



RACE TO THE TOP

Colorado may be used to high altitudes
but can it compete in *Race to the Top*?



National Council on
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Written by Kate Walsh and Sandi Jacobs
National Council on Teacher Quality

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Metin Ozdemir, Ph.D., & Wendy Stevenson, Ph.D.

Introduction

In late July, the U.S. Department of Education released a notice of draft priorities and requirements for applying for *Race to the Top* funding, \$4.35 billion in competitive federal grants.¹ This new pot of money dwarfs any previous discretionary funding from the education department, even though it constitutes the smallest piece of education stimulus funding in the American Recovery and Reinvestment Act.

Race to the Top represents the most significant source of education stimulus funding to states awarded by competition, with the vast majority of funds (\$100b) already (or soon to be) awarded by formula to all 50 states and the District of Columbia. Even though the U.S. Department of Education is under no obligation to spread *Race to the Top* money among all states, that may be what some states expect, since there is so much money available. Certainly the track record in Washington is “ask and you shall receive.” However, it may be best not to assume that what happened in the past will be the ruling principle in this instance.

In this paper, we lay out a number of features of *Race to the Top* funding which suggest that states, including Colorado, should expect something different this time around. We’ll then provide a description of the kind of strategies—including next steps for all parties involved and back-of-the-envelope calculations for implementing such strategies—being promoted both by Department officials as well as the many influential education reform groups that have the Department’s ear.

While the National Council on Teacher Quality’s (NCTQ) particular focus is on **human capital**, specifically teacher quality, we present these strategies within the larger context of the other three reform areas identified by the department: **data infrastructures, struggling schools and standards/assessments**.

Some Reasons Why *Race to the Top* Might Be Different

There has never been a federal funding opportunity like *Race to the Top*, in which states can request a level of funding they identify to do virtually anything. No doubt many states will assume that a lot of the bold early talk coming out of the Department is the customary bluster of a new administration. That’s a gamble for each state to take, one that could be just as easily lost as won. NCTQ believes the Department is serious about only funding real prospects for reform, and that states will be likely to find status quo proposals shut out. Here’s why:

Genuine reformers. To begin, U.S. Education Department officials are being uncharacteristically talkative about their expectations for *Race to the Top* funds. That’s unusual for this normally circumspect, even timid, federal agency not known for pushing the envelope when it comes to states’ own policies. At this juncture, Secretary Arne Duncan appears to have no problem making “suggestions” about what he expects to see in states’ proposals and his staff is publicly following suit. In doing so, they are hoping that they can improve the customary quality of proposals. Most of them are fervent education reformers and see this as “a chance in a lifetime,” to quote Duncan. They are invigorated and have resolved that change will truly happen this time around.

[1] There is \$4.35 billion dedicated for *Race to the Top* funding but also \$650 million for the What Works and Innovation Fund; \$250 million for state data systems; \$200 million for the Teacher Incentive Fund; and \$100 million for Teacher Quality Enhancement.

It's true that every new administration begins with a bang. Perhaps this new group is naïve, but it would be a risk to dismiss their belief in *Race to the Top's* ability to generate real reform. In fact some of the leadership that Duncan has wooed to the Department was lured there because of the RTT money. They see RTT funds as their consolation prize for having to send \$100 billion of stimulus funds out the door without any real strings attached.

Close observers of Department appointees have surely noticed that most of the jobs are not going to state officials. Duncan's senior staff is full of well seasoned education reformers, veterans of organizations like the Education Trust, the Aspen Institute and the Bill and Melinda Gates Foundation, as well as one of the architects of Denver's ProComp plan (Brad Jupp). In former roles, many of them have watched along the sidelines, frustrated as states made what they perceived as half-hearted attempts at reform. Rightly or wrongly, many of them feel that states have squandered federal dollars aimed at closing the achievement gap, and this is their opportunity to remedy those disappointments.

In fact, among Duncan's appointees is Joanne Weiss, who is in charge of developing the RTT guidelines and awarding the grants. Weiss is a savvy and serious reformer who previously managed education investments for the NewSchools Venture Fund, a group that resides at the core of the education reform movement.

So how can Colorado signal that it is as serious about education reform as federal officials? Making sure that its proposal is not at all "business as usual" is a good place to start. Not only are the strategies that Colorado picks important but whom, specifically, the state selects to help it implement such strategies will matter. A proposal that expressly identifies groups and individuals with strong reform credentials—real change agents—is a good idea.

Growing clout of reform community. At this (admittedly early) point, Department officials do not appear all that interested in spreading the \$5 billion in RTT funds around too thinly. They have stated that they are willing to award the \$5 billion to as few as six states because it may take that kind of money to successfully tackle these difficult education reforms and because it is prepared to receive only that many proposals worthy of funding. They're right on both counts, but that doesn't mean that they won't have to withstand tremendous pressure to relax their standards and expectations.

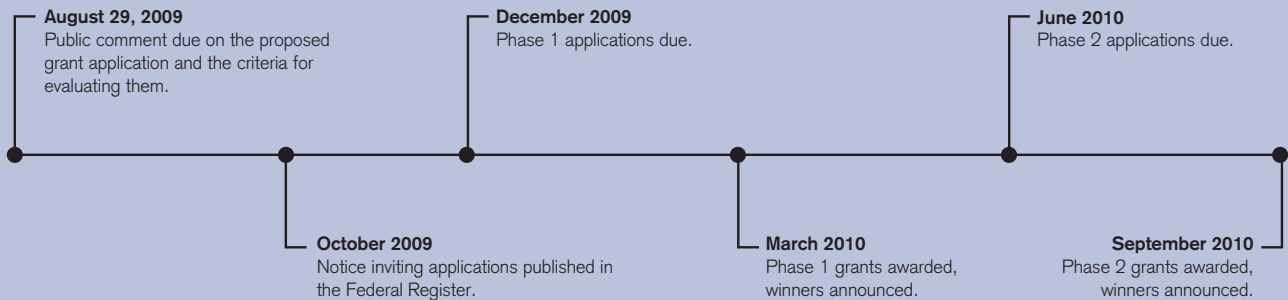
A problem that Department officials do not seem to be anticipating is that they will receive more high quality proposals than they can fully afford to fund. Would they then choose to spread the money thinly? No one knows, but right now the bet is that they'll be more willing to give a flat-out no than underfund a proposal if that increases the risk of failure.

The education reform community is not just strong inside the Department, but it has penetrated Washington, and will exert considerable pressure of its own to ensure that RTT lives up to its potential. The Bill and Melinda Gates Foundation is a formidable powerhouse, extremely well connected politically, and does not hesitate to exercise its muscle on policy. Partnered as it is with other reform-minded foundations such as Broad, Carnegie, Joyce and Dell, as well as influential education organizations such as Education Trust, NCTQ, The New Teacher Project and the Center for American Progress, its clout should not be underestimated. Department officials regularly look to these powerful and influential organizations for advice. To date, the Department has sought advice and direct technical support from these organizations, hoping that their involvement will ultimately improve the quality of the proposals states submit.

Strings attached. The most challenging feature of *Race to the Top* is the law's requirement that states will have done some of the hardest work before even applying. What may be difficult for state officials to get their heads around is that the Department will be looking for evidence that the state has indeed made progress on the four assurances (human capital, struggling schools, data infrastructure and standards/accountability), not just to keep the spigot running on stimulus dollars, but to ensure that their application for RTT has any chance of funding.

There appear to be two distinct categories of pre-conditions for RTT proposals. The first, "State Reform Conditions," describes the reforms that the state must have in place before the proposal can go in. The draft guidance only names one condition in the area of human capital: the extent to which the state provides alternative pathways for teacher and principal certification. This single requirement bodes well for Colorado. As we will lay out in further detail under various strategies, Colorado's alternative routes into teaching are relatively sound, and recent revisions to the law have made them even better. While there is additional room for improvement, it is not likely that Colorado will need to take that work on to meet the Department's pre-conditions.

Current timeline for RTT funding decisions



The draft notice also identifies a second category of review criteria, “Reform Plan Criteria.” Based on what Department officials are saying both publicly and privately, they appear to be expecting significant changes to state laws and regulations necessary for carrying out the specific reform strategies. In other words, the Department wants to see some of the groundwork in place when the proposal is submitted, so there is no risk of awarding a state a large grant that is dead upon arrival.

Throughout this paper, we lay out what we expect those statutory and regulatory changes to be as they apply to human capital strategies. Our advice should be considered speculative until such time as the Department issues a final RFP and guidance of sufficient specificity.

First steps for Colorado

Governor Bill Ritter, Lieutenant Governor Barbara O’Brien, Commissioner Dwight Jones and other education leaders in the state must begin the *Race to the Top* process by selecting the optimal strategies for building a successful proposal. This paper presents seven possible strategies that in our view stand a good chance of being funded, if properly designed. But no matter what strategies a state ultimately selects, be they from our list or another, we offer some advice:

Apply early. There will be two rounds of RTT funding (see page 4). In June, *Race to the Top* czar Joanne Weiss told a meeting of governors that states applying in Phase

I would enjoy no advantage over those applying in Phase II. We take this to mean that the review standards will be identical, because there are in fact some ways in which applying in the first round offers a clear advantage.

First, there is likely to be less competition. Most states are likely to take advantage of the extended time, and use the time to put together an application for the second round. The decision to delay is just in the nature of bureaucracies, as evidenced by how slowly the stimulus funds applications were submitted.

Second, regardless of how the Department divides the funds between the two rounds, Phase I applicants, to put it simply, have first dibs. In a discretionary competition where applicants identify their own funding levels, this matters.

Finally, unsuccessful applicants in Phase I will have the benefit of reviewers’ comments that identify strengths and deficiencies that can be used to hone their proposal for Phase II. Even if it means Colorado has to call a special session of the state legislature for this fall, we see several advantages and no real downside to applying in the first round. *There is really no reason to wait.*

There’s no such thing as too bold. Bold, tough reforms—the ones that may seem too challenging to pull off—should be the goal. A good sign that Colorado policymakers are making the right choices is that a lot of people are telling them “it”(whatever “it” is) can’t be done. In describing the seven possible human capital strategies included in this paper, we identified some of the political obstacles and dissenting arguments that will be

made against them. We could have identified many more obstacles, because all of the recommended strategies take on politically contentious issues.

We have seen a few states' preliminary thinking premised on qualifying for RTT funds under already existing reform efforts. If these examples are any indication of the broader thinking of states, there is a deep and wide canyon to bridge over the next few months. For example, one state cited as evidence of its strong support for teacher compensation reform a bonus pay program enacted by one of its many districts. The bonus program was not paid for by the state but by a grant from the federal Teacher Incentive Fund. Though this is a popular strategy that states like to use when applying for federal money—taking credit for what may be the isolated successes of their own districts—it's unlikely to be the kind of comprehensive reform expected by the current bunch at the Department. In this vein, Colorado would err to cite Denver's initiative as evidence of a state-level commitment to pay reform.

Avoid boutiques, single district experiments, coalitions of the willing. A strong proposal should not feature too many boutique experiments, reforms that involve just a few of the more willing districts while the rest are left alone. A strong proposal should make it clear that whole-state reform is the unambiguous goal and provide the road map for getting all districts on board eventually.

What about pilots, essentially boutique programs that are meant to be scaled up? It may indeed make sense for a good pilot program to precede large-scale adoption, especially when the reform is as significant as these are meant to be. But states should be aware that their long history of using federal funding for pilots has engendered a good deal of cynicism among the community of education reformers. From their perspective, they have seen too many pilots go nowhere, turning out to be efforts to avoid genuine reform, not inspire or justify it.

The proposal needs to be clear about the timetable for a reform, from pilot to full scale. While it may make sense to launch certain strategies with a set of identified districts to serve as trailblazers, there needs to be clear plan for filling in behind them with additional districts. In a state with so many small rural districts, it is also essential that the state make it practical for these districts to fully participate, with state officials providing the technical assistance that larger districts have the capacity to provide themselves.

States would do well to listen to Secretary Duncan's resolve on this matter, as he has advised states to demonstrate the

"political will to fundamentally shake up the way schools are funded and operated." The word "fundamental" here is not just rhetoric, but key. Given the Colorado legislature's own interest in rethinking how it funds its education programs, the timing is doubly right.

Take into account the state's lack of on-the-ground knowledge. Most of the human capital reform strategies we present here require a great deal of state coordination and local implementation. In putting together an RTT proposal, it will be impossible for the state to foresee every local issue that will arise in carrying out these strategies. For their part, districts will undoubtedly identify local barriers to effective implementation that must be addressed and/or ways to customize these strategies that can enhance their effectiveness. Colorado should consider building into its proposal a discretionary fund that can be used to address these costs. A thoughtful plan for its use and oversight will need to accompany any such request.

Large scale reform should impact all dimensions.

The Department has made clear that cherry-picking which of the four key reforms to really focus upon (human capital, data infrastructure, struggling schools and standards/accountability) with only lip service to the remainder is unacceptable. Conversely, picking one strategy under the heading of each assurance is also not the best way to go. The optimum strategy lies somewhere in the middle: demonstrate bold, systemic reform led by a single assurance, but which requires by its very nature real and substantive integration with the other three assurances.

For example, most of the strategies we present here concerning human capital require effective data systems to implement. Any well designed human capital strategy will make struggling schools a priority. And certainly an effective workforce cannot deliver results without a common set of rigorous learning standards and, we would argue, a great curriculum.

The Department will be looking for signs that the state understands the importance and inter-relation of the four assurance areas. In fact, this is the only absolute priority identified in the draft notice, meaning that applications that do not include a comprehensive approach to the four areas will not be considered.

For example, it's not enough for Colorado to cite its decision to create a teacher identifier as evidence of its

commitment to a good data infrastructure. It needs to clarify what it is going to do with the teacher identifier both to improve teacher quality and improve struggling schools, such as identifying the top and bottom 15 percent of the teaching force in the state or determining the quality of preparation provided by its 17 education schools, as judged by the effectiveness of its teacher graduates. The Department is acutely aware that there are 18 states in the country with the current capacity to generate value-added test scores, but that only two of them actually do. To receive RTT funds, it won't be sufficient to build a data infrastructure without also declaring its intended purpose and then setting that purpose in motion.

Stand out from the pack. Many states are struggling with whether and to what extent they should marry their own proposal to other states. The concept of a multi-state application initially had more potency than it does now. The Department is now requiring all states to submit their own proposals. In addressing human capital needs, such as the quality of teachers and where they are assigned, a multistate proposal does not make much sense. However, there are some consortium models being proposed that do seem practical, particularly in the area of data infrastructure. Colorado is exploring participation in such a consortium, intending to share measurement technology with other states, a sensible idea. To the Department's thinking, anything that indicates that states want to share knowledge and resources and not spend funding on needlessly duplicative efforts is not only a good reform strategy but an efficient use of the taxpayers' money. The Department has indicated that states in these sorts of arrangements will be viewed favorably.

What about the common standards movement? The 47 states which signed up to participate in that effort are likely to have a leg up over the three that did not, but that still leaves 46 states with which to compete for funds. With so many on board, states should not assume that their participation will significantly increase their chances of RTT funding. On the other hand, there is a real concern that states that have committed to the idea of common standards may get cold feet when it comes to actual adoption. Dropping out could certainly be detrimental to a state's RTT chances.

