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ABSTRACT

This report describes knowledge- and skills-based pay systems. It recommends ways that state and district policymakers can strengthen a district's capacity for knowledge- and skills-based pay and describes how these types of pay systems differ from existing compensation schemes that try to address the problem of teaching's flat career structure. The report outlines the key issues in designing knowledge- and skills-based pay systems, paying special attention to supplementing, modifying, or replacing the traditional pay schedule. It discusses the types of knowledge and skills to reward, the methods of knowledge and skill assessment, the types and amounts of pay incentives, the role of teacher associations and collective bargaining, and the costs of knowledge- and skills-based pay programs. Some of the lessons that policymakers have learned in implementing these pay changes is to emphasize the need for continuous, focused learning; to adapt to external standards; to allow teachers to participate in the design process; to be prepared for initial negative reactions from teachers; to prepare principals for the new demands of these programs; and to provide an extensive and continuous orientation and communication program. It also recommends using transition strategies to reduce stress and assigning one person to oversee the entire program. (Contains 22 references.) (RJM)

**Enhancing Teacher Quality through
Knowledge- and Skills-based Pay.
CPRE Policy Briefs.**

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Enhancing Teacher Quality through Knowledge- and Skills-based Pay

by Allan Odden, Carolyn Kelley, Herbert Heneman, and Anthony Milanowski

The 1989 Education Summit established the National Education Goals that spurred states to set standards and assess educational outcomes (Patton and Thompson, 1999). A decade into standards-based reform, the 1999 Education Summit identified two important policy areas that have emerged to carry out these goals: teacher quality and accountability (National Education Summit, 1999).

Research supports the important relationship between teacher quality and student achievement (Darling-Hammond and Ball, 1998; Ferguson and Ladd, 1996; Sanders and Horn, 1994; Wright, Horn, and Sanders, 1997). Concerns about teacher quality led the National Commission on Teaching and America's Future to recommend that states and districts consider better ways of linking pay to the development of teacher knowledge and skills (National Commission on Teaching and America's Future, 1996). Exploring better ways of using pay to enhance teacher quality is also supported, to varying degrees, by teacher unions and associations.

Knowledge- and skills-based pay systems are emerging as a potentially promising way of leveraging the investment in teacher pay to improve teacher quality and to provide clearer signals to teachers about how they should focus their professional energies. This CPRE Policy Brief reports on our experiences in working with policymakers and studying knowledge- and skills-based pay systems. We provide guidance on important design issues for these systems, and recommend ways state and district policymakers can strengthen the capacity for and pursue knowledge- and skills-based pay.

Knowledge- and Skills-based Pay

Knowledge- and skills-based compensation systems provide a mechanism to link pay to the knowledge and skills (and by extension, performance) desired of teachers. Such systems reward teachers with base pay increases or bonuses for acquiring and demonstrating specific knowledge and skills needed to meet educational goals.

Knowledge- and skills-based pay differ from the merit pay and career-ladder systems commonly implemented in the 1980s. Merit pay systems attempted to identify, based on evaluations conducted by principals, and reward the best teachers from a fixed pool of funds. These systems were often arbitrary, using poorly defined measures of performance and providing inadequate opportunities to observe actual performance in the classroom. The merit pay systems promoted competition among teachers, and provided no incentive for the best teachers to work collaboratively with other teachers (Hatry, Greiner, and Ashford, 1994).

Knowledge- and skills-based pay systems differ from the career ladders that had been designed to address the problem of teaching's flat career structure. Promotion up the ladder was sometimes linked to teacher knowledge and skill development, but the purpose of the career-ladder system was to provide opportunities to take on responsibilities outside classroom teaching. The result was a proliferation of administrative roles, which made the programs expensive and pulled the best teachers out of the classroom and away from teaching.

