



# Improving Teaching

Through Pay for Contribution



NGA Center for  
BEST PRACTICES

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# Executive Summary

For decades, experts have been thinking and writing about the need to revamp teacher pay. In recent years, the pace of reports, op-eds, expert recommendations, and task force proposals calling for change has accelerated. Yet despite the proliferating chatter, the bulk of teacher pay remains fundamentally unchanged. Each passing year of continued investment in current pay systems encourages the lowest contributors to remain in teaching and discourages the highest potential contributors from entering, performing, and remaining in the profession.

The pay design approaches proposed in this report are not novel. Especially in recent years, all have been suggested or discussed by many in education but tried by only a few. Instead of merely prescribing one approach to pay, a guiding principle for taking action—pay for contribution—is recommended. Pay for contribution means investing more in teachers and teaching roles that contribute measurably more to student learning. Pay for contribution is particularly attractive to higher contributors. For this reason, it can help shape not only the performance of current teachers, but also the quality of the future teaching workforce by shifting who enters and stays in the profession.

Significant cross-sector research provides insights about the pay policies states can use to enhance teaching effectiveness and, thereby, improve student learning. This analysis should be just the start of many efforts to enact new models of teacher pay, determine what works well and what does not, and adjust pay systems to reflect those findings.

## The Many Forms of Pay for Contribution

Governors who want pay to enhance teaching effectiveness and improve student learning should advocate pay for contribution through one or more of these compensation policies:

- **performance pay:** significant bonus pay to teachers for gains in student learning results;
- **hard-to-staff school pay:** additional compensation for teachers who work in high-poverty schools, and very significant performance rewards to those who contribute more to growth in student learning in these schools;
- **skill shortage pay:** additional compensation to attract teachers in shortage areas, such as math, science, and special education, and very significant performance rewards to those who contribute more to student learning gains in the shortage areas;<sup>1</sup>
- **advanced role pay:** additional compensation for advanced or “master” teaching roles—and teachers capable of filling them—that contribute measurably more to student learning;
- **skill and knowledge pay:** additional compensation for specific skills that lead to proven, measurable gains in student learning, particularly in states where teacher-level assessment of student gains has not been implemented;
- **limited advanced degree pay:** additional compensation for holders of advanced degrees only in fields, such as secondary mathematics, where such degrees have a proven effect on student learning; and
- **retention pay:** significant one-time pay boosts after the early years of teaching experience to retain higher performers.

The amount of pay change for individuals must be significant enough to impact who becomes a teacher, who stays in the profession, and what teachers do in their classrooms. What “significant” means will vary by context, but small differentials of 5 percent or less of teacher pay are unlikely to be worth the trouble of implementing. Instead, differential pay opportunities of 15 percent or more may be needed to achieve the positive learning results that governors are seeking. The effect on state teacher pay budgets will depend largely on two factors: how bold leaders are in adopting numerous forms of pay for contribution and how much is shifted from pay that does not reward contribution to learning. The more policymakers are willing to increase or shift pay dollars into forms of pay for contribution, the more impact on student learning the changes will have.

Governors can enact these initiatives at the state level or encourage and enable schools and school districts to act. Eliminating state policy barriers to all forms of pay for contribution and providing grants to encourage bold and responsible district experimentation are key enabling activities.

### **Initiatives to Make Pay for Contribution Effective**

Whatever roles that governors choose to play in teacher pay reform, they should also advocate initiatives that will help make pay for contribution effective, including the following:

- **Instituting valid systems that track the contributions of individual teachers to student learning gains.** Ongoing improvement of student testing to measure student learning progress accurately is an important complement to pay reform. Without quality measures of learning, teachers will doubt the fairness of pay reforms based on assessment results. Measuring student progress also is critical to assessing the true value and impact of reforms, including pay changes. Furthermore, paying teachers for student progress reduces the incentive for teachers to avoid teaching challenging children with lower starting achievement levels.
- **Initiating or participating in studies of the “soft attributes” or “deeper competencies” of effective teachers.** Such studies can help build a well-grounded knowledge base about the habitual behaviors, thinking skills, and motivations of teachers who measurably contribute the most to student learning.
- **Addressing common implementation challenges.** These include training principals to play their part in implementing teacher pay changes, organizing the pay design process for staff buy-in, and building teacher pay budgets so they are sustainable when higher teacher performance demands larger expenditures for teacher compensation.
- **Evaluating how new pay designs contribute to student learning.** Rigorous ongoing evaluation of new models will enable governors and education leaders to evolve compensation design as learning goals, measurement capabilities, and financial resources change.

# How the Current Teacher Pay System Falls Short

**T**he specter of global competition has become real. Enormous educational progress in developing countries has made elementary and secondary education essential to the future economic and political success of nations and states. Several economically emerging nations have overtaken the United States in learning achievement; the future many have feared in this regard is occurring now.<sup>2</sup> In response to this and continuing concerns about education equity, governors have led a national movement to set high standards for all students, measure learning results, and hold schools accountable for ensuring learning. Along with this focus on results has come a search for critical levers to get those results.

Now more than ever, teacher effectiveness is one of those levers. Scholars and policymakers have come to understand that the quality of a student's teacher will be one of the most important factors in determining how much that student learns in school. As a result, the search is on for ways to raise the average level of teacher effectiveness by:

- attracting more capable individuals to enter the teaching profession, in general and in hard-to-staff subject areas;
- encouraging more of the best teachers to teach in hard-to-staff schools;
- inducing all teachers to improve the quality of their teaching;
- retaining more of the best teachers to stay in the profession over time; and
- outplacing more teachers who are not effective with students despite efforts to enhance the quality of their teaching.

Intuitively, policymakers and educators believe pay matters for getting and keeping great teachers. Today, the competitiveness of teacher pay relative to the pay for other similar jobs is the subject of heated debate, and comparative results depend primarily on whether summertime is counted as work time.<sup>3</sup> Of course, how much pay is an important question for all teachers. How well-designed is pay, however, is the question that affects student learning. A link between average base pay levels in traditional teacher pay plans and student learning performance has not yet been established.<sup>4</sup>

Pay is not just about dollars. The structure of pay—who is paid how much and for what—sends a strong signal about whether teaching is a profession where high achievement and high achievers are valued. Pay is part of the organizational culture that tells workers in any job what characteristics and behaviors are valued.<sup>5</sup>

Currently, degrees and years of experience are the largest factors in teacher pay differences. Pay for experience is usually incremental and spread out over the typical teaching career. On average, experience improves performance for a few years but not after that time.<sup>6</sup> Advanced degrees have no effect on performance, except for a small one in secondary math<sup>7</sup> and, possibly, other similar technical areas.

## Problems with Today's Teacher Pay Design

What is the effect of paying so much for so little learning consequence? Teacher pay in recent decades has not just failed to enhance teacher effectiveness. In fact, teacher pay design today works *against* quality teaching, encouraging lower performers to enter the profession and stay disproportionately while compelling higher performers to stay away and leave disproportionately.

Typically, increased state budgets for teacher pay are allocated to all teachers in equal percentages, which reinforces the shortcomings of current pay structures. Every time states authorize across-the-board pay increases in equal percentages to all teachers regardless of contribution, they create an incentive for the lowest contributors to remain in the profession and send the discouraging message that the highest contributors are no more valuable than those contributing the least.

