&D fund to support really well-documented pilots with evaluation and research to document what it takes to ensure great principals. Senator Clinton, I know is sponsoring legislation this week which would do this in certain agencies with implications for how to over all State licensure and certification. Senator Alexander has supported efforts around the performance incentive piece for teachers and principals and I think there are others. But I really believe this is a time not for a uniform, national policy around principal effectiveness yet. I think in 5 years we can come back with real data about what that might be.

One last comment to close, I do think there is one other very exciting and important policy option under this kind of R&D agenda and I really commend Senator Kennedy for your leadership on this, Senator Landrieu from Louisiana, Congressman Miller, and Congressman Mulanston from Louisiana. Today, as I understand it, legislation is being introduced which would be designed to help New Orleans and Gulf Coast communities impacted by Hurricanes Katrina and Rita really attract and retain highly effective teachers and principals at scale, which would both boost salary for teachers and principals as well as give extra incentives to track math and science teachers, and give us some performance-based incentives.

The local and State officials in Louisiana say this is critical. They have a shortage of teachers. They must hire 1,000 teachers in the next few months for the new school year. Housing has gone up $450 a month in Louisiana and their starting salary is $35,000 when the national starting salary is like $45,000. The New Orleans schools must be the cutting edge of the future of New Orleans. They won't do it without great teachers and principals. This bill will be very, very important support if enacted quickly, to help New Orleans really recover. Thank you.

[The prepared statement of Mr. Schnur follows:]

PREPARED STATEMENT OF JON SCHNUR

Great schools are typically led by great principals. And faster-improving schools are led by better principals than others. Indeed, nearly 25 percent of the in-school factors affecting student achievement can be attributed directly to the quality and effectiveness of the principal. This is second only to the effects of teacher instruction—which is shaped by the way our most effective principals select, manage, and develop their teachers. And because principals select, train, manage, support, evaluate, and set the culture for teachers, a teaching quality strategy can't be successful without effective principals.

The bottom line: *the quality and effectiveness of school principals matters a lot to the future of our students and to the future of our Nation.*

In a world where there are no shortcuts to school success, a serious focus on the principalship provides no silver bullet. But systematic efforts to drive the quality and effectiveness of our Nation's principals may be one of our most pragmatic and significant opportunities to offer our neediest students better support to help them reach high standards of excellence.

Translating this simple insight into effective policy and scalable practice is no easy task. It is not easy to balance the urgency of the need for effective principals at scale (especially in our highest-need schools) with the need to ensure that these reforms are implemented in a deliberate, high quality way. Too often, powerful ideas are lost to inadequate knowledge about how to bring ideas to scale, limited capacity, and well-intentioned but poorly planned implementation. As we consider solutions and strive to meet the urgent educational needs of children as quickly as possible, we must both identify how the Federal Government can be most effective in this work and recognize the current need for more research and development as well as learning on how to gain clearer knowledge, build capacity, and quickly scale effective efforts. While this testimony is focused on the principalship, I do believe there is a similarly difficult balance to strike when designing policies around teacher quality and effectiveness.

In this testimony, I offer a few ideas to inform your policymaking. First, I offer some observations to help define the problem we are trying to solve and provide a clear target for the goal of a principal quality policy. Second, I offer some lessons learned from our 6 years of work recruiting, selecting, training, and supporting new urban principals across the United States at New Leaders for New Schools. Third, I highlight some of what we in the field know and don't know about scaling highly effective principals. Fourth, I will offer thoughts on implications for immediate Federal policy options.

While this testimony is simply a starting point, New Leaders for New Schools and I would be happy to work with you and your teams to explore and develop public policy options aimed at driving principal quality and effectiveness to ensure that all children can reach high levels of academic excellence.

First, we must define the target at which we are aiming; i.e. what problem are we trying to solve with a principal quality policy. While academic standards and principal policy are sometimes considered to be unrelated, defining student and school success is crucial to understand how to define principal success.

Defining Student Success. Our goal is to ensure that all students succeed at high academic levels—starting with academic achievement at least at a proficient level for every student. Senator Kennedy and others are on the right side of this debate to insist on maintaining the No Child Left Behind goal of 100 percent proficiency by 2014 for every student regardless of race, family income, or native language and culture. I agree that there should be a national standard for what constitutes student proficiency at least in reading, writing, and math. For example, while there are thousands of different teacher techniques, lesson plans, and instructional materials for *how* to teach children to read effectively and independently by the 3rd

grade, our society and children can no longer afford to hold a Tennessee school or school system to a different standard than a Massachusetts school or school system for *whether* every child regardless of background learns to read effectively and independently by the 3rd grade.

That's partly because we know from the research that a 3rd grade student unable to read well enough to learn "content" will likely struggle and learn less from most of his or her courses in the 4th grade and beyond. That student will need far more intensive and expensive help to "catch up" to a diploma-ready (much less a college-ready or a global-economy-ready) standard of excellence. In an era where a college diploma can make a $1 million difference in lifetime income when compared with a high school dropout (and where there are States that determine the number of prison cells to build based on elementary reading scores), I don't believe that the birthright to learn how to read should be a New York or Louisiana birthright—it should be an American birthright available to every child that walks in the door of any school in any of our communities.

If those standards and assessments are done well, a student that achieves these standards grade-by-grade should be ready to enter college successfully by the 12th grade. While not every student will choose college, I believe it is our responsibility to ensure that *every student and their family are empowered to choose* to attend and succeed in college. Our failure to get a student to college-readiness by the 12th grade deprives them of that choice.

Our conception of student success should include two other areas beyond academic achievement. First, in a democracy that depends on citizenship and service and in an economy where many workplaces depend on teams, successful schools will ensure that students learn how to define "success" as success not only as an individual but also as a contributing member of a team, class, school, and society. Students must understand how to succeed as an individual partly through contributing to—not at the expense of—success of those around them including those they see as different from themselves. Second, I believe that successful schools will contribute to students whose academic strength lies not only in their mastery of certain courses or skills but also in their capacity to persistently and confidently act as on-going learners in a world where they will face situations and need skills we haven't even dreamed of yet.

Defining School Success. Having identified the goal of having schools that educate students at high academic levels and equips them to succeed in the ways described above, our next step is to identify the most important elements in schools making significant progress towards that goal. It is important to note the distinction between this question and one that asks "What are the characteristics of effective schools?" Framed that way, "characteristics of effective schools" tend to define a happy end-state that doesn't provide a useful and needed roadmap on how to get there. Our focus in setting policy around the principalship must be on the most vital characteristics of schools making dramatic progress toward success for every student. Here is a one formulation that draws on both research and the experience we have had at New Leaders for New Schools in hundreds of schools across the United States.

Schools tend to make dramatic, sustained progress when they are successful in the following three areas:

- *Data-driven learning and teaching.* Fast-improving schools drive continual improvements in effective learning and teaching across every classroom. This depends on clear learning goals deeply understood by many, using data and assessment multiple times during the year to help improve teacher and student performance, shared vocabulary and mindsets about instructional practice, and effective intervention for struggling students.
- *Effective organization and management of teams, instruction, and operations.* These schools create conditions for success through effective organization and management that recruits and selects talent well, builds teams, manages learning and instructional performance effectively, creates clarity and trust, organizes staff time effectively, and is strong on implementation, operations and project management.
- *Rigorous school culture focused on achievement and success for every child and other specific beliefs.* These schools build a consistent school culture among adults and students that models and reinforces personal responsibility and aspiration to achieve excellence as individuals and as a school community; a focus on continual improvement, positive and explicit social norms; challenging, rigorous, and direct feedback within a safe environment; personal engagement and positive relationships that enable learning from others; and, a belief that every student can learn at high levels.

While no school or organization of any kind will ever be even close to perfect in each, I haven't seen any school make dramatic and sustained progress in student achievement and success where that school is failing to make meaningful, continual progress in even one of these three areas. The implications of that insight for the principalship (and for principal policy) are enormous. For example, a school system focused on excellence in these three areas (and that understands that school-based management drives culture and practice) wouldn't simply ask principals to "make the trains run on time" and keep parents happy. And they wouldn't just ask principals to be instructional facilitators/leaders.

The implication is that school systems must get vastly better at recruiting, selecting, training, retaining, managing, evaluating, and supporting principals (system-wide and long-term) who can work with their school leadership teams to successfully lead data-driven learning and teaching, effective organization and management, and a consistent school culture that reflects a specific set of core beliefs. Part of that work is getting and training the right pipeline of principals. Another part is re-designing a school system to provide an array of supports and tools to help principals lead these three areas of work effectively.

Second, I am pleased to share background information and some of the lessons learned from 6 years of work recruiting, selecting, training, and supporting new urban principals across the United States through New Leaders for New Schools.

Background. New Leaders for New Schools is a national non-profit organization working in nine urban school systems on one clear mission: promoting high levels of academic achievement by attracting, developing, and supporting the next generation of outstanding principals for our Nation's urban public schools. Our goals by 2012 are to have at least 80 percent of our over 200 high-need schools led by New Leaders principals for at least 5 years achieve 90–100 percent proficiency in core academic subjects and 80 percent of high schools led by New Leaders principals for at least 5 years achieve at least 90 percent real graduation rates. Our goal is also to provide 25 percent of the new urban principals needed in the United States by 2014. (As noted earlier regarding the definition of student success, we are actively searching for the best one or two additional student performance indicators that will allow us to inform and set additional goals for student success.)

Another major goal is to create groundbreaking, research-based knowledge and learning for the field about what it takes to recruit, select, train, and support highly effective urban principals (and the schools they lead) at scale. The Rand Corporation is doing an independent, long-term longitudinal evaluation of our schools and our work.

Our major funders and partners for New Leaders generally include some of the Nation's leading philanthropists, leading local companies and foundations in cities we serve, and superintendents and leadership teams in nine major urban school systems. The nine cities and superintendents we currently serve are Baltimore, Chicago, Memphis, Milwaukee, New York City, Oakland and California's Bay Area, Prince George's County, Washington, DC.—and as of 2 weeks ago, New Orleans. Our largest national philanthropic funders are the Bill & Melinda Gates Foundation, the Michael and Susan Dell Foundation, the Broad Foundation, the Noyce Foundation, and the Walton Foundation. Local partners include companies like Boeing, FedEx, AOL, Ford, and more. We also have received grants for our principal selection and training work in four of our nine partner cities from the Federal school leadership program. While we are focused on transforming urban education within the United States, we are collaborating with a similar London-based private-public partnership that was created based heavily on our model.

Our principal program is divided into several components: intensive recruitment and selection of outstanding educators and leaders (330 New Leaders selected from our first 5,000 applicants), intensive training and development including a year-long full-time school leadership residency to prepare those individuals to become effective new principals, and on-the-job support to promote the success of those principals and the schools they lead. We also conduct a city competition to select one new city partner each year that meets our criteria for serving high-need schools, coupled with the readiness and commitment to a deep student-focused partnership.

We have seen some dramatic examples of success at schools led by New Leaders principals. For example, 80 percent of the incoming 9th graders at North Star Academy (led by a New Leaders principal) in Newark, NJ have graduated from high school and gone onto 4-year colleges. Nearly 100 percent of students from North Star are from low-income families. Last year in Chicago, two schools led by New Leaders principals (the Dodge Renaissance Academy and the Clara Barton Elementary School) have made some of the most dramatic gains in the entire city. The Chicago Tribune recently cited the Clara Barton school and the New Leaders principal

there as an example of what's working in terms of educator recruitment and training in Chicago.

Selected insights and lessons learned. We have both learned lessons and gained significant insights from each of our programmatic areas with implications for local, State, and Federal policy and practice. Then I will close this section with a few overall insights and takeaways from our work over the past 6 years.

Recruitment and Selection. As we seek outstanding aspiring principals, we have been screening for three characteristics/types of knowledge in highly structured, rigorous ways: the right belief system (that every student can learn at high levels and that adults are responsible for children achieving their potential), instructional expertise, and a strong record and potential to lead and manage adults effectively. While many schools systems and schools of education have not prioritized this, an important insight we've gained is that *an intensive, quality recruitment and selection process is very important in driving school and student success. A second insight is that even the best principal recruitment and selection processes are based on hypotheses about what characteristics are important, and not yet based on rigorous research. That's why we are investing heavily in research and evaluation of our model and correlation over time with school and student achievement.*

Overall, New Leaders for New Schools and our local partners have made substantial progress in improving the recruitment and to some extent the retention of school leaders. We have successfully recruited 330 New Leaders across our cities to make long-term commitments to become school leaders. And we have had 15 times as many applications as spots. While not a single New Leader has voluntarily left the program in the first training year, we are currently retaining just over 90 percent of our New Leaders each year in their school system's principalship. While that is higher than retention levels overall in many school systems, we do think additional steps will be needed to further maximize retention rates.

