Restoring our Edge in Education

Making Australia’s Education System its Next Competitive Advantage
Introduction

The Business Council of Australia (BCA) provides a forum for the nation’s business leaders to contribute directly to public policy debates in order to build a better and more prosperous Australian economy and society.

The BCA’s vision is for Australia to be one of the top-five Organisation for Economic Cooperation and Development (OECD) nations in terms of standard of living by 2012, and to maintain that position for the ensuing decades. In 2005, Australia was ranked number seven in the OECD.

One of the important pathways to improving our standard of living is to be competitive in a global context. If we are to be competitive we need a skilled workforce that is able to drive productivity growth.

The key to a skilled workforce is a high-quality and world-leading education system. The BCA Education, Skills and Innovation Task Force engaged the Australian Council for Educational Research to present an overview on the current state of Australia’s education system.
While all levels of education are important, this paper focuses on schooling, including early school education, because it forms the foundation for further education, including for vocational training and the preparation of students for university.

It is also where we are failing more than 300,000 young people aged between 15 and 24 who are either unemployed or working part-time and not undertaking full-time education. Currently, the overall level of unemployment is 4.3 per cent; the unemployment rate for 15-to-24-year-olds is more than double that rate at 9.1 per cent.

Australia must pursue policies that close and prevent gaps in educational quality, such as gaps between schools in different locations or between private and public schools. All students should receive a high-quality education no matter which school they attend.

Our research indicates that while far-reaching changes have taken place in the way the wider community works, communicates and is organised, many aspects of our school system have not changed since the 1960s.

In particular, for a large proportion of schools, the same centralised governance and management structures have been in place for 40 years or more. The poor condition of infrastructure, including buildings and technology, reflects a lack of investment and an outdated mindset when it comes to priorities for education.

Business must work cooperatively with the governments responsible for education and with schools to make sure that they are finding and adapting new and better ways to provide a high-quality education to every student.

Sustained improvements in GDP per capita are delivered by significant gains in productivity. Among the significant challenges in achieving this goal are Australia’s lack of skilled workers and its ageing population. In the years ahead, there will continue to be a shortage of skilled labour. On the current trends the education system will not be making the contribution that it could to reducing this shortage. We need to accelerate and improve the development of skilled workers and increase the level of participation in the workforce. Secondary school education and training is central to this objective.
The areas in which the BCA Education, Skills and Innovation Task Force believes additional investment will yield the greatest return include:

- more autonomy and improved training for school principals;
- a standard national, competency-based teacher certification program;
- some form of variable compensation for the highest performing teachers;
- more engagement between business and secondary schools aimed at helping to make students ‘job-ready’;
- a standardised national curriculum; and
- early childhood development and early school education.

The broadband initiatives by both the federal government and the Opposition would make an important contribution to delivering quality education, offering the availability of tools like webcast classes.

The BCA is consulting with key organisations and individuals and will use the points raised in this paper to undertake further consultations.

Providing world-class, high-quality education and training to young Australians will provide a foundation for our goal of becoming one of the top-five OECD nations for standard of living. It will also give young Australians the best opportunity to enter into a rewarding career and to continue to learn throughout their lives.
Future levels of educational attainment in Australia will be key determinants of individual, social and economic prosperity. Policies that deliver an increase in education and training levels will have wide-ranging benefits for individuals, standards of living and social cohesion.

Over recent decades there have been steady increases in the education levels of young Australians. Future generations will be much more highly educated as current levels of educational achievement flow through the age structure over time. However, despite generally increasing education levels, Australia has one of the lowest secondary school completion rates among comparable countries. Australia’s future economic competitiveness will depend on increasing the numbers of young people who complete 12 years of school or equivalent. And, while young Australians perform well on average, large numbers of young people leave school with unacceptably low levels of school achievement.

This paper focuses on two specific concerns: first, the significant proportion of young people who become disengaged during their school years, achieve only minimal educational outcomes and have limited subsequent engagement in work or further learning; and second, the shortage of young people with the knowledge and skills required for effective participation in the Australian workforce.

Five strategies are identified for addressing these concerns:

1. Early intervention: identifying potential learning problems before they become entrenched and difficult to address.
2. Customisation: making education and training more responsive to the needs, interests and aspirations of individual learners.
3. Professionalisation of teaching: supporting teachers and school leaders to improve their qualifications and knowledge.
4. Increased investment: increasing public investment in education.
5. Improved governance: clarifying roles and responsibilities and improving mechanisms for ensuring that the education and training system is meeting the needs of individuals and Australian society.
The challenges lie not so much in identifying what needs to be done, as they do in finding ways to overcome obstacles that often have their origins in longstanding structural arrangements, traditional practices and vested interests. Significant improvements in school education will require bold new approaches, which in some cases will change how we think about and provide schooling for young people.