Certainly, highly capable individuals still choose to enter and stay in the teaching profession for reasons unrelated to pay or recognition of their contributions to student learning, but the big picture is bleak. New teachers are less likely to score in the top quartile of verbal ability—one proven predictor of performance—than in the bottom quartile of verbal ability. Moreover, those in the top quartile are twice as likely to leave teaching after five years as those in the bottom quartile.<sup>8</sup> One key reason is that more capable teachers earn little more than less capable ones. Economic analysis of teacher pay has shown that high-ability teachers leave the profession in disproportionate droves due, in large part, to the extreme “pay compression” between high and low performers. Between the mid-1960s and 2000, the difference in compensation paid to teachers with the highest and lowest college admissions aptitudes shriveled from 37 percent to a mere 4 percent.<sup>9</sup>

These results are not surprising. Across many types of organizations, pay has been shown to make a great difference in who stays and who leaves. Although general teacher surveys suggest that working conditions are more important than pay to teachers as a group,<sup>10</sup> these studies do not reveal the full story about how pay affects teaching quality. In cross-industry surveys that break out the attitudes of high performers from those of the rest, high performers are the ones who leave primarily for higher pay. They also are more likely than other employees to leave for lack of advancement opportunity.<sup>11</sup> Pay is not the only factor, but if teachers resemble other employees, it may be one of the most crucial factors prompting the exit of top teachers. So long as compensation continues to send the clear message that achievement among teachers is not valued, high performers will continue to respond in kind by avoiding teaching and exiting teaching disproportionately.

Many people want to pay teachers more. American culture values education and the teachers who deliver it. Education is critical to hope and opportunity for all the nation’s diverse citizens. Yet no evidence exists to indicate that across-the-board pay increases using the current pay structure improves student learning. The case for taking a different approach is overwhelming.



### Recent State Reforms to Change Teacher Pay

In response, governors across the nation are taking the lead in teacher compensation reform. Reforms, attempted reforms, and stated intentions vary from focused to broad and from radical to incremental, but all aim to better align teacher rewards with student learning. Major pay reform has been enacted in Florida, Minnesota, and Texas. Several states have implemented similar but less extensive reforms. Governors in additional states have attempted reform, but they have seen proposed reforms blocked in the legislative process or challenged prior to implementation (see “Taking Action to Change Teacher Pay” on page 6).

Some governors have tried targeted reforms, such as those aimed at hard-to-staff schools and hard-to-staff positions (e.g., math and science). These efforts generally address market issues, but they do not significantly change the quality or contribution of the labor pool that enters or stays in teaching. Market and working condition pay approaches are common across industries, and they are essential when not enough workers would otherwise choose certain positions because of more rewarding alternatives or extra challenges compared with alternatives. Yet as currently crafted in education, market and hard-to-staff pay enhancements do not signal that high contribution to student learning—not just hard work or technical proficiency—is valued. Additional pay reform efforts have occurred at the district level and by private groups, and governors can also learn from these experiences.

Despite this admirable and growing activity, reform efforts are small, compared with the potential nationally. Moreover, too few approaches are precisely crafted to shift the average contribution of teachers—and the average learning experience of students—higher.



# Taking Action to Change Teacher Pay

**A**ction to change teacher pay has occurred at the state and local levels. Sometimes, private groups have provided the impetus for reform.

## State Action

**Florida.** Former Governor Jeb Bush oversaw enactment of a teacher pay reform under which *all teachers* have some of their salary based primarily on improved student achievement as well as other approved performance appraisal factors. Additionally, a limited percentage of *outstanding teachers* receive a supplement of at least 5 percent of their base salary. Governor Charlie Crist and the legislature recently adopted a bill that modifies the percentage of payouts that is based on standardized tests while delegating plan design details to the district level.<sup>12</sup>

**Minnesota.** Governor Tim Pawlenty proposed legislation passed by the state legislature in 2005 to provide \$86 million in budgeted funds to districts that reform teacher pay. The Quality Compensation Plan (Q Comp) requires five components: career ladders for teachers, job-embedded professional development, instructional observations and standards-based assessments, measures to determine student growth, and alternative teacher compensation or performance pay. Additional pay in hard-to-staff schools and subjects is allowed.<sup>13</sup>

**Texas.** Governor Rick Perry issued an executive order initiating a \$10 million statewide incentive plan for teachers in 100 select, qualifying schools in which payouts are based partly on student testing performance. Other factors are mentoring other teachers and teaching in hard-to-staff schools and subjects. More traditional elements such as education levels and experience also are considered. Seventy-five percent of the plan's payout funds must go to teachers. Individual teachers are eligible for up to \$10,000 in payouts. Teachers at the local level will have a voice in determining payout guidelines for some of the funding.<sup>14</sup> That same year, legislation expanded the program to over 1,100 qualifying schools and authorized approximately \$100 million in funding. Additional legislation authorized another incentive pay program for which all schools are eligible. Districts and schools will determine the criteria by which teachers are granted awards.

Governors in at least four states—**Alabama, Hawaii, Massachusetts, and Mississippi**—have proposed pay reforms of similar design and magnitude to the major Florida and Minnesota plans. **Arizona** and **Nevada** are designing, and **Iowa** is piloting, pay programs that reward both test scores and teacher skills. **Oklahoma** provides bonuses based on student test score improvement. **North Carolina** uses a school growth model, with bonuses provided school-wide based on student test scores. **Delaware** and **New Mexico** are designing skill-based pay plans. **California** and **Indiana** also have proposed performance-based pay.<sup>15</sup>

### **Local and Private Action**

In early 2006, Houston, **Texas**, began to base salary increases in part on student test score performance. Denver, **Colorado**, has a multifaceted new pay program (ProComp) that includes various types of incentive pay. Other communities across the nation—for example, Anne Arundel County, **Maryland**; Charlotte-Mecklenburg and Guilford Counties, **North Carolina**; Chattanooga, **Tennessee**; Cincinnati and Columbus, **Ohio**; Kansas City, **Missouri**; Minneapolis, **Minnesota**; Mobile, **Alabama**; and Springfield, **Massachusetts**—have proposed or enacted less comprehensive reforms.<sup>16</sup>

The privately funded Teacher Advancement Program (TAP), which has been implemented and studied in numerous schools, serves as a model for many of the more aggressive pay reforms.<sup>17</sup> TAP includes multiple career paths, professional development focused on the curriculum and student progress, frequent evaluation of teachers, and performance-based compensation. The compensation element includes base-pay supplements for master and mentor teaching roles and bonus opportunities. Bonuses are based on classroom observation and both school-wide and individual value-added measures of student progress.



# A New Approach in Pay for Contribution

**R**eforming teacher compensation is not a new topic, nor is considering alternatives such as incentive pay.<sup>18</sup> What is different now? First, there is growing recognition that the current major determinants of teacher pay—academic degrees and teaching experience—are lackluster predictors of student learning.<sup>19</sup>

Second, considerable advances in measurement now enable tracking of individual teachers' impact on student learning progress, regardless of each student's starting point. These new assessments are known as value-added measures. Without fair and accurate measures of teachers' effects on children, it has been difficult to craft pay-for-performance plans that win the confidence of teachers. Research using value-added technology shows that better teachers<sup>20</sup> and certain teaching roles<sup>21</sup> contribute significantly more to student learning than others. Value-added approaches are not perfect; tests can be misaligned with standards, poorly designed methods can fail to pinpoint the real contributions of teachers, and student learning is not currently measured in all grades and content areas. However, well-designed value-added measures can play a role as part of broader teacher pay systems.

Third, pay has been well-researched in recent decades across industries and is now a well-proven lever for attracting and retaining better performers and for improving the performance of all capable staff. Compensation experts now know not just whether pay can improve performance at work but also how pay can and cannot improve performance at work.

