Race to the Top

ACCELERATING COLLEGE AND CAREER READINESS IN STATES

Achieve

Teacher Effectiveness

To make dramatic improvements in <u>all</u> students' preparation for college and careers, states need thoughtful, intentional human capital strategies that get the right teachers in the right places in the right subjects. The need is especially acute in states that have or plan to adopt college- and career-ready academic standards and graduation requirements: they will need highly effective teachers – particularly in upper-level mathematics and science courses – capable of teaching rigorous content to all students.

State policymakers are well aware that the quality of teaching is the most critical school-based factor contributing to student learning, especially for low-income and minority students.[1] The Race to the Top criteria accordingly encourage states to adopt policies to measure the effectiveness of individual teachers and leaders use those measures to inform a range of human capital systems and decisions, ensure an equitable distribution of effective teachers and leaders, and provide high-quality support for educators and principals (see Table 1). If enacted, all of these policies could help a state advance its college and career readiness agenda, since that agenda will require higher and higher levels of teaching quality in order to succeed. But meeting these criteria presents special challenges in the college and career readiness context, especially when it comes to identifying, developing and deploying effective teachers at the high school level. The challenge is particularly great in high school mathematics and science, where research suggests that subject matter expertise is vital for effective teaching.[2]

The following two sections focus on those special challenges. The first explores what states need to consider in meeting the Race to the Top's teacher effectiveness criteria at the high school level if they are committed to a college- and career-ready agenda. The second asks how states can go beyond RTTT to provide effective instruction in rigorous content to *all* students, regardless of where they go to school. While the Race to the Top criteria also encourage states to focus on improving leadership, the focus here is on high school teachers because of the specific issues teacher effectiveness poses for the college- and career-ready agenda.

Meeting the Race to the Top Challenge: Effective High School Teachers

Measuring Effectiveness. A central tenet of the Race to the Top criteria is that states need viable approaches to measure the effectiveness of teachers, provide an effectiveness rating to each individual teacher, and use those ratings to inform professional development, compensation, promotion, tenure, and dismissal. A state's measure must include multiple inputs, but must include "student growth." Even without Race to the Top criteria, experts and education leaders have increasingly come to see current teacher evaluation methods as inadequate, largely because they fail to differentiate between teachers with varying levels of effectiveness.[3]

Utilizing data about student growth as part of teacher performance measurement presents technical and political challenges even at the elementary and middle school levels, where states increasingly have

This guide is one of a series of papers Achieve has prepared to help states maximize the opportunities presented through the Race to the Top Fund (RTTT). In accompanying papers, Achieve addresses recommendations for leveraging high-quality standards and assessments, strengthening P-20 longitudinal data systems, and turning around low performing schools. Taken together, these papers offer advice to help state leaders develop comprehensive RTTT reform strategies firmly anchored in the goal of college and career readiness for all students. The full set of RTTT papers is available at http://www.achieve.org/RacetotheTop.

assessment and data systems that enable year-to-year tracking of individual student progress.[4] At the high school level, the challenges are more daunting because, by and large, state assessment systems do not enable this kind of longitudinal tracking of individual student progress from one year to the next. Many states assess high school student mastery through a single cumulative assessment or through a series of end-of-course exams where there is not a clear progression of content from course to course (such as end-of-course exams in Biology and Chemistry). While these assessments may provide valuable information about student achievement, the structure and sequence of states' high school assessment systems may prohibit or make it more challenging to obtain meaningful growth measures.[5]

As states consider how to meet this RTTT criterion at the high school level, they have several options, each of which presents significant but not insurmountable challenges to states. These options include:

- ***Building student-level growth measurement into revised high school assessment systems.*** Many states will be revising their high school assessment systems as they advance the college- and career-ready agenda and/or compete in the Race to the Top. As they do so, states can design their new systems to measure high school students' progress toward college- and career standards from year to year. The challenge will be to create a system of assessments with the right sequence and relationship. States pursuing this option would need to design assessments aligned to college- and career-ready end-of-high-school standards, and then design a sequence of assessments taken earlier in high school that share sufficiently related content with the end-of-high-school tests (e.g. end-of-course assessments in Algebra I and Algebra II or English II and English III). School systems would need to report growth results using a metric that allows for meaningful and straightforward interpretations of student progress over time, which could include approaches using common scales, value tables, or growth percentiles.[6] It is also important to note that this option does limit the proportion of teachers within a high school for whom measures of effectiveness could be calculated, since it may not be possible for states to develop an appropriate sequence of related assessments for teachers of all content areas.