The first challenge arises from inconsistencies in matters such as school starting ages, senior certificates and school curricula; the duplication of effort across jurisdictions; a lack of comparability of achievement levels across Australia; and financial challenges for smaller jurisdictions in developing quality curricula and examination systems. There is a need for greater national consistency in key school education policies, accompanied by increased investment in all Australian schools.

Second, there is a significant challenge in supporting and developing the quality of teaching and leadership in schools. Creative approaches are required to attract highly able people to pursue teaching as a career. Teacher preparation programs must equip teachers with a body of professional knowledge and skill that is grounded in research into effective teaching practices. Professional standards for highly accomplished teaching need to be developed and used as a basis for recognising and rewarding excellent practice. At the same time, school leaders must be given a greater say in staffing decisions. Leaders in most government schools have too little control over staffing appointments, processes for removing underperforming staff and mechanisms for rewarding high performers.

A third challenge is to achieve greater clarity around the school curriculum and, in particular, to identify the core knowledge, skills and attributes which all students can have the opportunity to learn and develop, regardless of where they live. The design and implementation of a core national curriculum will require broad community debate about the kinds of understandings and skills that young people will require for life, study and work in the future.

Beyond this curriculum core, schools of the future will need to be better connected with their local communities, more flexible and more responsive to local needs. Partnerships between schools (both government and non-government) and between schools and local businesses and community organisations will be keys to greater local responsiveness, alternative sources of funding, and greater sharing and more efficient use of human resources and physical facilities. School–business partnerships of the kind introduced in the United Kingdom could boost school renewal efforts. They would also provide a greater role for business – beyond merely being an end-user – in the schooling process. Schooling outcomes also are likely to be improved by providing opportunities for learning to occur in a wider range of contexts than traditional classroom settings, and in more flexible timeframes than the traditional classroom day.
The greatest opportunities for improving educational outcomes reside in teaching and learning processes. Research has identified a number of principles that have the potential to improve learning in schools. Foremost among these is the need to identify learning difficulties early: to diagnose problems before they become entrenched and before students become disenchanted and disengaged. This is especially true in relation to basic skills such as reading and numeracy. Equally important is to monitor the progress of individual learners and to customise or personalise teaching and learning to the needs of individual learners. Although this principle has long been understood, it has been difficult to implement under traditional school structures. More flexible learning arrangements and the greater use of technology are likely to make personalised learning much more feasible in the future.

The BCA will use this paper to promote the need for changes to Australia’s secondary school education and training policy framework to help restore Australia’s edge – its competitive advantage – in education.
Introduction

Current Education Levels

Current Concerns

What is Required?
1. Early intervention
2. Customisation
3. Professionalisation of teaching
4. Increased investment
5. Improved governance

Meeting the Challenge

References

This paper was prepared for the Business Council of Australia by Professor Geoff N. Masters of the Australian Council for Educational Research, July 2007.
Future levels of educational attainment in Australia will be key determinants of individual, social and economic prosperity. For individual Australians, higher levels of education and training offer the possibility of escaping disadvantage, realising potential, securing meaningful work and achieving increased earnings. For society as a whole, levels of education and training are positively and strongly correlated with a range of measures of health, family functioning, children’s wellbeing, a clean environment and the absence of violent crime (Leigh, 1998). And from the point of view of the Australian economy, levels of education and training are directly related to levels of workforce participation and national productivity (see Figure 1). Future policies that deliver an increase in education and training levels are likely to have wide-ranging benefits for individuals, standards of living and social cohesion (Access Economics, 2005).