Fair or not, the past matters. The Department has indicated that how states spent their education stabilization funds is going to impact RTT eligibility. While the Department is pragmatic about the extent to which these funds can realistically drive reform, they want to

see that they were spent responsibly and that there was some attention to reform issues. States that did not use their funding to save teaching jobs, for example, might find it harder to make the case that they should qualify for RTT funds. States that could not be prevented from spending their money to build new schools or fund pension obligations might earn black marks when RTT proposals are considered. For example, in June Secretary Duncan sent a letter to Pennsylvania Governor Ed Rendell expressing his displeasure with a plan to cut the state's education budget despite stimulus funding and indicating that the adoption of this budget would hurt Pennsylvania's chances to receive RTT funding. States that were able to direct some portion of this first round of funding towards the four reform areas identified by priorities may have a leg up.

Pass groundwork legislation and regulation

NOW. The Department has indicated it expects to see groundwork legislation in place before proposals are submitted. This is to avoid a funded proposal being completely derailed by a legislative impasse (or worse). We don't take this to mean that every rule or regulation related to the proposal must be in place, just the fundamental building blocks. Even so, this probably means that some states will need to delay their submissions until the second round of funding in 2010, unless they are willing to convene a special legislative session.

If the state legislature is not prepared to act on critical reform initiatives or is unable to do so successfully, there may be alternative paths available. Though there may be instances when there is no way around legislative action, the state should explore all existing authorities, including the Colorado State School Board and Commission on Higher Education's rulemaking authority, as well as the Governor's executive authority.

In this paper's discussion of each strategy, we distinguish between the legislative and regulatory moves that need to be accomplished before a RTT proposal is submitted from those that will be part of a successful proposal's implementation. Though most state legislatures may currently be unaware of their critical role in their states winning an RTT grant, there are few strategies a state can pursue which will not require a willingness on the part of the legislature to act.

Forge alliances NOW. Job One in the first stage of this process will be to consider the types of critical

partnerships needed to fuel the proposal. Critical partners for nearly all of the strategies described here are the state legislature, the superintendents of Colorado's 178 local school districts, the Colorado Education Association and local teachers' unions, the Denver Metropolitan Chamber of Commerce, the Colorado Children's Campaign, Colorado Succeeds, Get Smart Schools, higher education institutions (particularly schools of education), parents, foundation leadership and a myriad of external consultants needed to advise and carry out the work. Forging such partnerships in advance of an application isn't just a good idea; it is fundamental, with clear action steps not just agreed to by all the partners but in some cases already done.

Districts also need to be brought in from the beginning. Given the requirement that 50 percent of *Race to the Top*

funds must be sub-granted to local education agencies, a state application that makes only ambiguous reference to the role of its districts or the commitment of its districts to carry out a proposal written entirely by state officials is certain to fail. The application needs to articulate not only that districts have been heavily involved in the planning, but what they have already agreed to do.

Do all 178 school districts have to be on board? No, but the mix of districts matters. The Department will no doubt be weighing the lack of total district buy in with evidence that the larger districts and districts with significant populations of poor and minority children are participating. For instance, it would be a powerful signal if Colorado persuaded 100 of its 178 districts to adopt a new curriculum. In a state with a proud tradition of local

The Work Ahead for Colorado on Teacher Quality

Having made teacher quality one of its reform pillars, the Department has made clear that it believes all states have considerable work to do in this area. An honest assessment of the state's strengths and weaknesses is more likely to be well received than a defense of the status quo. Each year the National Council on Teacher Quality, through our *State Teacher Policy Yearbook* (www.nctq.org/stpy), closely examines the strengths and weaknesses of every state's teacher policies. Colorado has many strengths, particularly in the area of teacher licensure, but here are some of the areas where improvement is needed:

- Colorado (like almost all states) sets the bar too low for becoming a teacher. While the world's highest achieving systems only admit persons in the top third of their class into teaching, here in the United States almost anyone can become a teacher. In Colorado, an aspiring teacher does not have to pass a basic skills test to get into a state-approved education school. Seventeen states do require such a test as a condition of admission, so making that change should be a high priority. States will still need to keep moving the bar higher as they concurrently introduce compensation reforms to attract greater talent.
- Colorado does not provide any assurance that elementary teachers know how to teach reading nor is it clear that they are provided sufficient preparation in mathematics. Such assurances would require the state to put in high level reading and math licensing tests and make changes to its undergraduate teacher preparation requirements. A handful of states have put in place strong reading tests; just one is doing so in mathematics (Massachusetts).
- Colorado should improve teacher evaluations. It appears that close to 100% of all teachers in the United States, no matter how low the student achievement levels of their schools, are rated satisfactory or above. Indeed a recent study that included selected districts in Colorado by The New Teacher Project found no evidence that Colorado takes evaluation any more seriously than other states. While the state is beginning to make real progress on developing a data system that will provide some objective evidence of a teacher's effectiveness, state guidance on teacher evaluations is as weak as any state. The state does not even require teachers to be observed when evaluated, as more than half of other states do. When teachers are evaluated, student learning needs to be the preponderant criterion for a teacher's rating, which is required by a handful of states (though often poorly implemented by their districts).
- Colorado has better teacher dismissal policies than most states, in its requirement that teachers rated unsatisfactory multiple times are eligible for dismissal. However, like most states, dismissal takes too much time and costs too much money.
- Colorado's alternative routes into teaching are relatively sound, and recent revisions to the law have made them even better. The state now allows teachers to enter the profession by taking a test of subject knowledge in lieu of a major, so that a district can hire, for example, a former engineer to teach mathematics.

control, obtaining a majority or a sizeable mix of the right kinds of districts should be sufficient.

Teachers' unions too need to be brought in from the beginning. The message that change is coming is a constant refrain in the remarks given by the new AFT President, Randi Weingarten, but with the important caveat "with us, not to us." Giving teachers and the organizations that represent them an opportunity to hear and be heard about human capital strategies is important.

In truth, some of the changes that the Department is seeking may be difficult for local or state unions to accept. Fundamental changes to tenure, evaluation and compensation, for example, may be rejected on their face. States which are intent upon proceeding with some of these reforms may have to do so ultimately without the support of their unions. Having made good faith efforts to work cooperatively, a state that needs to move forward unilaterally must be prepared and willing to do so.

It is critical for states to keep in mind that there are other stakeholders involved apart from school districts and unions, the two groups with the most at stake, and who are also the most likely to resist (or embrace) change. These other stakeholders often represent the interests of children and the community, such as civil rights groups, advocacy groups, business leaders, religious organizations, and parents. Their contribution is essential.

Summary

Our best advice on producing a successful proposal:

Make sure the chosen strategy or strategies address all four reform areas (data infrastructure, human capital, struggling schools, standards/accountability). It's fine if one area stands out, but the strategy needs to have an impact on all four.

Apply in the first phase if at all possible.

Get needed foundational regulatory and statutory work done before the proposal goes in.

Work with the legislature. However, if it does not have the votes to deliver critical reform initiatives, look for alternative paths.

Cherry-picking where in the state to implement a strategy won't work; whole-state reform is the unambiguous goal.

Involve district leadership from the start.

Recruit critical partnerships to advocate for the reforms.

Work with unions. Don't do this "to them" but "with them." However, if agreement cannot be reached, be prepared to act ultimately without their full support.

When identifying outside consultants, bring in change agents and reformers, not groups or individuals identified with the status quo.

Put someone in charge of pulling off a successful proposal, someone who doesn't have a single other responsibility.

Seven Strategies for Colorado to Consider

In the following pages, we outline seven strategies for identifying and improving teacher effectiveness.

While fundamentally strategies for human capital reform, most of these seven strategies also address the other identified reform areas of state data systems, struggling schools and standards and accountability. We note their integration in each section.

Best Bet

Strategy 1.

Performance Management

The Department views this area as the bedrock of human capital reform. Any proposal that does not address the fundamentals of a strong performance management system — evaluation and tenure — is unlikely to be viewed favorably. Just how important this strategy is to the Department is shown by the proposed eligibility requirement in the draft notice that states must not have any legal obstacles to linking student achievement data to teacher or principal evaluation. The Department is not including this as a priority, but going even further by making it a condition of eligibility. Any proposal that addresses real comprehensive reform in this area is going to be a standout. However, it is also the most politically tough strategy and the one that has the most pre-conditions—work that must be done before the proposal can go in, of any of the seven.

Great Bets

Strategy 2.

Equitable Distribution of Educators

Strategy 3.

Teacher Induction

Strategy 4.

Compensation Reform

Optimally speaking, any or all of these three strategies should be employed in concert with Strategy 1, as no single one may be quite enough to satisfy the Department's requirements for comprehensive reform. It is possible that the Department would view a proposal containing one, two or all three of these strategies without a link to Strategy 1 as strong.

Creative Bets

Strategy 5.

Teaching in STEM Fields

Strategy 6.

State-Aided Adoption of an Effective Curriculum

Strategy 7.

Educator Preparation, Including Alternative Certification

These three strategies are certainly on the radar screen of Department officials, but they don't carry the same mandate as Strategies 1 through 4. They represent creative strategies

meeting critical needs. They may be more politically viable than the first four strategies, and are perhaps the only choice for a state wanting to access RTT funds that has insurmountable barriers to taking on Strategies 1 through 4. The ideas presented here can theoretically be implemented without any new legislation or concessions by the teachers' union.

Strategy 5, Teaching in STEM Fields, could easily be paired with Strategy 6, Adoption of Curriculum, provided a math or science curriculum was selected for adoption. It must be noted that the Department has proposed a competitive priority (i.e., bonus points) for proposals that include an "emphasis on Science, Technology, Engineering and Mathematics (STEM)." While these two strategies offer a very good way to earn those bonus points, we believe the challenging and comprehensive approaches discussed in the first four strategies will still enjoy the greatest competitive advantage.

Worst Bets

Anything that looks like business as usual.

States have received billions of dollars in federal funding for teacher quality under both Title I and Title II of the Elementary and Secondary Education Act, with woefully little to show for it in terms of real innovation or results. It remains to be seen whether states will embrace the kind of groundbreaking, comprehensive reforms the Department is hoping *Race to the Top* will launch, but it seems quite clear that RTT is not going to fund more of the same. Here are a few of the non-starters:

- Large, professional development initiatives not directly related to a concrete strategy
- Reductions in class size
- Technology acquisition for its own sake, and not connected to curriculum or data analysis.

Strategy 1

Performance Management (Teacher Evaluation, Tenure and Dismissal)

Objectives

Given the tremendous impact teachers have on learning, no strategy a state will take on is likely to have a greater impact on student achievement than one which seeks to maximize teacher and principal performance. A successful performance management system—one that gives educators the tools they need to be effective, supports their development, rewards their accomplishments and holds them accountable for results—is essential to the fundamental goal of all education reform: eliminating achievement gaps and ensuring that all students achieve to their highest potential.

One of the greatest shortcomings of performance management applied in schools across the country (and central to its massive dysfunction) is the system's inability to differentiate instructional competency. If this system can be said to serve anyone at all, it is perhaps teachers in the middle. Much like schools' tendency to "teach to the middle," schools evaluate and compensate to the middle, failing to identify and reward the most talented educators and ignoring educators who struggle. This disregard has disastrous consequences for the health of the teaching profession and for students.

As the core of its performance management strategy, Colorado should develop a comprehensive teacher evaluation system measuring teacher effectiveness. Some of the evidence should be provided by value-added data generated through the state's longitudinal data system;

additional evidence should be provided by other sources of objective student data and classroom observations. All teachers should receive an annual rating based on the evidence accumulated from these sources, with clearly defined levels used to differentiate teacher performance.

The first order of business is to build a system that is reliable and fair. The need for fairness is why Colorado and not its school districts, most of which have limited capacity and resources to deploy, should develop and validate an evaluation system. In this instance, fairness overrides local control.

By building a system of formal and informal evaluations, local needs, both at the district and school building level, can and still should be accommodated. The informal instrument should allow districts to incorporate local curricula, instructional priorities and professional development initiatives. Even with the formal instrument, districts should be able to customize, although it will be the responsibility of both the district and the state to ensure that the validity of the instrument is not compromised by any alterations.

Colorado and its districts will need to provide training to all stakeholders in the use of the bifurcated evaluation system, and ensure that districts implement both with fidelity. The need for training represents a massive undertaking for the state in meeting the needs of smaller, rural districts and for larger districts in a position to conduct their own training. It is no less daunting a task than training an army, given the range of personnel involved, including principals, assistant principals, department heads and teams of peer evaluators.

An evaluation system that measures teacher effectiveness can also be central to tenure decisions. At present, nearly all

states allow districts to award teachers permanent contract status, or tenure, virtually automatically, without any serious consideration of performance. The state should identify a process for districts to use in awarding tenure that considers data collected and validated through the evaluation system.

Teachers that do not meet established standards for acceptable performance after receiving appropriate support over a pre-established period of time should not be granted tenure. Further, tenured teachers who fall below established standards for acceptable performance should be eligible for dismissal. An evidence-based system such as this can do much to remedy the current excessive challenges that frequently accompany efforts to terminate poorly performing teachers, while also maintaining reasonable due process protections for teachers who meet the effectiveness standard.

None of these reforms will be easy. In fact, any effort to put these reforms in place will be met with unparalleled, vocal opposition. In anticipation of such opposition, Colorado leaders will need to explain to the citizens of Colorado the imperatives driving these reforms, looking beyond current constituencies to achieve the necessary momentum. More so than any other strategy described herein, success is dependent on an effective and proactive communication plan. It is a certainty that an organized opposition will be well armed with a plan of its own.

Perceived importance for U.S. Department of Education

Highest Importance, the strategy most likely to be funded of any presented here.

Improving teacher evaluation is the Department's top human capital priority. In fact, it is not even waiting for RTT funding to make sure there is at least some movement in this area. The Department has already announced that beginning with school year 2009-2010, states will have to report the range of teachers' evaluation ratings for every district and school, and whether those ratings are correlated with any measures of student learning. Further, the Department has proposed that a state with any legal or regulatory obstacles to linking student achievement data to teacher and principal evaluations will not be considered eligible for *Race to the Top*.

The Department's draft review criteria include "differentiating teacher performance and principal

effectiveness based on performance" as an expectation for the human capital assurance.

Department officials are also committed to making it less burdensome to dismiss teachers found to be consistently weak. It's hard to bring higher profile to this issue than President Obama's March 2009 speech in which he stated: "Let me be clear: If a teacher is given a chance, or two chances, or three chances, and still does not improve, there is no excuse for that person to continue teaching. I reject a system that rewards failure and protects a person from its consequences."

Features of a strong proposal in this area:

- Creates a comprehensive system for measuring, differentiating, and acting on individual teacher performance data
- Demonstrates that the system is designed to advance the highest performers, develop the middle and deny tenure/dismiss the lowest, absent improvement
- Identifies evidence of student learning as the preponderant criterion of the evaluation instrument
- Sets successful implementation of a strong performance management system squarely on the shoulders of school principals
- Bases teacher evaluation ratings to a significant extent on objective student data (not limited to standardized test scores), including sources such as examination of formative assessments, progress in the curriculum, random sampling of student work, observational data of student behavior accumulated through classroom walk-throughs, common exams, etc.
- Provides a data system that generates value-added data for teachers and a protocol for incorporating other objective student data for teachers without value-added data
- Incorporates the use of peer evaluators for both formal and informal evaluations, to enhance and supplement the quality of the feedback and support, but not to supplant a principal's important responsibility
- Ensures that the probationary (pre-tenure) period will be of sufficient length in order to accumulate adequate data on performance on which to base a tenure decision
- Establishes a clearly articulated process for making data-based tenure decisions

- Lays out the obligations of the district and principal to provide support structures for teachers identified as poorly performing and sets a pre-established timeline for how long such support should last
- Streamlines the mechanism for dismissing consistently poor performers without stripping teachers' right of appeal by discarding lengthy legal proceedings and keeping all decisions in the hands of those with educational expertise
- Lays out a comprehensive communications plan to increase public awareness of problems that need to be solved by means of this new system

A strong performance management proposal should avoid:

- Putting too much priority on developing new evaluation instruments and not enough priority on how principals will be held accountable for conducting high quality evaluations.
- Maintaining a binary system of evaluation. (i.e., a system with only two possible ratings, such as satisfactory or unsatisfactory)
- Defining student learning or teacher performance so loosely that it is of little use for accountability purposes
- Making only ambiguous connections to the critical data infrastructure needed to drive this system

Steps Colorado can take *prior* to submission to show the preconditions for reform and improve its chances of RTT success

A. GOV/LEG: Set in statute the requirement that evidence of student learning must be the preponderant criterion of any teacher evaluation, ensuring that a teacher cannot qualify for a passing rating on the basis of non-instructional factors.