- ***Introducing pre-tests or interim assessments aligned to college- and career-ready standards.*** States with end-of-course or end-of-grade assessments could design beginning-of-the-year pre-tests to assess students' incoming knowledge, and then generate individual growth scores by comparing pre- and post-test results. This might seem like an additional burden, but in fact pre-assessment of individual students is likely essential for excellent teaching. States should also consider using interim assessments aligned to college- and career-ready standards and assessments as a method for evaluating individual students' growth towards standards throughout the year.[7] Such approaches may allow states to develop measures of teacher effectiveness for content areas in which year-to-year growth measures are not feasible.

Race to the Top also asks states to include measures other than student growth in ratings of teacher effectiveness. These methods (such as structured observations of teachers, expert review of portfolios of teachers' lesson plans and other materials, and assessments of teacher competencies, knowledge and skills) present fewer problems of applicability at the high school level. They also have the advantage of illuminating not just how effective a teacher has been, but also the ways in which a teacher may need to improve in order to be more effective.[8] However, these approaches also face different challenges, including how "reliable" they are (e.g., different observers of teachers may give different ratings).

Table 1: Race to the Top Draft Criteria – Effective Teachers and Leaders	
State Reform Conditions Criteria *A state's **past progress** in creating conditions for reform*	• Provide alternative pathways into K-12 schools for teachers and principals (particularly routes in addition to institutions of higher education)
Reform Plan Criteria *A state's **plans for future efforts** to advance reform*	• Differentiate teacher and principal effectiveness using multiple rating categories that take into account student growth • Use this information when making decisions regarding evaluation, development, compensation, promotion, tenure and dismissal • Ensure an equitable distribution of effective teachers and principals in high-poverty schools and hard-to-staff subjects • Report the effectiveness of teacher and principal preparation programs (based on the achievement of students taught by their graduates) • Provide effective support to teachers and principals
The criteria above reflect the *draft* guidance issued by the U.S. Department of Education in July 2009. As of September 2009, the Department had collected public comments on the draft but had not yet released final guidance. Final guidance will be available at: http://www.ed.gov/recovery.	

Mapping. To get the right teachers into the right places in the right subjects, states need a clear picture of the gaps they need to fill. The Race to the Top's premium on improving the distribution of teaching quality to high-poverty schools and hard-to-staff subjects heightens this imperative. The only way to gain this picture is by carefully mapping the quality of teachers currently employed in the state's high schools versus what is needed to meet ambitious college and career readiness goals. Ideally, this mapping would be based on measures of teaching effectiveness rather than on the paper qualifications of teachers, which research suggest are weakly correlated or not correlated with student outcomes.[9] Since states typically lack real effectiveness measures at the high school level, however, they will have to rely in the short term on the best available proxies which, in secondary schools, are measures of content knowledge such as teachers' scores on content assessments and teachers' college and graduate school course-taking in the content area(s) they are teaching.

A "map" implies a static picture at a point in time, but states should strive to obtain a dynamic view of the teacher quality distribution. It is important to understand the flows of effective teachers in and out of schools, districts, and the state itself: What kinds of schools are gaining or losing effective teachers over time?

Mapping teacher effectiveness would require most states to enhance significantly their data systems. A necessary element is a system of teacher identifiers that enables the state to follow teachers as they move from school to school and reliably link them to the results of the students they are teaching.[10] Instituting such a system would also likely require a state to change the reporting it asks districts and schools to do regarding their teacher workforce, to ensure that full data about each teacher's background and current status are part of the system. In some states, leading districts may already have outpaced the state in developing teacher data systems. In such cases, states have an opportunity to partner with those districts to extend their cutting-edge approaches.

