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Call for Action:

Transforming Teaching and Learning to Prepare High School Students for College and Careers

Standards-based reform will continue to fall short in preparing graduates for college and careers without sustained investments in building the teaching profession and a greater focus on redesigning schools to support teacher and student learning. Myriad studies confirm that the interaction between a teacher and a student is the primary determinant of what students learn in school. School leadership follows teaching as the second most important of all school-based factors, accounting for about 25 percent of student achievement.¹ Without question, research and practice show that improving the human capital element of the education system will do far more for students who are underserved and prone to fail than changing other inputs available to policymakers.²

Yet ensuring high-quality teaching continues to be a formidable challenge in the United States. Evidence shows that teacher effectiveness is widely uneven and inequitable even when the curriculum is constant and the school well resourced.³ The impact on students is profound; unevenness in teaching results in vast disparities in student learning and outcomes across all levels of the system. While high-performing nations have figured out how to reduce the inequities in educational opportunity and attainment, these gaps are much more pronounced in the United States.

A major factor contributing to these challenges is the lack of highly skilled teachers for students and classrooms with significant learning gaps. Studies show that quality teaching outweighs students' social and economic background in accounting for differences in student achievement. In fact, a study of nine hundred school districts shows that differences in teaching effectiveness—after controlling for socioeconomic factors—almost entirely account for the large achievement gaps between African American and white students.⁴ Having an effective teacher versus a less effective one for three years in a row can alter a student's achievement by as much as 50 percentage points—an impact sufficient to distinguish between students who struggle to graduate and those who succeed in entering college or the workplace.⁵ Unfortunately, far too many students lack access to highly effective teachers. Even more disconcerting is that the chance that a student—let alone one who is disadvantaged—will be placed with a highly effective teacher for one year is about 15 percent; the likelihood of having an excellent teacher five years in a row is 1 in 17,000.⁶

Lack of access to highly effective teachers is most acute in high-need communities that serve predominantly minority and low-income students.⁷ Teachers in these communities are generally less “qualified” on just about any measure, including subject-area certification, pedagogical training, preparation program completion, pass rate on licensure exams, and experience. The problem is

exacerbated at the secondary level, where large numbers of out-of-field teachers, limited support for professional learning, and unfavorable working conditions combine with large, factory-model schools to create even more challenging learning environments for students.⁸ A nationwide study of mathematics and science education shows that students in high-minority schools have less than a 50 percent chance of being taught by a math or science teacher who holds a degree and a license in the field they teach.⁹ Other developed countries, however, do not seem to have difficulties supplying the teacher pipeline with candidates who are well prepared to teach secondary-level courses such as math, chemistry, and physics.¹⁰ Consider Japan, which has almost no out-of-field teachers, compared to the United States, where one third of secondary math teachers did not major in math or related disciplines.¹¹

Without effective teachers, policies that only decree the right number and kind of high school courses will fall short of ensuring that graduates are prepared to succeed in college or qualify for high-wage, high-opportunity jobs. Research conducted by ACT shows that only one in ten students at the eighth-grade level and one in four students at the tenth-grade level are on target for entry-level college courses in English, writing, math, and science. Moreover, in some cases, barely four in ten students who take an additional year of coursework in a particular subject area graduate ready for college and careers in that subject.¹² About 17 percent of students who completed four years of high-level mathematics courses in high school *still* need to take remedial math in college.¹³

Current measures of teaching “quality” under the federal No Child Left Behind Act (NCLB)—based largely on whether teachers are subject-matter certified—do not differentiate between how well teachers impart learning and how well they impact student achievement. Overall, state credentialing serves as a weak proxy for teacher effectiveness. Even though teachers within the same school may hold the same level of certification, teaching quality may vary greatly from classroom to classroom. Moreover, positive teacher effects build on one another and contribute to the collective capacity of the entire staff to advance student learning to high levels. If instructional practices from class to class are idiosyncratic rather than shaped collectively within schools, high school students often lurch between ineffective and effective teaching as they move through five to seven class periods per day.¹⁴

Students will be adequately prepared for college and careers only if they have teachers who (1) have the knowledge and skills to make sure courses are truly challenging, and (2) have the ability to elicit levels of student engagement and performance that are in line with postsecondary expectations. But without coherent human capital systems to develop highly skilled teachers, and the school organization to support ongoing teacher and student learning, high schools will not succeed in preparing students for college and the twenty-first-century workplace. Unlike other high-performing nations, the United States has not sustained focused investments in a stable, well-prepared teaching force. Instead, federal and state attention to investing in educators has waned since the 1980s, driven increasingly by a theory of action that leverages instructional improvements through external accountability. During this time, the nation experienced growing inequities in the resources and staffing for classrooms in areas with large minority and low-income populations, resulting in a spate of lawsuits challenging school funding.¹⁵ The practice of hiring uncredentialed, inexperienced teachers to fill classrooms in predominantly minority schools has undermined teaching as a profession.¹⁶ What remains in place are the fragmented policies and practices that have shaped teaching careers throughout the past decades.¹⁷