B. GOV/LEG: Set in statute the requirement that all teachers receive an evaluation rating each year, as a result of either formal or informal observations; with the additional requirement that probationary teachers must be formally evaluated twice a year, including once in the first semester.

C. GOV/LEG: Set in statute a requirement that tenure only be awarded on the basis of teacher effectiveness, with multiple measures used that must include some objective evidence of student learning.

D. GOV: Though perhaps not necessary to demonstrate seriousness of purpose to US ED, it would be wise to contract with a management firm in advance of submitting a proposal to determine the staffing changes needed at both the state and local levels, given the complexity and cost involved in this strategy.²

I. State-Level Actions

1. STATE BOARD: Set in regulation that all districts and schools in the state must use a common formal evaluation instrument, developed or adopted by the state, for rating teachers.

Alternative 1A. GOV/LEG: Set in statute the requirement that districts adopt a common formal evaluation instrument.

2. CDE: Based on recommendations from Governor's study of state and district personnel needs, establish a performance management arm of the state agency to develop, implement and oversee training of the state's performance management system.

The office would be headed by an associate commissioner. Its personnel would be devoted to evaluation development and training (both formal and informal) and tenure. The office would also have IT personnel charged with overseeing data infrastructure needs, servicing the new performance management functions and developing state monitoring of data.

3. CDE: Looking to existing evaluation instruments with a strong focus on student learning, adopt or develop, then validate a formal state evaluation instrument(s). Structure the chosen instrument to give districts some ability to incorporate local curricula and tailor to specific grades or subjects. Do not overburden principals with instruments that take too long to complete; any instrument that takes longer than two hours of a principal's time is too burdensome.

Noteworthy evaluation instruments on which to base a Colorado instrument would be available from the District of Columbia Public Schools, Teach For America, North Star

[2] In fact a number of foundations with interest in human capital would likely take on the cost of such a study.

Academy, National Board for Professional Teaching Standards, YES Preparatory and as described in Jon Saphier's The Skillful Teacher (heavily influencing the system used in Montgomery County School District in Maryland).

Do not develop the instrument "by committee"; instead charge a single individual or organization to develop the instrument, building in a review and vetting process by teachers and districts.

Identify an independent consultant to develop and validate the business requirements of the new evaluation system (content, indicators and metrics, with validation process):

Est. 4 to 5 months: \$400,000

Develop the technical requirements (report generation, navigability of reports):

If Colorado already has functional/advanced data system, and data loads correctly, the cost will be roughly \$300,000 for 3 to 4 months work

Without a functional system, the cost increases to \$1.0-1.5m with a 9-month timeline.

\$700,000 to \$1.9 million

4. CDE: Develop and provide training modules for school leaders and peer evaluators on conducting formal observations. Incorporate training into new principal certification.

On-site training

Year One, CDE conducts seven regional training sessions: \$175,000

*Year Two, CDE conducts seven regional training sessions: \$175,000
Funds to larger districts to provide their own training: \$175,000
=\$525,000*

Online module

Develop two-part online training module for formal evaluations: 1) Part 1 illustrates teachers in action in the classroom and how they would be evaluated so that teachers can get a sense of what they're aiming for in their own practice. An assessment would be included to ensure that teachers have actually viewed them; 2) Modules for evaluators in the second part demonstrate how to do an evaluation with examples drawn from teachers in action in the classroom.

=\$1 million

\$1.6 million

5. CDE: Working with district teams, develop the content alternatives and framework for an informal evaluation system as well as the technologies that districts might use to facilitate data collection from such evaluations. These informal systems would be premised on frequent classroom walk-throughs by principals or teams of teachers of 5 to 10 minutes in length, and possibly would possibly make use of wireless technology to facilitate quick observations. The instrument must be flexible enough to allow individual districts or BOCES agencies to decide the content, but

CDE would coordinate, making the process more efficient.

\$2 million

6. CDE: Develop data tracking systems that integrate and facilitate both the informal and formal evaluation systems.

7 to 9 months

\$600,000

7. GOV/LEG: Set in statute a change in the probationary period for a teacher from the current three years to at least four or ideally five in order that districts have accumulated sufficient evidence of student learning to make a reasoned decision. Statute should permit eligible teachers to delay a tenure review, extending the probationary period one additional year. Principals should not have the right to delay the tenure review (essentially depriving teachers of a change in status that should lead to a major bump in salary) but can recommend to a teacher that s/he elect to delay.³

Alternative 7A. GOV/LEG: Set in statute that a probationary teacher is not automatically eligible for tenure after three years of teaching.

8. CDE: Design a model system for making tenure decisions that delineates a tenure hearing, with the district presenting evidence before a review board justifying tenure, giving the teacher an opportunity to present, and includes including a recommendation from the school principal. Train tenure review teams from all over the state for three days each summer, with a test at end of training and a one day follow up mid-year.

New York City provides its principals with a tenure toolkit to help them decide if tenure should be awarded.

Develop a similar tenure toolkit to help principals make a responsible recommendation on tenure. Ballpark estimate of a toolkit that includes integration with value-added data and other objective evidence of student learning (unlike NYC where the state legislature prohibited their consideration)

\$700,000

9. LEG: Set in statute a definition of teacher ineffectiveness that bases such a definition on relatively declining academic performance of a teacher's students over an identified period of time.

[3] The state is likely to find as much resistance to extending tenure to four or five years as to making sure it is a meaningful decision. While extending the time allows sufficient evidence to be accumulated on a teacher's performance, the most important part (to the state and the Department) is ensuring that ineffective teachers are not awarded tenure. The state may decide that extending the probationary period is not worth the fight at this stage.

10. ATTY GEN: Prepare a legal analysis clarifying the appropriate due process rights that should be accorded to a tenured teacher found to perform below established standards, distinct from the due process rights of a tenured teacher facing license revocation for felony or morality violations. While entitled to protections that include the right to appeal, teachers eligible for termination on the basis of poor performance should not be afforded the protracted protections that typically accompany career-threatening licensure revocations.

11. LEG: Based on AG analysis, ensure that statute distinguishes and streamlines the due process that accompany teachers dismissed for poor performance from the more protracted rights of teachers facing license revocation for felony or morality violations. Current Colorado law treats equally processes for dismissing an incompetent or unsatisfactorily performing teacher and processes for teachers charged with immorality or felony conviction.⁴

12. CDE: Regularly collect and report to Governor key data from the performance management system, modeled in part after Maryland's StateStat system. Some of the data that should be reported are aggregate evaluation ratings for teachers by district and by school correlated with student achievement results; a tracking mechanism and timeline describing where teachers who have been rated unsatisfactory are along on the continuum; number of eligible teachers granted tenure, not granted tenure; and correlation of principal recommendations with tenure decisions.

Estimated cost of setting up such a system \$200,000

13. GOV/CDE: Engage public in the reforms. Use bully pulpit to communicate messages on importance of changes: All students must have effective teachers; we must be able to identify which teachers are effective; tenure is a \$2 million investment on the part of the district and state in an individual teacher (factoring a teacher's compensation, pension and retirement benefits); its award should be meaningful.

\$10 million

II. Local-Level Actions

1. LEA/BOCES agencies: Based on recommendations from Governor's study of state and district personnel needs, hire and/or shift personnel to create a performance management arm of the district to develop, implement and oversee training of the state's performance management system. The state (either through the BOCES or through its own performance management arm) can assist with these functions for small districts for which it is not practical that they occur directly at the local level.

Dedicated district/BOCES personnel needed. Denver has set up the structure for such an office in its implementation of a performance management system for central office functions.

2. LEA: Customize evaluation instruments. Identify valid and reliable sources of student learning for each grade and subject area beyond standardized tests. Incorporate local curricula, instructional priorities and professional development initiatives into the evaluation framework. Have state approve any changes to formal instrument to ensure validity remains intact.

Teams of teachers and principals would assemble to customize formal and informal evaluations to district curriculum, grades, subjects; teachers would be nominated by their principals. Superintendents would name principals.

For small, rural districts, BOCES structure would be engaged, with these districts nominating teachers to serve on grade and subject level teams for multi-district efforts.

Larger districts would work independently.

Team members would work 30 hours@ \$50/hour, 30 teachers each for 21 BOCES agencies or districts: \$945,000

Initial meeting would be followed by a regional meeting to share results, best ideas.

6 hours@\$50/hour with each BOCES sending team of 3: \$132,300

Take results, practices back to school district, 3 member team of each district working under \$5,000 stipend submits to its school board draft of formal and informal instruments for all grade levels, subject areas

178\$5,000=\$895,000*

Submit to CDE for approval

\$2 million

3. LEAs, CDE or BOCES agencies: Develop and provide the training on the informal evaluation instrument in each district and for smaller, rural school districts through CDE or the BOCES structure. This training would be provided to principals, assistant principals, department heads and peer leaders.

[4] Colorado Revised Statute 22-6-301 states that "a teacher may be dismissed for physical or mental disability, incompetency, neglect of duty, immorality, unsatisfactory performance, insubordination, the conviction of a felony or the acceptance of a guilty plea, a plea of no lo contendere, or a deferred sentence for a felony, or other good and just cause. No teacher shall be dismissed for temporary illness, leave of absence previously approved by the board, or military leave of absence pursuant to article 3 of title 28, C.R.S."

Dedicated district/BOCES/CDE personnel needed, cost tbd.

On-site training

21 locations,

\$525,000

Online modules (see I-5)

4. LEA, CDE or BOCES agencies: Orient teachers in the new informal and formal evaluation processes.

Dedicated district/BOCES/CDE personnel needed, cost tbd.

Use existing professional development days

5. LEA: Recruit individuals to serve as peer evaluators, for the purpose of supplementing principal evaluations within a school for both formal and informal evaluations. Particular attention would be paid to providing peer evaluators with particular subject matter expertise to schools where principals may feel inadequate to the task (e.g., secondary math instruction).⁵

Paying peer evaluators \$80,000 per annum (including benefits), they can conduct 3 evaluations per day, 160 days a year for a total of 480 teachers per year. If all first and second year teachers were evaluated at least once by a peer evaluator, the cost to the state (with 8,600 new teachers) would be \$1.5 million, with additional funding needed to supervise the program.

6. LEA: Set in board policy a meaningful support system and a clearly defined process for intervention to take place when a tenured teacher is rated unsatisfactory for the first time.

For example, the LEA might establish a 90-day remediation process. The process would provide a one-on-one mentor for ten hours a week for a period not to exceed 30 days. At the 30-day mark, the principal would decide if 1) sufficient progress had been made to warrant ending the mentor help or 2) additional/different help is still needed, extending some form of the mentoring through another 60 days. At the end of 90 days, if insufficient improvement has been made, dismissal proceedings must begin.

[5] Schools need to build the schedules and staffing that permit peer support as part of the normal day-to-day activities of staff. Much of the peer-to-peer work that needs doing in a school should occur within the regular team support system. Some of the evaluation functions can of course be completed by assistant principals and department heads.

Colorado can employ the use of peer evaluators for the purpose of relieving some of the burden on principals and improving the quality of evaluations by having multi-party feedback. They need to be recruited from outside the school(s) where they will be assigned in order to maintain objectivity. Peers should be chosen by a committee that includes the union and district leadership.

The peer reviewer can take on the role of independent evaluator for underperforming tenured teachers, in order to buttress or refute a principal's rating.

A possible 90-day intervention strategy would initially provide ten hours per week of intensive mentoring to help the struggling teacher to improve.

4 weeks, 10 hours per week @ \$30/hour = \$1,200 per teacher

Est. 25% of the teachers then taken off the plan; 75% remain on, receiving help on average for 4 hours per week, 8 weeks, @ \$30/hour = \$960

5% of state teaching force of 50,000 is 2,500 eligible teachers @ \$1,200 = \$3 million

*75% of the 2,500 eligible is 1,875 teachers * \$960 = \$1.8 million*

LEA, BOCES, CDE staff to run the program

Estimated \$5.5 million per year

7. LEA: Hold principals accountable, by validating their ratings within the evaluation system. Use independent third party evaluators with content and grade expertise to evaluate randomly-selected teachers. Goal would be to have enough third party evaluators in a district or region to evaluate 10% of the teaching force the first year, 15% of the teaching force the second year, 25% of the teaching force the third year. After three years, the team would be deployed more randomly.

Evaluators paid \$300/evaluation. With a workforce of 50,000 teachers, evaluating 10 percent, or 5,000 teachers, would cost \$1,500,000 (Year 1); 15 percent, or 7,500 teachers, would cost \$2,250,000 (year 2); evaluating 25%, or 12,500 of those teachers, would cost \$3,750,000 (year 3).

\$7.5 million over three years

8. LEA: To ensure that principals identify a range of skill on their staffs, require them to annually report to the district those teachers they consider to be in the top 15% and those teachers in the bottom 15%. As the district gains confidence in the fairness and accuracy of these evaluations over time, and the evaluation system matures, develop strategies to reward the best (see Strategy 4, Compensation) and support and, if necessary, dismiss the weakest. Align results with student achievement results and compare the two in discussions with principals.

No cost, part of data infrastructure

9. LEA: Create tenure review teams consisting of effective teachers and administrators in each district (or region). Implement a process that requires an objective review of the evidence, as well as recommendations for or against tenure made by the principal and/or district representatives and an opportunity for the eligible teacher to present evidence on his or her own behalf.

Tenure review teams can be formed by recruiting retired teachers and paying a healthy hourly rate to great teachers to conduct tenure hearings, after school, Saturdays, school breaks and summertime.

Average cost of a tenure hearing \$375

Estimated number of teachers currently in 4th year of teaching, 2,646

\$1 million

Tenure officers in each large district or BOCES

\$2.1 million

\$3.1 million

10. LEA: Establish a reasonable appeals process for a teacher denied tenure that allows a higher tier of the district's tenure review board to review the merits of a case.

11. LEA: Train eligible teachers, principals on new tenure process. Teacher's principal presents evidence and makes recommendation to committee.

Use existing staff development days to provide training.

12. LEA: Generate the appropriate data on evaluation, tenure and dismissal at the district level "SchoolStat" to hold principals accountable to the district, while also feeding appropriate data to a "StateStat" system to help governor and school chief to hold districts accountable.

A good accountability system is more expensive if the state does not already have a state level longitudinal data warehouse.

Depending on what Colorado has in place, it may need to build a new customizable data warehouse with local security considerations and a need for support at the state level when problems arise. That effort would cost \$1.5 to \$2 million for the first year and around \$300,000 per year to maintain. It would also take about a year before it is operational.

If the state already has a state longitudinal data warehouse that has customizable reports, the cost could be much less, perhaps on the order of \$30,000 to do the business requirements for the reports and have programmers build the reports.