Policy Redesign. The Race to the Top criteria demand that states not only measure teacher effectiveness, but also that they utilize information about effectiveness across the whole "value chain" of teacher policy and practices. While analyzing each element of this value chain is beyond the scope of this brief, the discussion below probes some considerations particularly relevant to states pursuing a college- and career-ready agenda:

- ***Preparation.*** RTTT asks states to rate the quality of their teacher preparation programs based on the effectiveness of the teachers that graduate from the programs. Given the above-noted difficulties of measuring high school teacher effectiveness, there is a real risk that preparation program ratings will be based exclusively on elementary and middle school results. Yet, states need to strengthen their preparation programs at the high school level in particular in order to meet the demands of college and career readiness. Even if high school teacher effectiveness measures are under development for the future, states need to find shorter-term ways of rating high school teacher preparation as well, such as audits of the rigor of subject matter training with reference to college- and career-ready content standards and measures of teacher content knowledge. Louisiana, for example, is widely regarded as a leader in using the learning results of K-12 students taught by different teachers to rate the effectiveness of teacher preparation programs.[11]

- ***Recruitment, hiring, and placement.*** RTTT's equity demands are two-fold, pressing for effective teachers to be placed both at high-poverty schools and in hard-to-staff subjects. Both are priorities for the college and career readiness agenda as well. High-poverty schools face the biggest challenges in meeting new standards; and the higher-level demands of new standards and graduation course requirements, particularly in mathematics and science, make these subjects even harder to staff than previously. At the same time, new, more challenging standards also present a recruitment opportunity, a chance to appeal through vigorous recruitment to achievement-oriented mathematics and science college graduates who may find the more ambitious expectations attractive. States can launch their own recruitment plans or partner with organizations such as The New Teacher Project to reach these new candidates. Still, in light of these graduates' higher-paying career alternatives, it is difficult to imagine states' greatly improving their ability to fill hard-to-staff slots without substantial changes in the compensation and career advancement opportunities offered to teachers who take these assignments and then perform at high levels – topics discussed below.[12] In addition, standard teacher certification processes present a barrier to enticing non-education graduates or mid-career professionals with, for example, mathematics and science backgrounds. RTTT encourages states to adopt policies that offer alternative routes into teaching for these people. Examples of programs currently designed to enhance these vital pipelines include The New Teacher Project's many teaching fellow programs, the University of Texas at Austin's UTeach initiative, and efforts by large companies such as Intel and IBM to encourage employees with technical expertise to become teachers.[13]

- ***Performance measurement, feedback, and professional development.*** Recent research from The New Teacher Project has vividly confirmed that most teacher evaluation systems currently do little to differentiate teachers who are performing at different levels.[14] Further, even as states move toward rating teachers based on the growth achieved by their students, annual test score data does not tell teachers what about their *teaching* produced good results, or failed to produce them. As a result, even emerging systems cannot provide meaningful feedback to teachers or serve as a basis for the selection of professional development (PD) designed to address each teacher's specific challenges. As the college and career readiness agenda demands more from teachers, it becomes even more pressing to provide teachers with clear indications of the quality of their teaching – and the path to improvement. Even currently effective teachers may need to retool their approaches in order to teach effectively to students who, prior to the push for college and career readiness for all, may not have taken advanced coursework. As noted above, supplementing student-growth based measures of effectiveness with valid, reliable assessments of their *practice* is therefore an important component of evaluation, feedback, and PD systems. In addition to devising better systems to assess teachers' needs, states also need to consider how to make high-quality, responsive PD available to teachers. Districts such as the District of Columbia Public Schools and states such as New Mexico have embarked on substantial

teacher performance measurement reform, with many other jurisdictions in the process of developing new approaches.