**FIGURE 1: Examples of impact of education levels on participation and productivity**

**Workforce participation and earnings**

+ Compared with people who complete Year 12 or equivalent, early school leavers tend to be less likely to work and tend to earn less when they are employed. (Productivity Commission, 2006)

+ Women who complete Year 12 are 14 per cent more likely to be employed, other things being equal, than those who do not, and to earn, on average, 8 per cent more. (Breusch and Gray, 2004)

+ Women with a degree earn about 40 per cent more than those who have not completed Year 12. (Breusch and Gray, 2004)

+ For every additional year of education, the earnings of an Australian worker increase by between 5.5 and 11 per cent, all other things being equal. (Productivity Commission, 2006)

**Productivity**

+ An additional year of education may raise the level of productivity by between 3 and 6 per cent for a country with Australia’s current average education level. (OECD, 2003)

+ An increase of 1% in a country’s literacy scores relative to the international average is associated with an eventual 2.5% relative rise in labour productivity and a 1.5% rise in GDP per head. These effects are three times as great as for investment in physical capital. Moreover, the results indicate that raising literacy and numeracy scores for people at the bottom of the skills distribution is more important to economic growth than producing more highly skilled graduates. (Coulombe & Tremblay, 2005)

+ If the percentage of young people completing Year 12 or its equivalent were increased from 80 per cent to 90 per cent, GDP would be $1.8 billion (i.e., .28 per cent GDP) higher in 2020 than it would otherwise have been. (Business Council of Australia, 2003)

+ If Australians had one further full year of extra schooling, this would boost economic growth by 0.3 percentage points and boost productivity growth by at least 0.3 percentage points every year. (Dowrick, 2002)
Over recent decades there have been steady increases in the education levels of young Australians. Noting that the percentage of 25–34 year olds with at least a bachelor’s degree had increased from 14 per cent in 1995 to 29 per cent in 2005, the Productivity Commission recently observed:

The population of the future will be much more highly educated as current levels of achievement flow through the age structure over time … Australia has high levels of educational attainment relative to many other OECD countries, and it is likely that the increases in attainment that have occurred over the past couple of decades will contribute to higher participation and productivity in the future.

(Productivity Commission, 2006)

The OECD has ranked Australia highly in terms of the current attainments of 15-year-olds. The Programme for International Student Assessment (OECD, 2004), which provides the only reliable international data on attainment levels at this age, has concluded that, among 41 participating countries, Australia is significantly outperformed only by Finland in reading literacy; Hong Kong SAR, Finland, Korea and Netherlands in mathematical literacy; and Finland, Japan and Korea in scientific literacy.

However, despite generally increasing education levels, Australia has one of the lowest secondary school completion rates, behind East Asia, North America, Scandinavia and much of Continental Europe. Among 25–64 year olds, only 62 per cent of Australians have completed secondary education, compared with 88 per cent of Americans. Among 20–24 year olds, 16.9 per cent of Australians have neither completed secondary school nor are in education. For Norway, the corresponding figure is 4.3 per cent (Productivity Commission, 2006).

And while Australian 15-year-olds perform well on average, there is significant variability in students’ levels of achievement. In reading, 7 per cent of Australian girls and 17 per cent of boys perform at the lowest international standard, meaning that they are likely to be able to locate specific details in text, but to be unable to connect ideas or to draw conclusions from a piece of writing (OECD, 2004). In some areas, we have fewer students performing at very high levels. For example, in international tests of Year 8 mathematics knowledge, only seven per cent of Australian students perform at an ‘advanced’ level, compared with 44 per cent of Singaporean students (Martin et al., 2004).

Australia’s future economic competitiveness clearly will depend on maintaining and enhancing current levels of education and training, and in particular, on increasing the numbers of young people completing twelve years of school or equivalent. The collection of regular data on how education and training levels compare with international standards – including the administration of international tests of reading, mathematics, science, ICT literacy and civics – will provide a basis for monitoring educational performance and trends over time.
Despite overall increases in education levels among young Australians in recent decades, and high average levels of reading, mathematical and scientific literacy at 15 years of age, many young people leave school in Australia with only minimal standards of education. A significant proportion appear to become disenchanted with, and disengaged from, schooling during their secondary years. Many leave early, giving Australia one of the lowest secondary school completion rates among countries with which we commonly compare ourselves.

Young people whose school achievements are in the lowest quarter or who do not complete a Year 12 certificate are more likely to experience multiple periods of time outside the workforce and are less likely to engage in further education or training after leaving school (Hillman, 2005).

Throughout the years of school there are wide variations in students’ levels of achievement. Children begin school with markedly different levels of individual development and school readiness. By Year 5, the top 10 per cent of children in reading are at least five years ahead of the bottom 10 per cent of readers (Masters & Forster, 1996). This is not a new phenomenon or a peculiarly Australian phenomenon. By the end of primary school in the UK, the highest achieving students in mathematics are reported to be approximately six years ahead of the lowest achievers (Harlen, 1997).