Transforming Teaching and Learning

As the amount of knowledge and the technological means of accessing it increase at a breathtaking pace, a high school degree must do a better job of providing students with high-level content knowledge and skills. Schools must help all young people reach levels of educational attainment once thought to be only within the reach of a very few. The “knowledge work” jobs of the twenty-first century require people to plan and organize much of their own work, manage teams, and use high levels of technical expertise. These new skills require an education that teaches students to frame their own problems, organize themselves, and persevere in complex projects rather than passively listen to lectures or fill in worksheets. These jobs demand mastery of advanced subject-area content, research, and thinking skills formerly taught only to students thought to be on track to attend the best colleges.

This increased demand for improvements in student learning has dramatic implications for teaching. Currently educators in many secondary schools lack an understanding of the types of changes needed under federal reforms and possess limited capacity to make them happen.¹⁸ Moreover, research shows that teaching has been constrained by the design of state standards and tests that reinforce twentieth-century schooling, where the teacher merely serves as a transmitter of a fixed body of knowledge and information. Teaching 2.0, in contrast, must focus not on what is taught but on what is learned, and it must draw upon advances over the last several decades in cognitive science, technology, and assessment.¹⁹

The need for new forms of schooling with a learner-centered focus further underlies the urgency to retool and enhance the systems that are used to leverage improvements in teaching and learning. While some schools and districts have launched innovative programs, they remain at the margins of a system that is still not designed to support twenty-first-century learning. In order to transform education at this most fundamental level, policy leaders and educators must focus on defining effective teaching practice in order to achieve clearly articulated learning goals. External demands for accountability are necessary, but they are insufficient to produce consistent, high-quality instruction in high schools. It is illogical to expect high school teachers, working in isolation, to set norms for student work and use the forms of pedagogy that elicit consistently high levels of student engagement and performance.

Over past decades researchers have learned more about how people develop understanding, how they reason and build structures of knowledge, and what shapes competent performance. Recently these findings on learning and cognitive development have served as the foundation for current efforts to redefine standards in several domains. The Common Core State Standards Initiative, led by the Council of Chief State School Officers and the National Governors Association Center for Best Practices, is a bold effort to define fewer, clearer, and higher content standards in English language arts and mathematics based upon this evidence.

These standards—internationally benchmarked against those from high-performing nations—define the competencies students need for college and career success and the trajectory they tend to follow as they advance in each grade toward the standard of expected performance. The standards’ design calls for new ways of teaching that are consistent with how students learn and advance toward greater competency and subject mastery. Additionally, the standards will provide teachers with clearer benchmarks to assess students’ progress and a better grasp of the pedagogical practices needed to move the learner to the next level. High-performing countries such as Australia, Canada,



and Singapore have adopted the practice of focusing on a leaner set of “big ideas” to define high-quality teaching in relation to the demands of a rigorous secondary school curriculum.

Global Perspectives: Singapore

Singapore consistently scores first or second in both mathematics and science on the Trends in International Math and Science Survey. In fact, 90 percent of Singapore’s students scored above the international average on the TIMSS tests even though less than half of the nation’s students speak English, the language of the test, at home. While this multiethnic and multilingual nation spends less per pupil than many other developed nations, most analysts conclude that the quality of its educational system rests with its substantial investment in developing teachers and leaders. It boasts one of the most coherent systems for attracting talented recruits, preparing them well, and offering ongoing development and career options for teachers to teach and lead.

Singapore recruits teachers from the top third of each cohort graduating from the school system. The Ministry of Education provides undergraduate teacher candidates a four-year, state-funded teacher education following a rigorous selection process. In addition, Singaporean policymakers ensure rigor and consistency in educator training by funding partnerships between universities and districts to provide professional learning commensurate with the expectations for student learning and performance. In addition, preparation programs are evaluated based on how well their graduates can successfully teach.¹

During the induction period, teachers receive a workload reduced to 80 percent and extensive coaching and mentoring as part of an inquiry culture among teachers. They receive extensive collegial support to develop their abilities to teach a curriculum focused on critical thinking, problem-based learning, use of technology, and collaboration. As part of the “thinking schools, learning nations” initiative, teachers receive curriculum and assessment supports to incorporate learner-centered project work and tailor instruction for individual learners. It’s noteworthy that English is the language of instruction, but under a bilingual language policy adopted in 1966 following independence from colonial rule, students receive supplementary teaching to maintain one or more of three national languages—Mandarin, Malay, or Tamil.²

Singapore uses a performance management system that guides teachers through a self-assessment and goal-setting process for improving performance and career advancement. Teachers work with colleagues to self-assess and plan professional learning that includes midyear and final external evaluations. In addition to a competitive base pay, teachers can earn bonuses of 10 to 30 percent annually based on performance and annual evaluations. Teachers also receive more than \$400 to \$700 per year to choose from an array of professional learning opportunities that allow for coursework, travel, or study. Intensive support is provided to incoming teachers who encounter difficulty, but ultimately ineffective teachers are counseled out. Any candidate who fails the program or leaves the profession before serving the requisite three to six years must repay all tuition and stipends received.