Through our work, we have found that:

• *There is serious interest in the urban principalship if defined right with the right support.* While some see dwindling interest in the urban principalship, we see the opposite. With the right clarity of mission and commitment of support, a surprisingly large number of committed and talented educators want to take on this role. Five thousand people applied for our first 330 fellowships.

• *Beliefs matter tremendously in the selection of principals that have the commitment and capacity to be effective. However, most school systems do not rigorously screen for the candidate's beliefs.* All of our highest performing principals demonstrate intense personal commitment to the proposition that every student regardless of background can learn at high levels—and that it is their responsibility as principal to drive dramatic improvements in instruction and academic achievement. While many of 5,000 candidates seemed to express that belief, the majority actually fail our screening process for this belief system. Training won't quickly shift that belief.

• *All three of our overall criteria (beliefs, instructional knowledge, and adult leadership skill) are critical.* Individuals who are weak in any of these areas fail to deliver impressive results as a principal. One rare exception may involve leaders who can succeed without the instructional knowledge when they are paired with the right instructional leader. Where additional instructional expertise is not available, a high level of principal instructional expertise is crucial.

• *Even the best selection processes for the principalship or in any sector yield only 80 percent successful candidates, yet many school systems and schools of education act as if that's not the case.* Top human resources experts in the business world confirm that an 80 percent success rate is about as high as successful selection processes for a particular job work at scale. Many school systems and schools of education act as if they can assume that they are achieving 100 percent success rates. That doesn't mean the other 20 percent should be removed—but it does mean that employers should at least be ready to consider moving someone into a different role where they have a better prospect at success (e.g., assistant principalship or a district staff role instead of a principalship).

• *Effective recruitment and selection requires discipline, investment and time. Many school districts and most schools of education invest little or no effort toward this.* Nearly 20 percent of our overall costs at New Leaders go to recruitment and selection. But the general bias is against spending time and money in school systems and schools of education on this critical activity.

Principal training and development. New Leaders residents participate in a year of intensive training and development before becoming a principal. This includes an intensive 5 weeks at a summer institute acquiring the foundations and framework for the principalship, weekly local sessions, and a year-long full-time leadership resi-

dency and intensive year-long coaching and feedback. This model is aligned to a set of principal leadership competencies that we gleaned from research and experience. *One insight is that the field of principal training is very weak—only a few institutions are doing intensive work training principals. A second insight is that the training for principals going into high-need urban schools should differ substantially from training for principals more generally. Any institution trying to generically train principals for all contexts or districts will likely be severely hampered by the lack of focus and context-specific work.* Also:

• *There is substantial emerging knowledge about school improvement that is not codified and not readily available to most principals and teachers in the United States.* Our most effective training (e.g., data-driven instruction) comes from a few high-capacity principals and/or other experts in early stages of developing their expertise and training and who are providing it at a small scale. It will take huge work to codify, institutionalize, and scale the availability of this knowledge. Most institutions working on principal training don't have the capacity to deliver this.

• *Most principal training is delivered in the university classroom or the district central office. But the most effective learning seems to be a mix of high-quality training and applying it in real contexts in real leadership roles.* Our year-long residency is one way to address that. But the training and development of aspiring and current principals needs to be embedded far more in context of a school leader's work throughout their careers.

• *If the key areas for school success are indeed data-driven teaching and learning, management and organizational effectiveness, and building rigorous cultures, then most principal training is not aligned to build knowledge and skills in the right areas.* Current capacity to teach these effectively at institutions that train principals is quite limited.

• *Focused, practical, research-driven training can substantially impact principal practice.* For example, our training on data-driven instruction and observation and supervision of teaching lead to demonstrable changes in principal practice that may correlate to faster improvements in schools. Absent intensity and quality, other training may not affect the impact that principal practice can have on student achievement.

On-the-job coaching and support. New Leaders provides on-the-job principals with on-going coaching, an online community, and high-quality formative assessment tools aligned to each State's standards, and coaching on how educators can make effective use of these assessments to drive instructional improvement. With support from the Teacher Incentive Fund, we will soon offer access to effective practices from the highest performing and fastest improving urban schools and classrooms and financial incentives for high-performing educators in exchange for their sharing of effective practice with others. *But even with initiatives like title I increases and the Teacher Incentive Fund, the significant insight is that in order to be successful at this work at-scale across the country, substantial new systems of data-driven differentiated capacity building will be needed to take these and other promising practices and customize them to individual schools through serious on-the-job support. And that may be constrained by lack of financial resources, human capacity, and an absence of the right, shared data-driven mindset in many institutions.*

Third, now that we have identified our overall goal and considered one organization's experience in attracting, preparing, and supporting principals in high need schools, we can ask ourselves: do we know enough about the successful principal of a high-need school (and how to scale that) to drive specific kinds of consistent principal quality policy across the United States?

Defining Principal Success. Given the definition of student and school success described above, we must ask the following questions: (1) *What actions must the principal actually take in order to ensure that all students can succeed? Can we identify the knowledge, skills, and personal characteristics that principals need to take those actions effectively?* Only then can we fully address the vital questions of what are the policies, systems and practices that can (a) help create a pipeline of principals who can succeed in this role and (b) provide on-the-job supports, tools and management to help them succeed.

Here's my troubling answer. While I will share with you hypotheses that we are testing out at New Leaders, we don't really know the definitive answers to these questions. While we know there are a small number of exceptional principals driving dramatic gains in high-need schools, we don't know nearly enough about how or why in different contexts to scale that nationally.

It is crucial that we figure this out in the next 5 to 7 years.

In some ways, the most important role the Federal Government can play related to the principalship is to mandate, drive, and fund an intense period of rigorous ex-

perimentation and learning in every State grounded in certain core beliefs that I will describe below about creating a new principalship in this country defined by its responsibility for school success and student achievement.

We do know enough for the Federal Government to set some very broad direction—including encouraging States and school systems to invest in the principalship and focus their efforts on leveraging the principalship to drive dramatic improvement in student success and academic achievement. We know high-quality principals are crucial to school success and there are some common-sense steps we can encourage—such as providing ways to recognize, reward, and retain our highest performing principals or encouraging more rigorous processes to select, evaluate, and when necessary, remove principals. But we don't know enough about how this works to legislate the specifics.

We do know that an effective principal is critical to the success of schools and that the Federal Government should support a crucial R&D phase of trying, rigorously evaluating, and learning from an array of approaches to driving principal effectiveness. This is especially urgent in low-performing schools. Among other benefits, we will then learn much more that can inform national policy in a much more robust way by the time of the next NCLB reauthorization.

But we do not know enough to set consistent national policy on such areas as principal certification. We do not know enough to require States to address certification in particular ways. We do not know enough to mandate prescriptive approaches to principal recruitment, selection, base compensation, evaluation, and accountability.

We are in a phase of our work together in education where we are creating early hypotheses and need to rigorously evaluate and learn from them. *If handled right, we could make this a golden age of learning about how to ensure highly effective principals at scale.*

For now, while there is some research about what effective principals do, there is very little meaningful research about the actions that principals must take to drive change in the high-need, low-achieving schools that are rightly such a strong focus of Federal policy under NCLB. And there is similarly very little meaningful research about the corresponding knowledge, skills, and personal characteristics that principals need in order to take those actions effectively in particular contexts.

Moreover, there is real evidence that suggests that the actions, knowledge, skills and personal characteristics of an effective principal who is the steward of a school that is doing well or "just fine" are actually quite different from what's needed from a principal who is to lead dramatic change in high-need schools where most of the students are achieving at low academic levels.

While New Leaders for New Schools is the largest national provider of urban principals in the United States, even we are still only in the phase of testing out hypotheses that will be tested out by our experience and an independent Rand Corporation evaluation over the next several years.

I will share some of the specific highlights of this limited research in my comments before the committee.

Fourth, what are the implications for policies that the Federal Government could undertake to move this work forward?

There are several high-level policy options that I would like to propose for your consideration. Most of these are research & development efforts designed to spur a "golden era" of learning about the principalship and ensure that we have far more knowledge to inform the next reauthorization of NCLB and the next wave of school and leadership reforms. Specifically, these R&D options are in the areas of principal recruitment, selection and training, principal-led turnarounds of low-performing schools, districtwide strategies to ensure successful principals at scale, and State efforts to overhaul State licensure and certification.

To increase the impact of the efforts, Congress should fund a world-class research and evaluation firm and team to oversee and coordinate the evaluation of all of these options in order to systematically create knowledge for the field. They would identify, drive and coordinate learning around questions such as "What are the most important characteristics that selection processes should screen for to pick principals who are likely to lead dramatic turnarounds of schools?" and "How can a district effectively create a systemwide results-based strategy to ensure effective leadership in every school?" In addition, every grantee under any of these options would need to create, pilot, and evaluate systems for providing useful data to educators through value-add academic achievement gains at least at the school level. Funding would be included under any of these options to help create, refine, and evaluate these systems. A portion of the research and evaluation would examine the usefulness of the data provided by these systems.

• *Create a principal/assistant principal recruitment and training R&D fund.* To do this, we must triple the size of the Federal school leadership program to $50 million in exchange for requiring every grant be used as R&D with a rigorous external research and evaluation effort designed to create significant research for the field on principal selection and training. No project would be funded without a serious theory of change, a high-quality research plan, and specific plans for producing useful research related to the recruitment, selection, training and support of principals. Give a preference for those initiatives that can show diversity of types of institutions offering training and types of high-quality candidates from different backgrounds.

• *Create a national R&D pilot of 200 school turnarounds (school restarts or "fresh starts") of the lowest performing schools in the Nation led by outstanding principals with track records of success.* Only fund efforts that show how they will select outstanding principals, will ensure rigorous external research and evaluation, require dramatic change/restarting in a historically low-performing school and provide intensive additional support for the principal, teachers, and staff.

• *Create a $500 million 5-year effort to back 5 high-need districts to pilot systemic approaches to ensuring educator quality—especially teachers, school leaders, and associate superintendents who manage principals, and make New Orleans one of these five cities.* This could include dramatic increases in educator pay coupled with differential compensation systems that are effectively and fairly designed and implemented, and tied partly to student achievement. This could include systemwide efforts to adopt smart human capital strategies to cultivate and develop top talent throughout a school system. And it could include robust, data-driven systems of differentiated capacity building for principals and teachers across that school system. This would require serious external research and evaluation and proposals—and would be judged partly by the quality of that research and evaluation plan and the likelihood that it will produce useful knowledge for the field.

I also would strongly encourage you to consider making a down payment on this kind of initiative this year by enacting a version of the Landrieu-Kennedy-Melancon-Miller RENEWAAL Act of 2007 (Revitalizing New Orleans by Attracting America's Leaders) introduced yesterday. This important legislation was introduced this week by Senator Landrieu, Senator Kennedy, Congressman Melancon, and House Education Committee Chairman George Miller. This bill would make it possible to drive teacher and principal quality in New Orleans and other Gulf Coast communities devastated by Hurricanes Katrina and Rita. If enacted and funded swiftly, the legislation could help revitalize New Orleans and other devastated communities by addressing teacher and principal shortages there by helping to attract and retain effective teachers and principals for the coming school year. The bill would help boost teacher and principal pay in New Orleans and these communities while providing additional incentives to attract teachers and principals back to New Orleans as well as special incentives for math and science teachers and for the most effective principals and teachers in exchange for sharing their practices with others.

The need for swift enactment and funding of this bill is dire. New Orleans may need to hire as many as 1,000 educators in the New Orleans area this year to accommodate rapidly growing student population. Moreover, New Orleans has massive hiring needs at a time when housing costs have increased $450 monthly compared to pre-Katrina because of scarce housing in the hard-hit city and region. And the current starting salary for many teachers in New Orleans is $35,400 compared to an average teacher salary nationally of $46,000.

