

DEST Research Paper

Performance-based rewards for teachers

Surveys and Workforce Analysis Section

Skills Analysis and Quality Systems Branch

March 2007

Table of Contents

Introduction	3
Types of Performance-Based Reward Systems	5
Research on Performance Pay Plans for Teachers	10
Examples of Performance-Based reward systems	13
USA - National Board for Professional Teaching Standards Certification.....	13
Background	13
Process	13
Impact.....	14
United Kingdom - Performance Threshold.....	16
Background	16
Process	16
Impact.....	16
Israel - Rank Order Tournament	19
Background	19
Process	19
Impact.....	19
Denver Public Schools Pro Comp.....	20
Background	20
Process	20
Impact.....	21
Teacher Advancement Program - Milken Family Foundation	23
Background	23
Process	23
Impact.....	24
Douglas County, Colorado School District	25
Background	25
Process	25
Impact.....	26
Special Teachers Are Rewarded – Florida State Board of Education	27
Background	27
Process	27
Impact.....	28
Mexico - Programa de Carrera Magisterial (National Teaching Career Program)	29
Background	29
Process	29
Impact.....	30
Singapore - Edu-Pac and EPMS.....	31
Background	31
Process	32
Summary	33
Bibliography	34

An overview of performance-based rewards for teachers

This report was prepared to guide DEST's consideration of a broad range of issues relating to performance pay for teachers. It provides a synthesis of selected research on performance pay for teachers and a summary of different types of performance-based pay schemes that have been trialled or implemented.

Introduction

The 2005 OECD report *Attracting, Developing and Retaining Effective Teachers*, reported that few of the participating countries linked teachers' rewards to reviewed performance and evidence of ongoing professional development. Less than half of the participating countries adjusted the base salaries of teachers in public institutions for outstanding performance in teaching. The OECD acknowledges some controversy in the development of a closer relationship between teacher performance and reward. The OECD report does however suggest that the lack of financial recognition of teaching performance is a likely contributor to teachers leaving the profession - especially those with attractive job prospects elsewhere.¹

Concerns regarding teacher pay structures and rewards are highlighted in research in the Australian context. For example:

- A DEST paper on attitudes to teaching as a career indicates that while people who have chosen teaching as a career are chiefly motivated by 'intrinsic' rewards (such as wanting to make a difference), extrinsic factors such as remuneration are the most significant factors influencing people not to choose teaching as a career, and to leave the profession.²
- The recently released Productivity Commission Research Report, *Public Support for Science and Innovation (2007)* highlights concerns regarding the level and structure of teachers' pay and argues that greater flexibility in pay and related reward structures for teachers would make teaching more attractive to prospective high quality entrants and help to address the ongoing shortage of high quality science and mathematics teachers.³
- The Review of Teaching and Teacher Education (2003) found that highly accomplished teachers were disadvantaged in comparison to other professionals in their inability to access pay commensurate with their performance. It recommended that career progression and salary advancement be based on performance rather than years of service.⁴

Pay for performance systems are proffered as a means for addressing a range of teaching

¹ p.183, *OECD, Teachers Matter - Attracting, Developing and Retaining Effective Teachers*, OECD, Paris, 2005

² p.3, *DEST, Attitudes to teaching as a career*, DEST, Canberra, 2006, at , http://www.dest.gov.au/sectors/research_sector/publications_resources/profiles/attitudes_teaching_as_career.htm, Accessed 20 March 2007,

³ pp 253-4, *Public Support for Science and Innovation, Productivity Commission Research Report*, at <http://www.pc.gov.au/study/science/finalreport/index.html>, Accessed 29 March 2007

⁴ p.31 *Australia's Teachers: Australia's Future*, Committee for the Review of Teaching and Teacher Education, October 2003. (nb The report was published in 3 volumes - see Agenda for Action, Action 29).

issues such as accountability for students' performances and attracting and retaining quality teachers.⁵

Pay for performance for teachers has been considered - and implemented to varying degrees - in a number of OECD countries over the past few years. In England and Wales, the "Threshold Assessment" was introduced in 2000 following a Green Paper setting out proposals for the reform of teachers' pay. In the USA, the *No Child Left Behind Act (2002)* (NCLB) provided a platform for education reform, with seven performance-based themes:

1. Closing the achievement gap
2. Improving literacy by putting reading first
3. Expanding flexibility, reducing bureaucracy
4. Rewarding success and sanctioning failure
5. Promoting informed parental choice
6. Improving teacher quality
7. Making schools safer for the 21st century.

Under NCLB, emphasis is placed on increased accountability at jurisdiction level for student performance, with rewards and bonuses for improvements to student achievement and implementation of accountability requirements; funding also encourages innovative teacher reform such as reforming teacher certification, tenure reform and merit based teacher performance systems, differential and bonus pay for teachers in high-need subject areas.⁶ Critics of performance pay (or merit pay) point out that performance pay schemes have been introduced in the US since the 1980s, but few have lasted more than a few years. The incentives offered under NCLB, however, have placed performance pay firmly on the political agenda again.

As a follow up to the NCLB, an allocation in the 2007 USA federal budget is funding a Teacher Incentive Fund (as part of a five year plan). The main objective of the fund is assist in paying bonuses to principals and teachers who take on challenging jobs and show results in high-need schools. The key goals of the Teacher Incentive Fund are:

1. Improving student achievement by increasing teacher and principal effectiveness;
2. Reforming teacher and principal compensation systems so that teachers and principals are rewarded for increases in student achievement;
3. Increasing the number of effective teachers teaching poor, minority, and disadvantaged students in hard-to-staff subjects; and
4. Creating sustainable performance-based compensation systems.

⁵ pp1-14, *Pay for Performance: Key Questions and Lessons from Five Current Models*, June 2001, Education Commission of the States, Denver Colorado, at <http://www.ecs.org/clearinghouse/28/30/2830.htm>, Accessed 20 March 2007

⁶ Executive Summary, *No Child Left Behind*, at <http://www.whitehouse.gov/news/reports/no-child-left-behind.html>, Accessed 20 March 2007

Types of Performance-Based Reward Systems

There are three main types of performance-based reward systems:

1. Knowledge and skill-based compensation

In knowledge and skill-based compensation schemes, teachers are compensated for the acquisition of specific knowledge and skills required to meet higher expectations for performance. This might be in the form of formal certification or undertaking specific professional development units.⁷ Another example might be taking on additional work such as mentoring or curriculum development.⁸ 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 organisational culture that values employee growth and development and to create a clear career path linked to increasing professional competence.

Knowledge- and skills-based pay is regarded as appropriate to education because teachers have a complex and changing knowledge and skill set.⁹

2. Merit Pay, "Pay for performance" or "Performance pay"

Merit pay adjusts salaries upward or provides compensation for higher levels of performance. A standard for individual performance is set, such as increased student achievement. If a teacher meets or exceeds this standard, they receive a bonus or a salary increase.¹⁰ Merit pay is frequently used in the private industrial and commercial sector as a management tool to achieve organisational goals. The majority of large companies in the United States offer some kind of merit pay to at least a proportion of their employees.¹¹ The main argument in favour of merit pay is that it can foster individual motivation by recognising effort and achievement and rewarding it in a concrete way.

3. School-based compensation

School-based compensation is another variant of merit pay, with more of an emphasis on the team's results. In these schemes, incentives are created that encourage educators to work together to achieve collective goals. An example is a school performance award that links bonuses to school goals and benchmarks.

⁷ p.3, Reichardt, Robert and Van Buhler, Rebecca, *Recruiting and Retaining Teachers with Alternative Pay*, Mid-Continent Research for Education and Learning, Colorado, USA, 4 February 2003, at http://www.mcrel.org/PDF/TeacherPrepRetention/5021RR_RecruitingRetainingTeachers.pdf, Accessed 15 March 2007

⁸ --, *Merit Pay: What are they talking about?* United Federation of Teachers, 17 February 2005, at http://www.uft.org/news/teacher/reality/merit_pay/print.html, Accessed 20 March 2007

⁹ Odden, Allan, Kelley, Carolyn, Heneman, Herbert and Milanowski, Anthony, *Policy Briefs - Enhancing Teacher Quality through Knowledge- and Skills-based Pay*, Consortium for Policy Research in Education (CPRE), Graduate School of Education, University of Pennsylvania, November 2001, RB-34, at [Http://www.cpre.org/Publications/rb34.pdf](http://www.cpre.org/Publications/rb34.pdf), Accessed 20 March 2007

¹⁰ p.2, Reichardt, Robert and Van Buhler, Rebecca, *Recruiting and Retaining Teachers with Alternative Pay*

¹¹ The Business Roundtable, *Pay-for-Performance in Education: An Issue Brief for Business Leaders*, National Alliance of Business, at <http://www.brtable.org/pdf/403.pdf>, Accessed 20 March 2007

The US Teaching Commission acknowledges that there is no single way to measure classroom excellence. The Commission suggests, however, that a balanced merit pay plan links pay increases to some or all of the following elements:

- Student achievement gains;
- Satisfactory evaluations by principals or peers;
- Additional pay for extra responsibilities;
- Incentives for earning National Board Certification;
- Special rewards for specialists.¹²

Figure 1 provides a summary of the main features of typical performance-based reward systems.

Figure 1 Typical Models of Performance-Based Rewards

Characteristic	Knowledge and Skill-Based	Merit-Pay	School-based
Recipient	Individual teachers	Individual teachers	Schools, who may have the discretion to distribute to staff
Scope	All teachers who can demonstrate the skills and knowledge are rewarded	Mixed. Some programmes provide universal rewards, others are limited by quotas	Mixed. Some programmes provide universal rewards, others are limited by quotas.
Compensation type	Mainly financial. Intrinsic rewards - such as satisfaction from increasing student performance - may be regarded as a product of this system	Financial	Mainly financial. Intrinsic rewards - such as satisfaction from increasing student performance - may be regarded as a product of this system
Areas evaluated	Specified skills and knowledge thought to be linked to increased performance. This may be via additional qualifications.	A range of areas are assessed, such as portfolio of teacher accomplishments, classroom observation, student performance.	Student performance is often used to evaluate schools - e.g. improvement in student exam scores from one year to the next, or absolute student achievement
By whom?	By external review	A range of evaluators may include peer review, principal, external review	By external review
Duration of compensation	Short-term. Generally requiring evidence that teachers maintain skills and knowledge	Varied. Most often annual	Annual bonus
Links to existing pay	Replace the salary scale, in full or part	Supplementary, but can sometimes replace the salary scale.	Supplementary
Level of compensation	Ascending levels of rewards tied to increasing levels of skills and knowledge acquired.	Mixed. Depends on the relationship to existing salary scales.	One level of reward

Source: Harvey-Beavis, Owen, *Performance-Based Rewards for Teachers: A Literature Review*, OECD, February 2003

Figure 2 provides a brief overview of the teacher compensation schemes of (mainly) OECD countries which could be regarded as offering a pay-for-performance component.

¹² *What is Merit or Performance Pay for Teachers?*, The Teaching Commission, 1 March 2005.