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The concept of knowledge- and skills-based pay in education was adapted from the private sector, where it was developed to encourage workers to acquire new, more complex, or employer-specific skills. Knowledge- and skills-based pay was also intended to reinforce an organizational culture that values employee growth and development (Lawler, 1995, 2000) and to create a clear career path linked to increasing professional competence (Heneman and Ledford, 1998; Heneman, Ledford, and Gersham, 2000).

Knowledge- and skills-based pay is appropriate to education because teachers are knowledge workers whose knowledge and skill set is complex and changing. The current standards and assessment reform climate has set high and challenging goals for teachers as well as students. Teachers are required to have high competency levels in their subject matter, in content-related pedagogy, in cognitive sciences, in leadership and decision-making, and in the development of a strong learning culture in schools (Conley and Odden, 1995; Kelley, 1997; Mohrman, Mohrman, and Odden, 1996; Odden and Kelley, 2001).

Key Issues in Designing Knowledge- and Skills-based Pay Systems in Education

We have identified and studied seven pioneering knowledge- and skills-based pay programs in the world of K-12 education. We describe below how these programs handled several key issues confronting program designers. Three of these innovative systems are detailed in sidebars on pages 3, 5, and 7. (For more information, see *The Varieties of Knowledge- and Skills-based Pay Design: A Comparison of Seven New Pay Systems for K-12 Teachers* by Anthony Milanowski, available from CPRE in late fall 2001.)

Supplement, Modify, or Replace the Traditional Schedule

Knowledge- and skills-based compensation systems vary in intensity. They can be designed to supplement, modify, or replace the traditional single salary schedule.

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Supplementing the salary schedule adds knowledge and skill incentives without completely scrapping the traditional pay schedule. One common way to supplement the traditional salary schedule is to provide a bonus or base-pay increase for certification by the National Board for Professional Teaching Standards (National Board for Professional Teaching Standards, 1999, 2001). Many states and districts provide this type of incentive. Districts can supplement the traditional salary schedule with incentives for developing knowledge and skills related to a district's particular needs. Coventry, Rhode Island provided a \$6,500 increase for National Board Certification, but also developed a district program paying a \$1,000 supplement to teachers who develop their skills in authentic pedagogy, self-reflection, differentiating instruction, and family and community involvement. (See details on page 5.) Another way to supplement the traditional schedule is exemplified by Douglas County, Colorado, where teachers are encouraged to take a set of courses focused on specific skills (such as assessment and diversity) that are related to district goals. Teachers who successfully complete such a skill block receive bonuses of \$350 to \$500.

Modifying the salary schedule is an approach that retains experience steps on the salary schedule, reduces or eliminates pay progression based on credits and degrees, and adds pay increases for developing more classroom-relevant knowledge and skills. A good example is the program developed by the Vaughn Next Century Learning Center, a charter school in Los

**Sidebar 1. A Modified Schedule:
Vaughn Learning Center, Los Angeles, California
1999-2000 School Year**

School Overview: An 1,100 student K-5 charter school in the Los Angeles Unified School District, with 60 FTE teaching staff, and almost 100 percent low-income and English language learner students. Knowledge and skills (called competencies by the school) included in the pay system are directly related to the goals and core programs identified in the school's charter.

Base Pay: The new pay system includes annual increases up to year 11, with one additional base increase at Year 15.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6**	Year 7	Year 8	Year 9	Year 10	Year 11+	Year 15+
31,000*	32,500	33,500	34,500	36,500	38,000	39,500	41,000	42,500	44,000	45,500	47,500

*Starting base pay for licensed teacher; pay is \$30,000 for a new hire without an emergency license.