Senator Kennedy, we are grateful for your leadership on this initiative.

• *Provide funding to a small number of States who have already done serious work on the principalship an opportunity to overhaul (or pilot an overhaul of) their certification and licensure system for school leaders and/or teachers.* The State policy changes must be rooted in data and research. The U.S. Department of Education should fund a variety of models and approaches to evaluate different kinds of approaches to principal certification and licensure, and evaluate results based on impact on student and school success.

• *Create a national blue-ribbon program to give substantial fellowships and honors to the principals and school leadership teams that have demonstrated the most dramatic and sustained gains in their high-need schools over time.* This could be used to convey honor and respect to the very best turnaround principals in the Nation—and then be used to leverage their expertise to guide other efforts to dramatically improve schools and school leadership.

Thank you very much for the opportunity to share our insights and recommendations. New Leaders for New Schools looks forward to cooperating with you in whatever way might be helpful to build urgently needed policy options for ensuring effective principals who can drive high levels of academic achievement for all children.

The CHAIRMAN. Thank you very much. Dr. Sanders is Senior Management at the Value-Added Research and Assessment, SAS Institute. Dr. Sanders has spent more than 30 years as a Professor and Director of Value-Added Research and Assessment Center at the University of Tennessee. His work helped the State of Tennessee develop their value-added assessment systems. He is a statistician by training and has been involved in education for 25 years. I look forward to hearing you, Doctor.

STATEMENT OF WILLIAM SANDERS, PH.D., SENIOR MANAGER, VALUE-ADDED RESEARCH AND ASSESSMENT, SAS INSTITUTE, CARY, NORTH CAROLINA

Mr. SANDERS. Thank you, Mr. Chairman. Indeed I am a statistician that fortuitously got involved in educational research 25 years ago. At that time, we began to explore a different analytical approach using student test data. This approach, which I call value-added assessment, is based on a very simple notion and the simple notion is that you follow each student's academic progress as an individual. You don't look at groups of kids; you follow the same kid over time and by linking this test data, this enables you then to do very rigorous longitudinal analysis from that data, allowing each student to serve as his or her own control. And by so doing, you have got a device by which you can partition educational influences from exogenous influences over which educators do not have control.

From this process and the millions of longitudinal records that we have created over the years, we have been able to address many research questions that heretofore people did not have the opportunity to address and in my written remarks, I have outlined those but for this morning, I just want to emphasize two major areas, the first of which has been mentioned already several times.

Let me give you the good news. The good news is that highly effective teachers are facilitating excellent student academic progress in high-poverty, high minority schools. No question about it. They are there. You can measure it and they are getting excellent, excellent progress for their students.

But the other side of the coin is that the percentage of these highly effective teachers in these schools is measurably lower than at low-poverty, low minority schools. There will be a report released in the next few days from the Tennessee Department of Education based upon this work that will have this completely documented.

Now, Mr. Chairman, the other area that I want to mention deals with the question that came with our invitation and that is, has professional development been targeted to educators to respond to their needs and if so, on what criteria or data was the targeting based? That's what I want to talk about next.

Once you have a longitudinal data structure for each student, you have got the basis on which to make a projection of whether or not every single student as an individual is on a trajectory to meet various future academic end points. Once that information is available to teachers and principals, it can be far more allowable than one test score because you're using the totality of information

for each kid. This enables principals and teachers to begin to plan and think about providing instruction in an entirely different way.

Now, a nerdy old statistician like myself, it doesn't matter how rigorous the analysis is if people do not know how to use this information in positive ways. So I'm very happy to say that we are working with various entities around the country as they are bringing staff development efforts to tie with this additional information at the individual student levels. Battelle for Kids, a nonprofit in Ohio is providing staff development to initially—there are a hundred pilot districts in Ohio. Now they are working to roll this out statewide. We're working with the Pennsylvania Department of Education as they are rolling out this kind of information, kid-by-kid, statewide. The North Carolina Department of Public Instruction is now beginning to bring this in to meld in with their school improvement planning as was mentioned. The Milken TAP program we work with, with over 100 schools, the Tennessee Department of Education as Tennessee is now beginning to really put pedal to the metal with regard to regional professional development activities but based upon the information associated with every kid who is an individual.

So, Mr. Chairman, the last recommendations I would have is that this needs to be continued and No Child Left Behind, with these longitudinal data structures—now all States will have them. Now make this a reality and a possibility and lastly, I would strongly recommend that in the re-authorization that you do allow the appropriate growth models to be included. But let me warn you—all of these growth models are not equivalent. Congress needs to very seriously consider setting minimal standards for those growth models. If you have that then you need to seriously consider allowing districts to use this or States to use this in lieu of existing Safe Harbor. Because what this will do is de-incentivize some of the negative things—there are some negative things associated with AYP and that's the incentive to teach to the bubble kids too much and we have data that certainly would support that. That would tend to do it and lastly, with appropriate growth model, a lot of these inner-city and rural schools that are getting excellent gains for kids that are presently branded as failing are anything but failing schools. So consequently, that should indeed help as people try to recruit teachers and retain teachers because you could document how effective those schools are being.

[The prepared statement of Dr. Sanders follows:]

PREPARED STATEMENT OF WILLIAM L. SANDERS, PH.D.

Thank you, Chairman Kennedy and Ranking Member Enzi. Thank you for the invitation. My name is William L. Sanders; I am presently Senior Manager, Value-added Research and Assessment, SAS Institute, Inc. Additionally, I hold the honorary title of Senior Research Fellow with the University of North Carolina. Previously, I was Professor and Director of the Value-Added Research and Assessment Center with the University of Tennessee.

Our experiences. I am a statistician that fortuitously got involved with educational research 25 years ago. At that time we began to explore a different analytical approach using student test data. This approach, *which I call value-added assessment,* is based on the simple notion of following each student's academic progress over time. Linking each student's test records from grade to grade over subjects, provides the testing framework for a multivariate, longitudinal analysis in which each student serves as his/her own control. By so doing, educational influences on the rate of student progress can be partitioned from exogenous factors (if not completely,

then nearly so) allowing an objective measure of the influence of the district, school and teacher on the rate of academic progress. The process that we have developed, based upon statistical mixed model theory and methodology, enables a multivariate, longitudinal analysis, no matter how sparse or complete the data record for each student. Analyses that accommodate fractured student records eliminate the shortcomings of more simplistic value-added approaches.

Some of the more simplistic approaches have been shown to provide potentially biased and unreliable estimates, especially at the classroom level. However, the appropriately constructed multivariate, longitudinal process will minimize the problems of the more simplistic approaches resulting in robust estimates of the influence of educational entities on the rate of student academic progress.

Analyses at the classroom level require the utmost care and caution and present even more burden on the statistical methodology, the computing software, and the data archiving process itself. We have had to engineer the flexibility to accommodate other "real world" situations encountered when providing effectiveness measures at the classroom level: the capability to accommodate different modes of instruction (i.e., self-contained classrooms, team teaching, etc.), "fractured" student records, and data from a diversity of non-vertically scaled tests. However properly applied, the technology now exists to provide estimates to distinguish the highly effective educators who are facilitating excellent academic growth for their students.

From the millions of longitudinal student records that we have created over the years, we have been able to address research questions that heretofore were not easily addressed. The following is a summary of the most important findings.

- If the variability in student academic progress is partitioned into three "buckets" among Districts, among Schools within Districts, and among Teachers within Schools within Districts—, what is the relative amount of the variability that will go into each bucket?
  - (a) Among Districts about 5 percent,
  - (b) Among Schools within Districts about 30 percent,
  - (c) Among Classrooms within Schools within Districts about 65 percent.
- Differences in teaching effectiveness is the dominant factor affecting student academic progress. This is true in all subjects but is pronounced in Math.
- Teacher effects are cumulative and additive. The sequence of Math teachers that students have can have a profound effect on their ultimate achievement in Math.
- Relative to the distribution of all teachers' effectiveness,
  - The average beginning teacher is less effective than the average 10–15 year experienced teacher.
  - Beginning teachers profile at about the 35 percentile relative to the distribution of all teachers.
  - Ten to fifteen-year veterans profile at about the 55 percentile of the teacher distribution. Teachers who leave after 1 year of experience are on average less effective than those who stay.
  - Of the leavers, those teaching in schools with more than 75 percent minority students profile at about the 22nd percentile. In schools with more than 75 percent minority students, beginning teachers who do not leave are only slightly less effective than those beginners assigned to schools with a low percentage of minority students.
- Inner city schools have a disproportionate number of beginning teachers.
- Inner city schools have a much higher turnover rate of teachers than suburban schools.
- A smaller percentage of middle-school math teachers within inner-city schools have a high-school math endorsement.
- Retardation of math gain rates for high achieving inner-city middle-school students is more pronounced than for lower achieving students.
- Some rural districts have very effective elementary schools, but have high schools that are not extending academic growth opportunities for average and above average achieving students. In some cases this is so severe that even the most advanced students, even if admitted to a 4-year university, would be nearly certain to have to take remedial courses.
- In too many schools the number of 6th graders prepared to succeed in Algebra in the 8th grade is greater than the number of seats available.
- Students attending schools with over 75 percent poverty students, when assigned to highly effective teachers, make comparable academic progress with students attending schools with less than 25 percent poverty students if they too are assigned to highly effective teachers.
- The percentage of highly effective teachers is less in high-poverty schools.

• On average there is a big difference in effectiveness between 20+ year veterans in high-poverty schools when compared to teachers with similar experience teaching in low-poverty schools. Those in the low-poverty schools tend to be more effective while those in the high-poverty schools tend to be less effective.

Our research has shown that highly effective teachers are facilitating excellent academic progress with students at all achievement levels, regardless of the location of the building where they teach. The evidence is overwhelming that students within high-poverty schools respond to highly effective teaching. Then the question becomes "how can the less effective teachers within these schools be assisted in becoming more effective?"

We have had the experience of working with various groups of highly effective educators across the country. According to these educators, "teachers who are average or below in effectiveness must learn to meet the academic needs of all students in their classrooms if they are to become more effective," i.e., more effective at differentiating instruction. Not only must they be cognizant of the subject knowledge and skills necessary for student success, but they must possess excellent intra-classroom assessment skills and understand how to use the results of their own assessments as well as those from longitudinal analysis of state-test data in their teaching decisions. Highly effective teachers maximize the influence of their instructional time so that students at all achievement levels make appropriate progress. These are skills that can be learned, and the influence of their application to teaching can be measured with appropriate reliabilities.

As more reliable student projections to future academic standards have become available, educators are learning to more efficiently target students needing academic interventions and intense academic support. These strategic uses of resources increase the likelihood of at-risk students reaching meaningful standards in the future and provide support for the classroom teacher at the same time.

NCLB testing requirements and Federal and State investments in longitudinal data structures allow the reliable student projections referenced above to become more widely available. Additionally, when appropriate methodology is applied to these data, policymakers have a way to more realistically assess the resource requirements necessary for all students to achieve at higher standards. Two recent examples: In a rural school, we found that over 100 6th grade students were on an academic trajectory to be proficient in Algebra I as 8th graders. Yet this school was providing only 25 seats for the 8th grade Algebra offering. In a second school district, even though many students were enrolled in Algebra I in 8th grade, essentially all of them were retaking Algebra I in 9th grade, even when they were prepared to move into more difficult courses in the 9th grade.

We have worked with Battelle for Kids as they prepared professional development for over 100 school districts in Ohio, the Pennsylvania Department of Education and Intermediate Unit 13 of that State as they prepared professional development for the 100 pilots and their statewide rollout of district and school value-added reporting and student projections, the North Carolina Department of Public Instruction to prepare professional development for their school improvement program, the Milken Talented Teacher Program as they worked with over 130 schools receiving both school and teacher level analyses, and the Tennessee Department of Education as the current administration has developed regional professional development for districts, schools and teachers and researched teacher inequity in that State. From these experiences we provide the following recommendations.

RECOMMENDATIONS

• Major staff development activities with a focus on using the longitudinal projections for each student in both classroom and school planning to ensure that all students have the opportunity to make appropriate academic progress regardless of entering achievement level.

• A greater emphasis on intra-classroom formative assessment to insure that all students are making the desired progress, not merely the students who are at risk of not meeting the proficiency requirements.