Figure 2 Overview of international teacher compensation which could be regarded as including a performance-based reward component

Country	Description
Belgium (Flemish Community)	Teachers are evaluated every three years using criteria established by their job description. An unsatisfactory evaluation can result in pay reduction or dismissal.
Czech Republic	Increases in teacher salaries are based on years of service and a subjective evaluation by the school head.
Denmark	Teacher agreements signed by the Danish Union of Teachers and the National Association of Local Authorities establish arrangements on working time, wages, practice in teacher training, holidays, cooperation and works councils. Individual teacher pay is based on a basic wage, agreed centrally for the individual staff category; a functions wage, based on the functions attached to the individual job; a qualification wage based on the individual employee's qualifications; and a result wage based on the attainment of quantitative and qualitative measurable results. The result wage is, however, rarely used. The municipality and local teachers' organisation define a bonus if specified criteria are met. Based on the collective agreements, arrangements may adjust individual teachers' salaries and working conditions to reflect market forces.
France	Teacher compensation depends on experience and a performance-based evaluation. Evaluation is undertaken annually by the 'head of the school' and infrequently by an outside 'inspectorate' on pedagogical competence.
Germany	The Bundesbesoldungsgesetz links progression along the salary scale and teacher performance. Performance is considered, as well as seniority, before teachers progress to the next increment.
Korea	Korea offers merit-pay to 'teachers of excellent educational activities', but as only 10% of the bonus is paid differentially based on teacher evaluation, performance evaluation has a small impact on teacher compensation.
Mexico	The Carrera Magisterial Programme provides a voluntary, individually-based performance pay system. Participating teachers are subject to an annual global evaluation, with salary increases linked. Criteria include seniority, qualifications, professional development, performance and student progress.
New Zealand	Teachers progress along the salary scale based on performance, experience and formal qualifications. The Education Department determines broad performance criteria (Framework of Professional Standards for Teachers), but specific performance indicators are agreed between teachers and their employing school. The Framework is divided into three levels - Beginning Teachers, Fully Registered Teachers and Experienced Teachers, along the dimensions of Professional Knowledge, Teaching Techniques, Motivation of Students, Classroom Management, Communication, Support for and cooperation with colleagues; and Contribution to wider school activities. The assessment process has to include a range of evaluation methods, including classroom observation, self-appraisal and an annual interview.
Norway	Teachers are employed at municipal level. Recent workplace agreements have provided more flexible arrangements, with the opportunity for local salary differentiation. Increases in salary have been more closely linked to criteria of individual performance and results.
Singapore	Education Officers can advance along three tracks - Teaching, Leadership, or Senior Specialist. At the top of the Teaching Track is the "Master Teacher" who is paid the equivalent of a Head of Department. Education Officers receive bonus pay depending on Singapore's economic performance. Senior Officers also receive allowances for additional responsibilities. Performance Pay is available to all Officers, based on their performance against competencies determined by the Enhanced Performance Management System and results agreed in Work Review Discussions. Cash bonuses are awarded each year at school level for individuals (\$1,000) and teams (\$2,000) who make a significant value-added contribution".
Slovak Republic	Teachers with at least five or ten years teaching experience may gain access to special salary scales by successfully completing qualification examinations. These are evaluated by discussion of their final thesis and oral examination in the field/s of study or management before a five-member examination board. Teachers are also assessed as part of the process of defining their salaries. Personal allowances and bonuses may be granted to teachers based on additional skills or responsibilities, students' results, or achievements.
Spain	In Spain, teachers with eight years of experience may take part in a competitive examination to secure increased status and salary increases. Selection procedures are generally based on an assessment of the academic merit and practical performance of teachers, as well as an oral examination involving discussion of a chosen subject.
Sweden	Under the agreement between employers and the teachers unions, improved performance is linked to better working conditions and pay increases. Teachers are guaranteed only a minimum salary after one year's employment. Salaries are agreed between the teacher and their employer upon commencement of employment, with salaries subsequently revised once a year in local negotiations.

Figure 2 (continued) Overview of international teacher compensation which could be regarded as including a performance-based reward component

Country	Description
United Kingdom	Advanced Skills Teachers (AST) have a separate 27-point pay spine, reflecting the fact that the grade provides an alternative career path to taking up a leadership or management post. Each AST is paid within a five point range, based primarily on the nature of their work, the scale of the challenges they face, the professional competencies required and any other recruitment considerations. AST's receive an increase when pay scales are updated and may also be awarded extra points each September for high quality
<i>Advanced Skills Teachers</i>	The Fast Track Teaching Programme is for new entrants and existing teachers with high leadership potential. It focusses on rapid development of professional excellence and school leadership, and provides additional support and training. Newly qualified teachers on the programme are given an additional point on the main scale and, after the induction year, all Fast Track teachers receive an extra recruitment and retention payment of around £2,000.
<i>Fast Tracking</i>	Once teachers reach the top of the salary scale, they have the option of undertaking a test based on sixteen criteria, to advance to a new salary scale.
<i>Threshold Assessment</i>	State and school districts commonly offer teachers one-time or annual bonuses to supplement their pay based on gaining National Board Certification, or teaching in areas of teacher shortage. A range of performance-based pay programs have been implemented in school districts. The criteria on which these programs are assessed varies - some provide extra compensation for teachers taking on extra responsibilities, undertaking additional qualifications, improved student test scores.
United States of America	

Sources: Harvey-Beavis, Owen *Performance-based Rewards for Teachers: A Literature Review*, OECD, Paris, 2003
 Eurydice, *The Teaching Profession in Europe: Profile, Trends and Concerns, Report III, Working Conditions and Pay*, Eurydice, Brussels, 2003
 Attracting, Developing and Retaining Effective Teachers, various Country Background reports, OECD
 Hairon Salleh, *Professional development in Singapore - the critical element*, Making Educational Reform Happen Conference, College of Management, Mahidol University.

Opposition to performance pay

Some commentary has opposed performance pay in teaching.¹³ The following are typical of the issues raised in opposition to performance pay:

- Performance-related pay may be seen as a means of containing salary costs by reducing automatic progression through salary levels.¹⁴
- Performance-related pay requires investment in terms of both time and money. Time is required to plan, introduce and run the scheme (e.g. undertaking staff appraisals and training managers in its operation). The financial costs of performance-related pay are often underestimated, thus undermining its effective implementation.¹⁵
- Performance-based compensation programs encourage competition rather than collaboration among teachers.¹⁶ Many would argue that the concept of individual merit is at odds with the collegiate approach of effective schools, stifling collaboration and creating conflict and tension in the school environment.
- The extent of an individual teacher's impact on student learning is difficult to isolate. Student achievement, as measured by test scores, or improvement in scores from year to year, is sometimes suggested as an appropriate indicator of merit. The current teacher is not, however, the sole influence on student achievement, and he/she has no control over factors such as student mobility, language proficiency and class-size.¹⁷ Eric Hanushek points out that families make a huge difference in the education of students. He suggests that teachers should be rewarded for their value-adding to the

¹³ Kohn, Alfie, *The Folly of Merit Pay*, Education Week, 17 September 2003, at <http://www.alfiekohn.org/teaching/edweek/meritpay.htm>, Accessed 17 March 2007

¹⁴ p.2, OECD Observer, Policy Brief, *Paying for Performance: Policies for Government Employees*, May 2005.

¹⁵ P.5, OECD Observer, Policy Brief, *Paying for Performance: Policies for Government Employees*, May 2005.

¹⁶ P.4, Solmon, Lewis C and Podgursky, Michael, *The Pros and Cons of Performance-Based Compensation*, Milken Family Foundation.

¹⁷ pp 4 - 11, Solmon, Lewis C and Podgursky, Michael, *The Pros and Cons of Performance-Based Compensation*

education of the child.¹⁸

- Where merit pay systems involve subjective assessments of teacher performance by supervisors, it is possible that favouritism, rather than objective assessment, may taint the evaluations.¹⁹

These arguments are similarly pinpointed by Owen Harvey-Beavis in his literature review on Performance-Based Rewards for Teachers.²⁰

Support for performance pay

Conversely, Harvey-Beavis identifies a range of responses in favour of performance-based rewards:

- The current system is unfair and rewards experience instead of performance.
- School administration would improve, especially when school-based compensation programmes are implemented.
- An emphasis on knowledge and skill and school-based reward models would improve teacher motivation and increase collegiality.
- Student outcomes would improve.
- These programmes represent a relatively cheap financial investment in education.²¹

Harvey-Beavis points out that most arguments principally support knowledge and skills-based and school-based rewards, while moving away from earlier merit pay approaches.

The Harvey-Beavis review concludes that there is evidence that performance-based reward systems for teachers can and do work in practice. There is a requirement that such successful systems are thoroughly embedded in the organisation of schools and broadly aligned with school objectives. He also suggests a potential for performance based review systems to promote a much clearer view of what is important in school effectiveness.

Any consideration of this research also poses significant questions for the profession of teaching. As the OECD report suggests, there is a requirement to consider the position of teachers in the broader workforce and to promote the ongoing appeal of teaching as a profession. In more general terms policy makers must consider whether a position of failing to reward for superior performance is a sustainable strategy for the attraction and retention of quality people to the profession of teaching.

¹⁸ p.9, Hanushek, Eric A, *Teacher Quality*, at http://edpro.stanford.edu/Hanushek/files_det.asp?FileId=97, Accessed 14 March 2007

¹⁹ p.4, Podgursky, Michael, *Reforming the Single Teacher Salary Schedule in Public Schools*, Texas Education Review, Winter 2003-04.

²⁰ pp11-15, Harvey-Beavis, Owen, *Performance-Based Rewards for Teachers: A Literature Review*, February 2003, OECD, at <http://www.oecd.org/dataoecd/17/47/34077553.pdf>, Accessed 15 March 2007.

²¹ pp7 - 11, Harvey-Beavis, Owen, *Performance-Based Rewards for Teachers: A Literature Review*,

Research on Performance Pay Plans for Teachers

Recent research on the impact of performance pay plans for teachers is limited. There have, however, been some positive findings²²:

- A study of a merit pay programme implemented in the 1980s and 90s in Tennessee demonstrated that students in primary school with teachers on career-ladder pay scales scored nearly three points higher in mathematics than students taught by other teachers, and nearly two points higher in reading.²³
- A 2004 study of the 'pay for performance' pilot in Denver, Colorado indicated that linking teacher compensation to student achievement could trigger fundamental improvements in school systems. Teachers indicated that they had greater access to student achievement data as a result of the 'pay for performance' plan, and made better use of the data to set targets for students, to focus earlier on students in need of more assistance and to monitor progress in the classroom. The study also found that students whose teachers had excellent objectives achieved higher average scores than other students, and students whose teachers met two objectives had significantly higher levels of student achievement.²⁴
- Research by Odden and Kelley has shown that performance award programmes are successful when integrated with aspects such as strong school leadership, professional development, reliable analyses of student performance, and strong feedback. The research also suggests that incentives focus the efforts of teachers and principals on improving student achievement.²⁵
- Research on the relationship between teacher evaluation scores and growth in student achievement at the Vaughn Next Century Learning Center in Los Angeles revealed a strong correlation in reading and mathematics scores.
- Results from the Teacher Advancement Program (TAP) showed that approximately 57 per cent of TAP schools outperformed control schools in mathematics and 67 per cent of TAP schools outperformed control schools in reading.²⁶
- A programme for nine high-need public schools in Chattanooga, Tennessee was funded through the Benwood Foundation, a philanthropic organisation, in an attempt to staff nine of Tennessee's lowest performing schools with highly qualified teachers. The school district identified high performing teachers (those whose students tested well) and provided incentives for them to transfer to low-performing elementary schools. An annual team bonus was available for every teacher in a school whose students show significant test gains.²⁷ The proportion of third graders reading at or above grade level increased by 13.3 percentage points between 2001 and 2003, outpacing other Chattanooga schools and also outpacing 90 percent of elementary schools in

²² *What is the evidence on paying teachers differently?*, The Teaching Commission, 21 March 2005.