Fourth, the political climate has shifted. All governors are concerned about education and are looking for ways to leverage improvements in student learning. Governors know that teachers can significantly affect student achievement and are seeking strategies to attract and keep the best teachers in their classrooms. Some have taken action to better train, recruit, and retain effective teachers. Many are interested in promoting or enacting new models of teacher pay. While governors in a few states are taking action and/or encouraging district experimentation, others are ready to act but are waiting for more concrete results and guidance about promising strategies. Some may be concerned about increased costs arising from additional teacher compensation, which already consumes a large portion of state budgets.<sup>22</sup> Fortunately, public support for increasing teacher pay is overwhelming—as high as 80 percent approval for pay increases that include more pay for better teaching.<sup>23</sup> Few issues have the universal emotional and economic appeal of contribution-based teacher pay reform. Today, teacher pay reform is attractive across the political spectrum, both for the values it communicates and for its enormous potential impact on teaching quality and student learning.

How can pay be redesigned and delivered to encourage large, global increases in teacher effectiveness? Many experts and education leaders have begun thinking about this. Proposals for serious reform are appearing at a rapid clip. The policy question is this: How can governors confidently and effectively act to change teacher pay so it promotes and rewards teacher contributions to improved student achievement?

Pay for contribution is a new term for potential governor-led and governor-enabled teacher pay reforms that can help increase teacher effectiveness. *Pay for contribution means investing more in teachers and teaching roles that contribute measurably more to student learning.*

The policy litmus test for state pay reform is whether it will significantly improve the influx of high-performing teachers, the performance of all capable teachers, or the retention of higher performers (and outplacement of lower performers). Pay for contribution, as defined in this report, is a uniquely strong lever for enhancing teacher effectiveness because it is uniquely attractive to high performers, both for recruitment and retention. Pay for contribution also motivates improved performance of all capable staff.

Yet pay for contribution can be intimidating to those uncertain about how they will fare. This fear can lead to political opposition, a formidable challenge borne out in the experience of some states attempting teacher pay reform.



# Policy Options to Establish Pay for Contribution

**S**everal ways to pay for contribution exist, though considerable cross-industry research makes clear that some are more effective than others. Some work better to attract higher performers, some to improve the effectiveness of all staff, and some to retain higher performers. Some pay changes increase the effectiveness of employees in multiple ways—attracting, improving, and retaining better performers and performance—while reducing the attractiveness of a job to lower performers. Every pay for contribution reform must be designed and executed well to work, but changes are worth the effort to replace pay policies that do not have the intended effect even when implemented well.

The amount of pay change for individuals must be significant enough to impact who becomes a teacher, who stays in the profession, and what teachers do in their classrooms. What “significant” means will vary by context, including factors such as the competitiveness of current teacher pay relative to the pay for other similar jobs. Available studies suggest that more substantial pay differentials will lead to more significant results. According to cross-sector research, for example, the larger the incentive pay opportunity available for a job, the more it will attract high performers.<sup>24</sup> In a United Kingdom performance pay plan that produced highly significant student learning gains, pay differentials available to successful participating teachers ranged from 15 percent to 22 percent.<sup>25</sup> Stanford economist Eric Hanushek and his colleagues estimate that the pay differentials needed to attract teachers to hard-to-staff schools are even more substantial: 20 percent to 50 percent.<sup>26</sup> Further experience and research in education should reveal more guideposts, including answers to the critical question of how much pay would encourage capable teachers to seek and remain in advanced teacher roles. In general, very small differentials (e.g., 5 percent or less) may not be worth the political capital or administrative cost.

Governors are naturally concerned that large differentials are not feasible in light of state budget realities. It is worth noting that a differential of, for example, 20 percent would not require a 20 percent increase in a state’s teacher pay budget; only a small proportion of teachers would assume advanced roles, a minority of schools and teaching positions are hard to staff, and not all teachers would earn performance-based awards. Still, if added to existing pay systems, the amount of “new money” required might not be fiscally practical. Consequently, the implementation of pay for contribution will depend largely on how bold leaders are in reallocating funds over time from pay that does not reward contribution to learning.

## Performance Pay

One of the most obvious, but also controversial, ways to pay for contribution is to pay for measured performance. Teachers could earn annual bonuses, for example, by producing strong student gains based on standardized tests or some other objective measure of how much children are learning.

When designed well, a strong body of cross-industry research has shown pay for performance to have a significant positive effect on organizational performance.<sup>27</sup> These findings are bolstered by recent research in education. For example, a well-designed study of a performance pay plan in Britain yielded very positive results; teachers participating in the plan increased student learning by half a year more than other teachers, on average, over two years.<sup>28</sup> In the most recent year of data, plan participants were eligible for performance-based pay of up to 15 percent to 22 percent above nonparticipating teachers.<sup>29</sup> Similar studies are beginning to emerge in the United States.<sup>30</sup>

Performance pay improves organizational performance in multiple ways. Jobs with performance pay attract and retain a disproportionate number of higher performers<sup>31</sup>

and staff with better qualifications.<sup>32</sup> Performance plans improve the average performance of all who possess the necessary underlying capabilities to perform.<sup>33</sup> Because staff must possess the underlying capabilities, teacher selection criteria and professional development that focus on essential skills and competencies are critical companions for maximizing the performance benefits for all staff, not just the highest performers.

The effectiveness—and sustainability—of performance pay in any setting depends on how well the design details match the needs and resources of the organization as well as how leaders reinforce performance through other management actions.<sup>34</sup> Design challenges have been well-documented, which helps those designing performance pay plans today avoid these challenges. Performance pay plans that both get the best results and that employees prefer:

- are based on fair measures related to performance;<sup>35</sup>
- reward all important goals of a job;<sup>36</sup>
- include frequent feedback on progress during the year;<sup>37</sup>
- provide substantial, motivating rewards for higher performance;<sup>38</sup> and
- reward high-average, not just stellar, performers.<sup>39</sup>

Limits on plan effectiveness most often are related to poor measures of performance, which can include subjective measures that are applied unfairly and quantitative measures that do not accurately indicate people's relative contribution to target results (i.e., student learning).<sup>40</sup>

Performance-based bonuses may have an advantage over performance-based salary increases. Bonuses have been shown to increase staff performance more than performance-based salary increases,<sup>41</sup> to be more

attractive to high performers than base pay increases,<sup>42</sup> and to prevent the organization from paying for short-term performance with long-term compensation.<sup>43</sup>

Bonuses can be paid based on individual performance or team performance. Individually based rewards improve the recruitment and retention of higher performers.<sup>44</sup> Yet some experts argue for a team element when much of the work is conducted by a team working together.<sup>45</sup> Individual and team rewards need not be exclusive; a sound plan can include both, when team and individual contributions determine ultimate results.

How much is enough? Cross-industry research on thousands of employees indicates that performance-based incentive plans of any kind increase the selection of higher performers. The magnitude of the selection effect has been shown to increase as the incentive opportunity—as a percentage of fixed pay—increases.<sup>46</sup>

Clearly, well-designed performance pay in the form of bonuses has high potential to boost teacher effectiveness by attracting and retaining higher performers disproportionately while also improving the performance of all teachers who have the underlying capabilities to be successful. Substantial cross-industry understanding exists on how to design pay-for-performance plans that improve results and reward staff more for contributing more. Measuring performance fairly and accurately is critical. Value-added methods offer tremendous promise for enabling fair measurement of teacher contributions to student learning.