• With the reauthorization of NCLB, allow the appropriate growth modeling results to be used in lieu of the existing safe harbor provision to eliminate the too prevalent practice of focusing on the "bubble kids." This should reduce the difficulty that districts are having in recruiting highly effective teachers to schools that are vulnerable for not meeting the present AYP requirements of NCLB. Removing the stigma of failing but keeping enhanced resources available could be a recruiting option in the new reauthorization for schools that demonstrate appropriate growth for their students.

SUMMARY

We have had several years of experience providing value-added analyses to thousands of districts within many States. We have found that when educators are provided with reliable measures of student progress, then they can evaluate their own strengths and weaknesses. We have observed the progress that schools and teachers have made once they have trust in the reliability of the information and dedicate themselves to improvement.

The CHAIRMAN. Thank you. We'll try and have every comment just about a minute or so, if we could, so we can all get a chance and I'll take—with our group here, we'll do 5-minute rounds.

Let me ask you, Dr. Sanders, just briefly, I think of the State of Oregon as the only one that has listed every individual student so that they can look individually and make an assessment. In Massachusetts, a major community that has done it—it costs $7 per student but they think that that could be indispensable in terms of doing an evaluation in terms of growth. Have you made any judgment about whether that type of activity is useful? At about $7 per student—it would cost almost half a billion dollars to implement. It is worthwhile? Should we be encouraging that? Discouraging? Incentivizing States to go to that direction?

Mr. SANDERS. Are you talking about $7 cost?

The CHAIRMAN. Cost to put them on the list, to develop the process for evaluation. Is it a good idea?

Mr. SANDERS. It is an excellent idea. In fact, we are providing that for Ohio and Pennsylvania and Tennessee and North Carolina right now.

The CHAIRMAN. Can you give us an idea—will you give us suggestions about how to do it and what the alternatives are and which system you think——

Mr. SANDERS. Absolutely, absolutely.

The CHAIRMAN. With regards to the cost—is that amount set?

Mr. SANDERS. Absolutely. If it's done properly, it can be done far less than $7.

The CHAIRMAN. Okay, good. Let me ask Amy Wilkins. I spent about 4 or 5 hours over the weekend with a number of principals, teachers, and parents with inner-city schools in my State and one of the most profound teachers who has been in the school system and highly regarded, said, "Senator, with all respect, No Child Left Behind is just not going to do it for these schools because of the growth of poverty." The growth of poverty. Bad housing. Bad health. Bad nutrition. The growth of homelessness in these communities is so overwhelming that basically you're going to be tinkering along the edges on it. I'm putting it rawly but it was a very emotional—and this is a person that is out there and is a very good, a very, very good teacher, talking about what was happening in many of the communities, inner cities, the growth—the mobility of children—35 or 40 percent in the inner-city schools. The change in the school population. The good teachers will not go, even with a salary increase. I heard from principals that say even for $10,000 or $15,000 more they would not go because they believe that the school is in restructuring, need of improvement, getting labeled. It's a very difficult kind of a situation. Maybe that's not an accurate perception of what is happening in a lot of our inner-city schools, but whoever wants to can take a whack at it to the end of my 3½ minutes here. I'll start with you. Was this teacher off base?

Ms. WILKINS. Well, Senator Kennedy, you know, no one could reasonably sit here and say to you that it is okay, that large majorities of black kids and Hispanic kids that need and a percentage of white kids are growing up without adequate housing, without adequate healthcare, are growing up in conditions that are absolutely unconscionable in a country as rich as ours. I mean, it is just wrong. And we—and I know we need to fight those things with every fiber of our being. That said, the question can't really be, does poverty affect student learning? We know it does. So the question for schools and the question for people who make policy about schools is how those schools respond to the condition those kids bring to school and the question is, do we surrender those kids' lives to poverty or do we fight for those children's lives? Because we know from research like Dr. Sanders, that highly effective teachers can change the life trajectory of those children. And nobody is saying it's easy. Teaching in high-poverty schools is hard. We need to provide those kids with the best teachers and we need to provide those teachers with absolutely the best of everything we know how to do in education but we do—what we do constantly is flip the system around and give the kids who need the most—we give them the least. So the role of NCLB and the role of title I has to be to shift that equation and to figure out how we better resource those schools and apply everything that people like Dr. Sanders and other educational researchers have done to ensure that those kids have a fighting chance because if our schools abandon those kids, the rest of their lives are doomed. That's all I can say.

The CHAIRMAN. My time, unfortunately—I would have liked to have heard from others on it but I'll try and see if I can come back.

Senator Alexander.

Senator ALEXANDER. Thank you, Mr. Chairman. I have two questions and one, Mr. Schnur, I want to ask you about the Teacher Incentive Fund in the continuing resolution, which we passed—cut it nearly to zero and there were about 18 programs around the country which are aimed almost at the very thing we're talking about today. You're involved in many of them. I'm hoping it was an oversight. Senator Durbin came on the Senate Floor and said it just got caught in the confusion and it wasn't really a partisan issue and given Senator Clinton's and Senator Kennedy's long work on this, maybe they can help me a little bit with it but would you want to make any comment about the Teacher Incentive Fund that is important to No Child Left Behind?

Mr. SCHNUR. Thank you, Senator Alexander. My views on this question around performance incentives for educators reflects what I was saying earlier. I think that we're not, as a country, ready to do this nationally everywhere. This is a time when we should be trying things out with careful research and evaluation and learning from them and I do believe the Teacher Incentive Fund—well, you could always argue about details about how it might be tweaked a bit. Overall, it's a very crucial effort to help support experimentation with efforts to reward teachers and principals. Briefly, New Leaders is working with four cities that got grants, including Memphis and Washington, DC. and Denver and others on this and what we've said is, "look, we're going to identify high performing teach-

ers and principals and in exchange for their sharing their effective practice with others, we're going to have them get additional compensation." So it is rewarding individual teachers and principals but in a way that helps others learn from their practice and those efforts and the efforts in Chicago and elsewhere are jeopardized by the virtual elimination of that funding. Anything that Congress could do to restore that this year would be critical.

Senator ALEXANDER. Thank you. Let me go to Dr. Sanders. I would say that Senator Clinton and Senator Kennedy—nearly 25 years ago, Governor Clinton and his wife—Governor Graham, later Senator, Dick Riley and I all were struggling with the same issue. How do we reward outstanding teaching in our States? Our State of Tennessee as well as Florida, passed what many of you have mentioned today, a Master Teacher Program, to reward outstanding teaching and we had a variety of ways to measure progress. At that time, 1983, not one State paid one teacher one penny more for being a good teacher. Not one State paid one teacher one penny more for being a good teacher. And so we looked at ways to fairly evaluate that since there had been so little help with it and teachers' portfolio, principal observation—we went through all this but the one area that we couldn't measure well was student achievement. That's really what gave rise to Mr. Sanders' career. I had never met him—I had never met him until today, even though he did this. So my question here—I've listened this morning. We've talked about master teachers, the importance of keeping teachers longer than 5 years, the importance of teacher mentors, the highly effective teachers for these children who come from poverty. We've talked about the National Board of Professional Teaching standard. That's sort of a master's teacher, which I supported as Education Secretary. We've talked about all these needs for exceptional teachers, yet we persist in being unwilling to find fair ways to pay teachers and principals more for doing their job well and I obviously can't do that myself but do you see any evidence, Dr. Sanders, across the country, that we're coming to any sort of consensus about how to reward outstanding teaching so we can assign them all these responsibilities or attract them and keep them to help especially low-income children?

Mr. SANDERS. Well, what we're beginning to see is we have more and more people make requests for us to do the kind of analysis we do. First of all, people are really struggling with—and I don't think anyone has the answer yet—how you incentivize teachers, the highly effective teachers, to go teach in this high-need schools. Linda Darling-Hammond and I were talking before the hearing today and basically, I'm the numbers guy. I'm not the policy guy. But I'm telling you, that is one of the biggest inequities in American public education. You don't have anywhere close to an equitable distribution of the teaching talent.

But on the other hand, you can't move people around like checkers on a board and Senator Alexander, in response to your direct question, there are, indeed, various attempts, now, scattered in various places, to create incentives for teachers to go. What happened in Chattanooga with the schools, is an excellent example. There are others floating around.

Senator ALEXANDER. But he was supported by the local NEH affiliate, if I'm not mistaken.

Mr. SANDERS. That's correct. You had a convergence with a local foundation, the mayor, now Senator Corker. You had the NEA local affiliate. You had a whole group of people come together and so forth and what they've done in those high-poverty schools is amazing. It's happened in the—it's not a 1-year phenomenon. It's a 5-year phenomenon. The TAP Program that you're beginning to see, the lady from Texas called about it—that is a different approach that marries staff development and ways for people to earn greater compensation as they make more, I think. I know there is a district in North Carolina right now that indeed, is offering sizable salary supplements to recruit math teachers to those high-need schools. So I'm the numbers guy. I'm not the policy guy but there are lots of efforts that are springing up around the country. Inevitably, it comes down, though—can we have a reasonable, fair measure of what is effective and that's where this whole technology in the last 5 or 6 years—it's no longer just Bill Sanders. There are all kinds of people now in various universities and so forth who are focused on—this technology has really moved big time in the last 5 or 6 years.

The CHAIRMAN. Thank you very much.

Senator Clinton.

Senator CLINTON. Well, thank you so much. This is such a stimulating discussion and one that Chairman Kennedy has been leading for so many decades and certainly Senator Alexander has been in the middle of and as he said, so have I for a very long time. I think this is exactly the right question to ask, how we attract and retain high quality teachers and give them the mentoring and the support they need to do that and then, how do we deploy them? I thought that Dr. Linda Darling-Hammond's testimony was particularly interesting because she pointed out that we don't have a teacher shortage but we certainly don't—we have mal-distribution of where we need our highest quality teachers, in certain subject areas and certain kinds of teaching environments. I would just like to ask everyone to briefly, because I know we don't have a lot of time, just if you could give us one recommendation for what we should do in this re-authorization on No Child Left Behind, what would it be? What would you have this committee recommend to the Congress that we do using this re-authorization opportunity that you believe would move us closer to having the number and quality and effectiveness of teachers? Maybe we could just start with Linda and kind of go around to Dr. Sanders.

Ms. HAMMOND. Well, the one is a hard number.

Senator CLINTON. That's why I want to hold you to it.

Ms. HAMMOND. I think that given that the distribution issue is so critical and as Bill Sanders just said, getting accomplished teachers to these high-need schools is a really key piece of it and keeping people, once they get there. Our biggest single difficulty has been that as we've dealt with the appearance of shortages, we've had people come into classrooms with not enough training and mentoring to keep them there once we get them there. So I think if there is one thing that we need to do, it's to build the kinds of high quality programs to get people there that Jesse talked

about with the Boston Teacher Residency that other universities do with these school-based professional development school or teacher residency programs with mentoring attached for all beginning teachers. So I put in two in that one. But we could afford to get every beginning teacher in this country a mentor for about $500 million and if we did it on a matching basis, we could do it for $250 million and we'd have that coaching that almost everyone has talked about. We could incent highly qualified teachers, National Board teachers, teachers who in a variety of ways have demonstrated effectiveness or high performance. I think we're at a stage where we have a lot of different measures we have to use to come in and be those mentors. And you get the high quality teachers in a place where you could train people up to do a good job for the kids who most need it.

Ms. WILKINS. Hi, how are you? A lot of people around this table will talk to you about some very good programmatic things that we could do to begin to attract and retain more effective teachers in high-poverty schools but the fact is that there is systemic inequity that has to go away before these good programs can kind of work to their full potential. So I would argue when I argued before you came in that the most important thing you can do is fix the comparability provisions of the law to ensure that teacher salaries are counted such that as more experienced teachers and their bigger paychecks migrate away from high-poverty schools, that is no longer hidden by the law nor sanctioned by the law, to ensure that title I dollars aren't gap-fillers for poor kids but indeed, can buy extras for poor kids.

Senator Clinton [off mic]. That's the old—not to substitute for substance.

Ms. WILKINS. Yes. I'd include that in my one also.

[Laughter.]