²³ pp 471-488, Dee, Thomas S and Keys, Benjamin K, *Does Merit Pay reward Good Teachers? Evidence from a Randomised Experiment*, Journal of Policy Analysis and Management, Vol 23, no 3, (2004).

²⁴ *Catalyst for Change: Pay for Performance in Denver, Final Report, January 2004*, Community Training and Assistance Center, at <http://ctacusa.com/denver-vol3-final.pdf>, Accessed 20 March 2007

²⁵ Odden, Allen and Kelley, Carolyn, *Paying teachers for what they know and do: New and smarter compensation strategies to improve Schools*, 2002, Corwin Press, Thousand Oaks, CA.

²⁶ *The Effectiveness of the Teacher Advancement Program*, National Institute for Excellence in Teaching, at http://www.talentedteachers.org/pubs/effective_tap07_full.pdf, Accessed 15 March 2007

²⁷ p.5, *Examining Teacher Performance Incentives*, Focus Report, Number 78-17, 21 April 2004, House Research Organization, Texas House of Representatives, at <http://www.hro.house.state.tx.us/focus/incentive78-17.pdf>, Accessed 20 March 2007

Tennessee.²⁸

- A study of performance pay in Israel showed that performance incentives for teachers significantly impacted on the performance of students who were taught by teachers with incentives and had some minor spill over effects on other students. The improvements appeared to derive from changes in teacher methods, after school teaching and increased responsiveness to students' needs.²⁹
- Hoxby and Leigh provide arguments for linking differential pay structures to student achievement in their article *Wage Distortion*. They point out that salary distribution for public school teachers has narrowed so dramatically that those with the highest aptitude can expect to earn no more than those with the lowest. This alone accounts for more than three-quarters of the decline in teacher quality.

Hoxby and Leigh found that salary parity with men has also lured college-educated women away from teaching and into other professions. They suggest that union-driven pay compression has had a far greater impact. Whereas other professions have been raising the reward for performance over the past few decades, teaching has given its best candidates no such incentive to sign on.

They suggest that for school districts to attract high-aptitude women back into teaching, they need to reward teachers in the same way that college graduates are paid in other professions - that is, according to their performance.³⁰

In employment sectors other than education, performance-pay systems have been embraced with varying degrees of success. While financial incentives are often the centre-piece of performance management strategies, the USA's Corporate Leadership Council (CLC) acknowledges the "overwhelming number of viable approaches to performance management and the lack of consensus and understanding as to which strategies effectively drive performance".³¹ The CLC study, *Building the High-Performance Workforce*, has some pertinent pointers on performance management systems:

- The drivers of on-the-job performance are notably different from the drivers of recruiting and retention.
- Employees must understand performance standards and perceive them as fair. The performance standards must be linked to organisational success and strategy.
- Organisations need to include all relevant organisational, managerial, and employee-level drivers of employee performance in their performance management system.
- Employees perform best when they feel personally connected to their work and their organisation. These connections are more important to improving employee

²⁸ *What is the Evidence on Paying Teachers Differently?* The Teaching Commission.

²⁹ Lavy, Victor, *Performance Pay and Teachers' Effort, Productivity and Grading Ethics*, National Bureau of Economic Research, Cambridge MA, Working Paper 10622, June 2004, at <http://www.nber.org/papers/w10622>, Accessed 18 March 2007.

³⁰ Hoxby, Caroline and Leigh, Andrew, *Wage Distortion*, at <http://www.educationnext.org/20052/50.html>, Accessed 15 March 2007

³¹ *Building the High-Performance Workforce: A Quantitative Analysis of the Effectiveness of Performance Management Strategies*, 2002, Abstract, Corporate Leadership Council, at http://www.corporateleadershipcouncil.com/CLC/1,1283,0-0Public_Abstract-48700,00.htm, Accessed 20 March 2007

performance than traditional financial and non-financial incentives. While the promise of promotions and financial rewards drive employee performance, the impact is smaller than employees' personal connection to their work.

- Managers can most effectively drive employee performance by providing solutions to day-to-day challenges. Providing employees with informed, positive, fair, accurate and detailed feedback is critical. Discussion of performance weaknesses must be clearly focussed on specific suggestions for improvement or development. If not, emphasising weaknesses can dramatically decrease performance.
- Fair and accurate informal feedback on performance from a knowledgeable source is the single most effective performance management lever available to the organisation. This feedback should be voluntary, detailed, immediate and positive.
- Organisational factors - systems and culture - have a large impact on employee performance. Differentially treating strong and weak performances may be vital, but its ultimate impact on employee performance is limited.
- Communication - between employees, between employees and managers, and from senior leadership - stands at the heart of an effective performance management strategy.
- The effectiveness of performance management strategies can vary tremendously in their impact on performance.³²

³² p.52b, *Building the High-Performance Workforce: A Quantitative Analysis of the Effectiveness of Performance Management Strategies*, 2002, Corporate Executive Board, Corporate Leadership Council.

Examples of Performance-Based reward systems

USA - National Board for Professional Teaching Standards Certification

Background

The National Board for Professional Teaching Standards (NBPTS) is a non-partisan, independent and non-profit organisation created in 1987.³³ National Board Certification, offered by NBPTS, is a voluntary, performance-based assessment through which candidates demonstrate in-depth content knowledge and teaching practices measured against high and rigorous standards. Certification is valid for 10 years. National Board Certification complements but does not replace state licensing.³⁴ Fifty states and more than 550 localities offer some form of incentive and/or legislative or regulatory support for teachers seeking National Board Certification.³⁵ National Board Certification is not itself a performance-based reward system, but is often used as a key element in these systems.

Teachers are eligible to seek National Board Certification if they hold a baccalaureate degree, have completed three years of teaching experience prior to applying, and have held a valid state teaching licence for those three years (or where a licence is not required, have taught in state-recognised and approved schools).

The first 86 National Board Certified Teachers were named in 1995. At March 2007, there were over 55,000 National Board Certified teachers.³⁶

Process

National Board assessments consist of two major parts: portfolio entries and assessment centre exercises.³⁷

Candidates are asked to compile a portfolio according to specifications given in directions and materials developed by the National Board. Teaching portfolios generally include student work samples, videotapes of lessons, and other teaching artefacts. The videos and student work are supported by commentaries on the goals and purposes of instruction, reflections on what occurred, the effectiveness of the practice and the rationale for the teacher's professional judgement. The portfolio gives candidates the opportunity to sample and present their actual classroom practice over a specified time period, and is designed to capture teaching in real-time, real-life settings, thus allowing trained assessors to examine how teachers translate knowledge and theory into practice.

In addition to classroom-based entries, candidates document their work with families and the larger community, and with colleagues and the profession.

³³ *Backgrounder*, National Board for Professional Teaching Standards, January 2007, at <http://www.nbpts.org/index.cfm?t=downloader.cfm&id=538>, Accessed 20 March 2007

³⁴ *Making the Commitment to Accomplished Teaching: Q & A for 2007 National Board Certification*, National Board for Professional Teaching Standards, 2007, at <http://www.nbpts.org/index.cfm?t=downloader.cfm&id=537>, Accessed 20 March 2007

³⁵ *Backgrounder*, National Board for Professional Teaching Standards, January 2007

³⁶ *NBPTS Research*, National Board for Professional Teaching Standards, at <http://www.nbpts.org/index.cfm?t=downloader.cfm&id=540>, Accessed 20 March 2007

³⁷ *General Information About National Board Certification*, National Board for Professional Teaching Standards, at http://www.nbpts.org/the_standards, Accessed 20 March 2007

At the assessment centre, candidates complete a number of timed exercises to probe the depth of their subject-matter knowledge, as well as their understanding of how to teach those subjects to their students. These exercises are designed to validate that the knowledge and skills portrayed in the portfolio are accurate reflections of what candidates know and do.

Certification scoring is based on all of a candidate's responses: videotapes, student work samples, candidates' analysis, and written responses to assessment centre exercises. Assessors evaluate the candidates work using these pieces of evidence against the NBPTS standards.³⁸

Impact

A range of research has been undertaken on the impact of NBPTS certification:

- Using a data-set of teacher- and student-level administrative records from North Carolina's Department of Public Instruction for the school years 1996-97 through 1998-99, researchers assessed the relationship between the certification of teachers by the NBPTS and elementary-level school achievement. The findings of Goldhaber and Anthony indicated that NBPTS was successfully identifying the more effective teachers among applicants, and that National Board Certified (NBC) teachers, prior to becoming certified, were more effective than their non-certified counterparts at increasing student achievement. The statistical significance and the magnitude of the "NBPTS effect", however, differed significantly by grade level and student type.³⁹
- A project initiated by the NBPTS examined the certification process to determine whether it was recognising highly accomplished professionals. The research team at the University of North Carolina looked at 65 teachers from North Carolina, Ohio and the Washington DC metropolitan area, recruited from a pool of eligible participants who had sought National Board Certification in one of two areas. The study found that the NBC teachers outperformed their non-certified counterparts on every one of 13 recognised measures of good teaching. The differences were significant in all 13 of the measures. Nearly three-quarters of the NBC teachers produced students whose work reflected deep understanding of the subject, compared to less than one-third of non-certified teachers.⁴⁰
- A National Board for Professional Teaching Standards survey in 2001 examined the impact of the assessment process on teachers who achieved National Board Certification. Surveys were sent to a random sample of 600 of the teachers who had achieved certification between 1994 and 1999, with 235 surveys completed and returned. The results demonstrated that NBC teachers regarded the National Board Certification process as an excellent professional development opportunity which improved their teaching practices, lead to increased professional recognition and interaction with colleagues; and lead to improved student attitudes about learning.⁴¹

³⁸ *General Information About National Board Certification, 2007*, National Board for Professional Teaching Standards, at http://www.nbpts.org/the_standards, Accessed 20 March 2007

³⁹ Goldhaber, Dan, and Anthony, Emily, *Can Teacher Quality Be Effectively Assessed*, Urban Institute, 27 April 2004, at <http://www.urban.org/publications/411271.html>, Accessed 20 March 2007.