For more information on Singapore and other international best practices, see *International Perspectives on U.S. Education Policy and Practice: What Can We Learn from High-Performing Nations?*

at <http://asiasociety.org/files/learningwiththeworld.pdf>.

^a S. Sclafani and E. Lim, *The Aspen Institute, Rethinking Human Capital in Education: Singapore as a Model for Teacher Development* (Washington, DC: Aspen Institute, 2008).

^b L. Darling-Hammond, *The Flat World of Education: How America’s Commitment to Equity Will Determine Our Future* (New York: Teachers College Press, 2010).

Certainly, instituting necessary twenty-first-century teaching and learning practices through rigorous state standards serves as an important first step; yet the magnitude of the challenge presented in their implementation cannot be overstated. Achieving key learning goals requires not only a coherent learning system of standards, but also curricula, assessments, instruction, and teacher development. Additionally, schools must be organized to support teaching that flows from a shared vision of the instructional practices that advance students’ skills and disciplinary understanding.



For some educators and policymakers, transforming learning environments may run headlong into long-standing assumptions that education reform should focus much more on setting instructional goals in terms of student outcomes or achievement levels rather than in terms of what schools do to help students achieve. Studies of comprehensive school reform show that when teachers are left to invent instructional improvements on their own, patterns of instruction do not significantly change.²⁰ To bring wide-scale school-level improvements, two key strategies matter greatly: (1) the focus on content-specific instructional practices, and (2) the way that schools are organized to improve teacher effectiveness. Schools must take steps to create a culture of continuous improvement that clarifies outcomes and assists teachers in developing new ideas and strategies to improve levels of student learning. Achieving both requires high levels of teacher involvement, professional development, and collective decisionmaking.²¹

This is not to say that cultivating norms and practices for rigorous coursework dictates tightly scripted approaches. Teaching must be more about what students are able to *do* and *accomplish* and how teachers *think about* and *respond to* student learning on an individual level. To that end, high schools must be organized to provide teachers with inquiry-based learning opportunities to expand their own understanding of advanced concepts along with strategies to engage students in deeper learning. The inquiry process focuses on examining student work and data, identifying problems of practice, and determining how to accelerate and extend student learning. Competent high school teachers must know their discipline and the methods for engaging the learner in using subject knowledge to solve real-world problems. Their professional learning must attend far more to knowledge building, how students learn, the quality and depth of assigned work, and how secondary teachers and school leaders make decisions about instructional practice and individual learning needs in relation to curricular expectations. Teachers must work in a constant collaborative environment to examine and change instructional practices to help all students advance toward high levels of attainment.

For example, high school teachers will need to do much more to foster students' abilities to read technical text, subject-matter text, and digital content independently. Research shows that the complexity of what students read is a major factor in their ability to handle credit-bearing courses in college regardless of gender, racial group, or income status. Yet, since the 1960s, there has been a steady decline in the difficulty and sophistication of the content of the texts students have been asked to read.²² At the same time, literacy levels for thirteen- and seventeen-year-olds have remained stunningly low over the last thirty-seven years, leaving roughly 8.7 million students in grades four through twelve struggling with advanced reading and writing tasks.²³

To reverse this trend, the proposed English language arts Common Core State Standards require that students receive extended exposure to subject-area text as part of grade 6–12 standards for literacy in history, social studies, and science. Given this requirement, subject-area teachers will need to become more skilled in the kinds of reading and writing that are essential to their own academic content areas. Additionally, they will need help in dealing with the challenges students face in reading and writing at sophisticated levels. Currently, however, those needs are not being met; few states have integrated literacy elements into secondary-level content-area standards. Despite an extensive research base on what works to advance high-level literacy skills, many secondary school teachers receive meager training and support to help students use text structures and graphic organizers, craft oral and written arguments using evidence, and work cooperatively on inquiry-based projects.



As a result, the United States is facing a crisis in the low levels of literacy achievement among millions of middle and high school students. Young people are leaving high school without the advanced reading and writing skills required for career and college success.²⁴ According to the National Assessment for Educational Progress (NAEP), 70 percent of middle and high school students score below the “proficient” level in reading achievement, and more than 40 percent of minority students score at or below the “basic” level in reading achievement.²⁵ For more than fifty years, the realities of student reading difficulties and teachers’ lack of preparation to address them have been well documented.²⁶

Secondary-level teachers are left ill equipped in another area that is critical to educating widely diverse students to attain high achievement levels—using regular classroom assessment that measures student progress, which, in turn, informs the teacher’s instruction. There is considerable evidence that this type of formative assessment can produce substantial learning gains across grades and subject areas.²⁷ In fact, regular use of formative assessment yields gains of about 15 to 25 percentile points, or two to four grade equivalents on standardized achievement tests.²⁸ Stiggins reported even greater achievement gains for low achievers when teachers and students jointly set goals and monitor their progress. The findings are clear that specific feedback provides students with information about particular attributes of their work and helps teachers provide specific guidance on how to make improvements.