### **Hard-to-Staff School Pay**

Some schools are harder to staff than others, primarily because of the extreme challenges of teaching a highly disadvantaged population. Hard-to-staff school pay aims to balance these challenges by offering additional pay to teachers who choose such schools and succeed there.

Extra pay for those who teach in high-poverty schools can be a form of pay for contribution if the incentive is sufficiently large and selection favors those likely to succeed in this setting. It may contribute even more to teacher effectiveness when combined with large bonus opportunities for teachers who achieve the best value-added results in these schools.

Efforts to attract teachers to high-poverty, low-achievement schools have often been unsuccessful. An estimated 20 percent to 50 percent premium is required to induce teachers to teach in hard-to-staff schools.<sup>47</sup> Yet even states and districts offering large incentives to teach in such schools have obtained mixed results, with some bravely offering very large bonuses but still unable to attract needed staff.<sup>48</sup> Even highly capable, committed teachers who receive extra pay may not choose or stay in high-poverty schools.<sup>49</sup>

Rather than one-size-fits-all incentives for every teacher, hard-to-staff pay plans that work best most likely will include scaled performance bonuses with very significant performance rewards for teachers who increase student progress more, as measured by value-added assessment results. Research suggests that such plans would attract and retain more high performers. Pay opportunity is one way to send the signal that the highest performance is particularly valued and rewarded in this setting.

Teacher surveys note that conditions other than pay make hard-to-staff schools unattractive.<sup>50</sup> These other conditions have proven difficult to change using classic school improvement techniques, however. Therefore, significant restructuring of chronically low-performing schools to make them places where high achievement by both students and teachers is expected, valued, and supported is a necessary corollary to extra pay in hard-to-staff schools.<sup>51</sup> In addition, identifying characteristics of teachers who are successful in this setting would help improve teaching through more targeted recruiting.

### **Skill Shortage Pay**

Skill shortage pay means offering higher compensation in subject areas that are hard to fill, such as math, science, and special education. Extra pay for teachers in areas of skill shortage can be an element of pay for contribution when amounts are sufficiently large to compete with other jobs and are used to attract teachers in content areas where research indicates that technical skill and knowledge improves student learning. Skill shortage pay will enhance teacher effectiveness even more significantly when combined with enhanced pay for performance to attract and retain teachers who best use that technical skill and knowledge to induce student learning.

Teaching skill shortage areas—currently including math, science, and special education—poses a special compensation challenge. This challenge is common across sectors, such as that faced by all industries for specialized programmers preceding year 2000 computer transitions. Shortages may be temporary or longstanding, and they may be driven by too few prepared people entering the labor pool, by better-paying alternative careers that require similar skills, or both. “Market pay” exceptions for skill shortage jobs are a common practice outside education.

Combining shortage pay with pay for performance based on value-added may make teacher pay in technical areas (e.g., math and science) far more competitive in the labor market and more attractive to higher performers with these skills. The significant sums needed to compete with for-profit industries and the changing demand for differing skill sets make flexible pay alternatives, such as recruiting bonuses and performance bonuses, particularly compelling. These approaches would enable states and school districts to target dollars to shortage areas without a long-term commitment when shortages may be short-lived.



## Advanced Roles Pay

Pay for advanced roles means offering higher compensation to teachers who perform roles—in the classroom and through other activities—that consistently add significantly more value than average instruction. Examples of advanced teaching roles include helping other teachers monitor student progress and adjust instruction and mentoring new staff.<sup>53</sup> In the classroom, it may include teachers who *consistently* play the role of springboard, propelling students forward in well more than a year’s worth of learning in critical subjects. These roles—and perhaps others to be discovered in future research—contribute more to student learning than typical classroom efforts, both directly and through other staff. Annual base pay increases and bonuses alone cannot compensate for the contribution to learning that these master teachers make.

Pay for advanced teaching roles that add measurable, significant extra value to student learning is an important element of pay for contribution and an important way to retain higher performers. Across industries, the top 10 percent of performers are more likely to leave because of a lack of advancement opportunity than are employees generally.<sup>54</sup>

Recognizing advanced or “master teacher” roles that contribute more, selecting capable staff for these roles, and rewarding them for their additional contribution to student learning are important ways to recruit and retain higher performers. This structure is consistent with that used for lawyers in large law firms and doctors in large medical institutions. Such an effort would be greatly enhanced by developing a better understanding of well-defined competencies that distinguish teachers who consistently add far more value to student learning in the classroom and through work with other staff.

## Skill and Knowledge Pay

This kind of pay involves offering additional compensation to teachers who can demonstrate they have acquired valuable skills and knowledge. Examples include paying more for teachers who achieve high scores on tests of specialized, relevant content knowledge.

Pay for critical skills and knowledge—not just in shortage areas—can be an element of pay for contribution in subjects where technical skill and knowledge is a proven determinant of contribution to student learning. Across industries, skill-based pay has shown a positive effect on employee productivity and organizational outcomes.<sup>55</sup> Outside education, it is used primarily for technical and blue-collar jobs,<sup>56</sup> but skill-based pay has found some strong supporters<sup>57</sup> and moderate ones<sup>58</sup> in education. Private-sector use of skill-based pay in professional jobs has been limited.<sup>59</sup>

Skill-based pay works when rewarded skills are a proven determinant of work productivity and quality; when it is accompanied by highly focused skill training and certification programs; and when timely, frequent, and relevant performance appraisals ensure proper use of those skills.<sup>60</sup> Skill and knowledge may, in some cases, be correlated with teacher performance across subjects. The link between student performance and teacher knowledge and technical skill, however, is often unclear, as conflicting studies of teachers with certification from the National Board for Professional Teaching Standards illustrate.<sup>61</sup>

Skill pay works and may be a sensible element of pay for contribution where a clear, causal link can be made between a specific skill and results, training can be designed to impart the skill, the skill can be accurately measured, and teachers can then use the skill on the job. It may help attract teachers with skills—and encourage others to acquire skills—that measurably

contribute to student learning. Skill pay may be particularly useful in states where value-added measurement of student learning linked to individual teachers has not been implemented.

### Limited Advanced Degree Pay

Currently, most teachers can earn additional pay by obtaining virtually any kind of advanced degree. Policymakers can make advanced degree pay a component of pay for contribution by offering additional compensation to holders of advanced degrees *only* in fields where having such a degree has been shown through rigorous research to improve a teacher's effectiveness in producing student learning gains.

Paying teachers for advanced degrees—other than secondary math and, possibly, other similar technical areas—is not an element of pay for contribution, even when executed with precision. Students of teachers with master's degrees generally do not advance their learning more.<sup>62</sup> Within math, a master's degree improves student learning, but so does a much more concise additional six math courses—*without* an advanced degree.<sup>63</sup>

Rewarding math and, possibly, other technical teachers who have the requisite technical coursework or degrees is an option for governors who want to pay for contribution. Rewarding math teachers who demonstrate, through testing, mathematical skill and knowledge typically acquired in such courses is another option. Additional pay for advanced degrees or coursework where advanced technical knowledge has been shown to enhance student learning can improve the recruitment, the development, and, possibly, the retention of effective teachers. Additional pay makes teaching relatively attractive, compared with other jobs requiring the same technical degrees or coursework, particularly in fields such as math and science where labor is in short

supply across industries and alternative jobs requiring the same knowledge pay more than teaching. Current teachers who are motivated to develop themselves by obtaining additional technical content coursework will be better teachers in those technical areas—at least in math, and, possibly, in science, computer, and similar fields. The retention effect is likely to be strongest if additional pay is combined with forms of pay for contribution most attractive to higher performers, namely, pay that rewards higher student learning progress.