A system using wireless technology would be needed if one of the components of the model was classroom observational data. The costs may far outweigh the benefits of something like this and it might be best to consider the wisdom of such a move after all other features are in place.

\$100,000- \$2 million

Implications for rural districts

All districts – large and small, urban and rural – will benefit from a performance management system that puts teacher effectiveness front and center. Small rural districts may find parts of this system easier to implement – for example, fewer schools and teachers will mean less logistics to coordinate. However, rural districts will also face some challenges. For example, peer evaluation teams may be difficult to operationalize in small settings. The state will need to ensure there is appropriate flexibility in these areas.

To ease the burden on smaller, rural districts, the structure for implementing this plan might best be arranged through the BOCES agencies or another entity serving a similar coordinating purpose.

How this strategy connects to other Department-priority reform areas

Struggling Schools: Identifying effective and ineffective teachers is a critical strategy for turning around low-performing schools. Colorado could ramp up the intensity and speed for launching new evaluation programs at its struggling schools.

Data Infrastructure: The state data system is an integral component of the evaluation system, providing some of the objective evidence of teacher performance for annual ratings and tenure decisions.

Standards/accountability: The evaluation system provides a concrete mechanism for assessing whether teachers are teaching to the state's identified standards and teachers' students are meeting state performance standards. The evaluation system holds teachers accountable for the performance of their students and ensures that tenure decisions are made on this basis.

Likely obstacles to implementing these strategies

Teachers may have a legitimate concern that standardized test scores are not a fair reflection of their individual performance. —*The evaluation system allows for the use of objective evidence of student learning beyond standardized test scores.*

It is not in unions' interest to make it easier to fire teachers. —*An evaluation system that incorporates objective evidence of student learning and which uses multiple rating systems makes it less defensible to keep ineffective teachers on the rolls.*

Principals may complain that they do not have enough time to evaluate/observe all teachers multiple times each year. —*An evaluation system that truly differentiates among different levels of teacher performance should provide opportunities for even high-performing teachers to further develop their knowledge and skills. However, districts may find the objective data piece sufficient for evaluating their 10–15% of highest performing teachers and eliminate the classroom observation component.*

Teachers will likely feel that changing tenure takes away protections to which they are entitled. —*The state is not trying to do away with tenure, but rather to make it meaningful. Tenured teachers will still be entitled to more due process rights than probationary teachers. However, effectiveness will now be the criteria for going from probationary to professional status.*

Teachers will doubt the fairness of the tenure hearing. —*Having the state develop the model for the hearing will help to address concerns about how local districts will carry it out. There will be a mechanism for legitimate appeal.*

Strategy 2

Equitable Distribution of Teachers and Principals

Objectives

Schools serving children living in poverty are more apt to employ teachers with lower qualifications than schools serving more affluent children. In other words, students in need of the most qualified teachers are often shortchanged, at least as measured by teacher credentials. These workforce disparities are the repercussion of teachers' right to choose where they work, both within a district and among neighboring districts in a state. Without encroaching on this right, there is much states can do to reward and incent teachers to make different choices. States can also do much more to reward and incent districts that help teachers make different choices, and even sanction those that do not.

In truth, few states have shown much interest in telling their districts they need to assign teachers differently, despite language in No Child Left Behind designed to rectify inequities. Some of states' reluctance to act may be rightly based on a concern that forced measures may only engender ill will among teachers; even so, there has been a remarkable absence of experimentation and creative solutions to addressing an issue that is central to closing achievement gaps and that also speaks to our most fundamental tenets of fair play.

The strategies presented here are predicated on our belief that there are many effective teachers who would work in high needs schools but do not--and not because the children in those schools are poor or of a different race or ethnicity. Effective teachers want to work where they can

be successful, and too often high needs schools are not such places. They also do not want to be perceived as working in last resort jobs, where no one would work if good enough to work elsewhere. Cash bonuses, even when quite significant, are simply not enough to overcome a teacher's fair and proper desire to be effective and to be viewed as effective.

The first step toward addressing the distribution of teachers is to bring transparency to the issue. Colorado should develop an index for quantifying important teacher credentials found to correlate with student achievement. This index should reflect such factors as teacher verbal ability, performance on licensing tests, certification status, academic background, and experience. This school-level data should be reported to the public annually using a system that is easily understood.

This index would allow the state to track inequities among school districts, within a school district and even within individual schools.

Among school districts, the state can broker agreements to ease salary discrepancies between more and less affluent districts. Further, the state can use the data from its evaluation system (see Strategy 1) to identify its most effective teachers and establish a Governor's teacher corps deploying the best teachers to places where they are needed most.

A comprehensive equitable distribution plan should also address how teachers are assigned across the schools in a particular district as well as within individual schools. The Colorado legislature should adopt a mutual consent policy for all districts in the state, ending a practice which forces principals to take teachers who have lost their assignment in another school, regardless of their fit. So districts can manage such a policy without fiscal hardship, the legislature needs to set a limit on how much time teachers can receive their salaries without having an assignment.

Attention must also be focused on principal quality, as poor leadership is often the reason teachers elect to leave a school.

To combat inequities within a single school, the state should offer incentives to effective teachers to teach classes with high numbers of high needs students, in lieu of teaching the advanced or AP classes.

Perceived importance for U.S. Department of Education High Importance

Much of the senior staff at U.S. ED was openly frustrated by states' tepid response to and the Bush Administration's weak oversight of the equitable distribution provisions in No Child Left Behind. There is also recognition that this problem cannot be addressed by nibbling around its edges. RTT provides an opportunity for major financial support for bold approaches. The Department's draft review criteria include "ensuring equitable distribution of effective teachers and principals" as an expectation for the human capital assurance.

Features of a strong proposal in this area:

- Annual reporting of school-level teacher effectiveness data
- Movement on state policies that help to level the playing field for higher needs districts in attracting and retaining effective teachers, such as genuine alternate route programs and interstate portability agreements⁶
- Development of a teacher corps to place the state's most effective teachers in high needs classes as an intra-district loan or as state employees
- Emphasis on the importance of school leadership and collegial working environments in helping to drive more equitable distribution of teachers

A strong equitable distribution proposal should avoid:

- Reliance on financial incentives as the main lever for the equitable distribution of teachers

Steps Colorado can take *prior* to submission to show the preconditions for reform and improve its chances of RTT success

A. STATE BOARD/LEG: Set in statute that districts must report annually school-level data related to teacher distribution. Until a comprehensive index can be developed (see below), this should include school level reporting on the ratio of novice teachers to full school staff; annual turnover rate; and teacher absenteeism rate.

B. CDE: Incorporate teacher distribution data into state, district and school report cards published annually.

I. State-Level Actions

1. CDE: Develop an index that measures the qualifications of a school's teachers. This index should look at more than years of experience and should avoid factors that have not been shown to correlate with student achievement. A good example of a strong index is the academic capital index developed by the Illinois Education Research Council,⁷ incorporating teachers' undergraduate institution's average SAT or ACT scores; the percentage of teachers failing basic skills licensure test at least once; the percentage of teachers on emergency credentials; average selectivity of teachers' undergraduate colleges; and the percentage of new teachers. As these factors are complicated, the state should install a system that translates these factors into something more easily understood, such as a color coded matrix indicating a high or low score for a school.

For Colorado to develop its own teacher qualifications index from scratch, it needs to be able to test and retest the various cocktails of elements in its longitudinal data system. (That isn't an expensive proposition, estimated at \$250,000.)

Given that much of the data needed for any index is not available, the state has to generate a new data set. This is time consuming. It would only cost around \$200,000 from an IT perspective to develop the data set, but it may take a number of the LEAs many months to get the data together. Smallest districts would have to provide much of this information by hand, so they would need to be disproportionately supported.

[6] We describe in our State Teacher Policy Yearbook, 2007 and 2008 those alternate route and portability policies which impede district ability to attract teachers; see www.nctq.org/stpy.

[7] See White, Bradford R.; Presley, Jennifer and DeAngelis, Karen J. Leveling Up: Narrowing the Teacher Academic Capital Gap in Illinois. Illinois Education Research Council: IERC 2008-1 <http://ierc.siue.edu/documents/IERC2008-1.pdf>

To adopt the Illinois index (an advantage since it has been validated), each LEA would have to report for all of its teachers the name of their undergraduate institution; their certification status; and also the number of years the teacher had taught in the district. For its part, the state should have access to the number of times a teacher may have taken the licensing tests.

Estimated cost: \$500,000 reserve available to districts which would have to conduct the work manually to defray their cost \$300,000 IT functions

TOTAL = \$800,000

2. LEG: To facilitate districts' ability to equitably distribute teachers, set in statute a statewide mutual consent policy for all districts. This would require agreement by both the teacher and the principal on assignment to a particular school, eliminating forced placement by the district, or placement in any job by virtue of seniority alone. (A state law would always trump local contract provisions.)

Alternative 2A. LEG: If the legislature cannot pass requirements essentially invalidating current contracts, the statute could apply only to new teachers, grandfathering any current teachers.

If districts do not force principals to take any teacher assigned to them, districts may end up having a certain number of teachers without assignments. To the extent possible – but with principal agreement – such teachers should be placed with the condition that they are monitored closely and the evaluation system (see Strategy 1) is used to identify weaknesses, provide support and move for dismissal as applicable.

However, there is likely to be a certain percentage of teachers for whom the evidence suggests it is simply inappropriate that they be placed in a classroom. The state could provide districts with a cushion to keep these individuals out of the classroom, while also verifying districts use an appropriate process for excessing teachers.

\$3 million first year

\$3 million second year

*\$1.25 million third year**

(These costs will be phased out as evaluation system described in Strategy 1 becomes the mechanism for identifying and dismissing ineffective teachers.)

\$7.25 million

Alternative 2B. (taking a district-by-district rather than statewide approach) **CDE:** Echoing a recent move by the commissioner of education in Rhode Island, the Colorado

Commissioner of Education may have the authority to issue a directive imposing mutual consent, nullifying districts' contractual provisions in districts where there are schools that have missed federal and state benchmarks.

⁹ This alternative would mean that the state could only impose nullification of mutual consent in those selected districts. Further, the federal or state authority we cite here has not been argued before any judicial body—but there may well be such a case going before a Rhode Island court—so it is not possible to say if a challenge is likely to hold up.

3. LEG: Set in statute that districts are not liable for longer than one year for salary and benefits for any teacher who has been excessed from a teaching position and is unable to secure a new teaching assignment within one year. This challenges the errant notion that the purpose of tenure is to guarantee a job when its true purpose is to provide due process. Further, the security of a full year's salary without a teaching assignment is a benefit not found in any other profession.

4. CDE: Develop and validate a principal performance matrix to encourage districts to make data-driven decisions about principal assignment.

Indicators showing if a school principal exceeded, met or did worse on student achievement measures of comparable schools in the district, only reported after the principal has been assigned to a school for three years.

Annual turnover rate of teachers in the school relative to other comparable schools in the district.¹⁰

Distribution of evaluation ratings of teachers serving under the principal each year.

Staff absentee rates relative to other schools in the district.

While CDE would coordinate this effort, all of the work would have to take place at the district level. The amount of work is negligible, a few weeks worth of research as the number of principals is not high.

Cost of validating the index \$100,000

[8] New York City has 1,000 unassigned teachers out of a teaching force of 70,000 at a cost to the system of 20million per year. Many of the 1,000. teachers have been unassigned for years, as the district does not have a provision ending salary and benefits after one year. Colorado has a teaching force of 50,000.

[9] No Child Left Behind may contain sufficient language to provide such authority but also Colorado may have regulatory language articulated in its state accountability system, the Accreditation Contract. As stated in Section 2.01 (4) (g) of the Colorado Code, the Accreditation Contract stipulates that a district must "identify and reduce consistent patterns of low academic achievement and discrepancies in academic achievement related to gender, socio-economic level, at-risk status, racial, ethnic, or cultural background, exceptional ability, disability, or Limited English Proficiency." The process prescribed for acting upon a district failing to meet a standard would appear to entail a period of at least 16 months from the time that the state notifies a district of its risk of losing accreditation.

[10] It is not necessarily the case that staff turnover is low in schools that are well run, at least initially. Good principals often have to make a lot of staffing changes in the first few years. The index would need to accommodate those dimensions.

5. CDE: Contract with an outside independent group (e.g., New Leaders for New Schools) to assess how the state can ensure it has a high quality principal pool. Analysis should include systems for principal evaluation and accountability, as well as identifying roadblocks, including state laws and regulations, which may prevent the state from attracting and keeping talented principals. Implement recommendations for improved evaluation and accountability and to remove roadblocks, adopt wholesale reform or permit waivers from contract provisions for selected districts or schools.

Estimated \$25,000

6. CDE: Organize an inter-district agreement, with all signing districts agreeing to lift any salary caps currently imposed on experienced teachers who come to teach in a district from another district if they are willing to teach in a struggling school. These salary caps discourage talented teachers from moving from one district to another.

Districts will raise their overall compensation liability to the extent they make use of this.

7. GOV/LEG: Establish a Governor's Teacher Corps that deploys the state's highest performing teachers to high needs districts and schools. While this relatively small corps will not eliminate widespread distribution issues, it serves several important functions: (1) It makes working in a high needs school a prestigious assignment, one to which teachers may even aspire; (2) It creates a go-to pool of effective teachers that the state can deploy to places where they are needed most; and (3) It has the potential, much like Teach For America, to create a network of alumni newly committed to the challenges of high need placements.

Teachers would be identified based on value-added data, and would commit to teach as part of the Governor's Teacher Corps for two years. The state would make up any difference in the teacher's salary between their original district and their Corps assignment, and also provide a \$25,000 (for example) supplement, paid directly from the state so as not to be subject to collective bargaining provisions concerning compensation. While cash incentives do not appear to be effective recruitment strategies for high needs schools, in this case the significant supplement adds to the prestige factor that comes with being designated by the Governor, is considerably more than teachers would ever expect to receive in a bonus, and rewards these effective teachers for taking on more challenging assignments.

\$5 million per year for 200 teachers¹¹

A quandary for districts and states wanting to secure a commitment from teachers to serve a certain number of years is a method of remuneration that protects the school from a teacher's early departure. Districts in Arizona involved in a program run by the Rodel Foundation buy savings bonds in the names of teachers. If the teacher completes a three-year commitment, s/he is given the savings bond. If the teacher does not complete the commitment, the program returns the bonds to the US Treasury and given a refund in the amount of the original purchase.

8. GOV: Serve as the bully pulpit on equity and the need to consider student needs before adult needs in staffing schools. Make it clear that this is not a matter of raiding suburban schools for urban ones but of honoring the service-orientation of many teachers already in urban districts, prospective teachers and adventurous teachers who might be seeking a change. Employ public interest to combat teacher resistance to mutual consent and end of pay/benefits after one year of being unassigned to school.

9. CDE and GOV: Employ a data accountability system, similar to Maryland's "StateStat" in which data related to principal quality and teacher distribution is collected at the local level and reported at the state level, for the Governor's review. Some factors of interest would be principal assignment, teacher distribution within schools, across all schools, school districts; if various strategies had any impact.

The need for CDE and the Governor to set up a State Stat system, which would allow routine monitoring of important indicators, such as teacher distribution, is described in Strategy 1.

II. Local-Level Actions

1. Alternative to I-2 (in the event that STATE LEG action described above is unsuccessful) LEA: Bargain for mutual consent, eliminating the practice of forced placement by the district; seniority placement and bumping rights. Bargain a one-year time limit to district's obligation to provide an excess teacher full salary and benefits.