The effective use of formative assessments by teachers yields impressive results that are among the largest found for any educational intervention.²⁹ In fact, studies show that if the gains by low achievers were applied to how well students perform on international assessments, the U.S. rank would improve from the midrange of the forty-two nations tested to the top five.³⁰ Unfortunately, the practice is not widespread in secondary schools, because teachers lack an understanding of the features of high-quality formative assessment and receive little training in how to use it to improve student learning.

Traditional structures for professional learning also fall short in the training needed to build high school teachers’ capacity to work successfully with diverse student populations such as English learners and students with disabilities. Despite enormous increases in the number of English learners and students from diverse cultural backgrounds, research shows that few teachers have access to high-quality, intensive professional development; more than half (57 percent) of U.S. teachers responding to the Schools and Staffing Survey (SASS) said they had received no more than sixteen hours of professional development in the previous twelve months in their content area. More than two thirds of teachers nationally reported that they had not even had one day of training in supporting the learning of special education or limited-English-proficiency students during the previous three years.³¹

The systems for preparing and providing professional development to teachers and school leaders have been roundly criticized for years, but few changes have been made. Arthur Levine, former president of Columbia University’s Teachers College, who conducted a study of the preparation of teachers in education schools, reports, “The inescapable conclusion is that the nation’s teacher education programs are not adequately preparing their students in competencies that principals say they need and that schools of education regard as their responsibility to teach . . . The challenge facing education schools is not to do a better job at what they are already doing, but to do a fundamentally different job.”³²



The good news is that more has been learned in recent years about the features of quality preparation and professional development that increase teaching effectiveness. These include opportunities for extensive and well-supervised clinical training; collaboration between universities and school districts that increases congruence between the training experience and the first-year teaching assignment (e.g., residency programs); opportunities for team-based embedded professional learning where modeling and feedback are routinely provided (e.g., lesson study with colleagues); and use of portfolios to document and improve teacher effectiveness.³³

Nevertheless, state and district regulatory systems for teacher preparation and licensure have not incorporated many of these elements. In order to achieve large-scale improvement and attain levels of performance on par with the highest-performing nations, current policymaking must be connected more directly to effective practice. What is essential is that states and districts design human capital systems that support goals for student learning while continuously improving teachers' core practices.³⁴

Improving Working Conditions and Career Development

While recognizing the urgent need to strengthen pathways for preparing teachers, it is clear that good preparation alone is insufficient. A great deal of how well new teachers do following placement depends on the working conditions within schools. How well schools are organized to build both the individual and collective capacity to reach student achievement goals impacts teacher retention, efficacy, and advancement.

Two demographic trends are beginning to have a major impact on recruitment and retention of the teaching force: (1) the influx of the millennial generation, and (2) the departure of the baby boom generation. The millennials—born between 1980 and 1995 and now entering the education workforce—are finding the conditions in which they are teaching out of sync with the continuous learning, teamwork, online interaction, and adaptation to innovation and change in the “flat world” of other occupations. Young teachers are leaving “factory model” schools at an alarming rate; one third leave the profession within the first few years, and half leave within five years.³⁵ At the same time, the baby boomers are departing with high levels of education and decades of teaching experience. In twenty states, more than half of current teachers are over the age of fifty, and it is projected that schools will need to hire about 330,000 to 364,000 teachers a year between 2011 and 2017.³⁶

These high rates of turnover pose a major destabilizing factor for schools, especially those in high-need communities. The United States cannot recruit its way out of pending teacher shortages, particularly in high schools, where specialists in content areas such as STEM—science, technology, engineering, and mathematics—are in short supply. This challenge is particularly evident in rural schools, which enroll about 23 percent of all students in U.S. schools. The state of Georgia, which has 440 high schools, *has only eighty-eight qualified physics teachers.*³⁷

High attrition rates reflect the lack of coherent systems to build teachers' efficacy prior to hiring and following placement in a position. In too many instances, both teacher preparation and subsequent professional development have been poorly conceptualized and inconsistently delivered to enable teachers to meet the high achievement levels and the challenges of many schools.