- ***Compensation and promotion opportunities.*** Retooling teacher compensation and career advancement take on more pressing importance under a college- and career-ready agenda. Particularly in the advanced levels of subjects such as science and mathematics, prospective and current teachers typically have a plethora of other employment opportunities that offer higher pay than teaching. Yet almost all teacher salary schedules reward teachers only for accumulating additional years of experience or advanced degrees of any kind (not just in high-demand subjects), neither of which appear to contribute very much to teachers' effectiveness.[15] In a college- and career-ready reform context, school systems should work to shift compensation dollars away from steps and lanes and instead provide the most significant rewards to teachers who take on on positions in hard-to-staff schools or subjects *and* succeed with students in those jobs.[16] Research suggests that in addition to higher pay opportunities, the chance to advance within a career is also a missing piece in the teaching profession that makes high-performers seek other careers.[17] Extending the reach of the best teachers to more students is one potential way to offer top teachers further achievement opportunity and enhanced pay from existing per-pupil funding streams (see further discussion in *Going Above and Beyond*, below).[18] Examples of district and state efforts that have increased rewards for teachers who select high-need schools and succeed with students there include the many high-need schools that have implemented the TAP teacher compensation and development model; Chattanooga, Tennessee's "Benwood Initiative" in low-performing schools; and Minnesota's Q-Comp initiative, which provides funding for districts to change their compensation systems.[19] Notably, many of these efforts to revise compensation system are collectively bargained, with the districts and local union working together to design the new systems.
- ***Tenure and dismissal*.** Finally, RTTT incents states to rethink teacher tenure and dismissal, changes in policy and practice that research suggests could have a positive impact on student performance.[20] Making these changes would require substantial alterations to policies in most places, at both the state level and in district policies and collective bargaining agreements.[21] Some large districts have taken the lead on forging new policies in this arena. Chicago, for example, has stopped the practice of assigning displaced teachers who are not offered jobs by principals to schools. New York City has substantially increased the support provided to principals in the process of considering tenure decisions and teacher renewals.

Going Above and Beyond the Race to the Top

States engaging in the kind of mapping described above will likely find large gaps between the need for teachers who can equip students for college and career readiness and the presence of those teachers in schools, with the gaps concentrated in places with high concentrations of students in poverty. The strategies enumerated above would help a state close these gaps over time. It is unlikely, however, that they would eliminate them entirely. This is especially true if states are raising standards for students and, therefore, for teachers.

States can arguably meet the RTTT criteria by "doing the best they can" to close those gaps. But states can go beyond the RTTT's demands by aggressively seeking out ways to provide high-quality instruction to all of their students – *even if they are unsuccessful at recruiting and retaining a high-quality teacher for every classroom*.

Central to meeting that ambitious goal is finding ways to *extend the reach* of the best teachers, so that more students benefit from their excellent instruction.[22] Reach extension can happen within a school or across a group of schools. For example, the best physics or mathematics teacher could videotape her lectures and then spend *all* of her work time giving customized feedback and help, in person or online, to far more students than she could teach in a traditional classroom. Another example is having one top-notch teacher lead two or three classrooms, setting the standard for instructional methods and overseeing implementation through other teachers he supervises in order to reach more students. Reach extension does not need to stop within schools or districts. With broadband internet access now nearly universal in public schools, the opportunity to "pipe in" effective instruction to schools is growing rapidly. And a growing array of software platforms will increasingly be able to offer students high-quality, individualized instruction online.[23] Note that many forms of reach extension can be funded through existing per-pupil funding streams from the additional children served per excellent teacher.

Moving more instruction into technology platforms holds the promise of other potential improvements in educational delivery in addition to extending the reach of the best teachers. Technology platforms will also enable all teachers to:

- ***More easily access high-quality curricula aligned to the common, college- and career-ready, internationally-benchmarked standards***. Teachers will increasingly be easily able to go online and find a myriad of resources linked to the specific standards they are teaching, with high-quality resources "rising to the top" because they are downloaded and cited often and rated highly by other teachers. This includes a growing repository of open education resources – online open source instructional materials that can be modified and customized by end users.
- ***Collaborate with and learn from one another across geographic boundaries***. The web will enable teachers to find excellent lesson plans created by others, view videos of top-notch delivery, and tap the wisdom of other teachers in meeting their toughest challenges via online discussion boards and blogs, and via direct communication with other teachers.
- ***Use online and software-based tools*** to assess students regularly, diagnose learning challenges, and select the best responses to the barriers students face.
- ***Benefit from the trove of data that will be generated if more instruction happens online***. The more students receive instruction and do their work online, the more possible it will be to capture data from their experiences about the most effective ways to convey content, motivate students, and address students' challenges.[24]