⁴⁰ *A Distinction that Matters: Why National Teacher Certification Makes a Difference*, 2005, National Board for Professional Teaching Standards, at <http://www.nbpts.org/>, Accessed 20 March 2007

⁴¹ *The Impact of National Board Certification on Teachers: A Survey of National Board Certified Teachers and Assessors*, Fall 2001, National Board for Professional Teaching Standards, at http://www.nbpts.org/resources/research/browse_studies?ID=154, Accessed 20 March 2007

- A project by Arizona State University researchers Leslie Vandevoort, Audrey Amrein-Beardsley and David Berliner found that students of NBC teachers experienced year-end testing improvements that averaged 7 to 15 per cent more than their peers whose teachers were not Certified. The researchers compared the 1999 - 2003 Stanford Achievement Test (SAT) scores of third to sixth grade students in classes of 35 NBC teachers with those of non-NBC teachers. The students of NBC teachers scored higher than other students in 35 of 48 key measures.⁴²
- A study funded by the National Science Foundation and the NBPTS found that National Board Certification had a greater effect in student mathematics achievement than did state certification to teach mathematics or relatively more teaching experience. The Miami-Dade research focused on high school mathematics teachers in an urban school system serving a diverse student population and isolated the influence of other factors such as teacher experience and education levels, per-pupil spending, school size, student performance above or below grade level and student motivation. The study of more than 100,000 student Florida Comprehensive Assessment Test (FCAT) records identified NBC teachers as being particularly effective with special needs students.⁴³

⁴² Vandevoort, L, Amrein-Beardsley, A, & Berliner, D, *National Board Certified Teachers and Their Students' Achievement*, 2004, at <http://epaa.asu.edu/epaa/v12n46/v12n46.pdf>, Accessed 20 March 2007.

⁴³ *Students of National Board Certified Teachers Achieve Larger Gains on Statewide Math Test in Florida*, Press Release, 18 November 2004, National Board for Professional Teaching Standards.

United Kingdom - Performance Threshold

Background

The current performance-related pay scheme for teachers was introduced in 2000 following a Green Paper setting out proposals for the reform of teachers' pay. It was argued that higher rewards for those who could prove their ability as teachers would be an effective way to attract, retain and motivate good teachers, as teacher motivation was adversely affected by a "culture" which did not recognise and reward outstanding performance.⁴⁴

Threshold assessment works alongside performance management arrangements; information from performance reviews (including information from classroom observation) provides an important part of the evidence to support threshold applications.

Process

Teachers are able to apply to pass the 'performance threshold' once they attain point M6 on the pay scale. Successful teachers receive an annual bonus of £2000 (which they continue to receive until the end of their career), and move to a new, upper pay scale where they are eligible for further performance-related increments in the future. To pass the threshold, teachers have to demonstrate that they have reached acceptable standards in each of five areas: knowledge and understanding of teaching; teaching and assessment; pupil progress; wider professional effectiveness; and professional characteristics.⁴⁵

Threshold assessment is a voluntary process. Teachers are required to apply in writing to the head teacher of the school at which they are employed to teach. The application must be supported by concrete examples from the teacher's day-to-day work to show that they have worked at the standards indicated over at least the last two and not more than three years leading up to and ending at the date of the application. While a portfolio of supporting evidence is not required, teachers must have access to all evidence cited and any key supporting material such as feedback from classroom observation, pupils' work, their own records or schemes of work.⁴⁶

Impact

In the first year, over 200,000 teachers applied to cross the threshold, of whom 97 per cent were successful.

⁴⁴ p.4, Burgess, Simon and Croxson, Bronwyn, *The Impact of Teacher Pay Reform on Pupil Attainment: An outline of the CMPO research project on the Performance Threshold*, CMPO Working Paper Series No 01/36, Centre for Market and Public Opinion (CMPO). University of Bristol, at

<http://www.bris.ac.uk/Depts/CMPO/workingpapers/wp36.pdf>, Accessed 20 March 2007

⁴⁵ p.5, *Performance Threshold Standards Assessment, 2006/07, Round 7, Support Pack for Schools*, at <http://www.teachernet.gov.uk/docbank/index.cfm?id=10298>, Accessed 21 March 2007

⁴⁶ p.9, *Performance Threshold Standards Assessment, 2006/07, Round 7, Support Pack for Schools*, at <http://www.teachernet.gov.uk/docbank/index.cfm?id=10298>, Accessed 21 March 2007

The Centre for Market and Public Opinion (CMPO) at the University of Bristol has undertaken a range of research on the impact of the Performance Threshold:

- In November 2001, Croxson and Atkinson reported on the results of interviews with the head teachers of 25 English secondary schools on their perception of the Threshold's impact in schools. Most respondents viewed the system as a means of supporting staff, rather than identifying and penalising poor performers. The majority viewed the individually-based rewards as posing a risk to team work, although none had observed internal conflict resulting from the Threshold. (Some attributed this to the fact that most teachers were likely to pass the Threshold.) Head Teachers were divided over whether they believed financial incentives could be used explicitly to motivate teachers. The researchers suggest that while money matters to teachers, it is not the only factor that motivates them. Other factors, such as feeling valued, minimising stress and adequate school accommodation, were identified as important. The respondents were uncertain about the Threshold's long-term impact on teachers' effort and thereby pupil attainment. A number perceived that while pupil attainment was likely to change in the short run, this was more likely to be the result of other changes, including new Performance Management systems.⁴⁷
- A CMPO paper published in December 2004 evaluated the impact of the Performance Threshold using teacher level data matched with test scores, with controls for pupil effects, school effects and teacher effects. The researchers tested whether the introduction of a payment based on pupil attainment increased teacher effort, and found that the scheme did improve test score gains, on average by about half a grade per pupil. They concluded that teachers did respond to direct financial incentives, although they could not determine whether this represented extra effort or effort diverted from other professional activities.⁴⁸

Other UK researchers, however, question the value of Performance-related Pay schemes:

- Researchers from the Institute of Education in London found little evidence to suggest the Performance Threshold payments had improved results or attracted more people into teaching. The authors of *Teacher Pay and Performance*,⁴⁹ Professor Peter Dolton, Steven McIntosh and Arnaud Chevalier, suggested it was difficult to determine the impact of any one teacher on a pupil's progress, as there could be a number of external influences such as private tuition, or assistance at home. The researchers say it is a "difficult if not impossible task" to devise a performance-related pay system for teachers that makes them work harder and more productively, does not need expensive monitoring, encourages teamwork and discourages teaching to the test.⁵⁰
- In a paper published in the London School of Economics, Centre for Economic Performance magazine, *Centrepiece*, Dolton and Chevalier assert that evidence from elsewhere in the world "tends not to support performance-related pay schemes. In fact,

⁴⁷ Croxson, Bronwyn and Atkinson, Adele, *Incentives in Secondary Schools: The Impact of the Performance Threshold*, August 2001, CMPO Working Paper Series No 01/45, CMPO, University of Bristol, at <http://www.bris.ac.uk/depts/CMPO/workingpapers/wp45.pdf>, Accessed 20 March 2007

⁴⁸ Atkinson, Adele; Burgess, Simon; Croxson, Bronwyn; Gregg, Paul; Propper, Carol; Slater, Helen; and Wilson, Deborah, *Evaluating the Impact of Performance-related Pay for Teachers in England*, December 2004, CMPO, at http://rlab.lse.ac.uk/workshop/2005/propper_burgess.pdf, Accessed 20 March 2007

⁴⁹ published by The Institute of Education, University of London

⁵⁰ *Doubts over Performance Pay*, BBC News World Edition, 10 April 2003, at http://news.bbc.co.uk/2/hi/uk_news/education/2936607.stm, Accessed 20 March 2007

most schemes for teachers have collapsed and there is evidence that the ability of PRP to motivate staff is limited.”⁵¹

- A survey of Welsh teachers on their attitudes to performance-related pay at the time of implementation of the Performance Threshold found that the majority of respondents remained strongly in favour of centrally determined pay scales and opposed to individually-based performance pay. The majority felt that it would not increase motivation, would have little impact on teacher recruitment or retention, would have little impact on pupil learning, and would not lead to better and more effective teaching.⁵²

⁵¹ Chevalier, Arnaud and Dolton, Peter, *Teacher Shortage: Another Impending Crisis?* In *CentrePiece*, Winter 2004, Centre for Economic Performance, London School of Economics, at http://cep.lse.ac.uk/centrepiece/V09i3/chevalier_dolton.pdf, Accessed 20 March 2007

⁵² pp81 - 104, Farrell, Catherine and Morris, Jonathan, *Resigned Compliance: Teacher Attitudes towards Performance-Related Pay in Schools*, in *Educational Management Administration & Leadership (EMAL)*, 2004, at <http://ema.sagepub.com/cgi/reprint/32/1/81>, Accessed 20 March 2007

Israel - Rank Order Tournament

Background

In December 2000, the Israeli Ministry of Education announced the pilot of a new teachers' bonus scheme in forty-nine high schools. The main feature of the programme was an individual performance bonus paid to teachers of English, Hebrew, Arabic and mathematics teachers on the basis of student achievement. The programme hinged on the outcomes of students in grades ten through twelve in their matriculation exams - a rank order "tournament". Principals and administrators at the participating schools were briefed on the incentive programme six months before the exams.

Process

Each class taught in the nominated subject and grade represented one entry into the tournament for the teacher. Competing teachers were ranked each time according to the mean performance of each class. The ranking was determined by the difference between the actual outcome and a value predicted by a regression model controlling for student socioeconomic characteristics, level of subject proficiency, and a fixed school-level effect. Separate regressions were used to calculate predicted passing rates and mean scores. Teachers were ranked against each outcome.

Participating schools submitted student data itemised by grades, subjects and teachers, with a reference population of 1 January 2001 enrolment.

Teachers with positive residuals (actual less predicted outcome) for both passing rates and mean scores were divided into four ranking groups, from first place to fourth. Points were allocated according to ranking - 1st place - 16 points, 2nd place - 12, 3rd place - 8; and 4th place - 4. The total points against the two outcomes were used to rank teachers in the tournament and to determine winners and awards. The top scorers - 30 - 36 points - were awarded \$7,500; the smallest award for 9 points earned the recipient \$1,750. These awards were significant against the mean gross annual income of high school teachers of \$30,000.

Impact

Lavy's analysis of the pilot programme indicated that pay-for-performance incentives could "align the interests of teachers with the interests of the school system without inducing behaviour distortions such as test score manipulations or teaching to test practices by teachers". The results suggested that performance incentives had a significant positive effect on the performance of directly affected students, with some minor spill-over effects on untreated subjects (e.g. after-school instruction time was also provided by non-participating teachers). These improvements appeared to derive from changes in teaching methods, after-school teaching, and increased responsiveness to students' needs.⁵³

⁵³ Lavy, Victor, *Performance Pay and Teachers' Effort, Productivity and Grading Ethics*, National Bureau of Economic Research, Cambridge MA, Working Paper 10622, June 2004, at <http://www.nber.org/papers/w10622>

Denver Public Schools Pro Comp

Background

The Denver Public Schools and the Denver Classroom Teachers Association jointly sponsored a four year Pay for Performance pilot during the 1999-2003 schools years, focused on developing a direct link between student achievement and teacher compensation.⁵⁴

The centrepiece of Pay for Performance in Denver was the teacher objectives at the 16 pilot schools.