Not surprisingly, teachers who lack adequate training and support leave at about twice the rate as those who receive complete preparation and quality induction and coaching.³⁸ Comprehensive induction provides quality mentoring, extended opportunities for peer observation and collaboration, and intensive professional development.³⁹ The costs of teacher attrition vary, but a 2004 analysis conservatively estimated that American schools spend more than \$2.6 billion annually replacing teachers who leave the profession.⁴⁰ In recent years, surveys on teachers' working conditions have pointed to a number of factors that influence teacher distribution and retention and impact student achievement, including safety, availability of resources, appropriate teaching assignments, time for collaboration, ongoing professional development, and supportive relationships with principals and school leaders.⁴¹

This last factor, leadership support, turns out to be a top reason why teachers stay in a position or leave; this is particularly true for teachers in high-minority, high-poverty schools. Major findings from surveys of teachers' working conditions show the impact of leadership on teacher retention and student learning.⁴² Effective leadership that empowers teachers and provides a supportive school environment can reduce teacher attrition. In addition, after controlling for student and school characteristics, correlations between teachers' survey responses and school performance measures indicated that schools where teachers agreed that these critical working conditions were in place were more likely to receive a top designation on the state's student performance measure and make Adequate Yearly Progress (AYP).⁴³

Based on these correlational analyses, increases in teacher ratings of school leadership predicted substantial increases in school performance measures. In fact, leadership was the single greatest predictor of AYP status under NCLB at the middle school level and was more closely tied to student achievement than other factors such as school size. For every one-point increase in teachers' ratings of leadership, middle schools were 6.7 times more likely to achieve AYP. At the high school level, leadership served as the single greatest predictor of whether or not high schools had high student achievement. High schools were forty-eight times more likely to be included in one of the top three performance designations for every one-point increase in how teachers rated the area of leadership on the working conditions survey.⁴⁴

The Link Between Teacher Effectiveness and Teacher Expectations

Key findings of the national 2009 MetLife survey of K–12 teachers, principals, and students point to significant gaps in teachers' and students' perceptions about academic success, particularly in secondary schools and those serving low-income students. While nearly nine in ten teachers (86 percent) and principals (89 percent) believed that setting high expectations for all students would have a major impact on improving student achievement, only 36 percent of teachers and 51 percent of principals believed that all of their students have the ability to succeed academically. On average, teachers expected that 50 percent of their students will attend a two- or four-year college, and principals expected 57 percent of their students to attend.

The expectations gap between principals and teachers and the students they educate has enormous implications for efforts to strengthen high school education to ensure that all students are college and career ready. While teachers, schools, families, and society largely agreed on the values of high standards and expectations for all students, 43 percent of teachers reported that their classes have become so mixed in terms of students' learning abilities that they cannot teach effectively.⁴⁵ Teachers' judgments regarding their self-efficacy in advancing student learning influences the



degree to which they believe students can achieve. The MetLife survey also captured students' perceptions of teachers' attitudes toward the likelihood of their success. Whereas eight in ten students planned to attend a two- or four-year college after high school, only about half of the students were very confident that they will achieve their future goals. Even more disconcerting is that only slightly more than half of the students strongly agreed that all of the teachers in their school wanted them to succeed.

Previous reform efforts indicate that states and districts must find ways to increase teachers' capacity to meet the technical challenges of instructing students of widely varying levels of past performance—a task for which few secondary school teachers are prepared.⁴⁶ Yet increasing teaching capacity requires cultivating joint responsibility among school staff for each student's achievement. Increasingly collaboration is seen as the key to reducing teachers' isolation, improving their effectiveness, and establishing a culture of shared responsibility for learning. The MetLife survey data indicated that teachers and principals share a belief in the relationship between student success and collaborative school environments. Nine in ten teachers concur that other teachers contribute to their success in the classroom. At the same time, collaborative practice varies widely, particularly in secondary schools.

Only intensive, ongoing professional development, mentoring, and classroom support to improve standards of practice will counter high school teachers' tendency to have lower expectations in high-poverty, high-minority schools. The likelihood that teachers will sustain high expectations is increased when they have opportunities to collaborate extensively with their colleagues on how to make content accessible to a wide range of learners.⁴⁷ More attention needs to be focused on how to create a schoolwide culture of professional learning in which teachers and their colleagues collaborate to create means for engaging students more deeply in rigorous content and differentiating instruction for individual students. In this manner, greater effectiveness resulting from collaboration now reinforces higher expectations for all participating teachers.

Strengthening the Teacher Human Capital System

In the past year and a half, the policy issues related to increasing the effectiveness of teachers and school leaders have gained extensive attention and have emerged as a critical issue for congressional reauthorization of the Elementary and Secondary Education Act (ESEA). Often responding to pressure to compete for Race to the Top funds, state and districts are beginning to reshape teacher and principal policies. Nevertheless, many of these efforts continue to be piecemeal and fragmented, resulting in a patchwork of rules and regulations that often undercut quality control and limit access to available knowledge about teaching and learning.⁴⁸

Policy leaders have begun to recognize that most schools and teachers cannot produce the kind of learning required by the demand for improved student outcomes—not because they do not want to, but because they have neither the knowledge nor the systems to support their efforts.⁴⁹ The weaknesses inherent in current preparation, certification, and advancement policies and their limitations in promoting teacher effectiveness and student achievement have been well documented.⁵⁰ Yet, to date, a great deal of the policy debate on teacher effectiveness has centered on the use of student test scores for determining whether teachers receive merit pay or are fired. These strategies alone will not lift the performance of the 3.5 million teachers in the public education workforce at scale.⁵¹