In some areas of the school curriculum, variability in students’ levels of attainment appears to increase across the years of school. Figure 2 shows distributions of mathematics achievement for US students in Years 2 to 7 (Hauser, 2003). Children in the upper end of the distribution appear to make steady progress across these years of school, but there is significant overlap in the distributions and increasing variability as students in the tail of the distribution fall further behind. The consequence is little average improvement in mathematics, particularly between Years 6 and 7.
Widening gaps also are evident in Australian data. Because students from low socio-economic and Indigenous backgrounds tend to be over-represented in the tail of the achievement distribution, increasing variability across the years of school sometimes is reflected in growing gaps between students from lower and higher socio-economic backgrounds and between Indigenous and non-Indigenous students.

In the basic skills of literacy and numeracy, up to 10 per cent of students achieve only minimal levels by Year 7 (MCEETYA, 2007). Perhaps a further 20 per cent have levels below those required for effective functioning in adult society (Rothman, 2002).

Research shows that low levels of literacy and numeracy are associated with early school leaving – young people in the bottom 25 per cent on literacy and numeracy tests in Year 9 are four times more likely to leave school early than those in the top 25 per cent (Abelson, 2002) – and are correlated with a range of other variables, including low overall academic achievement, disengagement, truancy and anti-social behaviour.

The Council of Australian Governments (COAG, 2006) has set a goal to improve basic skills among potentially ‘at risk’ students by:

+ significantly improving the proportion of children acquiring the basic skills for life and learning (including closing the gap between Indigenous and non-Indigenous children); and
+ increasing the proportion of young people meeting basic literacy and numeracy standards, and improving overall levels of achievement.

Too few young people are developing the knowledge and skills required for effective workforce participation.

Australia faces significant skills shortages in a number of industries and at a range of skill levels. A highly qualified workforce, with skills in areas of need, will be essential to future national economic prosperity. A 2006 survey conducted by the Australian Industry Group found that 85 per cent of companies considered ‘building the skills base’ to be the key strategy for ensuring international competitiveness.

The future Australian workforce will require both higher level skills and a broader range of skills which will need to be updated more frequently than in the past. Many low-skill jobs have now been overtaken by technology or are being transferred offshore to low-cost economies. Australia faces a particular skills shortage at the trade and associate professional levels. Currently, 87 per cent of available jobs require post-school qualifications, but 50 per cent of the workforce lacks these qualifications (Australian Industry Group, 2006).

Research by the Centre for the Economics of Education and Training suggests that:

+ in the decade 2006–16, the VET sector will be required to supply 2.47 million qualified people;  
+ 70 per cent of these will be required at trade and post-trade levels (Certificate III, Diploma, Advanced Diploma);  
+ based on current supply, new entrants and skilled migration, there will be a projected shortfall of 240,000 people with VET qualifications; and  
+ as a result, one in seven jobs requiring VET qualifications either will be unfilled or filled with an inappropriately skilled person.
In recent years, the highest levels of employment growth have occurred in associate professional (e.g. engineering, building, medical, technology) and professional occupations (see Figure 3). The Queensland Department of Employment and Training (2005) considers that most associate professionals in the future will benefit from tertiary qualifications, and that 85 per cent of all jobs will benefit from a university or VET qualification.

A serious skills shortage exists in the sciences and mathematics, with the Commonwealth Department of Education, Science and Training (2005) estimating a shortfall of 19 000 scientists and engineers by 2012. Despite the looming shortage, there has been a steady decline in the proportions of Australian senior school students studying advanced mathematics, chemistry, physics and biology over recent decades.

There have been similar declines in the proportions of students choosing to study mathematics and science at university level.

The Council of Australian Governments (COAG, 2006) has set goals to:

- increase the proportion of young people making a smooth transition from school to work or further study; and
- increase the proportion of adult workers who have the skills and qualifications needed to enjoy active and productive working lives.


![Employment growth chart](chart.png)
There is considerable evidence that earlier school performances are good predictors of later school performances. Prior achievements tend to be correlated not only with later achievements, but also with attitudes to learning and, ultimately, with school completion and labour market outcomes. Not surprisingly, mastery of the basics (especially reading, but also numeracy) is a particularly good predictor of subsequent success. Children who lag their age peers in the basics after the first few years of school often remain behind. Low levels of literacy and numeracy by the end of primary school usually are associated with poor performance in secondary school. And by Year 9, literacy levels are the best single predictor of how students will fare in the senior secondary school.