The Denver Board of Education approved Pro Comp, the comprehensive pay plan developed out of the pilot, on 19 February 2004. The agreement was subsequently ratified by Denver teachers.⁵⁵ The Pro Comp Salary System went into effect in January 2006 after Denver voters approved a \$25 million levy to fund the compensation plan. By the end of the second opt-in window (the third opt-in period closes 30 June 2007) nearly 1,200 educators had joined Pro Comp.⁵⁶

The primary objectives of Pro Comp are:

- to link teacher compensation more closely with the district's instructional goals;
- to reward and recognise teachers for meeting and exceeding expectations; and
- to attract and retain the most qualified and effective teachers by leading Colorado in overall teacher compensation.⁵⁷

Process

The Denver plan uses several factors to trigger pay increases. ProComp rewards teachers for increasing student achievement; earning positive professional evaluations; for working in the most academically challenging, high-need schools; and for advancing their knowledge and skills.

At the core of the plan is the teacher objective setting process, outlining what will be taught and what students will learn. Teachers individually develop two year-long instructional objectives for each year by:

- Reviewing the available baseline achievement data on their current year students;
- Writing two objectives for the identified population(s);

⁵⁴ p.12, *Catalyst for Change: Pay for Performance in Denver, Final Report, January 2004*, Community Training and Assistance Center, at <http://ctacusa.com/denver-vol3-final.pdf>, Accessed 20 March 2007

⁵⁵ *Professional compensation system for teacher*, 20 March 2004, Denver Public Schools and Denver Classroom Teachers Association, Joint Task Force on Teacher Compensation, at [http://denverprocomp.org/stories/storyReader\\$88?print-friendly=true](http://denverprocomp.org/stories/storyReader$88?print-friendly=true), Accessed 20 March 2007

⁵⁶ *ProComp History*, Denver Public Schools: Professional Compensation System for Teachers, at <http://denverprocomp.org/stories/briefhistory>, Accessed 16 March 2007

⁵⁷ *Professional Compensation System for Teachers – Overview*, Denver Public Schools: Professional Compensation System for Teachers at [http://denverprocomp.org/stories/storyReader\\$33](http://denverprocomp.org/stories/storyReader$33), Accessed 29 March 2007

- Selecting a measure for each objective;
- Establishing expected gain or growth targets for the students in the class; and
- Conferring with the principal for approval.⁵⁸

Teachers may also receive a salary increase upon completion of a professional development unit related to current or proposed area of assignment, for completion of an advanced degree related to current or proposed area of assignment, and/or for becoming certified by the national Board for Professional Teaching Standards. Participation in district-provided in-service activities and work done as part of a teacher's regularly assigned teaching duties may also count toward completion of the professional development units.

Salary increases are also linked to professional evaluation. Teachers will be evaluated every three years and receive a 3 per cent salary increase for a satisfactory evaluation under the Professional Evaluation component. The new evaluation tool was designed by teachers, administrators and student services professionals.⁵⁹ It is based on a fall-to-spring evaluation cycle and will use well-developed rubrics articulating different levels of teacher performance.⁶⁰

The system also employs aspects of a market-incentive structure, with bonuses for teachers in hard-to-staff assignments (such as subject-area shortages) and hard-to-serve schools.

Impact

As part of the pilot of the Pay for Performance System, the Community Training and Assistance Center was commissioned to conduct a comprehensive study of the pilot's impact. The study had four components:

1. examination of the impact of the pilot on student achievement based on two independent assessments;
2. examination of teacher objectives;
3. consideration of the effect of a range of student, teacher and school factors on the results of the pilot; and
4. identification of broader institutional factors that affected implementation.⁶¹

The study found that students whose teachers had excellent objectives achieved higher scores, on average, than other students. In addition, students whose teachers met two objectives had significantly higher levels of student achievement. These findings held true at elementary, middle and high school levels.

Teachers indicated that they had greater access to student achievement data as a result of the Pilot, and made better use of the data to set targets for students, to focus earlier on students in need of more assistance, and to monitor progress in the classrooms.

⁵⁸ p.42, *Catalyst for Change: Pay for Performance in Denver, Final Report*.

⁵⁹ *ProComp Frequently Asked Questions – Professional Evaluations*, Denver Public Schools: Professional Compensation System for Teachers, at [http://denverprocomp.org/stories/storyReader\\$37](http://denverprocomp.org/stories/storyReader$37), Accessed 29 March 2007

⁶⁰ *ProComp Frequently Asked Questions – Professional Evaluations*, Denver Public Schools: Professional Compensation System for Teachers, at [http://denverprocomp.org/stories/storyReader\\$37](http://denverprocomp.org/stories/storyReader$37), Accessed 29 March 2007

⁶¹ p.26, *Catalyst for Change: Pay for Performance in Denver, Final Report*

The study found that the pilot also had positive impacts at the district level. It stimulated other parts of the school system to improve the quality of support and service. For example, the district began tracking the achievement of students individually on a classroom-by-classroom basis, generating information that is critically important for guiding improvement efforts. Further, teachers and administrators indicated that Pay for Performance significantly increased the school and district focus on student achievement.

The study cautioned, however, that implementing this reform would place demands on the district that could be “surprisingly difficult to meet”. School districts would need to align and improve the quality of the curriculum, instructional delivery, supervision and training. Further, to ensure that pay for performance was fair to teachers, districts needed to make sure that they had high quality assessments that could measure student progress based on what teachers were being asked to teach.⁶²

⁶² *Teacher Pay for Performance: Catalyst for Change, Press Release, 9 February 2004*, Community Training and Assistance Center, I at <http://ctacusa.com/news3.html>, Accessed 20 March 2007

Teacher Advancement Program - Milken Family Foundation

Background

The Teacher Advancement Program (TAP) is an initiative of the Milken Family Foundation in the USA. TAP aims to draw talented people to the teaching profession and retain them in the classroom by making it more attractive and rewarding to be a teacher.⁶³ TAP has four elements to accomplish this goal:

1. Multiple Career Paths
2. Ongoing Applied Professional Growth
3. Instructionally focussed Accountability; and
4. Performance-based compensation.

Process

Multiple Career Paths

Classroom teachers in a TAP school have the opportunity to advance to master or mentor teacher positions based on their skills, knowledge, ambitions and interests. Master and mentor teachers take on additional responsibility and authority and are required to have a longer work year. They make up part of the school's Leadership Team and are responsible for setting specific annual student learning goals. The Leadership Team oversees all TAP activities aimed at meeting these goals, and conducts teacher evaluations tied to teacher performance awards.

Master and mentor teachers are identified through a competitive, rigorous performance-based selection process. They must have expert curricular knowledge, outstanding instructional skills and the ability to work effectively with other adults. As they move up the ranks, their qualifications, roles and responsibilities increase, as does their compensation. Because master and mentor teachers are held to a different performance standard than other teachers in their school, they are compensated accordingly. This allows good teachers to advance without having to leave the classroom.⁶⁴

Ongoing Applied Professional Growth

TAP restructures the school schedule to provide time during the regular school day for teachers to meet, learn, plan, mentor and share with other teachers. This enables them to constantly improve the quality of their instruction and increase their students' academic achievement. Teachers are expected to have an Individual Growth Plan which includes identified goals and activities to support new teacher learning. The new teacher learning is required to meet an identified student learning need.⁶⁵

⁶³ *What is the Teacher Advancement Program (TAP)?* Teacher Advancement Program Foundation, at <http://www.talentedteachers.org/tap.taf?page=whatistap>, Accessed 15 March 2007

⁶⁴ *Elements of TAP - Multiple Career Paths*, Teacher Advancement Program Foundation, at <http://www.talentedteachers.org/tap.taf?page=element1>, Accessed 15 March 2007

⁶⁵ *Elements of TAP - Ongoing Applied Professional Growth*, Teacher Advancement Program Foundation, at <http://www.talentedteachers.org/tap.taf?page=element2>, Accessed 15 March 2007

Instructionally Focussed Accountability

All teachers are held accountable in a TAP school by participating in the TAP instructionally focussed evaluation system. Each teacher is evaluated four to six times a year by multiple trained and certified evaluators using Teaching Skills, Knowledge and Responsibility Standards. These Standards are developed by a committee of school staff, based on the TAP Teacher Performance-Based Accountability Guidebook. These standards guide the evaluation of teachers using data from classroom observations and teacher portfolios. Teachers are evaluated on their skills, knowledge and responsibilities and given ratings from one to five across four teaching domains:

1. designing and planning instruction;
2. implementing instruction;
3. learning environment; and
4. responsibilities.⁶⁶

All teachers in the school are evaluated collectively based on the learning growth of all students in the school. Individual teachers are evaluated on the learning growth achieved by their students during the school year.

The program provides ongoing training, mentoring and classroom support to assist teachers in meeting these standards, and offers financial incentives for success.⁶⁷

Performance-based Compensation

Under TAP, teachers are compensated differentially according to the increased demands of the positions they hold, their performance in these positions, the quality of their instructional performance and their students' achievement growth.⁶⁸

Impact

A 2007 study of the impacts of TAP compared the student achievement gains of individual teachers and schools with similar non-TAP teachers and schools. Researchers found that in every participating state, more TAP teachers on average achieved statistically significant student achievement growth than control teachers. Results also showed that 57 per cent of TAP schools outperformed control schools in mathematics and 67 per cent of TAP schools outperformed control schools in reading. The vast majority of educators in the TAP schools studied strongly supported the four elements of the program, and their support for TAP grew the longer they were in the program. Participants also reported that the program provided high levels of collegiality and support.⁶⁹

⁶⁶ Wyman, Wendy and Allen, Michael, *Issue Paper: Pay for Performance*, July 2001, Education Commission of the States, at <http://www.ecs.org/clearinghouse/28/30/2830.htm>, Accessed 15 March 2007

⁶⁷ *Elements of TAP - Instructionally Focussed Accountability*, Teacher Advancement Program Foundation, at <http://www.talentedteachers.org/tap.taf?page=element3>, Accessed 15 March 2007

⁶⁸ *Elements of TAP - Performance-Based Compensation*, Teacher Advancement Program Foundation, at <http://www.talentedteachers.org/tap.taf?page=element4>, Accessed 15 March 2007

⁶⁹ *The Effectiveness of the Teacher Advancement Program*, National Institute for Excellence in Teaching, at http://www.talentedteachers.org/pubs/effective_tap07_full.pdf, Accessed 15 March 2007

Douglas County, Colorado School District

Background

In 1994-95 The Douglas County, Colorado school district became one of the first in the country to implement a compensation plan that incorporated elements of knowledge and skills-based pay and group-based performance pay into their salary structure. The plan was developed through collaboration with the union and the district and was informed by research and experience in compensation in the private sector.