### Retention Pay

Retention pay means giving consistently high-performing teachers a significant raise after they have completed their first few years of teaching, in contrast to most of today's salary scales that raise pay gradually over time. A retention pay policy, for example, might raise the base pay of teachers meeting a specified performance bar several thousand dollars beginning in the fourth year of teaching.

A system of automatic pay raises during the course of every teacher's entire career makes little contribution to student learning. Yet retention pay can be one element of pay for contribution, if done differently from conventional pay for experience, emphasizing the significant rise in contribution after the first few years of teaching. This is the period during which teachers' effectiveness increases the most.<sup>64</sup>

Most pay for experience is not designed to increase teaching effectiveness. Current pay structures treat each additional increment of experience roughly the same, and most pay plans provide too small of an increase to teachers who stay past the initial three years. In addition, most pay plans invest too much in teachers with more than five years of experience, without regard to their contributions to student learning.

Other complex professions may offer sound models for significant pay increases after a steep learning curve of a few years. For example, medical residency—with its relatively lower pay—represents a training period for doctors learning to apply their skills and knowledge in the clinical context. Postresidency pay increases sharply. Attorney pay in medium-size to large firms increases significantly, typically through partnership, after novice lawyers prove they can apply book learning successfully in the work context. Likewise, research indicates that teaching has a training period after which average teacher contribution to student learning rises measurably. In teaching, however, pay is not similarly aligned with the typical increase in teachers' contribution after the first two to five years.

Adjusting state-level pay scales, and inducing similar changes in district-level pay scales, to pay only for experience that contributes to student learning is one way for governors to pay for contribution. If done well, paying appropriately for experience can boost teacher effectiveness by retaining more teachers past their novice years, when they are more effective by virtue of experience. It also can boost effectiveness by freeing dollars currently used to pay for experience beyond this time and reinvesting those funds in other kinds of pay that enhance teaching effectiveness.





# Initiatives to Enable Effective Pay for Contribution

**W**hatever roles governors choose to play in teacher pay reform, they should also advocate for policies and activities that will help make pay for contribution effective. These include instituting valid systems that track the contributions of individual teachers to student learning gains, initiating or participating in studies of “soft attributes” or “deeper competencies” of effective teachers, addressing common implementation challenges, and evaluating how new pay designs contribute to student learning.

## Assessing Teacher Contributions to Student Learning Gains

Paying for performance requires accurately measuring performance. To do this, the best hope is value-added assessment—the use of techniques to determine a teacher’s contributions to individual students’ learning progress over time. Not only is value-added assessment technically sound, but teachers also prefer this approach over changes in absolute achievement scores.<sup>65</sup> Governors can support the development of high-quality assessments and sophisticated value-added measures.

Measuring the value individual teachers add to student learning is a linchpin to states’ effective use of pay for contribution. It is critical for determining how much value individual teachers are adding to their students’ learning; how much value is added indirectly by playing other roles, such as mentoring; and how effective pay plans and other management systems are at improving student learning over time.

Most states are a long way from implementing teacher value-added assessment, however. Besides the annual testing now required in all states, the Data Quality Campaign (DQC) lists 10 essential elements of state student data systems.<sup>66</sup> Four of these elements are critical to teacher-linked, value-added measurement:

- a unique identifier for each student;
- an ability to match individual student records from year to year;
- information on untested students; and
- a teacher identifier that links individual teachers to their students’ results.

According to DQC, only 11 states had all four elements as of January 2007. One reason states have moved slowly on this front is that designing an appropriate value-added measurement is difficult. Although no system will be perfect, policymakers should be mindful of four key issues as they design an approach:<sup>67</sup>

- **Fairness.** Ideally, most teachers will regard a state’s value-added measure as a fair gauge of their contribution to student learning. Crude annual growth measures may not meet this test because they do not take into account the extent of learning challenges a teacher’s students have and because they are subject to random fluctuations unrelated to a teacher’s real contribution. The best value-added measures use sophisticated techniques to take into account the difficulty teachers face based on their students’ past performance and analyze multiple years of data for a teacher.

- **Transparency.** Sophisticated techniques may increase fairness, but the system must be understandable to teachers.
- **Validity.** A value-added system is only as good as the assessment used. As states move toward value-added assessment, they should also ensure that tests do not impose artificial upper limits on how much progress students can make beyond grade level; that tests are well aligned with state standards and what the state requires schools to teach; and that standards align with the profession’s evolving understanding of what students need to know and know how to do.
- **Breadth of Applicability.** Even states that have made progress toward measuring teacher value added can typically measure it only for a fraction of teachers. At the elementary school level, because only reading and math are generally tested annually, value-added measurement is only possible for regular classroom teachers. In addition, testing generally begins in third grade, leaving out teachers in kindergarten through second grade. Policymakers and system leaders will need to find different ways of measuring the performance of early-grade and nonclassroom teachers. At the middle and high school levels, students typically have multiple teachers. Attributing value added to individual teachers may be difficult in this context.

Policymakers and system leaders will need to address this challenge by designing team, department, or school-level value-added measures and/or by creating class-specific pretests and posttests that make individual value-added measurement possible.

All these issues are difficult to resolve, but they are not insurmountable. A key role for governors is pressing for individuals and systems to overcome these barriers and not let the perfect become the enemy of the good.

### Identifying Competencies of High-Performing Teachers

Understanding the capabilities or “competencies” of teachers who consistently add more value than others is an important step in paying for contribution for several reasons. Competencies themselves can be a basis for pay. In addition, measuring competencies is essential for identifying teachers ready to take on advanced teaching roles that receive higher levels of pay. Finally, a keen understanding of teaching competencies would enable better recruiting of teachers likely to perform well in various school settings. Governors can encourage and support efforts to study and identify the skills and characteristics of effective teachers.

Competencies include skills and knowledge but also deeper habitual behaviors, thinking capabilities, and consistent motivations of individuals that lead them to be more effective in some roles than others at work. For example, “achievement motivation”—striving for excellence even in the face of barriers—is one such deeper competency that is often predictive of job performance. Another is “impact and influence”—striving to persuade others to support one’s agenda. Knowledge and technical skills are considered to be the easiest and fastest to acquire as adults, and they are most important for technical and blue-collar jobs. The “deeper” competencies tend to be developed over longer periods and are slower to change in adults. Multiple studies comparing the top 10 percent of performers to more typical, average ones in professional jobs indicate that top performers differ from average performers primarily in the “deeper” competencies.<sup>68</sup>

Competencies are generally accepted as a tool to develop staff, but they are more controversial as a basis for pay.<sup>69</sup> One reason is that developing an accurate “competency model,” or list of detailed characteristics that distinguish higher performers, is expensive—too expensive for most organizations of moderate size. When a valid model is available, paying for competencies often involves moving to a small number of “broad bands” of advancement, within which individuals may be paid very different base salaries based on ratings of competencies. This pay strategy is often combined with bonuses based on results. Yet competencies can be rewarded differently, for example, through placement in pay ranges, base pay increases, or bonus pay. Competencies may determine base salaries indirectly by affecting who is selected for higher-paid master teaching roles. In all cases, identification of competencies that predict performance and fair rating systems are critical when attaching competencies to pay.

