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## Research on performance pay for teachers

ACER's recently released report on performance pay, *Research on Performance Pay for Teachers*, reviewed current pay systems for teachers, and evidence on the impact of different kinds of performance pay arrangements in Australia and several countries around the world, and considered further investigation required of performance pay possibilities in Australia.

Despite the sometimes negative response to performance based pay in Australia – as witnessed by the failure of Federal, State and Territory education ministers to reach agreement on the issue at the recent MCEETYA summit – the researchers argued that a suitable scheme can and must be developed for Australian teachers.

One highlight of the report's conclusions was that a valid and reliable scheme for assessing teacher performance must draw on several types of evidence, possibly including evidence relating to class environment, the teachers' knowledge about the subject and how to teach it, student learning outcomes, and contributions to the school and profession. Any single measure, such as measures of student achievement on standardised achievement tests, can't provide a reliable basis for making performance-related pay decisions about individual teachers. Among the report's conclusions was that different approaches to performance pay have had different levels of support within the teaching profession and different levels of support among stakeholders.

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The research paper noted that teacher pay systems in Australia are in need of reform if the best teachers are to be retained by the profession.

Australia stands out as a country in which teachers' careers plateau very quickly and at a relatively modest salary. On average, it takes only 9 years for teachers to reach top of pay scale, compared to an average of 24 years among OECD countries. Beyond that, main career pathways for Australian teachers often involve leaving the classroom for leadership and administrative positions.

At present, progression up the pay scale is usually based on annual performance reviews. These tend to be concerned with teachers fulfilling contractual obligations, rather than evidence of attainment of higher standards of professional knowledge and performance. It is rare for annual increments to be withheld.

Current salary scales and career paths send a strong message to ambitious teachers that the most important thing for them to be doing is preparing to move out of teaching into executive positions if they wish to further their career. Many young teachers leave the profession after only a few years in the classroom.

In order to halt the exodus from the classroom and attract highly capable and motivated young people to the profession, there is growing interest among stakeholders in Australia in pay systems that provide incentives for highly accomplished teaching. ACER reviewed two broad approaches in which this has been or could be done.

The first approach involves "merit pay" systems, which has been tried in several other countries, evaluates teachers against one another. Teachers essentially compete for a fixed pool of funds delivered in the form of a "bonus" by school administrators. It was noted that this approach often led to staff dissatisfaction and dissent, and teachers were concerned that they eroded the collegiate and team-based nature of teaching.

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The second approach involves knowledge- and skills-based systems that base pay increases on demonstrated improvements in teacher practice— in particular, improvements that will lead to enhanced learning outcomes for students. Research suggests that schemes of this kind are more likely to lead to improved student learning. They have also received more support from teachers overall, especially when teachers themselves played an active role in developing standards and assessment procedures, and in the assessment process itself.

The latter approach is already in practice in three Australian states, whose systems pay teachers for systematically gathered evidence of accomplished teaching performance. The Level 3 Classroom teacher in WA, Advanced Skills Teacher in SA, and Teacher of Exemplary Practice in the NT involve application to a central agency, gathering and submission of evidence in a portfolio, and assessment of this evidence by a panel that includes assessors external to the school.

One of the major obstacles facing the implementation of performance pay systems in Australia is deciding on a way to determine how to recognise highly accomplished teaching. Nationally, Australia lacks a rigorous advanced certification system that provides teachers with clear direction as to what it is exactly that they should strive for excellence in, areas for improvement, and strong incentives for teachers to reach high standards of practice.

However, there are promising examples of embryonic certification systems developed by the mathematics and science professional teacher associations, which may be further developed and built on.

The researchers suggested a national pilot project on standards, performance assessment and certification in two or three well-defined specialist teaching fields, such as primary teaching, and secondary mathematics and science teaching, be initiated with the purposes of conducting research and development work on standards-based methods for assessing teacher performance; trialling these assessment methods with teacher volunteers to test their feasibility and reliability; evaluating the acceptability and credibility of these methods with stakeholders; and examining the effects of the assessment process on teachers' professional learning.