The objectives of the plan were to:

- support the district's mission and core values;
- attract, retain and motivate the highest qualified teachers while competing in the employment market;
- reward growth, development, and skill and knowledge acquisition;
- provide a degree of predictability and stability; and
- ensure teacher involvement in the development, evaluation and reward process.⁷⁰

The system has two major parts:

1. a base salary structure for all teachers in the district; and
2. a series of bonus incentives components that teachers may participate in voluntarily. Teachers choose to participate in one or all of the incentive components without the risk of losing any of their base salary.⁷¹

Process

A teacher's base pay is considered "pay for knowledge". The years of experience portion of the old salary schedule has been replaced by a pay increase linked to a 'proficient' rating on the teacher's annual evaluation ("evaluation credit"). Performance indicators are established to detail the standards of performance required for the position. Teachers do not receive the evaluation credit for one year if they are assessed as "unsatisfactory" in any single criterion. The evaluation is undertaken by the principal.⁷²

Teachers can earn a \$1,000 bonus where they volunteer to participate in the Outstanding Teacher program at the start of the school year. Participants must develop a portfolio during the year to showcase their achievements. A menu of portfolio options has been developed so that teachers may vary the focus of their efforts and continue to learn from the experience of participating in the program.

⁷⁰ pp 6 - 7, Kelley, Carolyn, *Douglas County Colorado Performance Pay Plan*, Consortium for Policy Research in Education, University of Wisconsin - Madison, May 2000, at <http://www.wcer.wisc.edu/cpre>

⁷¹ p.8, Wyman, Wendy and Allen, Michael, *Issue Paper: Pay for Performance*, July 2001, Education Commission of the States, at <http://www.ecs.org/clearinghouse/28/30/2830.htm>, Accessed 20 March 2007

⁷² p.11, Hassel, Bryan C, *Better Pay for Better Teaching: Making Teacher Compensation Pay off in the Age of Accountability*, Progressive Policy Institute, May 2002, at http://www.ppionline.org/documents/Hassel_May02.pdf, Accessed 15 March 2007

Teachers who have current NBPTS certification earn a yearly incentive bonus of \$2,000.

The skill-based pay component is intended to provide incentives for teachers to obtain skills identified by the district as desirable for all teachers to possess. The district identifies a specific skill, provides after-school training for all teachers wishing to participate, assesses skill mastery, and provides a bonus to teachers who master the skill. Bonuses range from \$250 to \$500, depending on the complexity of the particular skill.⁷³

Responsibility pay addresses the issue of additional responsibilities undertaken by teachers for which they historically received no additional compensation. This includes extra-curricular activities, committee work, mentorship or leadership. Compensation is provided for “site” responsibilities at the school, or for “district-level” responsibilities.⁷⁴

The Group Incentive Program encourages cooperative efforts within schools, or among groups of teachers, to work on common goals that directly impact student performance.⁷⁵ The group submits a proposal to a review committee, identifying specific goals that are related to school/district objectives, related to above average student achievement for the school, valuable to the entire school community and with clearly stated responsibilities and timelines. A pool of money is set aside each year for group incentive pay. Participants in successful improvement processes receive an equal share of the pay as a bonus.⁷⁶

Impact

Evaluations of the plan suggest that likely products of the approach are:

- an enhanced focus on the school-wide agenda and improvements in student achievement as a result of the group incentive pay plan;
- enhanced teacher skills as a result of participation in skill-based pay;
- enhanced school culture related to rewarding teachers for their additional work via responsibility pay; and
- an enhanced focus on teaching practice for teacher participating in the outstanding teacher award.⁷⁷

⁷³ Kelley, Carolyn, *Douglas County Colorado Performance Pay Plan*, Consortium for Policy Research in Education, University of Wisconsin - Madison, May 2000, at <http://www.wcer.wisc.edu/cpre>

⁷⁴ p.10, Kelley, Carolyn, *Douglas County Colorado Performance Pay Plan*

⁷⁵ p.9, p.8, Wyman, Wendy and Allen, Michael, *Issue Paper: Pay for Performance*, July 2001, Education Commission of the States, at <http://www.ecs.org/clearinghouse/28/30/2830.htm>, Accessed 20 March 2007

⁷⁶ pp10 - 11, Kelley, Carolyn, *Douglas County Colorado Performance Pay Plan*

⁷⁷ p.13, Kelley, Carolyn, *Douglas County Colorado Performance Pay Plan*

Special Teachers Are Rewarded – Florida State Board of Education

Background

The 2006-07 Florida state budget included an appropriation to fund the Special Teachers Are Rewarded (STAR) performance pay plan. STAR was introduced to fund state performance pay laws which require each district school board to adopt a performance-pay policy for school administrators and instructional personnel. The adopted salary schedules must allow school administrators and instructional personnel who demonstrate outstanding performance to earn a five per cent supplement in addition to their individual, negotiated salary.⁷⁸

Before the introduction of the law requiring performance pay plans for teachers, Florida teachers had most commonly received pay rises based on years of experience and completion of college courses. The Florida Department of Education had previously proposed funding an effectiveness compensation for teachers pay plan, E-Comp, which was designed to reward the top 10 per cent of instructional personnel in subjects which were covered by state tests. E-Comp was rejected by schools on the basis that it would unfairly reward instructional personnel in the best performing districts rather than rewarding the high performing teachers in all school districts. The STAR plan rectifies this by allocating bonuses to the top instructional personnel in each participating district. While school districts have been obligated to pay teachers for performance since 2002, performance pay has not been funded by the State and so very few teachers have been rewarded. As it is not a compulsory program, each school district has the option of whether or not to participate in STAR.

Process

A school district submits a performance pay plan by either revising its existing performance pay plan, or creating a new one. To receive STAR program funding, a school district's plan must provide rewards of at least five per cent of the base pay for the best performing 25 per cent of instructional personnel. Any remaining funds may be used to provide bonuses to additional instructional personnel or school-based leaders. Instructional personnel who are eligible for rewards under STAR include classroom teachers, student personnel services, librarian/media specialists and other instructional staff in grades 0 – 12.

A district can develop a whole new evaluation system to take the place of its current one, or may keep its current one and develop a separate STAR evaluation. The primary evaluation of a teacher's performance must be based on improved student achievement with at least 50 per cent dependent on student performance/learning gains. Improved student achievement must be measured over the course of the year by a method approved by the State Board of Education. Reading and mathematics achievement must be measured by a standardised test. Other instructional areas must use instruments that measure State standards for the area, including challenging grade-level content and critical thinking skills. School districts must also find a way to measure improved student achievement in specialised areas, including ESE, fine arts, and career and technical education.

⁷⁸ 2006 Florida Statutes, Section 1012.22

http://www.flsenate.gov/statutes/index.cfm?p=2&App_mode=Display_Statute&Search_String=&URL=Ch1012/Sec22.HTM, Accessed 15 March 2007

All instructional personnel will be evaluated yearly under the assessment categories of Outstanding, High Performing, Satisfactory, Needs Improvement, and Unsatisfactory. If an educator receives more than one Satisfactory they will not be eligible for the STAR bonus. Evaluations will be performed by school administrators.

If a school district decides not to participate in STAR, then its portion of State funds will be redistributed to the other school districts who do participate. A non-participating school district would still need to continue with an approved performance pay plan in accordance with State law, although this plan would be ineligible for STAR funding.⁷⁹

Impact

On 17 October 2006, the Florida State Board of Education announced that it had approved its first STAR plan. The first successful school district, Hillsborough County Public Schools, revised their existing performance evaluation plan to meet STAR requirements and this new plan was accepted by the Board of Education. The State Board of Education is also working with a number of school districts to realign their current performance pay plans with STAR. Regardless of the number of successful applications, the \$147.5 million 2007 allocation will be divided by those school districts with approved plans.⁸⁰

⁷⁹ Special Teachers Are Rewarded: Overview of 2006/07 Legislative Appropriation
http://www.fldoe.org/STAR/pdfs/STAR_Overview_Pres.pdf, Accessed 15 March 2007

⁸⁰ Florida Department of Education, Press Release: *Florida State Board of Education Approves First STAR Plan*, October 17 2006 at http://www.fldoe.org/news/2006/2006_10_17-2.asp, Accessed 15 March 2007

Mexico - Programa de Carrera Magisterial (National Teaching Career Program)

Background

The Carrera Magisterial (CM) was created in 1993. The program is regulated, supervised and evaluated by the SEP-SNTE commission (Secretary of Public Education and National Union for Workers of the Education). A series of 34 Parity State Commissions decide on applicants' membership and participation. A School of Evaluation Bodies register qualifying applicants and evaluate the factors of seniority, academic qualifications and professional performance.⁸¹

The CM program links teachers' salary to professional performance by providing access to a higher income, beyond a base salary, based on the results of an evaluation. Teachers can also apply for a small pre-established salary increase for every five years of service.

Process

Teachers registered in the CM program are evaluated every year. Promotion is based on the evaluation outcome, but teachers can only compete for promotion after they have spent a qualifying period at each level. Teachers are evaluated on the criteria of:

- seniority;
- academic qualifications;
- professional training;
- updating and professional upgrading courses;
- professional performance;
- student progress (for classroom teachers); and
- student performance (for school administrators and supervisors).⁸²

Evaluation is undertaken using:

- supporting documents provided by the teacher, including certificate of professional studies, résumé, certificates of completion of relevant updating courses;
- results of knowledge examinations undertaken by the teacher's students;
- results of an exam to determine the teacher's professional knowledge of methodologies, legal and administrative elements of their profession, and curriculum.⁸³

⁸¹ p.51, Guevara, Maria del Refugio and Gonzalez, Laura Elena, *Attracting, Developing and Retaining Effective Teachers, OECD Activity, Country Background Report for Mexico, English Version*, June 2004, OECD, at <http://www.oecd.org/dataoecd/52/63/32023658.pdf>, Accessed 15 March 2007

⁸² p.51, Guevara, Maria del Refugio and Gonzalez, Laura Elena, *Attracting, Developing and Retaining Effective Teachers, OECD Activity, Country Background Report for Mexico*,

⁸³ p.50, Guevara, Maria del Refugio and Gonzalez, Laura Elena, *Attracting, Developing and Retaining Effective Teachers, OECD Activity, Country Background Report for Mexico*,

Impact

In 2003 almost 800,000 teachers were registered in the CM. However, critics of the program list a range of shortcomings:

- not operating as indicated by its technical guidelines;
- lack of clarity in the indicators;
- teachers have no access to the information that would allow them to identify and overcome their inadequacies;
- recognition of updating and training courses is inconsistent and subjective;
- funding for CM is insufficient.⁸⁴
- evaluation is not carried out by an autonomous body, so educational authorities and the National Union intervene in the results;
- greater weight is given to professional development than to student progress;
- lack of transparency in the process;
- doubts as to its impact in improving the quality of education.⁸⁵

⁸⁴ p.51, Guevara, Maria del Refugio and Gonzalez, Laura Elena, *Attracting, Developing and Retaining Effective Teachers, OECD Activity, Country Background Report for Mexico*

⁸⁵ p.52, Guevara, Maria del Refugio and Gonzalez, Laura Elena, *Attracting, Developing and Retaining Effective Teachers, OECD Activity, Country Background Report for Mexico*

Singapore - Edu-Pac and EPMS

Background

In 2001 the Minister for Education announced a new package to reshape teaching as a career. The Edu-Pac (Education Service Professional Development and Career Plan) offered a range of initiatives to “transform the careers of education officers and help retain good and highly committed officers”. EduPac offered three main components: a new career structure, a new recognition structure and enhancements to the performance management system.