Young people’s attitudes to school, to particular school subjects and to formal learning in general also are significantly influenced by their early school experiences. There is evidence that attitudes to mathematics and science decline between Year 4 and Year 8 (Thomson, et al., 2004). A number of Australian studies have shown that students’ interest in mathematics and science in the middle years of school has declined over the past two decades (Tytler, 2007), a factor no doubt in the declining proportions of students taking advanced mathematics and science in the senior secondary school.

These observations suggest that the problems of disengagement, low achievement and dropping out will not be solved entirely by more appropriate courses, improved career guidance and more flexible pathways in the later years of school. These problems have their roots much earlier in the school system. At the same time, recent research in neuroscience has demonstrated the remarkable development that occurs in the earliest years of life and the importance of early childhood in laying the foundations for later learning (OECD, 2002; Jolles et al., 2006). However, to date, Australia has not had a coordinated, national, whole-of-government approach to early childhood education and care:

The importance of the early years to children’s lives is now beyond question. A good beginning to life is well recognised as the foundation for future development, health and wellbeing, not only in the early years, but also throughout life. Despite this recognition, and the concerted advocacy efforts that have flowed from it, policy and practice in early education and care in Australia still lack focus and integration. (Alan Hayes in Elliott, 2006)

What is Required?

1. EARLY INTERVENTION

STRATEGY: Identify potential learning problems before they become entrenched and difficult to address.
Elliott (2006) summarises the complexity of existing planning, regulations and funding and argues that current early childhood arrangements are contributing to subsequent differences in educational outcomes:

The developing trend for welfare-oriented child care for poor and lower income families and educationally oriented preschools and kindergartens for middle income and more affluent families will further polarise academic outcomes already differentiated along socioeconomic and geographic lines. (Elliott, 2006)

Equally important are efforts to identify children who are experiencing learning difficulties and to diagnose, understand and address those difficulties before they become an impediment to success at school. Learning difficulties can take many forms, including attentional difficulties, dyslexia, specific learning difficulties, language/speech disorders, social/emotional difficulties and behavioural difficulties (Rowe and Rowe, 2004; Purdie & Ellis, 2005).

The importance of early intervention is widely recognised in Australia and is a key feature of research being undertaken as part of the Commonwealth-funded Longitudinal Study of Australian Children (LSAC) and the work of the Australian Research Alliance for Children and Youth (ARACY).

The Council of Australian Governments has noted that high-quality and integrated early childhood education and care services, encompassing the period from prenatal up to and including the transition to the first years of school, are critical to increasing the proportion of children entering school with the basic skills for life and learning. COAG has given priority to improving early childhood outcomes as part of a collaborative national approach involving all levels of government and a range of portfolio areas.

What is required?

+ A greater focus on development in early childhood.
+ A coordinated, national, whole-of-government approach to early childhood education and care.
+ Routine assessments to identify and address learning difficulties in early childhood.
2. CUSTOMISATION

STRATEGY: Make education and training more responsive to the needs, interests and aspirations of individual learners.

Education traditionally has been delivered to groups of learners. Under this approach it has been assumed that an individual’s learning needs are largely determined by the group to which he or she belongs. However, several decades of research have shown that learning opportunities are most effective when they are tailored to the needs, interests and aspirations of individuals (Bransford et al., 2000).

Group-based approaches have been a common feature of education and training delivery. In schools, it has been common to group students into grades and classrooms for the delivery of grade-based curricula. However, as Figure 2 makes clear, there can be large individual differences within school grades.

In a mixed-ability classroom, the same learning activities can be frustratingly difficult for some students and boringly easy for others. One-size-fits-all approaches are in general much less effective than approaches which are responsive to the progress and needs of individual learners.2

In vocational education and training, young people traditionally have prepared for a relatively narrow range of occupations through standard courses and apprenticeships. In most cases, the assumption has been that people will remain in those jobs for extended periods, if not for life. In contrast, today’s young people will be employed in a wide variety of occupations, are likely to change jobs frequently and to be engaged in ongoing employment-related learning in relation to those jobs. In the future, standard courses will be less appropriate than the ability to personalise learning by mixing and matching from a diversity of options delivered in a variety of formats and involving a multitude of pathways between education, training and work.

FIGURE 4: Reading levels versus socioeconomic status of 15-year-olds (PISA)
Group-based solutions also have been sought to problems of student underperformance. Although differences in school achievement can be seen at the level of groups (e.g. boys, Indigenous students and students from low socioeconomic backgrounds), attempts to address these differences through group-based solutions have in general been disappointing. A possible explanation for this lack of success is suggested by Australian data from the OECD PISA study (Figure 4).