Ms. BURTNETT. What a good question. My thought is that when teachers are in school with children, they are focused on the teaching and learning experience at that time. In order to plan for instruction, teachers need time to do it and it's not just 1 hour a day. The test scores in Florida come out at the end of May and teachers leave. I would really like to see time in the work year for teachers to collaborate during the day, when kids are there but also time beyond the 180 days of students, for teachers to work together, to look at the scores, to do the analysis, to collaborate on the curriculum and make decisions in anticipation, as Dr. Sanders said, looking at that longitudinal progress of each child—make decisions in June that will begin the work in August and September. Teachers need time to consider before they move and that's my offer to you.

Mr. SOLOMON. I'm going to try to get two for one also, if that's okay with you. I think we've talked a little bit about the teaching hospital model and my belief is that you learn how to teach by teaching and you do so in a structured, supported environment where you're having critical conversations and I think moving schools to places that support that kind of learning would support the real learning that our new folks need but it would also create different roles and different career paths for our veteran folks, thereby keeping them in teaching as well.

Senator CLINTON. Barbara.

Ms. MAGUIRE. I would agree with Dr. Hammond on the need for mentors in our buildings, particularly if we can work one on one with different teachers. As an experienced teacher, I can go in and help that teacher find that magic balance. As we talk more about high stakes testing, what I found in our schools is that we have pre-schools where teachers are being told they're not doing enough academics with 3- and 4-year-olds and I find that appalling and we're taking away play in kindergarten, we're taking away physical education and the arts from our students who need them the most and as a beginning teacher, I think people are frustrated in how to approach an administrator or how to speak out on their feelings about that and as an experienced teacher, I'm no longer afraid. So I can go in and help that teacher make a plan for how to combine a need for the test scores with the need of the child. I think that's my biggest fear from someone in the trenches, is we're losing sight of the children. In pre-school and in kindergarten, they're still just babies and they need to play and they need to learn to get along and yet, we're worried about how many letters they know and what level they are reading at, when in fact, there is so much more to that child.

Ms. YOUNG. Thank you for this good question and I'm going to put in two, too. You're absolutely right that it is a distribution problem. As Amy talked, our lowest performing schools have the least prepared teachers. It would be nice if we could focus on every child, we'd get a highly qualified, well-prepared teacher and eventually that should be our goal but we do need to focus on the kids that need the most. I think one of the ways specifically in NCLB that we fix this is look at that definition of what is currently called highly qualified and how do we fix that? In my State, in California, NCLB will consider a teacher highly qualified and in California, they're not fully qualified. That makes no sense. We need to fix that and I think by doing that by a definition that is truly about high qualifications with teachers, put that into place along with incentives and mandates for schools and districts to focus on these high-need schools and get the truly highly qualified expert experienced teachers in place and don't just hold them accountable—hold us accountable too, at the universities. Force us to show you that we are preparing teachers who are suited for those challenging environments, who have preparation to work with these kids who need them most, not just as new teachers but through those careers.

Ms. WATKINS. Thank you so much, Senator Clinton. I want to add that what I would suggest is support that works and support that has been proven effective. As we talk about highly qualified teachers and teaching, I would just beseech you to remember that highly qualified teaching is not synonymous to experience and as we look at distribution, there are lots of teachers who've been teaching and who are doing a great job with children across the district of Richardson that would not be effective teachers with my high-need students. They have very specialized needs. What they are doing in other schools with the experiences that their students have would not work for my students. I need specialists who we can train to do that and that's what the TAP Program does. I need

people who can be mentored and look at data, understand data, know how to analyze it and let us help them to drive their instruction, adjust instruction and monitor instruction, monitor the data to meet the needs of the students. No more than any of us would want to go to an orthopedic surgeon with a heart problem, I could not use a teacher from another school necessarily with 20 years of experience to come over and do what some of our teachers, who are trained last year through TAP after only 1 year of teaching experience, are doing with my children at Thurgood Marshall Elementary. So please support what works.

Mr. SCHNUR. Thank you, Senator for the good question and for your leadership on school leadership issues. My single recommendation is grounded in a concept that my friend, Alan Khazei—who you know, Mr. Kennedy, you know and others, who founded City Year and was the model for Americorp and Alan is a terrific leader and he coined this term of the notion of an action tank instead of a think tank. There are a lot of think tanks, which are good, doing research and thinking about what works but Alan's idea is create action tanks where there is a particular policy goal piloted in a real serious way. Have a rigorous evaluation and then learn from that action what works at scale and I actually think an action tank around principal and teacher effectiveness would be a terrific contribution to the national work in education, in particular to say the goal is that principals and teachers in this country, the primary responsibility must be, as hard as it is, to ensure academic success for every child. And this is not just a question of shortages or distribution as important as those are but I think embedded in all those comments are about focus on teachers and principals whose job it is to secure success for every student and the question is how do we move forward a system that can identify, select, reward, differentiate support, professional development, teachers and principals who can do that and I'd say an action tank that supports experimentation could bring back terrific data 5 years from now, which we'd be serving a lot of kids across the country and help them form the next re-authorization 5 years from now.

Mr. SANDERS. Your question was the one thing that we would advise you. Prior to No Child Left Behind, the analyses that I'd been doing for years showed that the kids disproportionately, across many States that were getting hammered the hardest, were the early high achieving kids in schools with a high concentration of poor and minority. Those schools were under-serving those early higher achievers even more than they were the low achievers. No Child Left Behind has had a very positive impact on balance, with regard to the raising of achievement for the lowest achieving kids. But there is this negative unintended consequence in there that I strongly recommend that the Congress remove and that is, this teaching to the bubble kids, the kids that are just below proficiency because these schools are under the heat of failing AYP, are focusing right there and they are letting those early high achieving kids often slide. And when an old nerd like myself, comes along and analyzes it, you will see those early high achieving kids' achievement level being pulled back toward the achievement level of the lowest achieving kids. Okay, this needs to be fixed. We need to have in the AYP, with regard to the growth trend, a way to give

States and districts incentives to keep the appropriate academic progress for all kids to varying levels of future achievement and if I could recommend one thing to you—now, all these other things I concur with. That is the one that needs Congress's greatest attention.

Senator CLINTON. Thank you very much. That was extremely helpful.

The CHAIRMAN. Senator Allard.

Senator ALLARD. Mr. Chairman, thank you for holding this hearing. I've found the comments here by the panel very interesting and I want to bring up an issue that is pertinent to No Child Left Behind in the fact that we are moving into a new parameter that is beginning to measure now, I think, which is science. We've had math and then the year 2007, 2008, you begin to measure science and I have talked with a lot of people that are in the sciences—physicists, chemists, engineers, biological sciences and they are concerned about a shortage of people who are interested in the sciences. And in fact, they feel like they have to go to other countries to pick up these sciences. And I've talked to them and said look, maybe what we need to do is think about introducing our students to sciences earlier in the grades. I've made this assessment and I'd like to have you comment that elementary teachers are somewhat intimidated by the sciences so they like to—that's why they are elementary teachers. But you get up to the higher levels then—you know, you get in there, they are more dedicated to the sciences.

If somehow or the other we could teach elementary teachers to learn that science is fun. It's magic or whatever it is to attract the student's attention.

So I want to structure my question this way. Do you feel that if we talk about getting elementary teachers to introduce science at an earlier level, that they are prepared to do that and are they prepared to go into the workforce to meet these requirements of science, which we're going to begin to test now, in 2007 and 2008. I just bring this up because I think it's very pertinent to where we are with No Child Left Behind, the goals we've set out there and how you think teachers might be prepared to address this and I'll leave this open to anybody that might want to tackle that. Yes?

Ms. HAMMOND. I'd like to say one word. One is that the degree to which teachers are prepared to teach science in elementary school differs by States because some States have put a lot of energy into both the preparation of teachers to teach science in the elementary grades and they have a lot of requirements around it and others have not.

So we would want to incent States, either in this context or in title II of the Higher Education Act, to develop stronger preparation for teachers in science if they haven't yet done so.

But the other piece of it has to do with curriculum instruction and assessment. In a lot of States, science is not being taught until after March, until after testing time because it's not one of the tested subjects and there are concerns. Then, there are some States that do a wonderful job with performance assessments in science, where kids in fact, are both encouraged to conduct experiments early on and learn the scientific method and demonstrate it on

State assessments that actually look at science investigation. Connecticut is one, New York is another and then there are other States where science is really being configured only as kind of memorizing some facts and doing multiple choice tests. So the other piece of the incentive that we need in No Child Left Behind is for good performance assessments and strong curriculum that supports scientific inquiry from early on in the grades as well as the training for teachers to support that.

The final thing I'd say is that the kind of master teacher-mentor teacher models that you've been hearing about all up and down this panel, which provide coaching for teachers in school to improve their practice, are really helpful in terms of improving the quality of science instruction because teachers who don't have either strong experience to do it or incentives, need coaching to learn how to bring science into their classrooms. So supporting those master teacher models will also be helpful.

Senator ALLARD. Yes, ma'am.

Ms. YOUNG. I would just add that you're right about the importance of adding science to our testing program because our experience has been in the university that when we talk about the elementary—the preparation of elementary teachers and they go out in the field and they are student teaching, to teach science, they found that very many K–6 schools were not teaching science at all because they are so focused on high stakes testing and what's on the test that that's all they had time for in their curriculum. So adding science to the testing is going to help drive it in the curriculum. About whether our science elementary teachers are prepared for that, they're going to be better prepared, they are going to be better prepared, now that they'll have the opportunity to do that.

One of the things that we found really valuable at CSU is partnering with private industry about strengthening science curriculum and opportunities for elementary science teachers to learn more good science. We partner with JPL, with Boeing, with NASA, with all kinds of think tanks about strengthening our science ed curriculum for elementary teachers.

Senator ALLARD. Yes, ma'am.

Ms. BURTNETT. You are correct in your assessment that elementary teachers have not had the opportunities to learn about science and consequently, they haven't—they haven't focused on it. What I can tell you is that the National Board process—through that process, those teachers are looking at science in a different way and they begin to understand and realize how important it is for especially young children who are so curious about the world, to have opportunities to explore and discover in a scientific way. So the National Board process is helping in that regard and teachers who go through it are also helping at their schools, helping others see the critical need for bringing science curriculum into schools.

I'm glad to hear that in many States—we're moving in that direction in Florida, we're moving in that direction. So I do think there needs to be more focus on science and use what is—use those best practices out there because the Board has ways of doing that and coaching teachers up in it.

Senator ALLARD. Yes, sir.

Mr. SCHNUR. So in addition to the excellent ideas that you're hearing from others on this panel, I do believe that one of the keys is to attract people with expertise in math and science and to retain them and so I think there are policies that are being discussed that are targeted to math and science. I know some of these are well supported—not all of them but one. I do believe that national standards of some kind in math and science would send the message, however that's implemented, that we value math and science as a country and that we want the best and brightest people with expertise in math and science to become teachers. Second, I think that restoration of the funding for the Teacher Incentive Fund would send a powerful message that we actually have a profession beginning to look at how we can actually reward excellence in fair ways and give leadership opportunities and learning opportunities to attract math and science teachers and others. And third, I do think loan forgiveness, for people coming out of institutions with an expertise in math and science, that Senator Kennedy has called for would also help this problem.

Senator ALLARD. I see my time——

The CHAIRMAN. Good. Thank you. We've heard about a variety of them. We have the Teaching Centers that Pam Burtnett had talked about, residencies by Mr. Solomon. We've had the TAP Program and others, and they are all somewhat different. Where are the funding for these programs? Obviously we want programs suitable to different parts of the country and we ought to try and encourage those. I mean, I think Jesse—I think there was support from the Boston Foundation and one of the instruments that started or helped out there. But my basic question is, should we be trying to incentivize these types of programs? All of which you've commented that make a difference and all of which are somewhat different. What are the kinds of things you think that we might be able to do to incentivize the local kinds of communities or States to be able to move in these directions and in ways that's going to have 1,000 flowers bloom?

Mr. SOLOMON. I think in our case, we were started completely on private money for the first 2 years and I think we would have never been able to convince the school district to spend its own money on this without seeing it up and running. So some kind of pilot fund and maybe it's similar to the sort of action tank idea, to get programs started. Because now the Boston Public Schools pays 60 percent of our program at this point. But we needed to be able to have sort of a demonstration proof in order to be able to get it started.

The CHAIRMAN. Good.

Pam.