States are in a strong position to play several roles in this process:

(1) ***Committing to reaching increasing portions of students with top-quintile instructors and instruction*** through various reach extension methods (both in-person and remotely with technology);
(2) ***Accelerating progress*** by creating demand for outstanding remote instruction where it can help most (e.g., by requiring or encouraging districts to offer it if they cannot fill teaching slots with effective instructors, and by requiring that remotely offered instruction meet a top-tier learning progress standard);
(3) ***Reducing state-level policy barriers*** to the use of these mechanisms (e.g., rigid seat-time requirements, upper-grade class size maximums, teacher certification requirements that would block high-quality out-of-state instructors from teaching remotely); and,

(4) ***Directing the benefits to students who need them the most*** by providing funding or other inducements for hard-to-staff schools in particular to make use of the emerging opportunities. Otherwise, the benefits of new technologies will tend to flow more naturally to advantaged schools and students first.

By seizing these new opportunities, states can greatly increase the number of students experiencing instruction that leaves them prepared for college and careers.

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ENDNOTES

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[4] For a discussion of some of the challenges of measuring teachers' "value-added," see Henry I. Braun, *Using Student Progress to Evaluate Teachers: A Primer on Value-Added Models* (Princeton, NJ: Educational Testing Service, 2005).

[5] Unpublished discussion paper for Achieve by Brian Gong and Chris Domaleski, National Center for Assessment, February 2009.

[6] Personal communication between Achieve and the National Center for Assessment, August 2009.

[7] For more information, please refer to Achieve's accompanying brief *Race to the Top: Accelerating College and Career Readiness in States – Standards and Assessments; a*lso see*: Achieve, Transforming Statewide High School Assessment Systems: A Guide for State Policymakers* (Washington, DC: 2008).

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[9] Dan Goldhaber, "The Mystery of Good Teaching," *Education Next* 2, 1 (2002), 50-55.

[10] See the Data Quality Campaign's "Element 5": http://www.dataqualitycampaign.org/survey/elements.

[11] See the Louisiana Board of Regents website: http://www.regents.louisiana.gov/Academic/TE/Value%20Added.htm.

[12] Julie Kowal et al., *Financial Incentives for Hard to Staff Positions: Cross-Sector Lessons for Public Education* (Center for American Progress, 2008).

[13] On The New Teacher Project, see http://www.tntp.org/services/teacher_recruitment.html. On UTeach, see: http://uteach.utexas.edu/. On IBM's Transition to Teaching program see: http://www.ibm.com/ibm/ibmgives/news/transition_to_teaching.shtml.

[14] The New Teacher Project, *The Widget Effect*.

[15] National Council on Teacher Quality, *Increasing the Odds;* Goldhaber, "The Mystery of Good Teaching."

[16] For research on design of hard-to-staff pay incentives see the National Governors Association's *Improving Teaching through Pay for Contribution* by Emily A. Hassel and Bryan C. Hassel (Washington, DC: NGA, 2007).

[17] HayGroup, *Bridging the Pay-for-Performance Gap: Establishing Truly Differentiated Rewards* (Philadelphia, PA: Author, 2004).

[18] Public Impact, *3X for All: Extending the Reach of Education's Best* (A forthcoming paper sponsored by The Charles and Helen Schwab Foundation, 2009).

[19] On TAP, see http://www.tapsystem.org; on Chattanooga's Benwood Initiative, see Elena Silva, *The Benwood Plan: A Lesson in Comprehensive Teacher Reform* (Washington, DC: Education Sector, 2008); on Minnesota's Q-Comp, see http://education.mn.state.us/MDE/Teacher_Support/QComp/index.html.

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