If a district is not forcing principals to take any teacher assigned to them, but giving them a choice, the district may end up

[11] RTT funds would be an excellent way to launch this Teachers Corps, but the state will need a plan to sustain it. Title I School Improvement Funds – significantly increased for just such innovative strategies – would be an excellent fit. The state may need to seek a waiver from the Department to hold funds at the state level for the benefit of the high needs districts receiving Corps teachers; in the absence of a waiver a system would need to be developed whereby receiving districts pay the state in order to participate.

having a certain number of teachers who are earning salary/benefits but not teaching. As described above, the state could provide a cushion for this purpose, having a fund available from which districts can draw.

2. LEA: Identify schools with above average teacher and principal turnover. Assess root causes of turnover.

Colorado already has 15 districts with turnover rates reported at or above 20%. These high rates should be disaggregated down to individual school level, examining poverty rates as well, examining trends over five years to ensure that turnover problems are not an anomaly or the result of poor leadership. Also isolate schools in the state in districts with low turnover but which themselves have high turnover and educational challenges. Small districts must be assessed differently given their tiny numbers, but their chronic turnover problems need analysis and focus.

3. LEA: Identify and recruit new school leaders, either new to the system or transfer from district schools. Pay a bonus to principals that take on these challenging assignments.

Pay \$10,000 to 15,000 to principals that is pensionable and \$5,000 to 10,000 to assistant principals.

Eligibility: Subset of schools with extremely high turnover who are not making AYP

(700 schools; approx 30%)

The bigger problem for districts is finding the leadership talent who can meld into school culture. Leadership issues cannot be solved overnight.

Year One (slow start): \$3.0

Year Two: \$4.2 million

Year 3: 2.1 million

Year 4: 0

Total: \$9.3 million

Reallocate Title I funds to fully fund these stipends within four years.

[NOTE: The findings from State Level Action Step 5 should inform this step. Principal recruitment is only actionable to the extent that a set of effective school leaders can be identified. The numbers presented above reflect a best-case scenario, based on identified needs. However, placing less than stellar leaders in challenging schools to fulfill this step is not a wise use of funds. The actual number of principals/assistant principals funded here should reflect a realistic assessment of how many talented leaders can be recruited.]

Alternative 3A. LEA: Where the quality of school leadership is not an issue, but high turnover of administrators is, consider the burdens being placed on principals working in challenging settings.

Consider adding positions to relieve principals of excessive

demands on his/her time.

700 schools, approx 30%, compensation of \$80,000

Year One (slow start): \$5 million

Year Two: \$16.8 million

Year Three: \$8 million

Year Four: 0

Total \$29.8 million

Reallocate Title I funds to fully fund these positions within four years.

The number of schools and level of funding for this step should be adjusted to reflect a realistic assessment of how many talented leaders can be recruited.

4. LEA: Target inequitable distribution within schools by making pay differentials available in order to get the most effective teachers already assigned to the school to teach standard/non-advanced classes. Develop a process whereby principals must demonstrate how assignments are made and hold principals accountable for the effectiveness of teaching (as measured by value-added data) in non-advanced classes compared to advanced classes. Reallocate Title I and Title II funds or use funds from ending master's degrees incentives to fully fund these incentives within four years.

Two positions per school, stipend of \$2,000

Number of high schools in the state with 30% more free lunch: 201 = \$804,000

Some staff oversight of program

TOTAL Year One: \$1 million

Year Two: \$1 million

Year Three: \$500,000

Year Four: 0

Total: \$2.5 million

Implications for rural districts

The distribution of teachers within schools in a district is less likely to be an issue for small rural districts. The strategies presented here for ensuring effective teachers are well distributed within schools should not present more of a challenge for small districts to implement than larger ones. The Governor's Teacher Corps can help provide effective teachers to rural areas in need.

How this strategy connects to other reform areas

Struggling Schools: Focuses directly on one of the greatest challenges of struggling schools: improving teacher quality. Addresses enduring problem of highest needs students having the least effective teachers.

Data Infrastructure: Uses state data system to identify teacher effectiveness and make this a central factor in teacher assignment.

Standards/accountability: While accountability for making these staffing decisions is necessary throughout these strategies, there is not a strong connection with student standards/school-wide accountability.

Likely obstacles

Teachers' unions will resist any mutual consent provision that proposes to end salary and benefits for excessed teachers after one year. —*The taxpayers should not support teachers who are not teaching. One year provides ample time for able teachers to find another assignment. As evidenced by the collapse of the auto industry, the era of contracts assuring workers compensation whether or not they work is over.*

Differential pay schemes may be perceived as open to abuse, favoritism and/or undermining teamwork.—*Careful accountability processes to review both the structure and implementation of differential pay plans will be critical.*

Strategy 3

Induction

Objectives

Colorado should develop a statewide system of induction support for new teachers, particularly in its high needs and remote rural schools. Such a system must go beyond simply requiring mentoring and address structural elements that cause many new teachers to struggle.

The core of the induction system should be reducing the amount of time new teachers are alone and solely responsible in the classroom, achievable in one of two ways: 1) the full-time, or nearly full-time, assignment of a coach in the first weeks of school, and 2) a reduced teaching load during the first semester, if not the first year.

In addition to reducing the stress and burden on new teachers, a successful induction program can help mitigate the negative impact first-year teachers have on student achievement. Research has shown that first year teachers produce significantly lower academic gains than other teachers. Reducing the amount of time new teachers are the only teacher in the classroom should ameliorate this unfortunate effect.

Perceived priority for U.S. Department of Education Medium Importance

Efforts to improve teacher induction are met with some cynicism from education reformers. However, the need to provide support to new teachers is well established, and new, creative approaches to addressing this troubling problem are likely to get a welcome reception.

Features of a strong proposal in this area:

- Strategies that provide new teachers with more intensive support from the start, reduce teaching load, diminish early stress
- Strategies that can help a new teacher survive, even thrive, in spite of indifferent colleagues

A strong induction proposal should avoid:

- Commitment to implement standard induction strategies already in wide use
- Strategies that depend on strong and supportive school leadership to be implemented successfully

Steps Colorado can take *prior* to submission to show the preconditions for reform and improve its chances of RTT success

NO ACTION REQUIRED – Colorado already requires that all new teachers must receive induction support. The Legislature might request a thorough program/policy evaluation through the Legislative Auditor's office to assess the effectiveness of current policies and practices.

I. State-Level Actions

1. CDE: Design, coordinate and provide support to LEAs on new induction strategies. Redirect existing staff or establish new positions for this purpose.

Two FTEs with associated costs \$400,000 per year

II. Local-Level Actions

1. LEA: In districts with significant poverty, place a coach for 80% of class time in every new¹² teacher's classroom for the first 2 to 8 weeks of school, depending on the poverty of the district. Contract with retiring/retired effective teachers to support this service, helping the new teacher set up critical routines for success and establish classroom management. Coach/teacher relationship could continue through the school year on an informal basis or at the financial discretion of the district.

The greatest benefit of this strategy may not even be increased teacher retention and success but a reduction in the adverse impact of first-year teachers on student achievement gains. Statistically the worst gains students make are under first year teachers.

There were approximately 5,400 new teachers in Colorado last year. We assume that 50% had previous teaching experience if Colorado is like other states, leaving 2,700 teachers in need of intensive mentoring, deducting even more if only high needs schools are served.

A rough estimate is that about 400 first-year teachers were hired to work in schools with 30% or more of students receiving free or reduced lunch; about 675 first-year teachers work in schools with 50% or more students receiving free or reduced lunch.

Each coach would work 24 hours a week @\$50/hour.

\$1,200 per week

Medium poverty schools(30–50%): Five weeks would be \$6,000 each plus

Additional visits (20) costing \$2000= \$8,000

*8,000*400=\$3.2 million*

High poverty schools (above 50%): Eight weeks=\$9,600

Additional visits (20) = \$2000

*\$11,600 per new teacher*675 teachers = \$7.9 million*

\$11 million per year

Minus existing monies currently being directed to induction strategies but not including cost of running the program, significant for each district or BOCES or CDE.

2. LEA: Reduce the teaching load of first-year teachers in a subset of high poverty schools. This strategy both reduces significant stress on new teachers, but it is also the strategy most likely to significantly reduce the adverse impact that first-year teachers have on student achievement gains. It would require 1.5 positions (if a new teacher would only be assigned to half a load) for each new position required. Ideally the district would not fill the .5 position with another new teacher but would present it as an option for teachers wanting a half time load for a year. A modified version of this would put the

.5 position in the classroom for just the first semester.

Average starting salary in Colorado: \$35,000

Supplement of .5 position would be average salary in district, not average starting, \$47,500 with 25% benefits=60,000.5=\$30,000*

Wholly new teachers in schools above 50% poverty, estimated at 675=\$20.1 million/per year.

Modified version (one semester)=\$10 million/per year excluding cost of identifying teachers to serve .5 positions.

Implications for rural areas

Teacher retention is a particular problem in remote rural school districts. These strategies would help to ensure that a new teacher experiences success from the start, essential to a district's ability to hold on to younger teachers. To hold onto teachers in rural area, given the investments described above, the state ought to consider a minimum three-year contract, with incentives like the savings bond described above.

How this strategy connects to other reform areas

Struggling schools: These strategies would disproportionately benefit struggling schools, which typically have greater teacher turnover and more new teachers in any given year.

Data infrastructure: The data system will be used identify the effectiveness of those selected to provide support to new teachers.

Standards/accountability: Helps to remedy overrepresentation of first-year teachers (with their generally low student achievement gains) in accountability measures of low performing schools

Likely obstacles

The high price tag of these strategies may be difficult to sustain. —Structural changes to teacher preparation (especially the student teaching experience) would mitigate the need for these strategies.

[12] Not returning after leave or with previous teaching experience. Many induction initiatives waste limited resources by including teachers who are new to a school or district, but not new to the profession. These teachers may need orientation, but not induction.

Strategy 4

Compensation Reform

Objectives

Like all states, Colorado needs to move away from lockstep salary schedules towards a system that differentiates salary on a number of factors including teacher effectiveness, the relative difficulty of a school setting and the demand for teachers with particular skills or knowledge. We argue that differential pay is not only fairer to teachers, but better for teacher quality, transforming a system of pay that is indifferent to educational goals into a highly strategic force for realizing greater educational equity and higher student achievement.

If Colorado or its districts were to eliminate compensation schemes which we know do not contribute to a teacher's effectiveness, notably the differential pay given to teachers to obtain advanced degrees, substantial funding will be available to compensate teachers on other measures, providing the sustained funding needed after *Race to the Top* funds are spent. Colorado appears to be spending an additional \$5,300 on average for each teacher with a master's degree, an annual state-wide expenditure of roughly \$138 million.¹³

Perceived priority for U.S. Department of Education Medium Importance

Department officials are enthusiastic about compensation reform, but their view is tempered by concerns about the limited knowledge base about how best to widely implement a different system of compensation and the potential danger of committing federal funds to teachers' salaries. Nevertheless, the Department is looking to seed experimentation, as evidenced by the \$200 million available for Teacher Incentive Fund (TIF) grants in stimulus funds and the almost \$500 million requested by the Administration for TIF for FY 2010.

Features of a strong proposal in this area:

- FOREMOST, emphasis on freeing up existing allocations to redirect compensation, notably, eliminating pay differentials for advanced degrees, which research has clearly established as contributing little to no value to teacher effectiveness (see Appendix summarizing research findings on advanced degrees)
- Removal of obstacles to teacher and principal hiring that indirectly restrict teacher compensation, notably intrastate salary portability, along with credential restrictions for both principals and teachers
- Introduction of alternatives and innovations to existing pay experiments

[13] Marguerite Roza and Raegan Miller, July 2009, Separation by Degrees, Center for Academic Progress. http://www.americanprogress.org/issues/2009/07/separation_of_degrees.html

A strong compensation reform proposal should avoid:

- Repeating pay experiments that are currently being piloted (e.g., including expansion of the Denver experiment)
- A proposal that only adds resources without looking for reallocations and efficiencies that can be realized from the current system

Steps Colorado can take *prior* to submission to show the preconditions for reform and improve its chances of RTT success

A. LEG: Remove the existing Colorado statutory requirements that districts compensate teachers for their education.¹⁴ Set in statute that teachers will no longer be eligible to earn additional pay for acquiring a master's degree, grandfathering teachers who are already earning the differential.

I. State-Level Actions

1. GOV and CDE: Broker an agreement among districts on portability to allow teachers or principals to move from one district to another without encountering a pay cap--provided a school wishes to hire the individual. Currently, Colorado districts cap the experience they will honor at ten years. Include a commitment to acknowledge prior work experience provided it is relevant to the teaching position.

2. GOV/LEG: Establish a Governor's Teacher Corps that deploys the state's highest performing teachers to high needs districts and schools. While this relatively small corps will not eliminate widespread distribution issues, it serves several important functions: (1) It makes working in a high needs school a prestigious assignment, one to which teachers may even aspire; (2) It creates a go-to pool of effective teachers that the state can deploy to places where they are needed most; and (3) It has the potential, much like

Teach For America, to create a network of alumni newly committed to the challenges of high need placements.

Teachers would be identified based on value-added data, and would commit to teach as part of the Governor's Teacher Corps for two years. The state would make up any difference in the teacher's salary between their original district and their Corps assignment, and also provide a \$25,000 (for example) supplement, paid directly from the state so as not to be subject to collective bargaining provisions concerning compensation. While cash incentives do not appear to be an effective recruitment strategies for high needs schools, in this case the significant supplement adds to the prestige factor that comes with being designated by the Governor, is considerably more than teachers would ever expect to receive in a bonus, and rewards these effective teachers for taking on more challenging assignments.

A quandary for districts and states wanting to secure a commitment from teachers to serve a certain number of years is a method of remuneration that protects the school from a teacher's early departure. Districts in Arizona involved in a program run by the Rodel Foundation buy savings bonds in the names of teachers. If the teacher completes a three-year commitment, s/he is given the savings bond. If the teacher does not complete the commitment, the program returns the bonds to the US Treasury and is given a refund in the amount of the original purchase.

Program should be funded using dollars made available from elimination of master's degrees incentives.

\$6 million per year for 200 teachers¹⁵

3. GOV/LEG: Set in statute a requirement that additional employment opportunities that arise for teachers should be decided on the basis of merit, not seniority. A number of teacher contracts contain a rule that those opportunities, such as summer school and expanded learning time, must be decided on the basis of seniority, meaning that schools may not be able to hire the most effective teachers.

4. CDE: With the school districts as partners, adopt an Expanded Learning Time model (such as is in place in Massachusetts) and give effective teachers the option of participating.

Expanded Learning Time (ELT) costs are generally between \$1,000-\$1,500 per child for 30 percent more time. The KIPP

[14] Colorado Revised Statute 22-63-401 states that, if a district has a salary schedule, education needs to be a factor.

[15] RTT funds would be an excellent way to launch this Teachers Corps, but the state will need a plan to sustain it. Title I School Improvement Funds -- significantly increased for just such innovative strategies -- would be an excellent fit. The state may need to seek a waiver from the Department to hold funds at the state level for the benefit of the high needs districts receiving Corps teachers; in the absence of a waiver a system would need to be developed whereby receiving districts pay the state in order to participate.

schools calculate that their longer day/week/year costs \$1,500 per child. The Massachusetts programs vary between districts, but the state provides \$1,300 per child.

5. CDE: Contract with a consulting firm to develop salary-based performance pay options for districts to consider under the newly revised evaluation system (Strategy 1), moving away from the stipends, bonuses, “winning the lottery” approaches to permanent salary adjustments provided to effective teachers.