**To begin Year 6, an individual must possess a clear California elementary teaching credential.

Knowledge and Skill Elements:

Supplements based on credentials or certifications (total available: \$6,000):

- California Elementary Teaching Credential: \$1,000
- Master's Degree in Education or 30 units after clear credential: \$2,000
- Demonstration Teacher: \$2,000
- National Board Certification: \$4,000

Competency-based additions provided as a stipend or a bonus (total available: \$13,100)

Level 1 (depth in essentials)

- Literacy (reading and writing): \$1,300
- Language development (English, Prim), ESL, Sheltered English: \$1,300
- Technology (computer use in instruction): \$400
- Special Education Inclusion: \$300
- Classroom management: \$100
- Lesson planning: \$100

Level 2 (depth and breadth after achieving 3.0 score in all Level 1 areas)

- Has earned a clear credential: \$3,500
- Mathematics: \$1,000
- Social studies: \$800
- Science: \$800
- English learners' support: \$2,500
- Arts: \$500

Level 3

- If average evaluation rubric score is greater than 3.5 at Level 2: \$4,000

Noteworthy Design Features:

- Phased-in eligibility for current teachers has no mandatory participation for teachers with five or more years of teaching experience at Vaughn.
- Monthly advances are provided to maintain teachers' previous pay levels and ease transition to the new pay system.
- Eligibility for competency-based pay are based on evaluation using a four-level performance scale, and equally weighting the scores of an administrator, a peer, and self-evaluation.
- Plan also includes a set of stipends for specified school or community leadership roles and responsibilities.

Angeles, California, detailed on page 3.¹ The degree- and credit-based progressions of the traditional schedule were replaced by a combination of flat dollar increases for relevant degrees and certification, and bonuses for demonstrating specific knowledge and skills relevant to the school's charter-defined mission.

Replacing the salary schedule provides a new compensation structure in which the major determinant of pay progression is knowledge and skills development as demonstrated in classroom instruction. The new pay structure adopted by the Cincinnati, Ohio school district defines five teacher career levels by the acquisition and application of knowledge and skills embodied in a set of 16 teaching standards. Teachers who progress from level to level, based on demonstration of increasing competency, receive a substantial pay increase. They are also eligible for three-to-five experience steps within each level. As detailed on page 7, the new Cincinnati compensation system also includes incentives for obtaining relevant degrees and certification. Implementation of the plan awaits final approval by the Cincinnati Federation of Teachers and the Cincinnati Board of Education. Unless rejected by a super-majority vote in May 2002, the plan will be implemented in September 2002.

Deciding What Knowledge and Skills to Reward

How do program designers decide what knowledge and skills to reward? The continuum of approaches ranges from simply adopting an existing set of teaching standards to developing from scratch a district-specific model of knowledge and skills. Existing standards that specify what teachers should know and be able to do include those developed by the Interstate New Teacher Assessment and Support Consortium (1992), the National Board for Professional Teaching Standards (1999), and Danielson's Framework for Teaching (Danielson, 1996). We found that many pioneering districts and schools adopted a mid-

dle-ground approach: they started with a set of externally-developed standards and adapted them to the local context. This appears appropriate because the core components of instruction are similar in most schools. Further, starting from standards that have been developed by national experts prevents reinventing the wheel and permits developing a program in less time. Such a modification process also helps to develop consensus on the knowledge and skills to be rewarded and a sense of ownership of the model.

Methods of Knowledge and Skill Assessment

At the heart of a knowledge- and skills-based pay system is a method for assessing the degree to which teachers demonstrate their knowledge and skills in the classroom. All of the programs we studied use some form of performance assessment in which teachers are asked to demonstrate the behaviors and skills they employ in the classroom. The most commonly used assessment tools are: observation of teaching by administrators or peers, and preparation of a teacher portfolio. The portfolio may include artifacts such as scholarly papers in the content area written by the teacher, new curricula the teacher has developed, logs of parental involvement, samples of tests and assignments, lesson plans, and essays reflecting on the teacher's practice. These methods tend to focus on the knowledge and skills most relevant to the teacher's instructional role. In the more comprehensive programs, however, we found assessment of knowledge and skills to be a time-consuming process. Scheduling and conducting observations consume a considerable amount of an evaluator's time. Teachers in some programs regard developing a portfolio as a burdensome task.