It is essential to broaden the current discussion on evaluation systems beyond simply focusing on methodologies that identify “good” and “bad” teachers for purposes of reward or dismissal. A modern “value-added” methodology incorporates complex statistical techniques to determine the contribution of teachers, schools, or educational programs to measures of student achievement. Measurement experts voice support for developing different value-added models to evaluate the effects of teachers and schools taking into account where students begin. At the same time, experts recommend using at least three years of test results to generate reliable estimates of teacher effects since ratings year to year tend to be unstable.⁵²

Value-added measures are further constrained at the high school level because in most high schools students are assessed only once in core subjects. Over the course of a year, multiple teachers have an impact on students’ achievement in numerous subject areas. Furthermore, student-level data is not directly linked to teachers of such subjects as social studies, foreign languages, and the arts. A number of the shortcomings of value-added methodology may be addressed in the design of new high school assessments. Curriculum-specific tests should capture important higher-order skills and disciplinary learning and yield growth measures in student learning. Most researchers recommend using measures of student learning over time along with performance assessments to determine teacher effectiveness and identify the quality of traditional and nontraditional teacher education and professional development programs.

In order to prepare educators for the kinds of challenges schools now confront, the United States must establish a coherent system for recruiting, preparing, and retaining teachers on par with approaches used by the highest-performing nations. First, policymakers must make sure that the many pieces of reform are carefully integrated to produce maximum improvements in teacher development and effectiveness.

To achieve a vision for teaching and learning that results in every high school student graduating ready for college and careers, policymakers must address the following questions:

- How can education be transformed and teaching capacity increased to deliver on the promise of next-generation standards and assessments?
- What conditions are needed in high schools to produce powerful teaching that results in greatly improved outcomes for all students?
- How can equitable levels of quality teaching in all secondary schools be ensured, particularly those serving the most challenged populations?

Second, federal, state, and district policies must work in tandem to shape a human capital system that cements the connections between regulatory policies and effective teaching through the design of a performance-based system. New methods are needed to evaluate, develop, and recognize teacher effectiveness using multiple measures of teaching practice. Policymakers and education leaders will need to determine the performance indicators and measures that can reliably assess the expected level of competencies for teachers. Robust performance assessments, for example, can serve as the connective tissue among pre-service curriculum and clinical training and district-based entry-level and mentoring programs for new teachers. These measures focus on subject-specific pedagogical knowledge linked to successful teaching and include a number of elements such as direct observations, analyses of lesson plans and student work, and teachers’ analyses of practice.



Career advancement and professional licensure should be based on evidence of effective teaching using measures of practice along with growth in student learning. It is essential for states and districts to develop policies on teacher preparation, licensure, professional development, and evaluation based upon the core practices needed for twenty-first-century teaching and learning. This is an extremely complex process that requires education leaders to work with broad coalitions to (1) understand more deeply what the essential practices for teachers are, and (2) design performance-based systems that will build educator capacity in accordance with those practices.

Third, states and districts must commit to addressing the long-standing problems with their systems for delivering professional learning and credentialing educators. Programs for preparing educators, for example, continue to be driven by what providers want to offer—not by what schools or staff need—and licensure remains poorly connected to how well educators impact student achievement and school performance within specific school contexts. Policymakers must (1) address the disparities in the quality of pre-service education, new teacher induction, and career-long professional development; (2) shape policies based on a consistent vision of good teaching; and (3) frame mechanisms for continuous feedback and improvement at all levels—individual, school, district, provider, and state.

Federal Recommendations

The pending reauthorization of the federal Elementary and Secondary Education Act, currently known as No Child Left Behind, offers an opportunity to address the fundamental misalignment between the current framework for public education in this country and the nation’s educational goals for ensuring that all graduates are prepared for college and careers. Robust implementation of state-led efforts to develop common core standards and assessments will depend upon states and districts crafting integrated systems for defining and developing teacher effectiveness. These policies must take into account capacity building for educators, and, to that end, solutions cannot be brief or superficial, but must address widespread inconsistencies in what students are expected to achieve and the knowledge and competencies teachers must bring to bear to ensure their success.⁵³

Key policies to support educator development include:

- **Support the state-led adoption and thoughtful implementation of common standards and aligned assessments toward advancing college and career readiness.**

State policies to strengthen educator development must be anchored in an integrated system of rigorous standards, comprehensive assessments, and instruction. Tests for accountability purposes should measure the breadth of standards for college and career readiness and authorize the inclusion of curriculum-based assessments that provide frequent feedback on secondary students’ demonstrated knowledge and skills. High school teachers and school leaders should collaborate on designing and assessing classroom work to instill a clear sense of consistent school-wide performance expectations. They will need ongoing professional development on how to effectively use formative assessments to track students’ knowledge and skills, how to interpret performance measures, and how to identify instructional improvements based on the results. Providing teachers and school leaders with the knowledge and skills to track students’ progress toward these learning goals and adjust instruction in response is essential in order to leverage consistent improvements in the quality of instruction and student learning.