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*Research on Performance Pay for Teachers, by Lawrence Ingvarson Elizabeth Kleinhenz and Jenny Wilkinson, was commissioned by the Commonwealth Government. The full report can be download from the ACER website.*

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## National Curriculum: The real challenge

*In this opinion article, published in The Age on 16 April, ACER's chief executive Professor Geoff Masters outlines the challenges of developing a common curriculum for Australia, particularly in science.*

This year marks the fiftieth anniversary of the launch of Sputnik I, the world's first artificial satellite. Not much bigger than a basketball, Sputnik I created deep concern in the United States that American science and technology had been surpassed by the Russians.

The US government responded to the sputnik 'scare' with a range of initiatives, including the establishment of the National Aeronautical and Space Administration (NASA) and the adoption of a more significant role in school education. New federally funded science courses were designed to help prepare the next generation of American scientists. These post-Sputnik courses had a significant impact on school science teaching, not only in the US, but also in countries like Australia. In the first half of the 20th century, school science had been heavily factual and, under the influence of the progressive education movement, had attempted to link science learning to social issues and to students' personal experiences. The post-sputnik courses, in contrast, were tightly focused on the disciplines – chemistry, physics, biology and earth sciences – and were designed to introduce science as it was experienced by scientists. The science community itself played a leading role in the design of these courses which emphasised key concepts and principles and scientific investigation.

Fifty years on, Australia faces a looming problem of its own in science and mathematics. A 2006 Science, Engineering and Technology Audit predicted a national shortfall of 19 000 scientists by 2012. And while some university science departments face downsizing as fewer highly able students choose to study science, many countries in our region are investing heavily in high-level science and mathematics training.

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Over the past two decades Australian schools have seen a decline in the proportions of senior secondary students taking chemistry, physics and biology. Only 15 per cent of students entering senior secondary school now choose to study chemistry. Schools also are experiencing shortages of well qualified science teachers – a situation predicted to worsen as the baby-boomers retire – and many teachers currently teaching science lack high-level training and qualifications in the fields in which they teach. For example, 40 per cent of physics teachers do not have a major in physics.

All this is happening at a time when the need for science literacy has never been greater. To make informed decisions, Australians must now engage with concepts and issues such as global warming, climate change, the ozone layer, water conservation, water recycling, salinity, stem cell research, nuclear energy, fossil fuels, cloning and genetically modified foods. However, surveys of students consistently show that they cannot see the relevance of school science to their lives and find science uninteresting and difficult to learn. Attitudes to science become less positive between Year 4 and Year 8, and by Year 10 students generally have negative attitudes to science and scientists and no interest in pursuing science as a career.

The response to this crisis in Australian science education has been to observe – correctly – that the keys to improved student engagement and achievement are to increase the number of qualified science teachers and to improve the quality of science teaching. Highly qualified and passionate teachers who are able to connect scientific knowledge, thinking and problem solving to real-life problems are central to the solution. However, teachers also work within curriculum contexts that shape and constrain what they do.

The Australian government and the opposition appear united in their commitment to a national curriculum. But what should a national curriculum in an area such as science seek to achieve?

Recent analyses by the Australian Council for Educational Research (ACER) have shown that 95 per cent of senior secondary chemistry content, 90 per cent of advanced mathematics content, and 85 per cent of physics content is common to all states and territories.

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Despite this, the states maintain seven different ways of assessing and examining mastery of this content and seven different formats for reporting student results, making it impossible to compare subject results from one state to another.

Presumably, it would be a relatively straightforward matter to reach agreement on national curriculum consistency in senior subjects such as these. It may even be possible to achieve national agreement on common standards and methods of reporting student results, and agreement on some common assessments and examinations. But would this alone produce more positive student attitudes, larger numbers of students studying science, or higher levels of science attainment? It seems unlikely. Although the arguments for reducing duplication, removing unnecessary differences and making subject results comparable across Australia are compelling, the mere alignment of what currently exists may do little to address these more pressing concerns.

A more ambitious approach to a national curriculum would embrace these fundamental concerns and ask: What kinds of science curricula would engage larger numbers of students and address perceptions of school science as irrelevant to students' lives? How could Australian scientists and mathematicians be supported to provide leadership to the design of new curricula? How much factual content should students be expected to learn, and could greater emphasis be placed on the development of deep understandings of concepts and principles? How is local flexibility best accommodated within a nationally agreed curriculum? Should curricula be designed to encourage multi-disciplinary approaches to problems? And what contribution might local industries and community groups make to improved school science curricula and learning?