Types and Amounts of Pay Incentives

Pay incentives vary greatly by type and amount. Some programs provide base pay increases, others offer one-time bonuses, and still others provide an additional amount to the base pay for a set time period

¹ CPRE provided technical assistance to both Vaughn and Cincinnati to help them develop, implement, and evaluate their teacher compensation systems.

(for example, for the 10-year life of National Board Certification). In programs that supplement the traditional schedule, bonuses and pay increases range from a few hundred to several thousand dollars. Programs that modify or replace the traditional schedule tend to provide substantial pay increases. The incentives in Cincinnati, Ohio and at the Vaughn Learning Center in Los Angeles

constitute about 23 percent of the maximum amount a teacher can earn. As in the private sector, not all of a teacher's pay is based on demonstrated knowledge and skills in any of the programs. Most systems retain some type of salary progression based on experience, and still reward at least the acquisition of a Master's degree.

**Sidebar 2. A Supplemental Schedule:
Coventry, Rhode Island
2000-2001 School Year**

District Overview: A 5,600 K-12 district in one of the fastest-growing suburban districts in Rhode Island, with about 475 FTE teachers. More than one-third of the teachers were hired in the last five years. About 22 percent of the student population are in poverty and less than two percent are students of color. The district is considered to be successful, high performing, and high spending. The knowledge and skills recognized in the pay system are intended to encourage teacher knowledge and skill acquisition that will maintain and build on the district's success.

Base Pay: The district uses a fairly conventional salary schedule with 10 steps plus three additional longevity increments. Additional credits and degrees are treated as fixed increments to base pay, rather than being incorporated into a salary matrix. A teacher with a MA +30 credits and 20 years of experience would make \$67,000.

Knowledge and Skill Elements:

- National Board Certification: \$6,500 (paid annually for 10-year duration of the certificate)
- RHODE Program: \$1,000 (paid annually for four years, with reapplication possible after that time)

Noteworthy Design Features:

The RHODE Program is a voluntary additional assessment and pay program that is based on a locally-developed vision of quality instruction consistent with the National Board standards.

- The knowledge and skill dimensions emphasized are authentic pedagogy (instruction and assessment), self-reflection, differentiating instruction, family and community involvement, and professional development.
- Assessment is based on a portfolio prepared by the teacher, which includes nine elements: evidence that teachers know their students, evidence of preparation for differentiated instruction, the analysis of a lesson plan, a videotape and analysis of a lesson, assessment of student work, analysis of a student assessment, evidence that the teacher motivates and supports all students, evidence that teacher has had family and community contact, and evidence the teacher has undertaken worthwhile professional development. Each element of the portfolio is evaluated using rubrics. Each element is scored for evidence of presence of five behaviors or outcomes each worth one point. A total score of 43 points qualifies the teacher for the award.
- Preparation of the RHODE portfolio is also intended to help teachers prepare for the National Board assessments.
- The district also provides financial support for teachers participating in the National Board Certification process.
- The district also uses a modified version of Danielson's Framework for Teaching as the basis for the teacher evaluation system.

The Role of Teacher Associations and Collective Bargaining

Where teachers are represented by an association or union, changes in the compensation system are likely to be the subject of collective bargaining. We found that knowledge- and skills-based pay can be successfully negotiated, especially if the traditional, adversarial bargaining process is replaced by some form of interest-based or win-win bargaining in which the parties agree on some common principles or goals, then work out the details consistent with these principles or goals. For example, the association and district may agree on contract language that authorizes the design of a new pay system. A formal committee is then established outside the collective bargaining process to design the details of the system. In this way, teacher associations can be collaborative partners in designing and implementing knowledge- and skills-based pay systems.