Through legislation providing incentives and regulatory guidance, the federal government should encourage the adoption of common core standards and the implementation of a comprehensive assessment system that incorporate measures of classroom work as well as end-of-course or end-of-year assessments. In consultation with states, the federal government could support states and school districts in providing curricular and assessment tools and intensive, ongoing professional learning that clarify the connections between instructional processes and the performances students are expected to demonstrate.

- **Encourage states working with practitioners to create standards of practice that define quality teaching based on what teachers need to know and be able to do to elicit targeted student performances embodied in common standards and assessments.**

Standards of practice—common to other professions such as medicine and law—are needed to ensure a shared vision of teaching and learning that advances students along the pathway toward expertise in a subject area. Policies to support educator development must ensure curricular coherence and professional learning consistent with these expected progressions of learning and the corresponding pedagogical practices that support such learning.

The research on thinking and learning indicates that teachers need deep content expertise along with knowledge of development and learning. Teachers must understand how students’ learning develops within a subject area, the nature of gaps in students’ understanding that may arise, and the strategies for addressing students’ evolving needs. At the same time, there are numerous ways to teach skills, and research is mixed on what approaches are best with which students. Thus teachers not only need to be able to reflect on their instruction with others, they also need to construct classroom assessments to determine how much students know and can do as well as where they might be struggling and why—and modify instruction based on student responses.

The federal government could encourage states to create standards of practice as central to designing evaluation systems as part of the Race to the Top grant program. State standards can set a vision for quality teaching that informs all aspects of teacher development—coursework and clinical components of preparation, licensing practices, evaluation systems, induction, and ongoing professional development.

The federal government could support a research agenda to promote better understanding of knowledge about learning progressions and corresponding pedagogical approaches to improving student mastery of content and skills. The Institute for Education Sciences could conduct studies on developing learning progressions in core subjects, identifying evidence-based instructional strategies, and evaluating approaches for improving teaching effectiveness.

- **Support the development of robust teacher performance assessments that incorporate observational measures of teaching for the purpose of evaluating, developing, and recognizing teacher effectiveness and informing professional preparation and development.**

Traditional licensure exams have come under attack for their lack of authenticity and ability to predict effective teaching. On the other hand, research has shown that rigorous, validated, standards-based performance measures can be a powerful tool for capturing how teaching is enacted in a complex context and for providing feedback for continuous improvement. Highly



structured systems such as California’s Performance Assessment for California Teachers and Connecticut’s Beginning Educator Support and Training, modeled after the National Board for Professional Teaching Standards, have demonstrated impact on K–12 learning.⁵⁴ These measures focus on subject-specific pedagogical knowledge linked to successful teaching and incorporate multiple elements such as lesson or unit plans, direct observations and videotapes, case studies of individual students, analyses of student work, and teachers’ analyses of practice. The measures zero in on how teachers align learning goals, assessment, and instruction. They describe how teachers reflect on the success of practice and make modifications over time in response to students’ learning. As part of a career-ladder system, performance measures can inform ongoing professional development, mentoring, and classroom support to help teachers meet standards for practice.

Federal grant making and regulation could support the development of teacher performance assessments that serve as a key component of evaluation systems along with the use of growth measures for student achievement. For example, Teacher Quality Enhancement initiatives under Title II of the Higher Education Act stipulate state-developed assessments to hold teacher candidates and preparation programs accountable for meeting performance standards. Grant programs could include an evaluation of performance assessments to determine how they are being implemented, what impact they are having on teaching practices, and what changes, if any, might be warranted.

- **Direct states and districts to develop coherent, performance-based human capital systems based on core practices that address career-long professional growth and advancement.**

States can shape consistent high-quality practice by using performance measures that provide multiple sources of data for formative and auditing purposes. Performance measures can serve a number of policy purposes to strengthen the quality of preparation and credentialing programs, induction systems, professional learning and licensure, and compensation and advancement. Educator development policies that ignore using a fuller, fairer sense of teachers’ performance will, in effect, serve to trivialize and undermine teaching as a profession.

Performance systems must operate in tandem with well-conceptualized, high-quality professional learning throughout the career continuum. Professional learning and continuing education should focus not solely on the accumulation of course credits but also on developing skilled practice by providing teachers with more coherence in the feedback and supervision they receive. In addition, support and training should address the urgent need to conceptualize teaching differently, shape differentiated roles for teachers and school leaders, and create novel team-based approaches to organizing learning environments. A coherent performance-based system includes the following elements:

- Traditional and alternate pathways for preparation should be based on standards and incorporate purposeful recruitment and selection of candidates, challenging curriculum, strong oversight and supervision of extended clinical experiences in a high school context, collaborative partnerships between preparation programs and districts, a required final project, and use of performance measures to determine program completion and entry-level licensure.