Awareness of competencies and rigorous methodologies available to develop valid models appears to be limited in U.S. education. Teach For America noticed that its best performers are different in “soft attributes” and has attempted to identify these attributes.<sup>70</sup> Others have wrung their hands over the considerable proportion of teacher performance (97 percent) not explained by degrees, certification, or experience.<sup>71</sup> Few have described how competencies could be used for teachers.<sup>72</sup> In the United Kingdom, at least one government-commissioned national study has identified distinguishing competencies of higher-performing teachers.<sup>73</sup>

Teaching is ripe for a major investment in identifying these “soft attributes” of high performers using the most rigorous techniques, and leading states can forge the way in this effort or participate in privately initiated studies. Understanding the characteristics of teachers who add the most value to student learning would enable districts to hire better staff from the start; develop staff

competencies that enhance performance; identify candidates for master teaching roles; and possibly pay for competencies, such as teamwork, not fully recognized in some pay for performance systems.

### Anticipating Implementation Issues for Innovators

Without proper care, even the best-designed pay plans can fail during implementation. Governors can anticipate and address common implementation challenges, both practical and political, to increase the odds of successful pay reform. They can take steps such as these:

- **Advocate for changes in principal pay to align with the new approach to teacher pay.** Doing so will help ensure that all staff members are focused on the same goals and that pay rates are appropriately aligned to reflect relative contribution to school success.
- **Ensure principals receive the requisite training.** Principals will need training to manage and develop staff using goals and criteria aligned with the pay plan.
- **Foster the buy-in of school-level staff.** There is mixed evidence from the research on the performance value of staff participation in pay design.<sup>74</sup> However, in a political environment where external groups may fight pay reform, staff participation alongside state or district leaders and compensation experts may help all staff accept and understand the changes.
- **Manage the cost of success through sustainable funding.** Pay for contribution can be funded either by shifting existing resources or increasing funding for teacher pay. Shifting existing funds would require reallocating money from teacher actions and characteristics that do not enhance student learning to pay for contribution. Increasing funding also presents challenges. A high level of teacher performance does not automatically generate revenue to pay teachers more, as does higher performance in the private sector. Teacher compensation plans with no limits or

budgets can become untenable. Therefore, pay budgets and payments to teachers must be calculated carefully in advance, and policymakers must communicate pay reform success compellingly so voters will support additional, well-spent funds.

- **Cover other costs of reform.** Designing effective pay changes typically requires state and district staff time and external consulting fees for technical assistance—costs that should be included in any change budget. In addition, pay changes funded through add-on funding alone will bloat state pay budgets and continue the overinvestment in low contributors to student learning. However, governors can still protect lower performers who came into the profession based on the old compensation system, but who will lose in a contribution-oriented system. Rather than treating pay for contribution as a new, dispensable add-on, treating pay-cut protection for lower performers as the add-on may make more sense. In a state or district committed to pay for contribution, this is a temporary cost as lower performers work their way out of the system, either through voluntary attrition or retirement.

## Evaluating Pay Reforms and Changing Them over Time

Rigorous ongoing evaluation of new models will enable governors and education leaders to evolve compensation approaches as learning goals, measurement capabilities, and financial resources change. A strong cross-sector research base exists for many forms of pay change, but research on how pay reforms affect teaching quality is nascent. As more states experiment with different models, evaluating how well these different models are working is important. The findings will help all states develop better designs for teacher compensation.





# Next Steps for Governors

**P**ublic support for reforming teacher pay is very high. Fully 70 percent of voters support pay increases for all teachers, and 80 percent support them if better teachers are paid more than others.<sup>75</sup> (Some surveys, however, find less support; for example, the Center for Education Reform found 59 percent support performance pay in schools.<sup>76</sup>) Similarly high percentages support funding additional pay for teaching in high-poverty schools (76 percent) and for teaching math and science (72 percent).<sup>77</sup>

However, *public* support does not mean *political* support. Political opposition to any pay reform other than across-the-board raises is very organized and strong—stronger than the opinions of roughly 190 million adults who support teacher pay increases, including more pay for better teachers. Governors who want to increase teaching effectiveness using pay will need to deploy their most capable negotiators and strategists. In states with strong teachers' unions, obtaining union support and participation is imperative to reduce battles during implementation and to continue improvements in how—and how much—teachers are paid. Governors concerned about building support for pay reform should remember and communicate that even in the most extreme cases, the bulk of teacher pay is still delivered through base salaries unrelated to teacher performance or contribution.

The research basis and popular support for increased teacher pay are exceptionally strong, when teachers who contribute more are paid more. Gubernatorial leadership and commitment to improve pay policy and design are crucial to effective, sustained, and widespread implementation. But one-time fixes will not suffice; pay plans must evolve as ways to measure student learning and teaching effectiveness improve. Leaders at the state and district levels must maintain a strong commitment to ensure that pay continues to reward contribution and drive improvements in student learning.

Governors can enact initiatives at the state level, or they can encourage and enable districts and schools to implement bold and responsible pay reform. Two ways to enable reform without mandates are eliminating or minimizing state policy obstacles to all forms of pay for contribution and providing grant funding to encourage district experimentation with bold and responsible pay for contribution. The will to enact effective pay reforms is the most important factor. With it, any governor can be a catalyst for better teaching by paying for contribution.

# Notes

- 1 To be eligible for skill shortage pay, staff should measurably demonstrate technical skill and knowledge in a shortage area, regardless of how that technical skill and knowledge was acquired.
- 2 The United States is not alone in moving slowly toward pay reform. Of 31 non-U.S. countries recently surveyed by the Organisation for Economic Co-operation and Development, seven offered additional pay for “teaching courses in a particular field.” Thirteen states based some compensation on “outstanding performance in teaching.” Paying teachers more for “teaching in a disadvantaged, remote, or high-cost area” was more common, with 19 countries reporting this type of pay. See Organisation for Economic Co-operation and Development, *Education at a Glance: OECD Indicators 2005* (Paris, France: Organisation for Economic Co-operation and Development, 2005), Table D3.2a.
- 3 National Council on Teacher Quality, “Debate Between Michael Podgursky and Lawrence Mishel, with Sean Corcoran—Are Teachers Underpaid?: Two Economists Tackle an Intractable Controversy” [online], [cited 2 August 2007], at: <http://www.nctq.org/nctq/publications/debate.jsp>; Sylvia Allegretto, Sean P. Corcoran, and Lawrence Mishel, *How Does Teacher Pay Compare? Methodological Challenges and Answers* (Washington, D.C.: Economic Policy Institute, 2004); Dale Ballou and Michael Podgursky, chap. 1 in *Teacher Pay and Teacher Quality: Attracting, Developing and Retaining the Best Teachers*, ed. James H. Stronge, Christopher R. Garies, and Catherine A. Little (Thousand Oaks, Calif.: Corwin Press, 1996); Ed Hurley, “Teacher Pay 1940–2000: Losing Ground, Losing Status” (Washington, D.C.: National Education Association, n.d.); Michael Podgursky, “Fringe Benefits,” *Education Next* (Summer 2003); and Sandra Feldman, “On Campus Where We Stand: Rethinking Teacher Compensation” (Washington, D.C.: American Federation of Teachers, 2003).
- 4 Eric A. Hanushek, “Assessing the Effects of School Resources on Student Performance: An Update,” *Educational Evaluation and Policy Analysis*, vol. 19, no. 2 (Summer 1997): 141–64.
- 5 Bryan Hassel, *Better Pay for Better Teaching* (Washington, D.C.: Progressive Policy Institute, 2002); and Thomas P. Flannery, David A. Hofrichter, and Paul E. Platten, *People, Performance and Pay* (Columbus, Ohio: The Free Press, 2002).
- 6 Dan Goldhaber and Emily Anthony, “Can Teacher Quality Be Effectively Assessed?” (Washington, D.C.: The Urban Institute, April 27, 2004); and Kate Walsh and Christopher O. Tracy, *Increasing the Odds: How Good Policies Can Yield Better Teachers* (Washington, D.C.: National Council on Teacher Quality, 2004), at: [http://www.nctq.org/nctq/images/nctq\\_io.pdf](http://www.nctq.org/nctq/images/nctq_io.pdf). These works include extensive review and citations to studies examining the effects of various teacher characteristics on performance and retention.
- 7 Ibid.
- 8 Walsh and Tracy.
- 9 Caroline M. Hoxby and Andrew Leigh, “Pulled Away or Pushed Out? Explaining the Decline of Teacher Aptitude in the United States,” *American Economic Review*, vol. 94, no. 2 (May 2004): 236–40.
- 10 Barnett Berry and Eric Hirsch, *Recruiting and Retaining Teachers for Hard-to-Staff Schools* (Washington, D.C.: National Governors Association Center for Best Practices, 2005), at: [http://www.nga.org/Files/pdf/0510RECRUITING\\_TEACHERS.PDF](http://www.nga.org/Files/pdf/0510RECRUITING_TEACHERS.PDF); and Steve Farkas, Jean Johnson, and Ann Duffett, *Stand By Me: What Teachers Really Think about Unions, Merit Pay, and Other Professional Matters* (New York, N.Y.: Public Agenda, 2003).
- 11 HayGroup, *Bridging the Pay-for-Performance Gap: Establishing Truly Differentiated Rewards* (Philadelphia, Pa.: HayGroup, 2004).
- 12 For more information on Florida E-Comp, visit [www.floridaecomp.com/](http://www.floridaecomp.com/).
- 13 For more information on the Q-Comp program, visit the Web site of the Minnesota Department of Education at [http://www.education.state.mn.us/mde/Teacher\\_Support/QComp/index.html](http://www.education.state.mn.us/mde/Teacher_Support/QComp/index.html).