Current bipartisan support for a national curriculum provides an opportunity for bold national responses to these and other national curriculum questions – responses, perhaps, not unlike the US response to sputnik.

This article was originally published in The Age Education Age opinion section. ('Science needs a new formula,' by Geoff Masters, The Age, 16 April 2007, page 16).

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## School sector and SES make little difference to university course completion

A new analysis of the characteristics of students who fail to complete university courses has found that whether a student attended a government or independent school and their socioeconomic background made little difference to the odds of completing their course.

The study, released on 19 April, investigated attrition rates from university courses, background factors that may influence attrition and the labour market consequences of non-completion. Data were collected from a group of young Australians who commenced university study between 1998 and 2001. Their education, training and labour market activities were tracked up until 2004 when they were around 23 years of age.

Of the young people who enrolled in their first course at a university between 1998 and 2001, 66 per cent had completed that course by 2004, 16 per cent had withdrawn, 11 per cent had changed course and 8 per cent were continuing. From these figures, the expected completion rate for first courses was between 71 and 74 per cent and that for any university course around 80 per cent.

The findings indicate that once students with a lower socioeconomic status enter university, their background does not negatively affect their chances of completing the course. ACER chief executive Professor Geoff Masters said that to improve equity in university graduation rates, more still needs to be done to assist students from lower socioeconomic backgrounds to complete Year 12 and go on to university.

The strongest influence on course completion was the Tertiary Entrance or ENTER score gained in Year 12. About 90 per cent of students with ENTER scores above 90 completed a university course compared to 73 per cent of students with scores between 60 and 69. A difference of 20 points in ENTER score was found to more than double the odds of course completion.

The study also documented the activities of non-completers up to five years after leaving university. Although they showed very low rates of unemployment, the weekly pay and job status of university non-completers was substantially less than that of university course completers and similar to that of students who had not gone to university or not completed Year 12.

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Further information and additional findings are available in the report, *Completing University: Characteristics and Outcomes of Completing and Non-completing Students* by Gary N. Marks. The study is research report number 51 in the Longitudinal Surveys of Australian Youth (LSAY), a program conducted jointly by ACER and the Australian Government Department of Education, Science and Training (DEST).

[Download report from ACER website](#)

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## ACER UPDATE

### New research program established

ACER has established a new research program in Policy Research and Program Evaluation. The new research program will strengthen ACER's research into a range of education policy issues and will build our capacity to bid for, and to undertake, work in the area of program evaluation. The research program will include significant capacity to address questions around the resourcing of schools and will enhance ACER's capacity to develop policy-oriented publications on the state of Australian education. Dr Adrian Beavis has been appointed as Research Director of the new program. Dr Beavis worked with ACER for 13 years until leaving to join the Smith Family as Principal Researcher in 2006. In that role Dr Beavis was responsible for program evaluation, original research commentary on research and policy documents. He will be joined on the Policy Research and Program Evaluation team by Dr Michelle Lonsdale and Dr Andrew Dowling who have been appointed as Principal Research Fellows.

### Australian Technology Network Engineering Selection Test

ACER has been commissioned to develop a test to measure the aptitude of students wishing to gain admission to university engineering courses at the Australian Technology Network (ATN) group of universities (Curtin University of Technology; Queensland University of Technology; RMIT University; University of South Australia; and University of Technology, Sydney). The test, The Australian Technology Network Engineering Selection Test (ATNEST) will join ACER's suite of university selection tests (ALSET, GAMSAT, STAT, UNITEST, UMAT).

ATNEST will assess a candidate's ability to think scientifically, solve quantitative problems, critically analyse information and display interpersonal understanding.

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ATNEST will allow students who have not studied the traditional pre-requisites for admission to engineering, to gain admission to engineering courses. In addition, students who feel that their Tertiary Entrance Rank (TER) or other academic credentials are not an adequate reflection of their ability to successfully study engineering can sit ATNEST, and have their ATNEST scores considered alongside their other achievements.

The first ATNEST sitting will be on Saturday September 15, 2007. There will be test venues across Australia and international sites in China, Malaysia, Hong Kong, India, Saudi Arabia, Singapore, and the UAE.

For further information phone 61 3 9277 5573 or email [. \(JavaScript must be enabled to view this email address\)](#)

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