Although reading levels are correlated with SES in PISA, the correlation is not high. Among students from low SES backgrounds, there are students with relatively high reading scores, and students with low reading scores can be found at almost all SES levels. It seems likely that interventions targeted on low SES students (e.g. students in ‘disadvantaged’ schools) are likely to be less effective than interventions targeted on individuals with low reading levels, regardless of SES.

The ability to customise learning to meet the needs of individual learners depends on good information about those needs. Regular monitoring is required to establish current levels of attainment and to diagnose obstacles to further progress.

Changes to the school curriculum also may be required to ensure ongoing responsiveness both to the needs of Australian society and to the needs of individual learners. Future school curricula should begin with an analysis of the kinds of learning likely to be required for the future, make clear what students are expected to learn, promote higher order skills and deep understandings of subject matter and provide flexibility to enable teachers to respond to individual needs and local contexts. Flexible modes of delivery, including online learning, will offer further opportunities to make education and training more responsive to the needs, interests and aspirations of individual learners.

What is required?

- Routine monitoring of the progress of every child, especially in literacy and numeracy.
- The investigation of ways of making education and training arrangements less rigid and more responsive to the needs, interests and aspirations of individual learners.

3. PROFESSIONALISATION OF TEACHING

STRATEGY: Support teachers to develop and work as highly qualified and knowledgeable professionals.

Research consistently shows that the single greatest influence on levels of school achievement is the quality of the teaching to which students are exposed (Ingvarson & Rowe, 2007). Excellent teaching is the key to increased student engagement and higher levels of achievement, regardless of students’ backgrounds. For this reason, high priority must be given to attracting very able people into teaching, keeping excellent teachers in classrooms, and supporting all teachers to work as professionals.

Over recent decades, too few highly able young people have been pursuing teaching as a career. In the twenty years from 1983 to 2003, the general abilities of young people entering teaching declined significantly (Leigh & Ryan, 2006). The average percentile rank of those entering teacher education fell from 74 to 61, while the average rank of new teachers fell from 70 to 62. During the same period, average teacher pay fell substantially in comparison with non-teachers with a degree. Since 2003 there have been increases in beginning teachers’ salaries and increases in the tertiary entrance rank required to enter teacher education courses. The challenge is both to attract more highly able young people into teaching and to keep them in classrooms for longer periods of time.
Particular challenges exist in some curriculum areas such as mathematics and science. There are shortages of well-qualified mathematics and science teachers, especially in some schools and parts of the country, and large numbers of teachers are teaching in areas for which they are not well prepared. For example, 40 per cent of teachers teaching physics in Australia do not have a major in physics.

Current pay structures see most teachers hit a pay ceiling about a decade after entering the profession. The best teachers tend to be promoted into leadership roles within schools, with each promotion reducing the amount of time spent in classrooms and increasing the amount of administrative work. Rather than encouraging their development as excellent classroom teachers, current pay structures tend to encourage good teachers to stop teaching.

Part of the solution to this problem is likely to be the introduction of better ways of recognising and rewarding high-quality classroom teaching. Some attempts have been made to do this through recognition schemes (e.g. ‘teacher of the year’). But these awards recognise only a handful of teachers nationally, depend on peer or self-nomination, and are not always viewed as objective or rigorous by teachers themselves. These schemes also do not sit comfortably in the culture of many schools where teachers are reluctant to compete with colleagues for special recognition – a problem also for bonus schemes based on principals’ judgements.

An alternative approach, adopted in some Australian states, is the introduction of the concept of a ‘master’ teacher who has met defined standards of practice and achieved certification as a highly accomplished practitioner. The ‘Level 3’ teacher in Western Australia is an example. Teachers achieving certification are then paid at a higher level. The advantages of these schemes are that they are based on explicit standards [descriptions of what excellent teachers do] and rigorous external assessments of teachers’ practice. Standards for highly accomplished mathematics and science teaching have been developed by the professional associations of mathematics and science teachers but are not currently being used to recognise and reward teaching excellence.

To maximise their impact on student learning and achievement, teachers also require the forms of support normally available to professionals. These include access to paraprofessional assistance, ready access to current research and knowledge about effective teaching and learning practices, and access to high-quality materials and resources.

New initiatives and programs in education often are based on personal beliefs about what should work, political or philosophical stances, or attempts to recapture some imagined past. In general, more attention needs to be paid to what is known about effective teaching practices – for example, the importance of direct instruction in early literacy learning. Teachers require dependable evidence about what works, for whom and under what conditions as part of their pre-service preparation. As in other professions, practising teachers also require regular information about new developments and research findings.