- 14 For more information on reform efforts in Texas, visit the Web site of the Texas Education Agency at [http://www.tea.state.tx.us/opge/disc/gov\\_edexcellence/index.html](http://www.tea.state.tx.us/opge/disc/gov_edexcellence/index.html).
- 15 Kavan Peterson, "Teacher Pay Reform Challenges States," [Stateline.org](http://www.stateline.org), 4 March 2006; Jennifer Azordegan, Patrick Byrnett, Kelsey Campbell, Josh Greenman, and Tricia Coulter, *Diversifying Teacher Compensation* (Denver, Colo.: Education Commission of the States, 2005); and David J. Hoff, "Politics Pulls Teacher Pay to Forefront," *Education Week*, 25 January 2006).
- 16 Peterson; Jason Spencer, "HISD Chief Pitches Bonus Plan," *Houston Chronicle*, 18 November 2005; and Azordegan et al.
- 17 Azordegan et al.
- 18 See, for example, Harry P. Hatry, John M. Greiner, and Brenda G. Ashford, *Issues and Case Studies in Teacher Incentive Plans*, 2d. ed. (Washington, D.C.: University Press of America, 1994).
- 19 A few years of teacher experience improves student learning, on average, but additional experience beyond this period does not. However, pay increases for experience are rarely concentrated on retention of teachers beyond the first few years and are instead spread over the expected years of a long career. This compares poorly with other professions, where early pay increases are steeper to reflect the disproportionately high value of the first few years of experience.
- 20 William L. Sanders and June C. Rivers, *Cumulative and Residual Effects of Teachers on Future Student Academic Achievement* (Knoxville, Tenn.: Value-Added Research and Assessment Center, University of Tennessee, 1996).
- 21 For example, decades of "effective schools" research has demonstrated the importance of monitoring individual student progress and adjusting instruction accordingly. See, for example, Robert J. Marzano, *What Works in Schools: Translating Research into Action* (Alexandria, Va.: Association for Supervision and Curriculum Development, 2003).
- 22 U.S. Department of Education, "Early Estimates of Public and Secondary Education Statistics, 1999–2000" (Washington, D.C., May 2000), at: <http://nces.ed.gov/pubs2000/2000364.pdf>.
- 23 The Teaching Commission, *Teachers Off the Record* (Washington, D.C.: Learning Point Associates and North Central Regional Education Laboratory, 2005), at: <http://www.learningpt.org/evaluation/record.pdf>. Findings are based on a survey by Peter D. Hart Research Associates and Harris Interactive in November 2004.
- 24 Jan Bouwens and Laurence van Lent, "Effort and Selection Effects of Incentive Contracts" (Tilburg, the Netherlands: Tilburg University, 2003).
- 25 Teachernet, "Current and Recommended Pay Levels," [online], [cited 5 June 2007], at: <http://www.teachernet.gov.uk/docbank/index.cfm?id=9376>. Findings are based on 2005 pay scale data, the most recent data available from this site.
- 26 Eric A. Hanushek, John F. Kain, and Steven G. Rivkin, "Why Public Schools Lose Teachers" (Cambridge, Mass.: National Bureau of Economic Research, November 2001).
- 27 Rajiv D. Banker, Seok-Young Lee, and Gordon Potter, "A Field Study of the Impact of a Performance-Based Incentive Plan," *Journal of Accounting and Economics* 21 (1996): 195–226; Bouwens and van Lent; Michael Beer and Mark D. Cannon, "Promise and Peril in Implementing Pay-For-Performance," *Human Resource Management*, vol. 43, no. 1 (spring 2004): 3–48; Todd R. Zenger, "Why Do Employers Only Reward Extreme Performance? Examining the Relationships among Performance, Pay, and Turnover," *Administrative Science Quarterly* 37 (1992): 198–219; Bernard Dowling and Ray Richardson, "Evaluating Performance-Related Pay for Managers in the National Health Service," *The International Journal of Human Resource Management*, vol. 8, no. 3 (June 1997); and Donald P. Schwab and Craig A. Olson, "Merit Pay Practices: Implications for Pay-Performance Relationships," *Industrial and Labor Relations Review* 4, Special Issue (February 1990): 237–55.