- Induction programs for new high school teachers following entry-level licensure should extend for a minimum of two years. Successful completion of a high-quality induction program that provides embedded coaching and feedback by well-trained mentors should be a requirement for professional licensure. In order to provide more continuity across settings, pre-service programs and districts should co-design and deliver intensive internship and residency programs, particularly in challenged secondary schools.
- Professional learning and teacher and school leader evaluations, including performance assessments and growth measures of student learning, should be well integrated to improve educator effectiveness from entry to advanced status and to inform decisions regarding staffing, advancement, and compensation.
- Tiered licensure for career advancement can offer differentiated roles and responsibilities based upon evidence of increased competency and effectiveness. Many states have implemented two- to three-tier licensure systems for teachers and school leaders. Evidence of performance strengthens district-level educator development by requiring practicing educators to provide assurances that they have demonstrated the skills and behaviors to improve classroom practices and student learning.

Through Title II of ESEA and Title II of the Higher Education Act, the federal government could support and direct states to strengthen teacher education in partnership with states and high-need school districts. Federal action is needed to fund comprehensive initiatives that support partnerships among states, higher education, and high-need districts in creating model teacher and leader preparation programs; organizing professional education around clinical practice; enhancing induction, mentoring, and professional development; and strengthening accountability provisions for candidates and programs. Federal action could encourage states to examine current methods of state program approval to determine their impact on teacher preparation and effectiveness. Where state accountability methods prove ineffective in improving program quality, federal regulation could direct states to intervene to modify or close programs.

- **Build and use longitudinal data systems to track teacher and student growth data and link teacher and student performance with programs responsible for preparing and providing professional development.**

States must accelerate efforts to build statewide longitudinal data systems to answer critical questions regarding how to increase the supply and improve the distribution of effective teachers and school leaders in high schools. Educators and policymakers should work with researchers to define and measure effective educational practice and identify the relevant data that reliably links student outcomes, educator evaluations, and programs of study.

In order to increase the supply of effective high school teachers, states and districts need data to assess personnel assignment and the impact of preparation programs and professional development. Louisiana, for example, uses value-added methods to assess the effects of preparation pathways by examining the educational outcomes of students taught by individual teachers. Findings that showed some pre-service programs were weaker in training teachers in a particular content area led to programmatic reviews to identify areas for improvement.⁵⁵



Data systems that can link student outcomes to preparation pathways and characteristics of programs can provide policymakers and educators with reliable, valid, and relevant information to use in improving the educator workforce and student outcomes. But only twenty-one states are able to link teacher and student data.⁵⁶ Without this capacity, states cannot provide reliable data to distill the features that can strengthen preparation, professional development, and licensure requirements.

Through regulation and grant making, the federal government should direct and support state efforts to build statewide longitudinal data systems and to increase and equitably distribute effective educators. States will incur extensive costs to design, maintain, and refine data systems. The federal government could support research and development of growth measures for student achievement and value-added models as well as offset operational costs. No state has implemented policies on professional development and credentialing to ensure that educators know how to access, analyze, and use data appropriately.⁵⁷ The federal government could direct states to include plans for developing educators' capacity to use data for professional development under Title II of ESEA.

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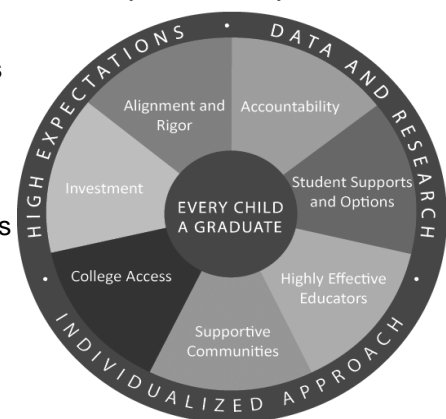
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The mission of the Alliance for Excellent Education is to promote high school transformation to make it possible for every child to graduate prepared for postsecondary learning and success in life.

The Alliance for Excellent Education is a national policy and advocacy organization, based in Washington, DC, working to improve national and federal policy so that all students can achieve at high academic levels and graduate high school ready for success in college, work, and citizenship in the twenty-first century.

The Alliance has developed a “Framework for Action to Improve Secondary Schools” that informs a set of federal policy recommendations based on the growing consensus of researchers, practitioners, and advocates about the challenges and solutions for improving secondary student learning.

The framework, shown graphically here, encompasses seven policy areas that represent key leverage points in ensuring a comprehensive, systematic approach to improving secondary education. The framework also captures three guiding principles that apply to all of the policy areas. Although the appropriate federal role varies from one issue area to another, they are all critically important to reducing dropouts and increasing college and career readiness.



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