The career structure provides Education Officers with three tracks:

- A Teaching Track, catering to the majority of officers in the Education Service. The Teaching Track provides improved professional development and advancement opportunities for excellent teachers.

The peak appointment on the Teaching Track is “Master Teacher”, appointed from amongst Senior Teachers. Master Teachers continue to teach and help develop teaching excellence through mentoring, developing good teaching practice and model lessons. Master Teachers earn the equivalent to a senior Head of Department.

Teachers on the Teaching Track have opportunities to advance professionally through advanced diploma and higher degree programs and other forms of professional development. Teachers moving up to the higher levels are required to meet thresholds in terms of skills and knowledge and have to demonstrate the necessary competencies and performance for the higher job level.

- A Leadership Track is provided for those choosing leadership positions in schools and the Ministry. Ed-PAC introduces a new job grade, allowing those Heads of Department with heavier responsibilities to be promoted to a higher level. Special allowances and increased responsibility allowances are also available.
- A Senior Specialist Track is offered to develop a strong group of officers in the Ministry with deep knowledge and skills in specific areas to “innovate, break new ground and keep us at the leading edge in educational developments”. Four areas of specialisation are identified: Curriculum and Instructional Design; Educational Psychology and Guidance, Educational Testing and Measurement, and Research and Statistics.⁸⁶

Edu-Pac included an Enhanced Performance Management System (EPMS), a tool to help officers develop professional and improve their key competencies. As a new feature, the EPMS was to be implemented gradually. The EPMS was rolled out for school management in 2003 and was to be introduced for all teachers in 2005⁸⁷.

Each Track has its own predetermined competencies, derived from in-depth interviews, focus groups and questionnaires on a representative sample of schools across different levels. The

⁸⁶ - , *A High Quality Teaching Force for the Future: Good Teachers, Capable Leaders, Dedicated Specialists*, Speech by RADM (NS) TEO CHEE HEAN, Minister for Education and Second Minister for Defence at the Senior Education Officer Promotion Ceremony, 2001, Saturday 14 April 2001, at <http://www.moe.gov.sg/speeches/2001/sp14042001.htm>, Accessed 19 March 2007

⁸⁷ - , - , Speech by Mr Tharman Shanmugaratnam, Minister for Education, at the Ministry of Education Investiture Ceremony for the 2004 National Day Awards on Monday, 7 February 2004, at <http://www.moe.gov.sg/speeches/2005/sp20050207.htm>

competencies are then clustered to form a “Competency Model”. There are five clusters of competencies for the Teaching Competency Model:

1. Nurturing the whole child
2. Cultivating knowledge
3. Winning hearts and minds
4. Working with others and
5. Knowing self and others.

Competencies are also categorised according to degrees of competence, described as “Levels”. Level 1 provides for the basic competence requirements, while Level 5 caters for the most advanced.⁸⁸

Process

Each Education Officer has three Work Review meetings per year with their supervisor - at the beginning (January), middle (June) and the end (October) of the Performance Management cycle. The first meeting establishes targets, expected results, competencies and professional development needs. The second focuses on formal performance coaching, where the officer is offered developmental feedback on work progress and performance. The third evaluates the performance and potential of the jobholder. Informal performance coaching through the year is also expected.

The performance of the Education Officer is ranked (A through E) in comparison with colleagues at similar substantive grade.⁸⁹ The annual Performance Bonus (PB) is linked to the ranking, with outstanding classroom teachers eligible to earn up to two months performance bonus. The PB is paid in March each year for the work done in the previous year.⁹⁰

The Ministry of Education also announced the provision of \$3,000 per school for a new “Outstanding Contribution Award”. The school-based award would see all employees eligible for the \$2,000 team award and \$1,000 individual award, acknowledging “significant value-added contribution impacting n the school”.⁹¹

⁸⁸ pp2-4, Hairon Salleh, *Professional development in Singapore - the critical element*, College of Management, Mahidol University, Making Educational Reform Happen Conference, at <http://www.cmmu.net/sch/preconference/EdReformPapers/42HaironMerh-ProfessionaldevelopmentinSingapore.doc>, Accessed 10 August 2005

⁸⁹ p6, Hairon Salleh, *Professional development in Singapore - the critical element*

⁹⁰ - *GEO2 Salary*, Ministry of Education, Singapore.

⁹¹ - *A High Quality Teaching Force for the Future: Good Teachers, Capable Leaders, Dedicated Specialists*, Speech by RADM (NS) TEO CHEE HEAN, Minister for Education and Second Minister for Defence at the Senior Education Officer Promotion Ceremony, 2001, Saturday 14 April 2001, at <http://www.moe.gov.sg/speeches/2001/sp14042001.htm>, Accessed 19 March 2007

Summary

From this research and the case studies, it is clear that performance-based reward systems can work. Conditions that appear necessary for effective performance systems include that they:

- are developed in conjunction with, rather than for, teachers;
- use multiple, credible and objective measures of teacher skills and student progress; (Measures for performance may include classroom observation by independent experts, interviews with the teacher, separate questionnaires from students, peers and principals, annual knowledge exams, change in students' test scores from one year to the next.⁹²)
- establish a clear system of significant rewards that are recognised as additional pay and rewarded in a timely fashion;
- provide school leaders and administrators with guidance and resources to cover additional expenses and administrative responsibilities created by the system; Sufficient time and funding is required to plan, introduce and run any performance pay system.
- are aligned with overall school goals;
- are considered in conjunction with comprehensive reforms of teacher compensation as well as other organisational changes to improve teaching;⁹³
- emphasise the importance of continuous, focused learning;
- recognise the need to adjust the details based on early experiences - implementation of a performance pay system is a multi-year project;
- explore innovative methods of knowledge and skill assessment to reduce the workload of teacher and assessors;⁹⁴
- are supported by ongoing and comprehensive performance management and support in the local school setting.

⁹² p.12, Leigh, Andrew and Mead, Sara, *Lifting Teacher Performance*, Policy Report, April 2005, Progressive Policy Institute, at http://www.ppionline.org/documents/teachqual_0419.pdf

⁹³ pp 5-10, *Pay-for-performance in Education: An issue brief for Business Leaders*, The Business Roundtable, at <http://www.brtable.org/pdf/403.pdf>

⁹⁴ pp 6 - 9, Odden, Allan, Kelley, Carolyn; Heneman, Herbert; and Milanowski, Anthony, *Enhancing Teacher Quality Through Knowledge- and Skills-based Pay*, CPRE Policy Briefs, November 2001, RB-34, Consortium for Policy Research in Education, University of Pennsylvania.

Bibliography

-- 2003, *Doubts over Performance Pay*, BBC News World Edition, 10 April 2003, Viewed 20 March 2007 at http://news.bbc.co.uk/2/hi/uk_news/education/2936607.stm

-- 2001, *A High Quality Teaching Force for the Future: Good Teachers, Capable Leaders, Dedicated Specialists*, Speech by RADM (NS) TEO CHEE HEAN, Minister for Education and Second Minister for Defence at the Senior Education Officer Promotion Ceremony, Singapore Ministry of Education, 14 April 2001, Viewed 19 March 2007 at <http://www.moe.gov.sg/speeches/2001/sp14042001.htm>

-- 2004, Speech by Mr Tharman Shanmugaratnam, Minister for Education, at the Ministry of Education Investiture Ceremony for the 2004 National Day Awards, Monday 7 February 2004, Singapore Ministry of Education, Viewed 19 March 2007 at <http://moe.gov.sg/speeches/2005/sp20050207.htm>

Atkinson, Adele, Burgess, Simon, Croxson, Bronwyn, Gregg, Paul, Propper, Carol, Slater, Helen & Wilson, Deborah, 2004, *Evaluating the Impact of Performance-related pay for teachers in England*, December 2004, Centre for Market and Public Opinion (CMPO), University of Bristol, Viewed 20 March 2007 at http://rlab.lse.ac.uk/workshop/2005/propper_burgess.pdf

Burgess, Simon & Croxson, Bronwyn, 2001, *The Impact of Teacher Pay Reform on Pupil Attainment: An outline of the CMPO research project on the Performance Threshold*, CMPO Working Paper Series No 01/36, August 2001, Centre for Market and Public Opinion (CMPO), University of Bristol, Viewed 20 March 2007 at <http://www.bris.ac.uk/Depts/CMPO/workingpapers/wp36.pdf>

The Business Round Table, 2000, *Pay-for-Performance in Education: An Issue Brief for Business Leaders*, National Alliance of Business, Viewed 20 March 2007, <http://www.brtable.org/pdf/403.pdf>

Chevalier, Arnaud & Dolton, Peter, 2004, *Teacher Shortage: Another impending Crisis?* CentrePiece, Winter 2004, Centre for Economic Performance, London School of Economics, Viewed 20 March 2007 at http://cep.lse.ac.uk/centrepiece/V09i3/chevalier_dolton.pdf

Community Training and Assistance Center, 2004, *Catalyst for Change: Pay for Performance in Denver, Final Report*, CTAS, Viewed 20 March 2007, <http://ctacusa.com/denver-vol3-final.pdf>

Corporate Executive Board, 2002, *Building the High-Performance Workforce: A Quantitative Analysis of the Effectiveness of Performance Management Strategies*, Abstract, Corporate Leadership Council, Viewed 20 March 2007 at http://www.corporateleadershipcouncil.com/CLC/1,1283,0-0Public_Abstract-48700,00.htm

Croxson, Bronwyn & Atkinson, Adele, 2001, *Incentives in Secondary Schools: The impact of the Performance Threshold*, CMPO Working Paper Series No 01/45, August 2001, Centre for Market and Public Opinion (CMPO), University of Bristol, Viewed 20 March 2007 at <http://www.bris.ac.uk/depts/CMPO/workingpapers/wp44.pdf>

Davis, Ben, 2004, *Examining Teacher Performance Incentives*, Focus Report, Number 78-17, 21 April 2004, House Research Organization, Texas House of Representatives, Viewed 20 March 2007 at <http://www.hro.house.state.tx.us/focus/incentive78-17.pdf>

Dee, Thomas S & Keys, Benjamin K, 2004, *Does Merit Pay reward Good Teachers? Evidence from a Randomised Experiment*, Journal of Policy Analysis and Management, Vol 23, No 3 (July 2004), pp. 471 – 488.