What is required?

+ A pay structure for teachers that attracts able young people to teaching as a career.
+ Explicit standards for highly accomplished practice, credible methods of assessing whether teachers meet these standards, and accompanying financial recognition to retain excellent teachers in classrooms.
+ Better support to enable teachers to function as professionals, including more paraprofessional assistance and better access to evidence-based research and high-quality teaching materials.
4. INCREASED INVESTMENT

STRATEGY: Increase public investment in education.

According to the OECD (2006), Australia’s overall investment (both public and private) in all forms of education is 5.8 per cent of GDP, placing Australia eighteenth among 29 OECD countries, but above Germany and Japan. Between 1995 and 2003, total public expenditure on education declined from 4.5 to 4.3 per cent of GDP while private expenditure increased from 1.0 to 1.5 per cent. Australia’s public investment in education is below the OECD mean and Australia relies more heavily than most other countries on private educational expenditure. By international standards, Australia also has a very low level of investment in early childhood education.

While there has been significant investment in infrastructure on the part of some state governments, physical facilities in many government schools remain inadequate. Students and teachers often work in ageing and sub-standard classrooms, many of which were built to be temporary. Physical facilities in schools (for example toilet blocks and heating and cooling systems) often are well below the standards expected more generally in the community. Many government schools across Australia are in need of substantial physical renewal.

In vocational education and training, an expansion of funding is required to meet likely future demands for qualifications, especially at diploma and advanced diploma levels. Between 1999 and 2004, while public expenditure increased by 3% per student in universities, 9% per student in government schools, and 21% per student in non-government schools, spending on VET fell by 11% per hour of training provided (Burke, 2006). Increased national investment in vocational education and training is likely to be a key to addressing projected shortfalls of skilled technicians and associate professionals.

According to the Australian Government, total investment – public and private – in universities increased by 25 per cent in real terms over the past decade. The 2004 reforms Backing Australia’s Future will put an additional $11 billion into higher education over the next decade. However, the proportion of the costs of tertiary education met from private sources has increased to 52 per cent (up from 35 per cent in 1995). The Australian Vice-Chancellors’ Committee has called for a 15 per cent increase in the government’s contribution per student over the next three years, arguing that, with a strong economy, Australia now needs to invest more in high-quality university graduates. The introduction of the $5 billion Higher Education Endowment Fund in the 2007–08 federal budget made an important contribution to redressing the recent decline in the public funding of universities.

What is required?

+ Increased public investment in education at all levels: early childhood, school education, vocational education and training and higher education.
5. IMPROVED GOVERNANCE

STRATEGY: Clarify roles and responsibilities and improve mechanisms for ensuring that education and training are meeting the needs of individuals and Australian society.

A final challenge is to improve the governance of Australian education. This challenge includes clarifying areas in which national consistency is desirable, clarifying roles and responsibilities of the various tiers of government, increasing local autonomy and flexibility, and finding ways to ensure that all levels of decision making continue to be responsive to the future needs of individuals and Australian society.

In recent years a more national approach has been taken to school education. This has occurred in part through the joint efforts of state, territory and commonwealth ministers of education. Agreement has been reached around a number of matters, including national goals for schooling, national literacy and numeracy tests at years 3, 5, 7 and 9, and national curriculum consistency in some subjects. A more national approach also has been driven by the Australian Government, for example through the introduction of common forms of reporting to parents, values for Australian schools, school flagpoles, and the concept of a national Year 12 certificate. In some cases, commonwealth funding has been tied to the take-up of Australian Government initiatives. Both the federal government and the Opposition recently have backed the introduction of a national curriculum for Australian schools.

Some of these developments are a break with traditional understandings of the respective roles of commonwealth and state governments in school education. As the commonwealth has adopted an enhanced role in the areas of curriculum, assessment, monitoring and reporting, and expressed growing interest in topics such as performance pay for teachers and an Australian Certificate of Education, there has been increasing uncertainty about where future responsibilities will lie. Some clarification of the areas in which national standards and national consistency are desirable could be a useful step in improving the current governance of school education in Australia.

Related to this issue is the current level of duplication of education services across the Australian states and territories. This duplication is well illustrated in the senior years of secondary school where seven government authorities currently provide nine different senior certificates. An inspection of the curricula being developed for these certificates shows that 95 per cent of chemistry content, 90 per cent of advanced mathematics content, and 85 per cent of physics content is common to all states and territories (Matters & Masters, 2007). However, the seven authorities maintain seven different sets of assessments/examinations of this common content, and seven different ways of reporting student results, making it impossible to compare subject results between any two states. Some priority should now be given to minimising unnecessary differences and duplication of effort across state government bodies.