Ms. BURTNETT. The U.S. Department of Education has funded the National Board project along with the National Science Foundation. That's critical. The Teacher Center that we had came out of a sliding grant from the Conrad Hilton Foundation a long time ago. The collaboration between the union and the district is very, very important. The union trains our facilitators in thinking mathematics, reading—that's our Educational Research and Dissemination Project for the AFT and the district pays for the substitutes for teachers to come out of the classroom. Anything that we can do

to incentivize ongoing professional development with high quality research, current research on teaching practice and in content areas like science and reading, is important.

The CHAIRMAN. Let me just ask one other question. Qualified teachers in these classrooms, when the States make their submission, they are also supposed to have a distributive aspect of that program. You know, we've talked about the mal-distribution in response to earlier. What is your assessment about which States are doing much better than others? Clearly they are but I mean, is there anything we should know about that that we don't or do you want to let us know at some time, do you want to take a look at it? Is there anyone that wants to comment about that?

Ms. WILKINS. I think actually Senator Alexander and Dr. Sanders—Tennessee is doing one of the better jobs on distribution. In that, one of the things Tennessee has is a data system that can tell them who is who. Because it's kind of hard to distribute people when you can't identify them. So that is why sort of getting good teacher data systems is so important and Tennessee's work kind of shows you that. But I think the larger point here is, you all put those distribution provisions in the law when you passed it and the Department of Education ignored them until last spring so that there was no pressure on States to do anything. There were States that didn't even know that they were required to address the distribution issue until last spring. So that you have a lot of States who've pretty much done nothing because they were never asked to do anything.

Ms. WATKINS. I would like to add something, with your permission, Chairman Kennedy. If in areas of TAP funded in different ways—I know in Texas, individuals in independent school district, we use title I money, title II, title V and our local tax dollars and across the State, where TAP has been implemented, it is my understanding that they are using all of their resources to fund that. I can't give you specific data on which States are doing a great job with TAP and how they are funding but I would be happy to provide that for you if you are interested.

Chairman Kennedy. Good. Thanks.

Senator Alexander.

Senator ALEXANDER. Thank you, Mr. Chairman. This has been a terrific morning and I hope you'll do this again. I want to go back to the question I asked Dr. Sanders and see if anyone else would have a comment on it. Let me take it this way. Almost everybody here has said something like teacher experience does not equal teacher effectiveness and for example, in the Richardson district, you may have very good teachers in this setting but you're not effective in this setting. That's one thing we see. The second thing I think I'm hearing is that over the last 25 years, not just Dr. Sanders but we're beginning to develop in a way, a variety of ways, to say what a highly effective teacher is. And okay, that's some real progress. I mean, 25 years ago when we tried to have a Master Teacher Program in Tennessee, I went to every college of education in America who said it was foolish to try to measure that and to reward people for that. They didn't do that. So we had to do it. We had a bunch of politicians figuring it out because the education community wouldn't do it.

So that leads us to the Teacher Incentive Fund and let me just take an example. The city with the largest number of low-performing schools is Memphis. That's where we have our poorest children. I've been in many of those schools. I've seen the tremendous results that can be achieved there in a relatively short period of time, with what are obviously highly effective teachers. In a couple of years, the kids who had so little coming in are already up to levels that one would hope they would be.

Under the Teacher Incentive Fund, New Leaders for New Schools has $3.1 million, the first year of a 5-year grant totaling $18 million. Now that is being used in two ways. Eighty-three principals serving a third of the schools are in this program to make sure they are good principals but they are getting paid $15,000 more a year than the other principals and 491 teachers with demonstrated records of improving student academic achievement in high-poverty schools are getting $6,000 more dollars a year than the other teachers. Now we all dance around this but what happens is, some education community rises up and wants to stomp that out because some teachers are making more than others. I don't think we'll ever get anywhere with this discussion until we find some way to reward these mentors, master teachers, and people who go into low-income areas and science teachers and great principals until we get some consensus in the education community about a fair way to do it. And with all respect, I don't think we in the Senate can do that. Now some step was made with the National Board for Professional Teaching Standards. That's one way. But we need more ways. And when Philadelphia and Memphis and all these places try to—Chattanooga—reward outstanding teachers, the last thing we need is for national education organizations to jump in and try to kill the program, which is exactly what happens.

Now, am I being unfair to say that or am I misreading what I'm hearing or is there some sort of emerging consensus about how to do that? What could we do here to kind of encourage this rather than discourage it over the next 5 years in this bill?

Ms. HAMMOND. I think that the point that John made a few times, that we need to be able to experiment with these things and figure out what is going to work is an important one. I think there is a growing consensus that it's valuable to recognize teachers' capacities. As you said, the National Board is one way to do it. When you were Governor, you introduced, I think, one of the first career ladders that set the stage for some of the programs like TAP that are now beginning to take hold. We have only a few places where these programs are growing and being studied and looked at. The TAP Programs, Denver has an innovative compensation system and so on. I think the key for the next few years is to try to get some of that work done right in some local places because we're not quite ready to mandate some single approach.

Several ways that one would look at it—I think there are three—would include things like the National Board of Certification. There is a New Beginning Teacher Performance Assessment also, that has been piloted and found to predict teacher effectiveness, using methods like Dr. Sanders, so you can get a gauge on performance. There are some standards-based evaluation systems that have been

found to predict teacher effectiveness and then there are methods like the ones that Dr. Sanders has piloted and really guided us in. He's been a national treasure in this. But that's going to be a ways off for a lot of States because most States don't have the kind of systems that have value-added types of tests. Massachusetts, New York, California—don't have scaled testing systems. People are in disagreement about whether it's a good or a bad idea to go to those tests because they're different in measurement. I think we want to use ways to look at student learning, where those methods are useful and appropriate as a part of a system, look at other ways to look at student learning in States that will not be able to move in that direction and have teachers begin to assemble evidence about their own contributions to student learning in their evaluation systems, which is one of the things that's going on in Denver and some other places, so that we begin to build a capacity to think about performance, contributions to student learning in a variety of ways and then see where we are with some systems that have been tested in the next few years.

Mr. SANDERS. Senator, I would just add to that. I think the incentive fund in which States were allowed to submit and compete for has begun to create the very pilots that Linda was referring to. In other words, it's not across the board but there have been various approaches and so forth so I think this whole notion of adding to the ongoing experimentation would be something—Senator Kennedy's comment earlier of who initially finances these things—sometimes we've seen it from private money. We found that Chattanooga started primarily with those local foundation dollars that became the seed for it so I think that what I would like to see Congress consider is the notion to have more experimentation to go through as opposed to—because each of the 50 States are not at the same level presently with regard to longitudinal data structures, just as Linda just pointed out. But I do think there ought to be an encouragement for more experimentation.

Ms. HAMMOND. When we do that though, we need to be sure that we're allowing—giving teachers incentives to teach the whole child, that we're giving incentives to teach the kids who have high levels of need so that we don't dis-incentivize teachers taking special-needs students, English language learners, in their classrooms and that we figure out ways that acknowledge the breadth of work that teachers do and I think a multiple measure system is going to be what helps us do that.

The CHAIRMAN. Just the final two comments here.

Ms. BURTNETT. And let me just add one—teachers need to be a part of that conversation, the conversation about the incentives, the opportunities, the career ladder, the criteria by which effective teaching is looked at. They need to be at the table talking about what they know. Senator Alexander, my teachers tell me that they are understanding of the desire to build career ladders and give teachers more opportunities. They are not reluctant—they are hesitant because there isn't this body of evidence out there that helps them know what it is going to look like and how they are a part of it and have a voice in it.

Senator ALEXANDER. Well, if I may say, if they keep trying to kill every effort to experiment with it, there will never be such a body of evidence.

The CHAIRMAN. Amy.

Ms. WILKINS. Senator Alexander, I just have two points that I'd like to make.

The CHAIRMAN. Take the microphone, please.

Ms. WILKINS. I just have two points that I'd like to make. One is I want to be careful as we talk about these experiments that we try to move from the boutique level to at least the small chain level. Let's try and get some scale here instead of just nibbling around the edges with one cutie thing here and one cutie thing there. We do know a lot and we should apply what we know to scale up and get very aggressive about this because we know how important good teachers are to poor kids and we don't have time to nibble around the edges. So I think aggressive experimentation that tries to move to scale very quickly is important.

The other thing, I think, that we really need is outside evaluation of these programs so that the learning that is done can be No. 1, reliable but No. 2, quickly turned around and plowed into to get to the scale that John was talking about. The action tank stuff is nice but I think the emphasis needs to be on action and the small tank.

The CHAIRMAN. Aggressive experimentation. We want to thank all of you. It's been enormously helpful. I think we've touched on a lot of different subject matters, that have been raised here and I think a lot of people were able to make brief comments—others didn't get a chance. Without going back and having to write a long essay, but if you want to give us some bullet points on some of these parts, we'd very much appreciate it. I don't want to ask you to go back and create a whole other—you know, feel you have to go back and do all additional testimony but you've listened to a lot. If you have comments on items we didn't hear from anyone, you can just put these things down—you know, a couple of sentences and/or if you know of different studies that we and our staff ought to reference. Do you think they can give us some additional ideas or suggestions or ongoing studies that will be coming up that we ought to be aware of. We're thirsty for information and what we will do is, as the legislation is drafted, we'll get it out to you to get your comments, as we get this. And then you can give us your comment on that. So we'll have you hopefully as involved as you want to be in terms of this whole process.

We have additional kinds of statements and I'll ask that those statements be included as part of the record and I thank all of you very much for appearing. The committee stands in recess.

[Additional material follows.]

ADDITIONAL MATERIAL

PREPARED STATEMENT OF LESLIE BURGER, AMERICAN LIBRARY ASSOCIATION (ALA)

Chairman Kennedy, Senator Enzi, and members of the committee, thank you for allowing me to submit testimony on behalf of the American Library Association (ALA). I appreciate the opportunity to comment on the value of the school library media specialist in achieving the laudable goals of the No Child Left Behind Act (NCLB).

My name is Leslie Burger, and I am the President of the American Library Association, the oldest and largest library association in the world with some 66,000 members, primarily school, public, academic, and some special librarians, but also trustees, publishers, and friends of libraries. The Association provides leadership for the development, promotion, and improvement of library and information services and the profession of librarianship to enhance learning and ensure access to information for all.

In 2001, with strong bipartisan support, the Nation embarked on an ambitious school reform plan entitled the No Child Left Behind Act (NCLB). Among other things, NCLB requires States to set high standards for all students and holds schools accountable for the results. Further, it requires that there be a "highly qualified" teacher in every classroom. This emphasis has resulted in significant changes in how teachers are hired and retained as well as how professional development is provided. The ALA applauds the highly qualified teacher requirements in NCLB, but believes the same standards being applied in our classrooms should be extended to our Nation's school libraries—that every school library should be staffed by a highly qualified, state-certified library media specialist.

Section 1119 of NCLB outlines the minimum qualifications needed by teachers and paraprofessionals who work in any facet of classroom instruction. It requires that States develop plans to achieve the goal that all teachers of core academic subjects be highly qualified by the end of the 2005–6 school year.

Yet, despite the vital role school libraries play in helping meet those requirements, NCLB is silent when it comes to the qualification of those individuals in charge of our school libraries. The over 62,000 state-certified library media specialists in public schools and 3,909 state-certified library media specialists in private schools in the United States fill multiple roles—teacher, instructional partner, information specialist, and program administrator—ensuring that students and staff are effective users of information and ideas.

School libraries are critical partners in ensuring that States and school districts alike meet the reading requirements that are part of NCLB as well as President Bush's unequivocal commitment to ensuring that every child can read by the end of third grade. President Bush and the Congress recognized the important role school libraries play in increasing literacy and reading skills when they created the Improving Literacy Through School Library program as part of NCLB (Title I, Part B, Subpart 4, Sec. 1251).

The Improving Literacy Through School Library program—the first program specifically aimed at upgrading school libraries since the original school library resources program was established in 1965—is designed to improve student literacy skills and academic achievement by providing schools with up-to-date library materials, including well-equipped, technologically advanced school library media centers, and to ensure that school library media centers are staffed by professionally certified school library media specialists.