Department of Education, Science and Training, 2006, *DEST Research Paper – Attitudes to teaching as a career*, Viewed 20 March 2007 at ,
http://www.dest.gov.au/sectors/research_sector/publications_resources/profiles/attitudes_teaching_as_career.htm

Department for Education and Skills (UK), 2007, *Performance Threshold Standards Assessment 2006/07, Round 7, Support Pack for Schools*, Viewed 21 March 2007 at
<http://www.teachernet.gov.uk/docbank/index.cfm?id=10298>

Education Commission for the States, Denver Colorado, 2001, *Pay for Performance: Key Questions and Lessons from Five Current Models*, June 2001, viewed 20 March 2007,
<http://www.ecs.org/clearinghouse/28/30/2830.htm>.

Farrell, Catherine & Morris, Jonathan, 2004, *Resigned Compliance: Teacher Attitudes towards Performance-Related Pay in Schools*, Educational Management Administration & Leadership (EMAL) 2004, Viewed 20 March 2007 at <http://ema.sagepub.com/cqi/reprint/32/1/81>

Florida Department of Education, 2007, *Special Teachers are Rewarded: Overview of 2006-07 Legislative Appropriation*, FLDOE, Viewed 15 March 2007 at
http://www.fldoe.org/STAR/pdfs/STAR_Overview_Pres.pdf

The Florida Senate, *The 2006 Florida Statutes: Public school personnel; powers and duties of the school district board*, Viewed 15 March 2007 at
http://www.flsenate.gov/statutes/index.cfm?p=2&App_mode=Display_Statute&Search_String=&URL=Ch1012/Sec22.HTM

Goldhaber, Dan & Anthony, Emily, 2004, *Can teacher quality be effectively assessed*, Urban Institute, 27 April 2004, Viewed 15 March 2007 at
<http://www.urban.org/publications/411271.html>

Guevara, Maria del Refugio & Gonzalez, Laura Elena, 2004, *Attracting, Developing and Retaining Effective Teachers, Country Background Report for Mexico, English Version*, June 2004, Organisation for Economic Cooperation and Development (OECD), Viewed 15 March 2007 at <http://www.oecd.org/dataoecd/52/63/32023658.pdf>

Hanushek, Erik A, 2004, *Teacher Quality*, viewed 14 March 2007,
http://edpro.stanford.edu/Hanushek/files_det.asp?FileId=97

Harvey-Beavis, Owen, 2003, *Performance-based Rewards for Teachers: A Literature Review*, Office of Economic Cooperation and Development, Viewed 15 March 2007,
<http://www.oecd.org/dataoecd/17/47/34077553.pdf>

Hassel, Bryan C, 2002, *Better Pay for Better Teaching: Making Teacher Compensation Pay off in the Age of Accountability*, May 2002, Progressive Policy Institute, Viewed 15 March 2007 at
http://www.ppionline.org/documents/Hassel_May02.pdf

Hoxby, Caroline & Leigh, Andrew, 2005, *Wage Distortion*, Education Next – A Journal of Opinion and Research, 2005 No. 2, Hoover Institution, Stanford University, Stanford CA, Viewed 15 March 2007, <http://www.hoover.org/publications/ednext/3220721.html>

Joint Task Force on Teacher Compensation, 2004, *Professional compensation system for teachers*, Denver Public Schools and Denver Classroom Teachers Association, 20 March 2004, Viewed 20 March 2007 at [http://denverprocomp.org/stories/storyReader\\$88?print-friendly=true](http://denverprocomp.org/stories/storyReader$88?print-friendly=true),

Kelley, Carolyn, 2000, *Douglas County Colorado Performance Pay Plan*, May 2000, Consortium for Policy Research in Education, University of Wisconsin, Madison, Viewed 20 March 2007 at <http://www.wcer.wisc.edu/cpre>

Kohn, Alfie, *The Folly of Merit Pay*, Education Week, 17 September 2003, Viewed 17 March 2007, <http://www.alfiekohn.org/teaching/edweek/meritpay.htm>

Lavy, Victor, 2004, *Performance Pay and Teachers' Effort, Productivity and Grading Ethics*, Working Paper 10622, June 2004, National Bureau of Economic Research, Cambridge MA, Viewed 18 March 2007 at <http://www.nber.org/papers/w10622>

Leigh, Andrew & Mead, Sara, 2005, *Lifting Teacher Performance*, Policy Report, April 2005, Progressive Policy Institute, Viewed 15 March 2007 at http://www.ppionline.org/documents/teachqual_0419.pdf

National Board for Professional Teaching Standards, 2007, *Backgrounder*, January 2007, NBPTS, Viewed 20 March 2007 at <http://www.nbpts.org/index.cfm?t=downloader.cfm&id=538>

National Board for Professional Teaching Standards, 2007, *Making the Commitment to Accomplished Teaching: Q & A for 2007 National Board Certification*, NBPTS, Viewed 20 March 2007 at <http://www.nbpts.org/index.cfm?t=downloader.cfm&id=537>

National Board for Professional Teaching Standards, 2007, *NBPTS Research*, NBPTS, Viewed 20 March 2007 at <http://www.nbpts.org/index.cfm?t=downloader.cfm&id=540>

National Board for Professional Teaching Standards, 2007, *General Information about National Board Certification*, NBPTS, Viewed 20 March 2007 at http://www.nbpts.org/the_standards

National Board for Professional Teaching Standards, 2005, *A distinction that matters: Why National Teacher Certification makes a difference*, NBPTS.

National Board for Professional Teaching Standards, 2001, *The Impact of National Board Certification on Teachers: A Survey of National Board Certified Teachers and Assessors*, Fall 2001, NBPTS, Viewed 20 March 2007 at http://www.nbpts.org/resources/research/browse_studies?ID=154

National Board for Professional Teaching Standards, 2004, *Students of National Board Certified Teachers Achieve Larger Gains on Statewide Math Test in Florida*, Press Release, 18 November 2004, NBPTS.

National Institute for Excellence in Teaching, 2007, *What is the Teacher Advancement Program (TAP)?*, National Institute for Excellence in Teaching, Milken Family Foundation, Viewed 15 March 2007 at <http://www.talentedteachers.org/tap.taf?page=whatistap>

National Institute for Excellence in Teaching, 2007, *Elements of TAP – Multiple Career Paths*, National Institute for Excellence in Teaching, Milken Family Foundation, Viewed 15 March 2007 at <http://www.talentedteachers.org/tap.taf?page=element1>

National Institute for Excellence in Teaching, 2007, *Elements of TAP – Ongoing Applied Professional Growth*, National Institute for Excellence in Teaching, Milken Family Foundation, Viewed 15 March 2007 at <http://www.talentedteachers.org/tap.taf?page=element2>

National Institute for Excellence in Teaching, 2007, *Elements of TAP – Instructionally Focussed Accountability*, National Institute for Excellence in Teaching, Milken Family Foundation, Viewed 15 March 2007 at <http://www.talentedteachers.org/tap.taf?page=element3>

National Institute for Excellence in Teaching, 2007, *Elements of TAP – Performance-Based Compensation*, National Institute for Excellence in Teaching, Milken Family Foundation, Viewed 15 March 2007 at <http://www.talentedteachers.org/tap.taf?page=element4>

Odden, Allen & Kelley, Carolyn, 2002, *Paying teachers for what they know and do: New and smarter compensation strategies to improve schools*, Corwin Press, Thousand Oaks CA.

Odden, Allan, Kelley, Carolyn, Heneman, Herbert & Milanowski, Anthony, 2001, *Policy Briefs- Enhancing Teacher Quality through Knowledge- and Skills-based Pay*, November 2001, Consortium for Policy Research in Education, Graduate School of Education, University of Pennsylvania, Viewed 20 March 2007 at <http://www.cpre.org/Publications/rb34.pdf>

Organisation for Economic Cooperation and Development, 2005, *Teachers Matter – Attracting, Developing and Retaining Effective Teachers*, OECD, Paris.

Organisation for Economic Cooperation and Development, 2005, *Paying for Performance: Policies for Government Employees*, OECD Observer, Policy Brief, OECD, Paris.

Podgursky, Michael, 2004, *Reforming the Single Teacher Salary Schedule in Public Schools*, Texas Education Review, Winter 2003-04.

Productivity Commission, *Public Support for Science and Innovation*, Productivity Commission Research Report, 27 March 2007 at <http://www.pc.gov.au/study/science/finalreport/index.html>

Reichardt, Robert & Van Buhler, Rebecca, 2003, *Recruiting and Retaining Teachers with Alternative Pay*, Mid Continent Research for Education and Learning, Colorado, Viewed 20 March 2007, http://www.mcrel.org/PDF/TeacherPrepRetention/5021RR_RecruitingRetainingTeachers.pdf

Salleh, Hairon. *Professional development in Singapore – the critical element*, College of Management, Mahidol University, Making Educational Reform Happen Conference.

Schachter, John, Theum, Yeow Meng, Reifsneider, Daren & Schiff, Tamara, 2004, *The Teacher Advancement Program Report Two: Year Three Results from Arizona and Year One Results from South Carolina TAP Schools*, Milken Family Foundation, Viewed 15 March 2007 at http://www.mff.org/pubs/tap_results_azsc2004.pdf

Solmon, Lewis C & Podgursky, Michael, 2000, *The Pros and Cons of Performance-Based Compensation*, Milken Family Foundation, Viewed 15 March 2007 at <http://www.talentedteachers.org/publications.taf>

Solmon, Lewis C, White, J T, Cohen, Donna & Woo, Debbie, 2007, *The Effectiveness of the Teacher Advancement Program*, National Institute for Excellence in Teaching, Viewed 15 March 2007 at <http://www.talentedteachers.org/publications.taf>

The Teaching Commission, 2005, *What is Merit or Performance Pay for Teachers?*, The Teaching Commission.

The Teaching Commission, 2005, *What is the evidence on paying teachers differently?*, The Teaching Commission.

United Federation of Teachers, 2005, *Merit Pay: What are they talking about?*, United Federation of Teachers, 17 February 2005, Viewed 20 March 2007 at http://www.uft.org/news/teacher/reality/merit_pay/print.html

Vandevoort, Leslie G, Amrein-Beardsley, Audrey & Berliner, David C, 2004, *National Board Certified Teachers and Their Students' Achievement*, Education Policy Analysis Archives, Vol 12, no 46, Viewed 20 March 2007 at <http://epaa.asu.edu/epaa/v12n46/v12n46.pdf>

The Whitehouse of President George W Bush, 2003, *No Child Left Behind, Executive Summary*, Viewed 20 March 2007 at <http://www.whitehouse.gov/news/reports/no-child-left-behind.html>

Wyman, Wendy & Allen, Michael, 2001, *Issue Paper: Pay for Performance*, July 2001, Education Commission of the States, Viewed 20 March 2007 at <http://www.ecs.org/clearinghouse/28/30/2830.htm>