Costs of Knowledge- and Skills-based Pay Programs

There are two major additional costs of knowledge- and skills-based pay programs: the additional cost of the pay incentives themselves and the administrative costs associated with assessing whether teachers have acquired the knowledge and skills. Investments of both types are and should be significant if the program is going to be successful. Accurate cost estimates are difficult to obtain since most of the programs that we studied were either new or had not tracked costs. Cincinnati's transition salary costs were estimated to be about 0.4 percent of the district's payroll. The increased salary costs in the first year at Vaughn Learning Center was about 3.5 percent of payroll. However, where significant incentives are provided, salary costs are likely to increase over time to the point where new resources will be needed to fund them. Most of the programs that we studied tried to meet increased administrative costs from existing resources, but administrative costs for the more ambitious programs are likely to be significant. Cincinnati added nine positions to serve as teacher assessors, and Vaughn Learning

Center hired two retired teachers to work part-time as assessors. Finally, it should be anticipated that other human resource program costs will increase. Professional development costs, for example, will most likely increase to provide teachers the opportunities to acquire the desired knowledge and skills.

Lessons Learned from the Pioneers in Knowledge- and Skills-based Pay and Teacher Evaluation

The experiences of the districts and schools we studied have taught us the following lessons about successful program design.

- 1. Start with an emphasis on the need for continuous, focused learning.** Teachers may believe that their initial training, job experience, and prior professional development are sufficient to be and to remain proficient. Changing this mindset to one committed to continuous professional growth and learning requires considerable work — to modify individual attitudes, organizational cultures, role definitions, professional growth opportunities, incentives, and rewards for teachers and administrators alike.
- 2. Adapting external standards is an effective way to start.** Identifying and describing the knowledge and skills to be rewarded can be a time-consuming process. Starting with an established model allows designers to develop a program in less time. When designers start with a concrete model, the design process is more likely to come to a successful conclusion sooner, and limited resources of time and energy can be focused on customizing to the local context rather than re-inventing common content.
- 3. It is hard to get all of the details right the first time.** Implementing a knowledge- and skills-based pay or teacher evaluation program is a multi-year project. Glitches in the first year are almost inevitable. Some common first-year

**Sidebar 3. A Replacement Schedule:
Cincinnati, Ohio Public Schools
To be implemented 2002-2003 School Year**

School Overview: Cincinnati is an urban school district with about 45,000 students and 3,000 teachers. The student population is about 70 percent minority, with a relatively low number of English language learners. The student population has been decreasing, generally attributed to the growth of charter schools in the city and a greater than average number of students already attending private schools. Student achievement is on par with other Ohio urban districts, but low relative to non-urban districts. The teachers union and the district have been participating in numerous reform efforts, including a recent focus on improving the quality of current teachers and setting high standards for new teachers and the development of a new performance-based teacher evaluation system.

Base Pay: The new pay system includes five career-teaching levels; each level has a minimum pay level and (other than Apprentice) two or three salary increments. The numbers below indicate what the pay levels would have been if implemented in 2000-2001; the levels will be increased when implemented in the 2002-2003 school year.

Apprentice	Novice	Career	Advanced	Accomplished
30,000	32,000	38,750	52,500	60,000
	33,250	42,250	53,750	61,250
	34,500	45,750	55,000	62,500
	35,750	49,250	56,250	

Knowledge and Skill Elements

Permanent additions to base salary

Additional degrees (may have only one add-on in this category):

- Master's degree in content area: \$4,600
- Doctorate in Education or teaching areas (includes Master's): \$9,375
- National Board Certification: \$1,000
- Dual Certificates in mathematics, social studies, foreign language, science, English/reading, special education, and elementary education: \$1,250

Additions to base pay that expire

Skill blocks:

- Technology expertise (beginning, intermediate, advanced), one-year for each level: \$750/year
- Comprehensive Reform Model Training: \$750 per year for 3 years
- Team skills: \$750 per year for 2 years
- Leadership skills: \$500 per year for 2 years
- Specific curriculum training: \$500 for 1 year
- Content specific: \$750 per year for 3 years
- Lead Teacher Roles: \$5,000-\$5,550 per year