Multiple studies have affirmed that there is a clear link between school library media programs that are staffed by an experienced school library media specialist and student academic achievement. Based on analysis from the first year of funding for the Improving Literacy Through School Libraries program, 95 percent of local education agencies have reported increases in their reading scores. The Department of Education's November 2005 evaluation of the Improving Literacy Through School Libraries program found it has been successful in improving the quality of school libraries. Fourteen statewide studies demonstrate that a strong library media program helps students learn more and score higher on standardized achievement tests than their peers in library-impoverished schools. Unfortunately, about 25 percent of America's school libraries do not have a State-certified librarian on staff.

The skills needed to function successfully in a 21st century global workforce have gone beyond reading. Business leaders are concerned that people are now entering the workforce without information literacy skills—those skills needed to find, retrieve, analyze and use information—which equip people with the ability to work proficiently. Who better to teach information literacy than librarians, the information experts.

When it comes to our children's education, we must ensure that they receive the best instruction possible from competent, qualified instructors. This is true in the classroom and should be true in our school libraries. Education is not exclusive to the classroom; it extends into school libraries and so should the qualification we demand of our school librarians. To be a critical part of a comprehensive and renewed strategy to ensure that students learn to read (and to read well), every school library should be staffed by a highly qualified, state-certified library media specialist and every school should have a school library.

As Congress begins consideration of NCLB reauthorization, ALA recommends the following:

1. Encourage each State to review their requirements for library media specialists and to define for their own State what it means to be a "highly qualified library media specialist;"
2. Set a goal for all schools receiving title I funding to have at least one "highly qualified library media specialist" as defined by the State; and
3. Provide local flexibility for schools and districts to use funds under title II, part A to help hire, retain and train library media specialists so they are able to meet the "highly qualified" definition set by the State.

We appreciate your responsiveness and look forward to determining how we can work with you to ensure that all schools are staffed by a highly qualified, state-certified library media specialist.

Thank you again for this opportunity to comment on behalf of the American Library Association.

NATIONAL SCHOOL BOARDS ASSOCIATION (NSBA),
ALEXANDRIA, VIRGINIA,
March 5, 2007.

Hon. Edward M. Kennedy,
Chairman,
Committee on Health, Education, Labor, and Pensions,
U.S. Senate,
Washington, DC. 20510.

Hon. Michael B. Enzi,
Ranking Member,
Committee on Health, Education, Labor, and Pensions,
U.S. Senate,
Washington, DC. 20510.

Re: Letter for the Record on NCLB Hearing—"Strategies for Attracting, Supporting, and Retaining High Quality Educators"

DEAR CHAIRMAN KENNEDY AND RANKING MEMBER ENZI: On behalf of the 95,000 school board members who serve the Nation's 48 million students in our local public school districts, the National School Boards Association (NSBA) respectfully requests that this letter be entered into the record in conjunction with tomorrow's important hearing on teaching quality. We commend your leadership in holding a hearing on this matter that is inextricably linked to the ability of schools and districts to fulfill the lofty goals of the No Child Left Behind Act (NCLB), particularly raising achievement for all students.

The research on this matter is clear: no other school-related factor has a greater impact on student achievement than the ability of the student's teacher. In short, teachers matter. School districts and States are striving to recruit and retain qualified and effective teachers but face significant targeted staffing challenges. The Highly Qualified Teacher requirements within NCLB have added to those challenges in some instances.

While hiring decisions remain the responsibility of local school boards, NSBA believes that Congress does have a role to play in assisting local school districts and States in their ongoing efforts to attract, support and retain qualified and effective teachers. The needs are particularly acute in high-poverty schools and for certain subjects in which teacher shortages are too common, including math, science, special education, and classes for English Language Learners.

NSBA's legislative recommendations cover recruitment and retention, professional development, needed improvements to the Highly Qualified provisions in NCLB, and strengthening teacher preparation. While we recognize that there may be several legislative vehicles in which Congress can assist districts and States in strengthening teacher quality—including the reauthorizations of NCLB and the Higher Edu-

cation Act, and legislation on U.S. economic competitiveness—we wish to take this opportunity to outline our recommendations since your committee will be leading any effort on this matter.

RECRUITMENT AND RETENTION

Through Federal incentives and funding for existing programs, Congress can provide important assistance to supplement districts' and States' teacher recruitment and retention programs. For example, adequate funding for title I and especially title II (Improving Teacher Quality State Grants), as well as incentives like the Teacher Loan Forgiveness Program need continued support. NSBA also supports newer concepts, such as the Teacher Incentive Fund, which can assist district programs that reward teachers and principals who demonstrate positive results in high-poverty schools. Such programs can also help foster the creation and expansion of differential pay initiatives for teachers of high-need subjects and hard-to-staff schools. We also are encouraged by efforts in Congress to provide scholarships for undergraduates who commit to teach for several years in hard-to-staff schools or high-need subjects, and for experienced teachers who further their education and take on added responsibilities, including mentoring.

PROFESSIONAL DEVELOPMENT

Improving professional development or in-service training is critical to supporting and retaining teachers. We recommend partially redirecting NCLB's focus and funding requirements from unproven sanctions to support for comprehensive professional development programs that can improve teaching and raise student achievement. Comprehensive professional development would include analysis of students' learning needs, intensive induction and mentoring support, and peer collaboration. This approach would also result in additional title I monies available for professional development.

HIGHLY QUALIFIED IMPROVEMENTS

States and school districts have made strong progress in their efforts to meet the Highly Qualified Teacher requirements within NCLB. Those requirements have also added to pre-existing recruitment and retention challenges, particularly for rural schools and certain subjects, such as special education. The Department of Education has recognized this by granting some flexibility to districts and States, and clarified in the IDEA regulations that States can develop a single multi-subject HOUSSE (High Objective Uniform State Standards of Evaluation) to allow special education teachers of multiple core subjects to demonstrate subject-matter competency in every core subject they teach. We recommend that Congress make that provision permanent, or permit a special education teacher with full State special education certification and a bachelor's degree to be considered highly qualified.

Additionally, Congress should streamline existing highly qualified requirements by requiring instructional personnel employed by supplemental service providers to meet the same requirements as public school educators. Under current law, they are not held to the same standard.

Finally, some States and school districts are attempting to develop accurate and appropriate methods, such as "value-added" models, for determining and rewarding teacher effectiveness. It is a costly and complicated process that requires extensive collaboration among key stakeholders, including school boards, administrators and teachers, in order to develop a system that is viewed as fair and accurate. Congress can assist in this progress by providing funding (through matching grants) for States to develop the necessary data systems. Although value-added assessments provide information on student performance, they should never be the sole determining factor in evaluating teacher performance, which must include other factors including peer and principal evaluations.

If Congress considers amending the highly qualified definition to take into account a teacher's effectiveness, NSBA recommends that it be added only as an alternative method by which teachers can meet the standards, *not* as an additional requirement. This approach could allow teachers who have a track record of success in raising student achievement but who may not meet all the current credentialing or subject-matter requirements, to be deemed highly qualified. However, because of the complexity in developing such systems, Congress might consider creating a demonstration program for interested States wishing to utilize or create a value-added model for this purpose.

TEACHER PREPARATION

Quality teacher preparation programs, whether traditional or alternative, are an integral component to ensuring the Nation has an adequate supply of outstanding teachers today and in the future. Few would disagree that the Nation's teacher preparation programs have room for improvement. Congress should encourage schools of education to collaborate with local school districts to ensure appropriate alignment with NCLB requirements and State academic standards, as well as the proper education needed to enable teachers to effectively reach and educate today's increasingly diverse student body. NSBA also recommends that Congress increase accountability for teacher preparation programs by providing incentives to States to develop accountability programs which track the preparedness and success of graduates of its teacher preparation programs in raising student achievement (e.g., Louisiana's Teacher Preparation Accountability System).

Again, we appreciate your leadership and interest in strengthening the efforts of school districts and States to recruit, support and retain quality teachers. We look forward to working with the committee on this issue as you consider legislation to address these challenges. If you have any questions or would like further information, please contact Marcus Egan, Director of Federal Affairs, at (703) 838–6707, or *megan@nsba.org*.

Sincerely,

MICHAEL A. RESNICK,
Associate Executive Director.

STANFORD UNIVERSITY,
STANFORD, CA,
March 9, 2007.

DEAR SENATOR KENNEDY: It was a privilege to testify before the HELP committee earlier this week on matters of teacher quality. At that time you invited us to submit additional comments on matters before the committee.

Attached is additional testimony on the question of value-added modeling of test score gains as a basis for evaluating teachers—a practice that is emerging as a valuable but complex research tool, and one that has severe limitations as a primary means for evaluating individual teachers. I outline some of the challenges with this method with respect to individual teacher evaluation. I also describe proposals for how policymakers might encourage workable and productive means for recognizing exceptional teachers, taking into account their performance and contributions to student learning, and enabling them to contribute to the improvement of the profession and the teaching of underserved students.

I thank you and the members of the committee for your hard work to improve our public education system. We are all the beneficiaries of that work.

Sincerely,

LINDA DARLING-HAMMOND,
Charles E. Ducommun Professor.

MEASURING AND RECOGNIZING TEACHER EFFECTIVENESS

Recent policies aimed at improving teacher quality have begun to make a positive difference in the distribution of qualified teachers to traditionally under-served groups of students. Policymakers are now turning to ways to augment these efforts to evaluate and stimulate greater teacher effectiveness. Because of a desire to recognize and reward teachers' contributions to student learning, a prominent proposal is to use **value-added student achievement test scores** as a key measure of teachers' effectiveness. The value-added concept is important, as it reflects a desire to acknowledge teachers' contributions to students' progress, taking into account where students begin. However, there are serious technical and educational challenges associated with this approach, which limit its use as a primary measure of individual teacher effectiveness. (These issues are described below.)

Perhaps the challenges associated with this approach were illustrated most vividly by the statement of an expert veteran teacher in Springfield, Massachusetts last year—a district being asked to put in place a system of merit pay based on value-added student achievement test scores. Springfield is a predominantly minority, overwhelmingly poor district that is under-resourced by the State. Fiscal woes had prevented salary increases for 3 years and about half of the 2,600 teachers in the district had left over this time. Nearly 25 percent of the teaching force was uncertified and inexperienced. Susan Saunders, a Springfield native with more than 20 years of experience, was one of the local heroes who had stayed and worked tire-

lessly to assist the revolving door of beginning teachers, who shared the few current materials with these teachers, and who took on the highest need special education students (comprising more than half of her class of 32 students), as she was one of the few teachers who could work with them successfully. When asked how she would feel about working in this new system of test-based merit pay, Saunders said the introduction of the system would force a teacher like herself either to leave the system or to stop taking on the special education students and helping the other teachers in her building (since one teacher's greater success would come at the expense of another teacher's rating).

The Springfield system was not adopted because an arbitrator deemed the technical validity of the proposed system inadequate to carry the weight of personnel decisionmaking. In addition, this example suggests how important it is to exercise care in developing systems of rewards for teachers, so they do not create **incentives** that would discourage teachers from working collaboratively with each other and taking on the most challenging students. Since any measures used are likely to drive instruction, it is also critically important that the assessments used to evaluate student learning cover the broad goals of learning that are valued.

For any high stakes purpose associated with personnel decisionmaking or compensation, **multiple measures** should be used in combination, as all measures give a partial picture of teacher performance. These measures should include evidence of: (1) teacher **practices**, (2) teacher **performance,** and (3) teacher **contributions to student learning.** Specific characteristics of students as well as of the learning environment should be taken into account in making judgments about teachers' effectiveness. These elements, and indicators of teacher qualifications, are all used in the Denver, Colorado system of teacher compensation based on knowledge, skills, and performance, as well as innovative systems in Helena, Montana; Portland, Maine; and in Minnesota's Alternative Professional Pay System.[1]

WHY VALUE-ADDED TEST SCORES ARE PROBLEMATIC FOR EVALUATING INDIVIDUAL TEACHERS

While value-added methods are valuable for research on groups of teachers, researchers agree that value-added modeling (VAM) is not appropriate as a primary measure for evaluating individual teachers. Henry Braun of the Educational Testing Service concluded in his review:

> VAM results should not serve as the sole or principal basis for making consequential decisions about teachers. There are many pitfalls to making causal attributions of teacher effectiveness on the basis of the kinds of data available from typical school districts. We still lack sufficient understanding of how seriously the different technical problems threaten the validity of such interpretations.[2]

The problems with using value-added testing models to determine teacher effectiveness include:

• *Teachers' ratings are affected by differences in the students who are assigned to them.* Students are not randomly assigned to teachers—and statistical models cannot fully adjust for the fact that some teachers will have a disproportionate number of students who may be exceptionally difficult to teach (students with poor attendance, who are homeless, who have severe problems at home, etc.) and whose scores on traditional tests are problematic to interpret (e.g. those who have special education needs or who are English language learners). This can create both misestimates of teachers' effectiveness and disincentives for them to want to teach the students who have the greatest needs.