6. CDE: Reward principals who have a higher quality index rating. Strategy 1 describes a principal performance matrix that the state would develop to help determine principal quality. The state should provide additional pay to principals who serve in high needs schools and who score higher on this matrix. Similar performance pay strategies could be implemented for central office staff as are currently being piloted in Denver.

There are 606 schools with poverty rates of 50% or more free/reduced lunch. A reward system targeting 15 percent of those principals would mean that 91 principals in the state would be eligible for a \$25,000 reward, estimated \$2.3 million.

The eligibility and/or size of reward could be adjusted up or down.

7. GOV/LEG: Lay the groundwork for pension reform, an important ingredient to achieving a more equitable balance in teacher compensation for teachers at the front end of the profession. Pension reform may be the most politically difficult reform for a state to take on, often because the debate quickly gets reduced to the advantages of defined benefits plans versus defined contribution. The issues and the solutions are actually far more complex than this simplistic argument suggests. The state would be well advised to begin with a comprehensive study of the state’s pension system, under a charge of providing a pathway for the following reforms:

- Ameliorating any practices which lead to the pension system operating with excessive unfunded liabilities or an inappropriately long amortization period.
- Setting reasonable district and teacher contribution rates.
- Providing teachers an option of a fully portable pension system as their primary pension plan, either through a defined contribution plan or a defined benefit plan that is formatted similar to a cash balance plan.
- Ensuring that teachers are vested no later than the third year of employment.

- Allowing teachers in a defined benefit plan to purchase time for unlimited previous teaching experience at the time of employment, as well as time for all official leaves of absence, such as maternity and paternity leave.
- Offering the option in a defined benefit plan of a lump-sum rollover to a personal retirement account upon employment termination, which would include teacher contributions and all accrued interest at a fair interest rate. Also, for withdrawals from either defined benefit or defined contribution plans, funds contributed by the employer would be included.
- Setting a neutral formula for determining pension benefits, regardless of years worked (eliminating any multiplier that increases with years of service or longevity bonuses.)
- Preserving incentives for teachers to continue working until conventional retirement ages, basing eligibility for retirement benefits on age, not years of service.

\$2 million

8. LEA: Choose option(s) provided from compensation study (I-5, above) to provide a higher salary to teachers who consistently earn the highest ratings, provided the evaluation system has been reformed (Strategy 1).

For example, the district might award a certain number of “chaired” positions paying \$100,000 or more per year to the most effective teachers in the system (five to ten years or more of sustained, highly effective performance). Chairs would be limited (even less than one per school perhaps), with a rigorous selection process used to fill them.

While RTT funds could be used for start up, state and local funds could be invested to generate an endowment to support this initiative once sufficient data are accumulated to select chairs.

\$50,000 per teacher

Position in the district/BOCES to run the program, full or part time, \$25,000 –\$100,000 per district

As another example, a district might award the third grade teachers in a particular school for consistently strong performance in mathematics over three years by moving them up two steps on the salary schedule—not by providing a bonus. A teacher who consistently prepares her class in an AP subject to earn 3’s, 4’s and 5’s might be eligible.

The funding for such a program should be revenue neutral, no more and no less than the savings realized from defunding pay differentials for advanced degrees.

9. LEA, *Alternative to I-4*: Where relevant, establish an amendment to the teacher contract that says offering additional employment opportunities such as summer school should be decided on the basis of merit, not seniority.

10. LEA, *Alternative to I-6*: Absent a statewide strategy, reward principals who have a higher quality index rating. Strategy 1 describes a principal performance matrix that the state would develop to help determine principal quality. A local district would provide additional pay to principals who serve in their high needs schools and who score higher on this matrix. Similar performance pay strategies could be implemented for central office staff as are currently being piloted in Denver.

How this strategy connects to other reform areas

Struggling Schools: Targets compensation incentives at struggling schools.

Data Infrastructure: A new compensation system is absolutely dependent on a much improved evaluation system, which is in itself much dependent on a good data system. Teachers who take part in the intra-district loan program, for instance, would need to be selected in a fair process.

Standards/accountability: Rewards teachers for achieving high standards.

Likely obstacles

Extreme opposition to moving away from the traditional salary schedule — *The salary schedule is based on variables that do not correlate well with teacher effectiveness. Further, the protections against gender, racial and other forms of discrimination that formed the original purpose for the uniform salary schedule are now accorded all individuals under civil rights legislation.*

Issues of fairness — *All aspects of this strategy will need to be validated, and transparency in decision making is essential.*

Strategy 5

Teaching In STEM Fields

Objectives

Colorado should develop a coherent state strategy to address the difficulty school districts face in attracting and retaining sufficient numbers of qualified STEM (Science, Technology, Engineering and Mathematics) teachers. The state's strategy should tackle this issue from many different angles, recognizing that there is not going to be any single source of great teachers for teaching these subjects, with the need particularly acute in the areas of mathematics and physical science. Multiple pathways are needed for qualified individuals to enter the profession, and multiple strategies are needed to keep them.

A comprehensive strategy begins with the preparation of teachers entering STEM fields, including elementary teacher candidates, who—although often overlooked in the STEM discussion—bear the daunting responsibility of providing young students with the necessary foundational knowledge. Colorado must also ensure that its minimum qualifications for licensure are sufficient for building a workforce capable of delivering world-class curricula in STEM fields.

Colorado should also remove any regulatory barriers that may discourage qualified individuals from teaching and attend to factors which contribute to teacher attrition. (Some of what is described here is also addressed in Strategy 7, Teacher Preparation.) A clear barrier is language in teacher contracts blocking districts from offering competitive salaries to teachers who have highly marketable knowledge and skills. Compensation reform that bases salaries on teacher

knowledge, skills and performance, and thus allows some teachers to earn more than others, is imperative.

The shortage of qualified STEM teachers is symptomatic of a broader problem in the teaching profession: that there is too little interest in the importance of high academic standards for building professional prestige and that the profession remains an unattractive choice for many individuals with strong academic backgrounds. Individuals interested and capable of pursuing relatively demanding academic pursuits, including but not limited to science and mathematics, are simply put off by a lack of academic rigor found in most teacher preparation programs. The solution to this problem is to raise the standards and rigor of teacher preparation so that talented students find its study challenging and rewarding.

Perceived priority for U.S. Department of Education High Importance

Business leaders and some influential foundations, most recently Carnegie, have been quite vocal on the importance of this issue. It is also of particular interest to education reformers, in no small part because the focus on STEM shortages and its connection to global competitiveness provides leverage to initiate reforms that will help the teaching profession at large.

Features of a strong proposal in this area:

- Commitment to adopt common mathematics standards and assessments

- Commitment to improve curriculum across the state, aligned with new standards and assessments as well as global benchmarks
- Some element of differentiated compensation to attract STEM secondary teachers
- Improvements to available alternate routes to ensure the immediate needs of prospective STEM teachers are met when they enter the classroom
- Plans to improve the quality and appeal of undergraduate teacher preparation, including ensuring that education coursework is neither unlimited nor pitched at a low level or rigor
- Use of international benchmarks, such as TIMSS, to evaluate and report to the public on the state's progress

A strong proposal should avoid:

- Launching or expanding small-scale boutique programs designed to encourage individuals to consider STEM teaching
- A strategy that depends solely on teacher preparation programs to address pipeline problems
- A strategy that suggests STEM teachers can be attracted and retained by money alone and ignores the many other factors and deterrents at play.

Steps Colorado can take *prior* to submission to show the preconditions for reform and improve its chances of RTT success

A. COMMISSION ON HIGHER ED: Require all teacher applicants to pass a basic skills test with the cut score set by the state as a condition of admission into an approved teacher preparation program.

B. GOV/LEG/CDE: Conduct an audit of current alternative routes for the express purpose of learning the extent to which they are utilized by prospective STEM teachers and identifying any characteristics that limit their usage by or make them unattractive to STEM candidates.

C. COMMISSION ON HIGHER ED/STATE

BOARD: Close Colorado's testing loophole that allows elementary teachers to pass its multi-subject license test based on an overall score even though they may have failed the mathematics or science portion of the test. Set a passing score for the mathematics portion of the PLACE, and require ETS to do the same for the Praxis II test at the threat of using another test.

An even stronger signal would be for Colorado to adopt a wholly new elementary teacher licensing test in mathematics to replace the PLACE and/or Praxis II that teachers take upon completing their teacher preparation program. This test should require a much deeper understanding of elementary mathematics concepts than is the case with either the PLACE or Praxis II. Massachusetts has one in place and Florida has efforts under way.

NCTQ has made available a model test for states and institutions to review the level of rigor that is required. That test can be found at www.nctq.org/docs/net2-ttmath-testandanswerkey.pdf

D. STATE BOARD: Close Colorado loophole that allows middle school teachers to teach on a K-8 generalist license, lacking necessary middle school-level subject expertise. Require teachers currently employed in these schools under a K-8 license to pass a test of subject matter knowledge in order to retain their teaching assignment.

E. COMMISSIONER and STATE BOARD:

Grant Commissioner of Education waiver authority (extension of Colorado Code 2260.5-R-23.00) to allow part-time instructors to be hired solely to teach advanced courses, such as AP chemistry or AP calculus, without being certified. Communicate availability of these waivers to districts.

I. State-Level Actions

1. LEG: Make necessary regulatory changes to accommodate recommendations from audit of alternative route programs (described above).

Colorado should build on the "Alternative Teacher Programs and Licensure Act" of the last legislative session, which removes a barrier to the use of alternative certification by STEM and other prospective teachers by allowing candidates without a subject-area major to demonstrate content knowledge through a test. The state should pay particular attention to ensuring that alternate route teachers are provided with sufficient induction support. Effective strategies include practice teaching

prior to starting to teach in the classroom, intensive mentoring with full classroom support in the first few weeks or month of school, a reduced teaching load, and relief time to allow new teachers to observe experienced teachers during each school day. Colorado should also ensure that coursework that is required of alternate route teachers meets the immediate needs of new teachers. Appropriate courses include grade-level or subject-level seminars, methodology in the content area, classroom management and assessment.

2. STATE BOARD: Approve ABCTE as an alternative pathway into teaching for secondary math and science teachers. The ABCTE mathematics and science tests are more rigorous than most licensing tests and can be used to confer highly qualified status on part time instructors.

3. STATE BOARD: Adopt an incremental plan that eventually replaces basic skills tests used for licensure with tests that evaluate the proficiency of elementary teachers up through Algebra II and secondary teachers up through precalculus.

Identify necessary benchmarks that would allow students to move towards the standard within five years. Provide LEAs model syllabi, formative and summative assessments to track progress towards new standards.

4. COMMISSION ON HIGHER ED: Raise standards for what elementary teachers need to know in mathematics and science, making their undergraduate preparation in mathematics sufficiently broad and relevant and their coverage of relevant science topics comprehensive. Conduct annual audits of the required coursework at Colorado's approved teacher preparation programs to ensure that elementary teachers are getting the intended mathematics and science coursework. Hold programs accountable for requiring the coursework to receive program approval.

Provide approved teacher preparation programs with model syllabi to explicitly lay out expectations for courses. Louisiana State University mathematics professor Scott Baldrige has an exemplary elementary preparation program in mathematics. NCTQ posts his syllabi on our website at www.nctq.org. The Core Knowledge Foundation provides similarly strong syllabi for science courses on its website, <http://coreknowledge.org/CK/resrcs/syllabusdl.htm>

5. STATE BOARD: Contract with national experts (from outside the state) such as ACHIEVE or prominent university scholars with experience in K-12 standards (e.g.

Stan Metzenberg, Roger Howe, Stephen Wilson, George Andrews, Martha Schwartz, William Schmidt) to review the quality of various mathematics and science curricula and texts used in Colorado districts. Measure their rigor against international counterparts.

Estimated \$500,000

6. COMMISSION ON HIGHER ED: Expand and strengthen existing UTeach programs in the state to attract more teachers into STEM fields (See Strategy 5). The University of Colorado at Colorado Springs has expressed interest in serving as such a site.

The overall cost model for starting a UTeach site is about \$2 million spread over five years, with some obligation of matching on the part of the institution.

7. CDE: Investigate the particulars of the Colorado teacher pension, which may prove to be quite attractive to middle-age career switchers who could teach ten years and still qualify for a reasonable pension and good health care benefits.

Market the findings, \$100,000

8. CDE: For rural and small districts, offer strong in-service math and science professional development that is systematic, focused on content and taught by knowledgeable professionals.

Vermont and Massachusetts offer high quality professional development to teachers in STEM fields. Depending on the stipend structure, provider quality, overhead and other factors, these programs range from \$1,800–\$3,600.

The University of Nebraska has a rural initiative for middle school master teachers that consists of a high-tech, instructor-intensive distance learning program during the school year sandwiched between 2 credit-bearing residential summer sessions that also pay the teacher a stipend. \$10,200 per teacher

9. GOV/CDE: Work with the state and local chambers of commerce to identify those employees who have been or will be laid off and who have the special skills to teach STEM in the schools.

One such model is EnCorps in California., <http://www.encorpsteachers.com>

10. GOV: Refine the idea of a Governor's Teacher Corps idea described in both Strategies 2 and 4. The

Governor would name a Teacher STEM Corps each year, highly talented elementary mathematics and STEM teachers¹⁶ who would agree to go to work in high needs, remote rural schools. In return they would receive their home district salary, a \$10,000 to \$25,000 annual stipend from the state and a housing allowance from the district.

The corps members would train other teachers in the district, modeling lessons and coaching teachers. Elementary corps members would only teach mathematics, again modeling and coaching other elementary teachers in mathematics. Further, these teachers could be assigned one or two student teachers who would work with them every day over a full year. The student teachers in turn would qualify for a savings bond of \$6,000 if they agreed and then fulfilled a commitment to work in the district for three years. One caveat: It is unlikely that there would be student teachers in secondary STEM available for such a program.

Cost of one teacher:

Salary differential between a 4th year teacher in Denver area and rural 4th year teacher is roughly \$10,000.

25,000 per year for secondary

\$10,000 for elementary.

\$12,000 for two student teachers

Cost of program would be approximately \$32,000 per teacher for elementary grades and \$47,000 for secondary.

\$32,000–\$47,000 per teacher

11. CDE: Under the state's alternate route, solicit providers of an online training program to recertify teachers or career changers in a STEM field. Publicize availability of program, particularly in rural districts.

12. GOV and CDE: Provide a stipend, certification waiver and housing allowance for rural districts to any graduate students in mathematics and science who are willing to teach two advanced high school courses while completing their dissertations.

II. Local-Level Actions

1. LEA: Put in place an implementation strategy that will ensure that prospective teachers (college-bound high

school students) master Algebra II. This strategy is likely to involve a wholesale change in mathematics curriculum, a substantial professional development effort and a series of formative assessments.

See Strategy 6 for an example of a curriculum adoption

2. LEA: Establish partnerships with local universities and colleges to recruit graduate students to provide advanced coursework on a part-time basis in mathematics and science. Have the graduate students take the ABCTE test to fulfill highly qualified certification status.

3. LEA: Start STEM teachers at a higher step on the salary schedule if they have relevant prior work experience.

Impact should be neutral if incentives for master's degrees are eliminated.

4. LEA: Give full time secondary mathematics and science teachers a salary differential. Adjust differential to reflect shortages, such as paying a higher differential to physics teachers than more readily available biology teachers.

Number of math and science teachers in state, differential of \$3,000 to \$10,000 depending upon if the teacher is also in working in a high needs school.

Race to the Top can be used to provide the necessary funds to meet the needs over 3 years but ultimately the district would have to pay these differentials using available revenue from eliminating master's degree incentives.

5. LEA: After receiving results of curriculum study (see above), make modifications, wholesale changes to mathematics and science curricula.