Grandparented permanent additions to base salary (education elements)

Post-graduate hours and degrees (limited to only one of the four):

- BA+150: \$535.76
- MA: \$4,626.76
- MA+30: \$6,405.52
- Ph.D.: \$9,405.75

Noteworthy Design Features:

- Redesigned compensation system is part of a coordinated and concurrent redesign of the teacher evaluation system and professional development program.
- New pay system and evaluation program align with key features of Ohio's new teacher licensing program.
- Evaluation process is focused on helping teachers gain skills and knowledge and to build evidence each year that will support the summative evaluation every fifth year.
- Pay potential at highest career level is actually greater than under current pay system.

problems include: insufficient communication with teachers and administrators, overburdened assessors, unrealistic timelines, insufficiently defined knowledge and skill levels, and difficulty in applying the knowledge and skill standards to such areas as art, music, and special education. To surface and correct these problems, some form of staged implementation is recommended, such as beginning with a small pilot project in a few schools, making adjustments, then piloting again with a larger group of schools. Some districts have started by first piloting the assessment portion of the program with volunteers, then implementing the assessment system as part of the teacher evaluation system, before basing pay on knowledge and skill assessment results. At least two years of piloting or trial implementation are likely to be necessary if the knowledge- and skills-based compensation program either modifies or replaces a traditional salary schedule.

4. **Teachers should participate in the design process.** Designing a knowledge- and skills-based pay or evaluation system is a complex undertaking. Teachers have important insights to offer about how different elements are likely to work in practice and about what their colleagues believe is fair and appropriate, as well as expertise in specific areas of the design process. Norms of fairness in education also suggest that participation by those affected by the program will increase its chances of being accepted.
5. **Be prepared for initial stress reactions from teachers.** Many teachers, especially veterans, are accustomed to being evaluated in a perfunctory or inconsequential way. But a knowledge- and skills-based pay or teacher evaluation system introduces increased rigor and has the potential for real consequences. Teachers may experience stress, which may reduce their support for the new system and may inhibit them from trying to acquire the desired knowledge and skills. Program designers need to anticipate these stress reactions and design

training, site-level coaching, and communication support systems.

6. **Principals need to be prepared for the new demands of these programs.** We found that how the principals managed the assessment process was important in lowering teacher stress and helping to win acceptance. But many principals are not prepared to assess teacher knowledge and skills, provide feedback on the observed performance, and coach teachers to improve their skills. Further, these new roles add to the principal's workload of student discipline, crisis management, and administrative paperwork. Principal preparation programs may need to be changed to prepare principal candidates more thoroughly for assessment and coaching roles. Districts may also have to re-evaluate and re-prioritize the workload they place on principals if improving teacher knowledge and skills is a high priority.
7. **An extensive and continuous orientation and communication program is essential — to explain the system to teachers and administrators, and to help them get started with improving their knowledge and skills.** Program designers need to provide systematic orientation and training programs for teachers and administrators. Teachers need the help of principals and colleagues while going through the knowledge and skills assessment process. We found that where principals or colleagues were willing and able to answer questions, to guide teachers through the steps, and to provide assistance, teachers were more likely to favor the program and feel less stressed.
8. **Innovative methods of knowledge and skill assessment should be explored to reduce the workload of teachers and assessors.** The standard practices of requiring multiple classroom observations of teachers and asking teachers to submit a portfolio (including artifacts such as lesson plans, activity logs, and examples of student work) can provide a good sample of teacher perfor-

mance, but are very time-consuming. Alternatively, program designers could use videotaped lessons, provide teachers with electronic technology to keep and submit teaching artifacts, and structure the assessment around one or two standards-based curriculum units. This approach enables the observer to assess the instructional process from the introduction of a new topic through the assessment of student learning, and to relate artifacts like student assignments to what was observed in the classroom.