In parallel with the clarification and rationalisation of roles and responsibilities, greater attention is required to ways of increasing local autonomy, flexibility and responsiveness to student, community and industry needs. Some states have moved further than others in giving school principals and school communities greater control over school budgets and staffing. Further work also may be required to reduce regulatory requirements on educational institutions to encourage diversity of offerings within agreed standards and frameworks.
Finally, ongoing effort is required to improve the responsiveness of school education to individual and community needs. Science curricula provide an illustration. The need for science literacy in the community 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. Science curricula have been designed to prepare students for the future study of science, but current courses not only are failing to engage the majority of students, they also are not attracting sufficient students to the study of science:

The traditional science curriculum, designed principally to train young people as a preparation for entering the science discipline, is the very instrument that is turning them away from science. (Tytler, 2007)

What is required?

- Greater clarity about the respective roles in school education of different tiers of government.
- A reduction in levels of duplication and the removal of unnecessary differences in educational provision across states and territories.
- Greater local autonomy, flexibility and responsiveness to student, community and industry needs.
Much of what is now required to improve the quality of Australian school education is widely understood and agreed. The challenge is not so much in identifying what needs to be done, as in finding ways to overcome obstacles that often have their origins in longstanding structural arrangements, traditional practices and vested interests. Significant improvements in school education will require bold new approaches which, in some cases, will change how we think about and provide schooling for young people.

Australia is one of just a few countries with a federated system of states and territories with constitutional responsibility for school education. The consequences of Australia’s inherited arrangements include inconsistencies in matters such as school starting ages, senior certificates and school curricula; the duplication of effort across state and territory agencies; a lack of comparability of achievement levels across Australia; and financial challenges for smaller jurisdictions in developing quality curricula and examination systems. A challenge over coming years will be to develop greater consistency around key school education issues, accompanied by increased investment in all Australian schools.

Second, there is a significant challenge in supporting and developing the quality of teaching and leadership in schools. Creative approaches are required to attract highly able people to pursue teaching as a career. Teacher preparation programs must equip teachers with a body of professional knowledge and skill that is grounded in research into effective teaching practices. Professional standards for highly accomplished teaching need to be developed and used as a basis for recognising and rewarding excellent practice. And, at the same time, school leaders must be given greater say in staffing decisions. Currently, leaders in most government schools have too little control over staffing appointments, processes for removing underperforming staff and mechanisms for rewarding high performers.

A third challenge will be to achieve greater clarity around the school curriculum and, in particular, to identify core knowledge, skills and attributes that all Australian students should have an opportunity to learn and develop, regardless of where they live. The identification of a core national curriculum will require broad community debate about the kinds of understandings and skills that young people will require for life, study and work in the future.

Beyond this curriculum core, schools of the future will need to be better connected into their local communities, more flexible, and more responsive to local needs. Partnerships between schools (both government and non-government) and between schools and local businesses and community organisations will be keys to greater local responsiveness, alternative sources of funding and greater sharing and more efficient use of human resources and physical facilities. School–business partnerships of the kind that have been introduced in England could boost school renewal efforts and provide a greater role for business in the schooling process [as opposed to being merely an end-user]. Schooling outcomes also are likely to be improved by providing opportunities for learning to occur in a wider range of contexts than traditional classroom settings, and in more flexible timeframes than the traditional classroom day.

Finally, the greatest opportunities for improving educational outcomes reside in teaching and learning processes. Research has identified a number of principles which, if implemented, have the potential to improve learning in schools. Foremost among these is the need to catch learning difficulties early: to diagnose problems before they become entrenched and before students become disenchanted and disengaged. This is especially true in relation to basic skills such as reading and numeracy. Equally important is to monitor the progress of individual learners and to customise (or ‘personalise’) teaching and learning to the needs of individual learners. Although this principle has long been understood, it has been difficult to implement under traditional school structures. More flexible learning arrangements and the greater use of technology are likely to make personalised learning much more feasible in the future.

Meeting the Challenge


Training and Youth Affairs.


Notes

1. Parallel data for Australia are not available.

2. It seems likely that students in the tail of the distribution in Figure 2 fall further behind with each year of school in part because they are being exposed to curricula that are increasingly far away from their current levels of mathematics attainment.

3. All Australian students will participate in national tests of literacy and numeracy for the first time in 2008.