- 28 Adele Atkinson, Simon Burgess, Bronwyn Croxson, Paul Gregg, Carol Propper, Helen Slater, and Deborah Wilson, "Evaluating the Impact of Performance-Related Pay for Teachers in England," Working Paper No. 04/113 (Bristol, England: Centre for Market and Public Organisations, University of Bristol, December 2004).
- 29 Teachernet.
- 30 David N. Figlio and Lawrence Kenny, "Individual Teacher Incentives and Student Performance," National Bureau of Economic Research Working Paper 12627 (Cambridge, Mass.: National Bureau of Economic Research, October 2006).
- 31 Zenger; Banker, Lee, and Potter; Bouwens and van Lent; and HayGroup.
- 32 Robert Reichardt and Rebecca Van Buhler, "Recruiting and Retaining Teachers with Alternative Pay" (Washington, D.C.: Office of Educational Research and Improvement, U.S. Department of Education, February 4, 2003).
- 33 Vidya Awashi and Jamie Pratt, "The Effects of Monetary Incentives on Effort and Decision Performance: The Role of Cognitive Characteristics," *The Accounting Review*, vol. 65, no. 4 (October 1990): 797–811. This article also cites other studies that provide evidence on this topic.
- 34 Banker, Lee, and Potter; Dowling and Richardson; Christopher M. Lowery, N. A. Beadles II, M. M. Petty, Gordon M. Amsler, and James W. Thompson, "An Empirical Examination of a Merit Bonus Plan," *Journal of Managerial Issues*, vol. 14, no. 1 (spring 2002): 100–17; and Richard G. Brody, Kimberley E. Frank, and Tammy Kowalczyk, "Prior Commitment and the Merit Pay Allocation Process," *Journal of Managerial Psychology*, vol. 16, no. 3 (2001): 243–54.
- 35 Beer and Cannon; and Don Eskew, Robert L. Heneman, and Max Fisher, "A Survey of Merit Pay Plan Effectiveness: End of the Line for Merit Pay or Hope for Improvement?" *Human Resources Planning*, vol. 19, no. 2 (1996): 12–19.
- 36 Lowery et al.
- 37 Eskew, Heneman, and Fisher.
- 38 Dowling and Richardson.
- 39 Zenger.
- 40 Beer and Cannon; Dowling and Richardson; Eskew, Heneman, and Fisher; and Bouwens and van Lent.
- 41 Axel Engellandt and Regina T. Riphahn, "Incentive Effects of Bonus Payments: Evidence from a Multinational Company," discussion paper (Basel, Switzerland: University of Basel, February 24, 2004); Zenger; and Schwab and Olson.
- 42 HayGroup.
- 43 HayGroup; and Lowery et al.
- 44 Banker, Lee, and Potter; Zenger; HayGroup; and Bouwens and van Lent.
- 45 See, for example, Allan Odden, "Rewarding Expertise," *Education Next* (spring 2001), at: <http://www.educationnext.org/2001sp/16odden.html>; and Steven E. Gross, *Compensation for Teams: How to Design and Implement Team-Based Reward Programs* (New York, N.Y.: American Management Association, 1995).
- 46 Bouwens and van Lent.
- 47 Eric A. Hanushek, John F. Kain, and Steven G. Rivkin, "Why Public Schools Lose Teachers" (Cambridge, Mass.: National Bureau of Economic Research, November 2001).
- 48 Berry and Hirsch.
- 49 Hanushek, Kain, and Rivkin; and Berry and Hirsch.
- 50 Berry and Hirsch; and Hanushek, Kain, and Rivkin.
- 51 Emily Ayscue Hassel, Bryan C. Hassel, Matthew D. Arkin, Julie M. Kowal, and Lucy M. Steiner, *School Restructuring Under No Child Left Behind: What Works When?—A Guide for Education Leaders* (Washington, D.C.: The Center for Comprehensive School Reform and Improvement, 2006).

- 52 Monitoring and adjusting instruction is a consistent practice in schools where students learn more than similar students elsewhere. See, for example, Robert J. Marzano, *What Works in Schools: Translating Research into Action* (Alexandria, Va.: Association for Supervision and Curriculum Development, 2003).
- 53 Some research shows that effective mentoring increases retention of new teachers. See T. Smith and R. Ingersoll, "What Are the Effects of Induction and Mentoring on Beginning Teacher Turnover?" *American Educational Research Journal*, vol. 41, no. 3 (2004): 681–713.
- 54 HayGroup.
- 55 "ACA Research Results Released: Skill-Based Pay," *ACA News*, vol. 35, no. 6 (June 1992); Gerald E. Ledford Jr., "Three Case Studies on Skill-Based Pay: An Overview," *Compensation and Benefits Review*, vol. 23, no. 2 (March/April, 1991); and Brian Murray and Barry Gerhart, "An Empirical Analysis of a Skill-Based Pay Program and Plant Performance Outcomes," *The Academy of Management Journal*, vol. 41, no. 1 (February 1998): 68–78.
- 56 *ACA News*; Ledford; Murray and Gerhart; and Robert L. Heneman and Gerald E. Ledford Jr., "Competency Pay for Professionals and Managers in Business: A Review and Implications for Teachers," *Journal of Personnel Evaluation in Education*, vol. 12, no. 2 (1998): 103-121.
- 57 See, for example, Odden; and Anthony Milanowski, "The Varieties of Knowledge and Skill-Based Pay Design: A Comparison of Seven New Pay Systems for K–12 Teachers" (New Brunswick, N.J.: Consortium for Policy Research in Education, Rutgers University, 2002).
- 58 Dale Ballou and Michael Podgursky, "Let the Market Decide," *Education Next* (spring 2001), at: <http://www.educationnext.org/2001sp/16ballou.html>.
- 59 *ACA News*; Ledford; Murray and Gerhart; and Heneman and Ledford.
- 60 *ACA News*; Ledford; and Murray and Gerhart.
- 61 Goldhaber and Anthony find that students of teachers earning National Board certification made more progress prior to certification than students of other teachers. Showing that National Board certified teachers' students made no more progress than students of other teachers after certification is William L. Sanders, James J. Ashton, and S. Paul Wright, *Comparison of the Effects of NBPTS Certified Teachers with Other Teachers on the Rate of Student Academic Progress* (Arlington, Va.: National Board for Professional Teaching Standards, March 7, 2005), at: [http://www.nbpts.org/pdf/sas\\_final\\_report.pdf](http://www.nbpts.org/pdf/sas_final_report.pdf). See, also, Bess Keller, "National Board Teachers No Better Than Other Educators, Long-Awaited Study Finds," *Education Week*, 9 May 2006), at: [http://www.edweek.org/ew/articles/2006/05/09/37nbpts\\_web.h25.html](http://www.edweek.org/ew/articles/2006/05/09/37nbpts_web.h25.html).
- 62 Goldhaber and Anthony; and Walsh and Tracy.
- 63 Walsh and Tracy.
- 64 Ibid.
- 65 The Teaching Commission.
- 66 Data Quality Campaign, "Creating a Longitudinal Data System: Using Data to Improve Student Achievement" (Austin, Texas: National Center for Educational Accountability, n.d.), 1, at: <http://www.dataqualitycampaign.org/tools>.
- 67 For illuminating discussions of these issues, see Henry J. Braun, *Using Student Progress to Evaluate Teachers: A Primer on Value-Added Models* (Princeton, N.J.: Educational Testing Service, 2005); and Gordon, Kane, and Staiger.
- 68 Lyle M. Spencer and Signe M. Spencer, *Competence at Work: Models for Superior Performance* (New York, N.Y.: John Wiley & Sons, Inc., 2003).
- 69 See, for example, Edward E. Lawler III, "Competencies: A Poor Foundation for the New Pay," *Compensation and Benefits Review*, vol. 28, no. 6 (November/December 1996).
- 70 Walsh and Tracy.

- 71 See, for example, Goldhaber and Anthony; and Walsh and Tracy.
- 72 See Heneman and Ledford.
- 73 Department of Children, Schools and Families, *Research into Teacher Effectiveness: A Model of Teacher Effectiveness* (London, England, 2000), at: <http://www.dfes.gov.uk/research/data/uploadfiles/RR216.doc>.
- 74 See, for example, Lowery et al.; Eskew, Heneman, and Fisher; and Ledford.
- 75 The Teaching Commission.
- 76 Center for Education Reform, *Americans Need an Education on Charter Schools* (Washington, D.C.: Center for Education Reform, 2006), at: [http://www.edreform.com/\\_upload/polling.pdf](http://www.edreform.com/_upload/polling.pdf).
- 77 The Teaching Commission.





NGA Center for Best Practices  
444 N. Capitol Street, Suite 267  
Washington, DC 20001  
202.624.5300  
[www.nga.org/center](http://www.nga.org/center)