9. **Use transition strategies to reduce stress and uncertainty, particularly for veteran teachers.** Knowledge- and skills-based pay represents a cultural change. Many veteran teachers may perceive it as changing the rules under which they have pursued their careers. If the new pay structure radically reduces the role of seniority and of degrees or credits in determining compensation level, some highly-paid senior teachers may not have the knowledge and skills to earn a comparable pay rate under the new system. To prevent unnecessary stress and negative reaction to the new system, program designers should find ways to reduce the potential negative impact, particularly on veteran teachers.

Policymakers might consider a transition period during which teachers maintain their current salary rates while mastering the new knowledge and skills necessary to earn a comparable pay rate. The new system might exempt very senior teachers who may soon retire. Teachers who perform poorly on the assessments should have access to assistance and a chance to show that they can improve before facing any serious consequences.

10. **Align the entire human resource management system with the knowledge- and skills-based model.** Adding a reward for the acquisition of knowledge and skills is only one step in developing a human resource management system that supports teacher quality. It is also necessary to ensure that professional development programs help teachers

to qualify for the additional compensation. The knowledge and skills model can also be used in recruiting and selecting teachers. Job candidates should learn of the model during recruitments so that those who do not believe they can develop the desired skills or who disagree with this philosophy of professional growth may seek employment elsewhere. Selecting new teachers based on the knowledge and skills model helps to ensure that new hires have, or are willing to develop, the desired skills.

11. **A single person should be responsible for the entire program.** These complex programs require continuous, competent management. Failure to do so will sabotage program effectiveness and signal that the program is not a high priority. The program manager should have both instructional and managerial skills and be located high within the administrative hierarchy.

Policy Implications for States

State policymakers are currently very interested in providing the resources, structures, and incentives needed to enhance teacher quality and promote teacher accountability. Knowledge- and skills-based compensation could be another important state strategy for enhancing teacher quality. Knowledge- and skills-based pay programs can be integrated with other state-level teacher quality initiatives in several ways.

Starting with a well developed set of teaching standards, state policies could encourage teacher preparation programs to focus on the standards, providing teachers the preparation they need to meet the standards and preparing teachers for a lifelong commitment to developing their talents. States could implement performance-based licensure systems that require teachers to demonstrate mastery of content and pedagogy to achieve professional licensure status (Youngs, Odden, and Porter, 2000). States could require that new teachers receive mentoring and support through an induction process guided by the standards. Teacher evaluation systems could be based on these professional teaching standards;

the state could implement a minimum state salary schedule that determines salary progression (at least in part) according to teacher performance relative to the standards. Policymakers in states with collective bargaining laws could establish minimum pay benchmarks for teachers, for example, at the apprentice, novice, career teacher, professional teacher, and expert teacher levels. Iowa has just begun implementing such a system that allows local bargaining beyond these minimums and between steps on the state schedule (Odden, 2001).

Policymakers will want to address variations in district capacity to develop and implement knowledge- and skills-based systems. Many districts may currently lack the capacity to implement meaningful knowledge- and skills-based evaluation. States could help to develop this capacity by supporting the training and hiring of evaluators and by developing licensure, professional development, evaluation, and pay models.

In addition, states could align new performance-based principal licensure systems with state teacher licensure, evaluation, and compensation systems by requiring principals to develop and refine the instructional leadership skills needed to assess teacher knowledge and skills.

Finally, knowledge- and skills-based compensation systems need to be implemented with attention to the overall adequacy of the base pay needed to attract and retain teachers. These new systems are not a substitute for adequate base pay and do not represent cost savings. The matter of adequate base pay should be addressed in conjunction with developing the knowledge- and skills-based pay system, which could lead to substantial pay raises for teachers. Policymakers may find the public more likely to support increased investment in teacher salaries if it accompanies a retooling of the system to support and enhance teacher quality.

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