• *VAM requires scaled tests, which most States don't use. Furthermore, many experts think such tests are less useful than tests that are designed to measure specific curriculum goals.* In order to be scaled, tests must evaluate content that is measured along a continuum from year to year. This reduces their ability to measure the breadth of curriculum content. As a result, most States have been moving away from scaled tests and toward tests that measure standards based on specific curriculum content, such as end-of-course tests in high school that can evaluate standards more comprehensively (e.g. separate tests in algebra, geometry, algebra 2, and in biology, chemistry, and physics). These curriculum-based tests are more useful for evaluating instruction and guiding teaching, but do not allow value-added modeling. Entire State systems of assessment that have been developed over many years—such as the NY State Regents system and systems in States like California, Washington, Massachusetts, Maine, Connecticut, Kentucky, and many more—would have to be dismantled to institute value-added modeling.

• *VAM models do not produce stable ratings of teachers.* Teachers look very different in their measured effectiveness when different statistical methods are used.

In addition, a given teacher may appear to have differential effectiveness from class to class and from year to year. Braun notes that ratings are most unstable at the upper and lower ends of the scale, where many would like to use them to determine high or low levels of effectiveness.

• *Most teachers and many students are not covered by relevant tests.* Scaled annual tests are not available in most States for teachers of science, social studies, foreign language, music, art, physical education, special education, vocational/technical education, and other electives in any grades, or for teachers in grades K–3 and nearly all teachers in grades 9–12. With many grades and subjects uncovered by scaled tests, and with 3 years of data needed to get a reasonably stable estimate for a teacher (thus excluding 1st and 2nd year teachers), at best only about 30 percent of elementary teachers and 10 percent of high school teachers would be covered by data bases in most States. Once teacher and student mobility are factored in, the number of teachers who can be followed in these models is reduced further. In low-income communities, especially, student mobility rates are often extremely high, with a minority of students stable from 1 year to the next. Although researchers can make assumptions about score values for missing student data for research purposes, these kinds of adjustments are not appropriate for the purposes of making individual teacher judgments.

• *Many desired learning outcomes are not covered by the tests.* Tests in the United States are generally much narrower than assessments used in other high-achieving countries (which feature a much wider variety of more ambitious written, oral, and applied tasks), and scaled tests are narrower than some other kinds of assessment. For good or for ill, research finds that high-stakes tests drive the curriculum to a substantial degree. Thus, it is important that measures used to evaluate teacher effectiveness find ways to include the broad range of outcomes valued in schools. Otherwise, teachers evaluated by such tests will have no incentive to continue to include untested areas such as writing, research, science investigations, social studies, and the arts, or skills such as data collection, analysis, and synthesis, or complex problem solving, which are generally untested.

• *It is impossible to fully separate out the influences of students' other teachers, as well as school conditions, on their apparent learning.* Prior teachers have lasting effects, for good or ill, on students' later learning, and current teachers also interact to produce students' knowledge and skills. For example, the essay writing a student learns through his history teacher may be credited to his English teacher, even if she assigns no writing; the math he learns in his physics class may be credited to his math teacher. Specific skills and topics taught in 1 year may not be tested until later years. A teacher who works in a well-resourced school with specialist supports may appear to be more effective than one whose students don't receive these supports. As Braun notes, "it is always possible to produce estimates of what the model designates as teacher effects. These estimates, however, capture the contributions of a number of factors, those due to teachers being only one of them. So treating estimated teacher effects as accurate indicators of teacher effectiveness is problematic." To understand the influences on student learning, more data about teachers' practices and context are needed.

Thus, while value-added models are useful for looking at groups of teachers for research purposes—for example, to examine the results of professional development programs or to look at student progress at the school or district level—and they might provide one measure of teacher effectiveness among several, they are problematic as the primary or sole measure for making evaluation decisions for individual teachers.

Congress should fund research on a range of models for examining student progress in relation to teaching, including value-added models, in order to understand the technical properties of the models, how they intersect with desired properties of assessments, and what kinds of inferences they can support about teacher effects under various circumstances.

HOW MIGHT TEACHER EFFECTIVENESS BE EVALUATED AND RECOGNIZED?

The fact that value-added models are not ready for prime-time as tools for evaluating teachers does not mean that we cannot make progress in recognizing and rewarding excellent teachers, and creating incentives for them to help other teachers and serve the neediest students.

One critical need is to identify **highly effective teachers** who can serve as mentors and master teachers and who might be recruited to high-need schools through a variety of incentives, including additional salary, improved teaching conditions, and opportunities to redesign schools so that they are more effective.

Based on the experiences of districts that have worked to develop career ladders and innovative compensation systems, such teachers might be identified by requiring districts, in collaboration with the local teachers association, to construct a system which incorporates multiple measures of teacher performance to identify highly effective teachers, including:

• Attainment of National Board Certification[3] or superior performance on a teacher *performance assessment*, offered by the State or district, measuring standards known to be associated with student learning. Such standards-based teacher evaluations should include evaluation of teaching practices based on validated benchmarks conducted through classroom observations by expert peers or supervisors, as well as systematic collection of evidence about the teacher's planning, instruction, and assessment practices, work with parents and students, and contributions to the school.[4]

• Contributions to *student learning* and other student outcomes, drawn from classroom assessments and documentation, including pre- and post-test measures of student learning in specific areas, evidence of student accomplishments in relation to teaching activities, and analysis of standardized test results, where appropriate.[5] The evidence should include a wide range of learning outcomes and take student characteristics into account.

Teachers eligible for master/mentor teacher designation should have met the Highly Qualified Teacher requirement under NCLB and have at least 4 years of successful teaching experience as evidenced by outstanding performance on regular teacher evaluations. These evaluations should be based on a portfolio of evidence about planning, teaching, and learning environments, as well as student learning, and classroom demonstrations of teaching excellence.

Another need is to strengthen the evaluation process for **all teachers** so that it provides evidence of teachers' performance that is related to student learning. Improved teacher evaluation can be encouraged at both the State and local levels.

At the district level, incentives should encourage districts to develop *standards-based teacher evaluations* that include evaluation of teaching practices based on validated benchmarks conducted through classroom observations by expert peers or supervisors, as well as *systematic collection of evidence* about the teacher's planning, instruction, and assessment practices, work with parents and students, and contributions to the school. This collection of evidence can include *evidence of student learning and progress* drawn from teacher documentation, student work samples, and classroom, district or State assessments, as appropriate.

This portfolio of evidence about teacher performance should include practices that are associated with improvements in students' school performance and learning. For example, in addition to gains in student learning demonstrated through tests or assessments, a teacher might document how she increased student attendance or homework completion through regular parent conferences and calls home and show evidence of changes in these student outcomes, as well as other outcomes associated with them, such as improved grades, graduation, and college-going.

In some systems, teachers receive stipends for demonstrating that they have implemented particular new practices associated with schoolwide or districtwide goals, such as the use of common literacy practices across classrooms, or the use of formative assessments in planning and modifying instruction, or the implementation of a new system of writing instruction. Where possible, these practices are documented along with evidence of how the changes have affected student participation and learning. The rationale for using these measures of effective teaching practices is that they support teacher development and schoolwide change initiatives, and are related to improvements in the conditions for student learning.

At the State level, *teacher performance assessments* can be used to go beyond paper qualifications to evaluate teachers' ability to perform effectively in the classroom. Such assessments, modeled after the National Board assessments, are being used in teacher education or the early induction period as the basis for licensing recommendations in CA and CT. Beginning teachers' ratings on the Connecticut performance assessment have been found to significantly predict their students' value-added achievement on State tests[6] and to help teachers improve their instruction and effectiveness. The assessments require teachers to document their plans and teaching for a unit of instruction, videotape and critique lessons, and collect and evaluate evidence of student learning. The Teach Act contains a provision to develop a nationally available beginning teacher performance assessment, based on these models, which could provide a useful measure of effectiveness for new teachers and could leverage stronger accountability and improvement in teacher education.

CONCLUSION

In any of these systems, it will also be important to include evidence about the students being served and to consider their progress in appropriate ways. Evidence in medicine as well as teaching indicates that where assessments do not fairly represent professional practice, incentives can be created to avoid serving high-need clients, which works against the goals of the system. For example, mortality ratings for cardiac surgeons in one State were found to result in doctors referring very sick patients to other States, and to refuse service to needy patients with high levels of risk. Similarly, accountability based on test score ratings have led some schools to keep and push out low-scoring students. To create systems that measure and encourage teacher effectiveness, it is important to use multiple measures of practice, performance, and outcomes so that a more complete picture of practice emerges, so that assessments are fair and produce the right incentives, and so that educators are encouraged to improve what they do instead of trying to game an unfair system.

ENDNOTES

[1] For more detail about Denver, see *http://denverprocomp.org*. For more detail about the Minnesota plan see *http://www.educationminnesota.org/index.cfm?PAGE*_ID-15003.

[2] Henry Braun, *Using Student Progress to Evaluate Teachers: A Primer on Value-Added Models* (Princeton, NJ: ETS, 2005), p. 17.

[3] A number of studies have found that the *National Board Certification* assessment process identifies teachers who are more effective than others who have not achieved certification. See for example, Bond, L., Smith, T., Baker, W., & Hattie, J. (2000). The certification system of the National Board for Professional Teaching Standards: A construct and consequential validity study (Greensboro, NC: Center for Educational Research and Evaluation); Cavaluzzo, L. (2004). Is National Board Certification an effective signal of teacher quality? (National Science Foundation No. REC–0107014). Alexandria, VA: The CNA Corporation; Goldhaber, D., & Anthony, E. (2005). Can teacher quality be effectively assessed? Seattle, WA: University of Washington and the Urban Institute; Smith, T., Gordon, B., Colby, S., & Wang, J. (2005). An examination of the relationship of the depth of student learning and National Board certification status (Office for Research on Teaching, Appalachian State University). Vandevoort, L. G., Amrein-Beardsley, A., & Berliner, D. C. (2004). National Board certified teachers and their students' achievement. *Education Policy Analysis Archives, 12* (46), 117.

[4] *Standards-based teacher evaluations* used by some districts have been found to be significantly related to student achievement gains for teachers and to help teachers improve their practice and effectiveness. See Milanowski, A.T., Kimball, S.M., White, B. (2004). The relationship between standards-based teacher evaluation scores and student achievement. University of Wisconsin-Madison: Consortium for Policy Research in Education. These systems for observing teachers' classroom practice are based on professional teaching standards grounded in research on teaching and learning. They use systematic observation protocols to examine teaching along a number of dimensions. The Denver compensation system, which uses such an evaluation system as one of its components, describes the features of its system as including: well-developed rubrics articulating different levels of teacher performance; inter-rater reliability; a fall-to-spring evaluation cycle; and a peer and self-evaluation component.

[5] *Measures of student learning in specific subject areas* may be scored writing samples or reading samples, mathematics assessments, assessments of science or history knowledge, or even musical performances. These typically provide better measures of classroom learning in a specific course or subject area because they are curriculum-specific and can offer more authentic measures of student learning. They are also more likely to capture the effects of a particular teacher's instruction and be available for most students. In some schools, teachers use their own fall and spring classroom assessments (or pre- and post-unit assessments) as a way of gauging student progress. These measures can also be tailored for the learning goals of specific students (for example, special education students or English language learners.) As part of a portfolio of evidence, these measures can document teacher effectiveness in achieving specific curriculum goals. In Denver's system, teachers set two goals annually in collaboration with the principal, and document student progress toward these goals using district, school, or teacher-made assessments to show growth.

[6] Wilson, M. & Hallum, P.J. (2006). Using Student Achievement Test Scores as Evidence of External Validity for Indicators of Teacher Quality: Connecticut's *Begin-*

ning Educator Support and Training Program. Berkeley, CA: University of California at Berkeley.

[Whereupon, at 12:05 a.m., the hearing was adjourned.]

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