Race to the Top funds could be used to supplement districts' need to buy new textbooks and professional development, but use of these funds should be limited to districts which have recently replaced textbooks.

6. LEA: In larger Colorado districts, develop strong in-service math and science professional development that is systematic, focused on content and taught by knowledgeable professionals. (Smaller, rural districts would rely on training provided by CDE.)

Estimate the per teacher cost ranging from \$1,800 to \$3,600.

[16] It would be a mistake to structure the program to make it hard for younger teachers to be unable to be named to the corps, given that younger teachers are more likely to make a temporary move of this nature.

Implications for rural districts

Outlined in specific action steps above.

How this strategy connects to other reform areas

Struggling Schools: High-needs schools often have the most difficult time recruiting and retaining STEM teachers. Incentives can be targeted to struggling schools.

Data Infrastructure: The state can use its data infrastructure to compare its performance to international benchmarks.

Standards/accountability: World-class math and science standards are at the core of this strategy.

Likely obstacles

Basic skills tests reduce minority access to profession.

—The most successful educational systems in the world, and those that do the best job providing all children with a good education, set high standards for admission into the profession, only taking the upper third of college graduates. These tests assess middle-school level skills.

Local control of curriculum. *—Provided a district can show that its curriculum meets world-class standards, it retains full choice over curriculum.*

Resistance to global comparisons. *—Global comparisons might not have mattered 50 years ago. They matter now in the most concrete terms: Jobs.*

Strategy 6

State-Wide Adoption of an Effective Curriculum

This strategy could be done alone or in concert with Strategy 5, provided the curriculum chosen was in mathematics or science.

Objectives

Students achieve when not one but four elements are in place:

- **STANDARDS** which organize student learning; what needs to be learned and when it should be learned, no matter where students attend school.
- **CURRICULUM** which delivers a level of practical, daily detail to the standards needed by the teacher, which presents sound instructional strategies that work, and which provides the blueprint needed to ensure that all children regardless of background can meet the standards.
- **TEACHERS** capable of delivering the curriculum, adjusting it to meet the needs of students, deciding if and when additional tools such as technology are needed.
- **ASSESSMENT**, both formative and summative, to serve as a yardstick of progress.

Take one of these four elements away, and achievement will suffer. Nevertheless, curriculum has been troublingly absent in conversations about education reform as well as ignored in the indifferent approach some educators take to curricula adoptions. The policy discussion on reform appears to have leapfrogged over curriculum, going straight from standards to teacher quality.

Though we recognize the irony in this statement, given that we are the National Council on Teacher Quality, the current emphasis on human capital and effective teachers has unfortunately and unnecessarily been at the expense of an equally urgent emphasis on the importance of good curriculum. A progressive state looking to come out well ahead of others in *Race to the Top* can gain considerable advantage with recognition of this imbalance and make such a case to the U.S. Department of Education in its *Race to the Top* application.¹⁷

Do states then need to adopt a state-wide curriculum? No. It's well known that such a suggestion would not be generally well received by local school officials and certainly not in a state such as Colorado with its passionate protection of the "local control" principle. What we recommend here is not a state adoption of a curriculum but an agreement entered into by a district consortium in the state, which shares an interest in adopting a world-class curriculum and recognizes the efficiencies of doing so on a large scale.

We pointedly do not recommend that the Colorado Department of Education coordinate this curriculum adoption. Instead, the strategy outlined here provides for the creation of a non-governmental, non-profit organization charged with ensuring a successful adoption.

The strategy outlined here is in elementary mathematics, but a state could also address the implementation of

[17] In fact, we predict that within five years, there will be recognition of this missing ingredient for student performance after results fall short of expectations. States, foundations and reformers will advocate for a greater attention to curriculum, leaving it up to the teacher groups like ours to remind them not to forget about teachers!

a strong reading curriculum.¹⁸ The elementary math curriculum selected is the Singapore Math Method.

Why Singapore Math?

It's relatively easy to make the case that American math curricula are seriously lacking compared to international counterparts. Overall performance by U.S. students is lackluster on international tests. Within the United States, Colorado's performance against other states is itself quite mediocre, 28th in 4th grade mathematics and 18th in 8th grade mathematics according to the latest NAEP data, well below where it should be given Colorado's relative wealth.¹⁹

Singapore's approach to elementary mathematics education first came to the attention of U.S. educators in 1997 with the release of the results of the Third International Mathematics and Science Study (TIMSS). Singapore's fourth and eighth grade students placed first in mathematics, well ahead of students in the U.S. and other Western countries, and that performance has stayed strong. The Singapore system was lauded for providing "textbooks [that] build deep understanding of mathematical concepts while traditional U.S. textbooks rarely get beyond definitions and formulas (AIR report, 2005)." While countries such as Japan and Korea have also done well in international testing, Singapore is the only Asian country where English is the medium of instruction for all state-approved schools in grades K-12, meaning that their curriculum is written in English.

Singapore's curriculum offers another advantage to states like Colorado with growing numbers of English Language Learners. Only 20 percent of the students who come to school in Singapore can speak English, the language of schooling. Because of that dynamic, the curriculum is sensitive to the limited understanding of non-English speaking students.

Would it be premature for a state to commit to the Singapore curriculum given the inevitability of common standards? We do not believe so. The common standards

are being benchmarked against international standards and Singapore consistently performs first, second or third on international assessments. The desirable characteristics consistently mentioned for the common standards (e.g. fewer topics in each grade) are the elements already present in the Singapore curriculum. If this is a concern, however, a state could choose to wait until the second application period to provide enough time to review the actual standards when they are released and vetted. We would go so far as to say that if the standards were in conflict with the Singapore curriculum, a state ought to consider opting out of the new standards.

Perceived importance for U.S. Department of Education: High Importance on STEM Issues, Low on Curriculum.

Curriculum is a slippery slope for the U.S. Department of Education, as federal law explicitly prohibits the Department from interfering with state and local curriculum selection. This does not mean, though, that the Department cannot and should not fund projects that seek to address this missing piece of the puzzle. The benefits of a district consortium to build upon the strengths of common standards is a case that can be easily made.

Features of a strong statewide curriculum adoption proposal include:

- A consortium that includes a significant number of districts, particularly districts with sizeable poverty populations (for example, a combination of districts that results in at least 50 percent of students in the state participating)
- Data demonstrating the value of the selected curriculum in improving student performance
- A strong teacher training component, not just in how to use the texts, but how to raise teacher knowledge and skills
- Use of online professional development

What a strong statewide curriculum adoption proposal should avoid:

- Bastardization of the curriculum. By this we mean trying to incorporate it into existing instructional frameworks or marginalizing it because such things as state standardized

[18] The strategy presented here would likely need some modification to address reading. The adoption of a statewide reading curriculum based on scientifically based reading research would probably still result in the use of a variety of scientifically based reading programs at the local level. The Alabama Reading Initiative (http://www.alsde.edu/html/sections/section_detail.asp?section=50&footer=sections) provides an excellent example of how a state can support teachers' use of effective strategies to improve literacy instruction and increase student achievement.

[19] For Colorado's NAEP performance relative to other states, see http://nces.ed.gov/nationsreportcard/pdf/naep_sct_final_web.pdf. The US Census Bureau ranks Colorado 12th in median household income. Performance on tests generally correlate with economic status. <http://www.census.gov/compendia/statab/ranks/rank33.html>

testing for students or professional development for teachers have not been modified to conform to and support the new curriculum.

Steps Colorado can take *prior* to submission to show the preconditions for reform and improve its chances of RTT success

A. CDE: Invite all districts to a meeting at which presentations are made on effective curricula suitable for the elementary grades. Districts vote on which curricula they would support as part of a consortium. Districts not liking the choices would not have to join the consortium.

B. CDE: Set up the structure of a non-profit charged with leading the district consortium.

This write-up hypothesizes that the districts would pick Singapore Math. Obviously another choice might be made.

For estimates here we presume 50 percent of the districts in the state would participate, educating 75 percent of the students.

I. State-Level Actions

1. COMMISSION ON HIGHER ED: Alter regulations to allow aspiring elementary teachers to achieve certification by completing 200-hour Singapore training and to allow licensed teachers to fulfill continuing certification requirements by completing the same course.

2. NGO: Open up shop; hire necessary personnel for district implementation.

Six staff

1.5 million

3. NGO: Invites all teacher preparation programs to join the consortium. Those joining would agree to have their math educators trained in the curriculum and develop new courses for teachers providing direct training in the curriculum.

Estimating that 12 of the 17 education schools agree to join the consortium, each faculty member would receive a \$500/day stipend to participate in a 10-day training over each of two summers. They would then visit elementary schools for half a

day, once every week for 25 weeks over two years, talking and learning from teachers about implementation, receiving either a stipend or a "buy-out" from a course.

\$400,000

4. NGO: Develop a roll-out plan for curriculum adoption, one grade in each of six successive years, starting with grade 1 in the first year.

- *Develop a cadre of teacher trainers, ratio of 1:200 at each grade level, with stipends to trainers and teachers for the first two years of implementation covered by the NGO, assumed by the district after that point.*

- *Create a summer training institute for the trainers with stringent entrance requirements.*

- *Cost for teacher trainers: \$24,000*

- *Total cost: 12 trainers at \$24,000/yr. for two years: \$600,000*

- *Develop the software for a 200-hour online teacher training program tailored to each grade level.*

- *Cost per grade level for software development: \$1,000,000*

- *Total software development cost: \$6,000,000*

- *Cost for teacher stipends: \$3,000/teacher*

- *Total cost: 4,500 teachers (over 2 years) at \$3,000 each: \$13,500,000*

5. NGO: Purchase instructional materials for any of Colorado's 12 education schools that adopt preparation programs that prepare teachers to use Singapore Math.

Cost per student: \$50

Total cost@ 425 students: \$21,250

6. NGO: Purchase all instructional materials (including consumable materials) necessary for a six-year, grade-by-grade roll-out: textbooks, teacher's guides, classroom assessments, workbooks and home instructional guides.

Total cost of students' and teachers' materials: \$28 million

7. NGO: Hire an independent research organization to monitor progress and conduct a transparent evaluation of the effects that adoption of Singapore Math has on student and teacher performance.

Estimated \$2,000,000

8. NGO/IHE: Train college professors at IHE's electing to join the consortium so that they in turn can train future teachers.

Total cost: \$400,000

II. Local-Level Actions

1. LEA: Sign-on to consortium agreement letter to use a common curriculum. Included would be a financial commitment to participate in the consortium, contributing dollars normally going to elementary math curriculum, in exchange for services. With CDE coordinating, select an executive director of the NGO.

2. LEA: Coordinate with NGO on receiving materials, producing a smooth roll-out from one year to the next.

3. LEA: Monitor and certify that elementary teachers receive necessary training.

Implications for rural districts

Since all the start-up costs are covered by *Race to the Top*, rural districts should have the same opportunity to participate as larger urban districts. The online professional development would make it easier for teachers in remote locations to participate.

Standards/accountability: By adopting internationally benchmarked K-12 math standards, adopting an aligned internationally acclaimed curriculum, and creating two instruments for evaluation of student performance (one internal and one independent and external), Colorado will meet the gold standard for accountability systems.

Likely obstacles

Districts exercising their prerogative to make curriculum decisions —*Evidence abounds as to the effectiveness of this curriculum. District participation has nothing to do with loss of decision making authority and everything to do with the adoption of a curriculum that will produce high levels of math achievement.*

Some math educators believe that Singapore entails too much teacher-guided instruction—*The program's emphasis on explicit instruction yields the world's highest performing students in math.*

Resistance to a "foreign" curriculum—*The TIMMS data show our current achievement levels compared to other nations.*

How this strategy connects to other reform areas

Struggling Schools: The Singapore Math curriculum has recently demonstrated its capacity to improve the performance of disadvantaged students. (It was designed to be especially friendly to English-language learners.) Its school-wide implementation will lever other organizational improvements in struggling schools as it creates incentives for more cooperation in instructional planning among staff.

Data Infrastructure: A good infrastructure is critical to the analysis of changes in student performance in districts implementing Singapore Math.

Strategy 7

Educator Preparation (Including Alternate Certification)

Objectives

In spite of countless studies looking at the value of teacher education, we have only been able to learn (apparently) that no single method of teacher preparation yields more effective teachers than another. With the development of value-added methodologies, a new micro tool is at states' disposal, allowing teacher performance to be traced from the classroom back to the individual institutions where teachers were trained, elucidating patterns of quality and performance.

Colorado should assess the quality of teacher preparation provided by both the 17 approved Colorado teacher preparation programs, as well as the state's alternate routes into teaching. With this knowledge, effective programs can be replicated and ineffective programs shut down. To bolster the accountability function, program performance data must be shared with the public so that consumer demand can help drive reform.

However, this outcome data is of limited value on its own. It will only provide the state with an existent picture of program quality, demonstrating a range in quality that is only as wide as the best program is good and the worst program is bad. It is in fact settling for the status quo. A more ambitious vision of how teacher preparation can contribute to teacher effectiveness is needed. Through its standard setting and program approval process, the state must ensure that programs are delivering the preparation that school districts

need. They must ensure that teacher candidates possess the knowledge and skills for admission and that candidates exit with sufficient skills to be granted licensure to teach.

Lastly, the state must put its alternate route programs, both for teachers and principals, on an even playing field with traditional programs, in terms of the regulatory framework that govern them.

Perceived priority for U.S. Department of Education Medium Importance

Like many reformers, Department officials hold a skeptical view of the quality of most traditional teacher preparation programs and their prospects for improvement. However, the Department has identified "reporting the effectiveness of teacher and principal preparation programs" as an expectation for the human capital assurance. Thus, while this strategy as a whole may be lower in terms of priority, states pursuing other strategies would be wise to incorporate the accountability action steps described below. Specifically, the connection of student achievement data to teachers and principals included in Strategies 1 and 2 can be extended to also link this information to preparation programs.

The Department is notably less skeptical about the promise of alternate routes to certification, as evidenced by their singling out the quality of alternate routes as the State Reform Conditions criterion for this area. Removing regulatory impediments and expanding these programs is clearly on their reform agenda.

A proposal that accommodates the strong interest in alternate routes while also displaying a serious intention to hold education schools more accountable and improve overall quality is likely to be well received.

Features of a strong teacher preparation proposal:

- Making admission into teacher preparation more selective
- New and improved licensure tests
- Better reading and math preparation for prospective elementary teachers
- Improved clinical experiences
- An accountability system for education schools and alternate providers based on outcomes and results
- Expansion of high quality alternative certification routes

A strong teacher preparation proposal should avoid:

- Standards for holding education schools accountable that focus primarily on inputs and/or that cannot be uniformly measured
- Reforms that require a lot of buy-in from the teacher education community
- Reliance merely on the presence of Teach For America or The New Teacher Project in the state as evidence of the state's commitment to teacher quality or alternate routes.

Steps Colorado can take *prior* to submission to show the preconditions for reform and improve its chances of RTT success

A. STATE BOARD: Strip irrelevant regulatory requirements for principals to have completed an approved principal preparation program. (Colorado does have an alternate route for principals essentially allowing some principals to bypass its regulatory requirements, but a wholesale revision is needed.) There is no evidence that these programs make principals prepare principals and they have been widely criticized for their content (Levine

2006, Hess 2006).²⁰ The money expended to obtain these doctorates could be better used in an apprenticeship program for aspiring principals.

B. LEG: Require all teacher applicants to pass a basic skills test with the cut score set by the state as a condition of admission into a school of education.

I. State-Level Actions

1. CDE: Develop the state's longitudinal data system to permit it to track performance of teacher graduates back to their institution of preparation.

Create a unique identifier for teachers upon entry into each preparation program, regardless of type. As a best case scenario, it would take around \$300,000 and 6 to 8 months to build out the ID generator for the prep programs, train the users, and train the state-level people. As a worst case scenario, a new teacher ID scheme would have to be built, introduced to all LEAs across the state and the preparation programs. This could take anywhere from \$1.2 to \$1.5 million dollars, and a year of work--provided other data development needs aren't more pressing, unlikely given all that Colorado would be trying to accomplish.

300,000 - \$1.5 million

2. COMMISSION ON HIGHER ED/STATE

BOARD: Close Colorado's testing loophole that allows elementary teachers to pass the multi-subject licensure test based on an overall score rather than a passing score for each subject. Establish passing subscores on the PLACE, and require ETS to provide subscores for the Praxis II or discontinue its use.

3. COMMISSION ON HIGHER ED/STATE

BOARD: Adopt a stand-alone, high quality reading test for elementary teachers (e.g. Massachusetts, Virginia, Connecticut).

4. COMMISSION ON HIGHER ED/STATE

BOARD: Provide model syllabi to preparation programs to deliver the reading content needed to do well on a new reading test.

[20] Arthur Levine (2005) Educating School Leaders. <http://www.edschools.org/pdf/Final313.pdf>; Frederick Hess (2007) Learning to Lead, American Enterprise Institute <http://www.aei.org/paper/22534>

There is no need to develop these from scratch. A number of well respected programs across the country (Texas A&M, University of Texas/Austin, Florida State University) would likely be honored to provide theirs. NCTQ will be releasing a study in late 2009 on the quality of reading programs in Colorado's undergraduate institutions. This study will identify the best programs in the state which can serve as models for others.

5. COMMISSION ON HIGHER ED/STATE

BOARD: Adopt a new elementary teacher licensing test in mathematics to replace the PLACE and/or Praxis II. The new test needs a separately scored mathematics section and needs to require a much deeper understanding of elementary mathematics concepts. (Massachusetts has one in place and Florida has an effort underway.)

6. STATE BOARD: Close Colorado loophole that allows middle school teachers to teach on a K-8 generalist license, lacking necessary middle school-level subject expertise. Teachers already placed in a school under such a license should be required to take a subject matter test to retain their assignment as a middle school teacher.

As a courtesy, the state should pay for any current teacher to take the test one time.

7. COMMISSION ON HIGHER ED: Expand, strengthen existing UTeach programs in the state to attract more teachers into STEM fields (See Strategy 5). (The University of Colorado at Colorado Springs has expressed interested in serving as such a site.)

The overall cost model for starting a UTeach site is about \$2 million spread over five years, with some obligation of matching on the part of the institution.

8. COMMISSION ON HIGHER ED: Following up on Colorado's stalled accountability effort nearly a decade ago, develop a set of objective accountability measures²¹ and minimum standards for performance for evaluating preparation programs. Require programs to report annual data. Identify consequences for low-performing programs.

Publish an annual report card on the state's website for each program.

Identify the data elements needed from the preparation programs, the "data dictionary."

Create a database and data extraction protocol for the programs to use to send the state the data.

Project management, technology, programmers, public relations, and training estimated at \$250,000.

Generating the reports based on the results estimated at \$30,000 per year, assuming the state already has a reporting engine in its data warehouse (see Strategy 1).

Estimate one database administrator employed at CDE, \$90,000 a year or \$110 an hour.

\$400,000 plus annual costs

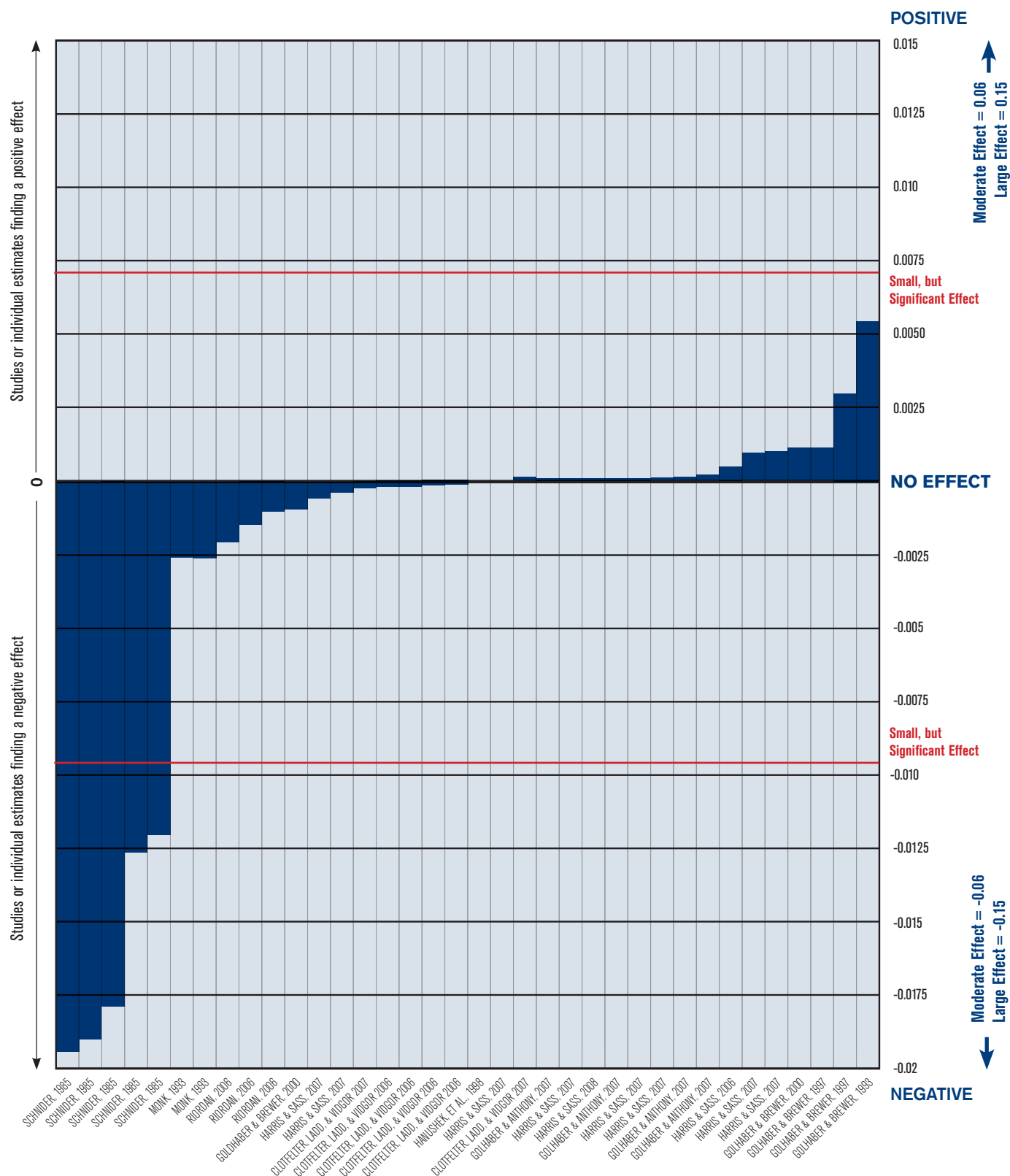
9. COMMISSION ON HIGHER ED: Develop a viable 'escape chute' for teacher candidates deemed unqualified for teaching as a result of their student teaching experience. If each program required all prospective elementary teachers to complete a subject-area minor, an individual who failed student teaching could still earn a college degree in relatively short order. One of the reasons programs may be reluctant to fail anyone in their student teaching course is the absence of such an option. This would also have the added benefit of having prospective elementary teachers take some advanced college level coursework in a content area.

10. COMMISSION ON HIGHER ED/CDE: Require that student teacher/cooperating teacher arrangements include more assurances of mutual effectiveness. While teacher preparation programs must set high standards for cooperating teachers and work with districts to recruit and reward effective ones, districts need to have more latitude in managing student teachers, with authority to decide when/how much to allow student to teach and to recommend that student teachers fail.

II. Local-Level Actions

Beyond the actions connected to student teaching described in the note above, there are no district specific steps to this strategy.

[21] For example, pass rates on state licensing tests of teacher candidates who entered student teaching (rather than just pass rates of program completers, an indicator that is virtually meaningless when the tests are required for program completion); average raw scores on licensing tests; satisfaction ratings of programs' student teachers; evaluation results from first and /or second year of teaching; academic achievement gains of graduates' students, and retention rates of graduates.



Do Master's Degrees make teachers more effective?

The Impact of Teachers' Advanced Degree on Student Learning

Metin Ozdemir, Ph.D., & Wendy Stevenson, Ph.D.
University of Maryland, Baltimore County

An extensive review of the studies published in peer-reviewed journals, books, and reports was conducted. For the purpose of literature search, we relied on multiple data bases including ERIC, EBSCOHOST, PsychInfo, and PsychLit. In addition, we carefully reviewed the reference sections of each article and chapter to locate additional sources. We also used online search engines such as Google and Yahoo search to locate updated publication lists and resumes of researchers who frequently publish in this field.

For the current meta-analysis, 17 studies (102 unique estimates) were selected as they have provided statistical estimates which allowed us to calculate effect sizes and re-compute the p-values for the meta-analysis.

All studies included in the meta-analysis were focusing on testing the effect of teachers' advanced degree (a degree beyond bachelors degree) on student achievement measured as grade, gains in grade over one or two years, scores on standardized tests, and gains in standardized tests over one or two years. Teachers' advanced degree included M.A. degree, M.A. + some additional coursework, and Ph.D. Student achievement variables included achievement in math, reading, and science areas

Out of 102 statistical tests that were examined, 64.7 % (n = 66) of the estimates indicated that teachers advanced

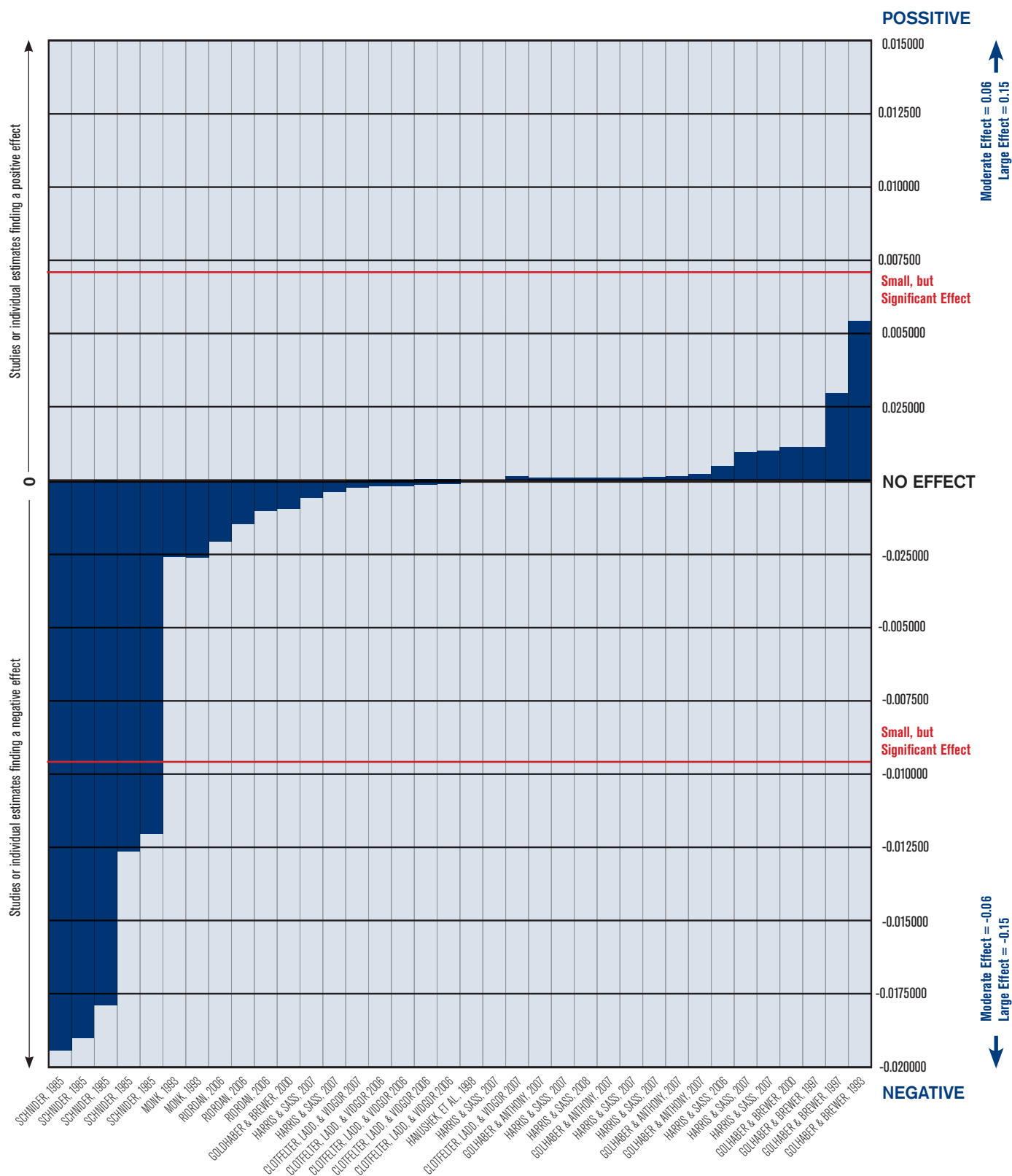
degrees did not have any significant impact on student achievement. On the other hand, 25.5% (n = 26) indicated a negative effect, and 9.8% (n = 10) suggested a positive effect of teachers' advanced degree on student achievement.

It is important to note that all 10 of the estimates suggesting positive effect ($p < .05$) of teachers' advanced degree on student learning were with analyses conducted on 6th and 12th grade students' math achievement. On the other hand, 23 negative effects ($p < .05$) were reported by studies focusing on achievement in Kindergarten or 5th grade achievement in math and reading, and the other three were on 10th and 12th grade achievement. Studies which reported significance level at $p < .10$ were not considered as reporting significant effect.

The studies examined in this meta-analysis had varied sample sizes. The minimum sample size was 199 whereas the maximum was over 1.7 million. Further analysis showed that there was no association between sample size and the direction of findings.

The average effect size estimate of all the 102 statistical tests was very low (.0012), which suggests that the impact of having advanced degree on student achievement is low. The highest effect size was .019, suggesting small effect.

One major concern regarding the studies reviewed in the current meta-analysis was that most studies to date did not identify the type of advanced degree they examined. In the current study, we identified only two studies (e.g., Goldhaber & Brewer, 1997; 2000) which examined the effect of subject-specific advanced degree on student learning. Specifically, Goldhaber & Brewer (1997)



Do Master's Degrees makes teachers more effective?

examined the effect of M.A. in math on 10th grade math test scores. They reported a positive effect of teachers' M.A. degree in math on math test scores. Similarly, Goldhaber & Brewer (2000) reported positive effect of M.A. in math on math test scores of 12th grade students. Of note, both studies reported low effect sizes.

It is possible that categorizing different types of graduate degrees under a single category of "advanced degree" resulted in biased estimates of the impact of teachers' graduate training on student achievement. Future studies should examine the impact of subject-specific degrees on student achievement in the respective disciplines so that the findings would improve our understanding of the value of teachers' advanced degree in improving student learning. Given this major limitation of the literature, the findings of current meta-analysis should be interpreted with caution.

