Ensuring quality education for all students

Assessments of student achievement help governments to understand and enhance the effectiveness of their school systems. The latest results from the OECD Programme for International Student Assessment (PISA) reveal that the Australian educational system is facing several challenges.

PISA measures how well 15-year-olds from across the globe are prepared to use their knowledge and skills in reading, mathematics and science to meet real-life challenges near the end of compulsory schooling. The latest results show that Australian students are still performing well above the OECD average, but that their results in reading literacy and mathematical literacy have declined significantly over recent years.

PISA also reveals very significant gaps in achievement between Australian students by gender, Indigenous status, location and wealth. In some cases these are equivalent to several years of schooling. These achievement gaps place an unacceptable proportion of 15-year-old students at serious risk of not achieving literacy levels sufficient for them to effectively participate in the workforce and in society.

In this edition of Research Developments, Sue Thomson reports in detail on Australia’s performance in PISA. She explains how our performance compares to other OECD countries’ performances and how it has changed over time. Importantly, she explores gaps in achievement and what these mean for Australian students.

Also in this edition, John Ainley reports on a range of international research into how Australian students and teachers use information and communication technology.

The results of international research confirm that Australia already has a world-class education system – for most students – but that we have much work to do to address issues of inequity and ensure access to quality education for all students. Two articles in this edition report on programs that are having positive effects on student outcomes.

Michele Lonsdale’s article reports on research into the NAB Schools First program, of which ACER is a partner. This research shows that school–community partnerships improve student wellbeing, engagement, academic outcomes and vocational skills.

Michelle Anderson’s article reports on a new project, Leading Learning in Education and Philanthropy, which will assist schools to make the most effective use of grants. This work aims to maximise positive outcomes for students, schools and communities.
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Sue Thomson asks if Australia’s above average but declining performance in an international study of reading, mathematics and scientific literacy should be cause for concern.
The latest report on the reading, mathematical and scientific literacy skills of 15-year-olds from the Organisation for Economic Development (OECD) Programme for International Student Assessment (PISA) contained mixed news for Australia when it was released in December 2010.

The OECD established PISA to help determine how capable students are at applying their skills and knowledge to real-life problems and situations, and whether they can analyse, reason and communicate their ideas effectively. By assessing students who are 15 years old, the age when they are nearing the end of compulsory schooling in many countries, PISA helps to ascertain whether students are prepared for the challenges of life beyond school.

ACER has a dual role in PISA, working to implement the program both internationally and within Australia. ACER has led an international consortium of research organisations and educational institutions to deliver the international PISA project on behalf of the OECD since its inception in 2000. ACER is also responsible for conducting the national PISA study within Australia under contract to the federal and state and territory governments.

Since 2000, PISA has been conducted every three years; most recently in 2009 when around 400,000 students from 57 countries were involved. In Australia a nationally representative sample of around 14,000 students from 353 schools took part. Australia has now taken part in all four cycles of PISA.

PISA assesses reading, mathematical and scientific literacy with one of these the main focus of the assessments in each cycle. In 2009 the majority of the assessment was devoted to reading literacy with mathematical literacy and scientific literacy assessed to a lesser extent. Reading literacy was also the main assessment domain in 2000. The repeat of reading literacy as the main assessment domain allows us to make comparisons in reading performance over the last decade.

**Australia’s performance in PISA 2009**

Australia’s performance in reading literacy on PISA 2009 indicated a drop in standards over the previous decade. Australian students scored an average of 515 points on the 2009 reading assessments, compared to the OECD average of 493 points. However, Australia’s overall performance declined by 13 score points from 2000 to 2009. The decline was primarily among higher achieving students and was more evident in some Australian states than others. Australia was the only high-performing country to show a significant decline in reading literacy performance over that period of time.

Australian students also performed less well on mathematical literacy than they have in the past. In 2009 Australian students achieved an average score on the assessments of 514 points, significantly higher than the OECD average of 496. The result was similar to that achieved in 2006 but down on the 2003 result. Australia was one of 10 OECD countries to see
a significant decline in mathematical literacy performance from 2003 to 2009.

The best result for Australia came in scientific literacy where our students’ average score of 527 remained unchanged from PISA 2006 and was significantly higher than the OECD average of 501.

How concerned should we be about these results? Firstly, it is important to remember that overall, Australia’s performance in PISA remains strong. Our students performed well above the OECD average and were significantly outscored by students in only six countries in reading, 12 countries in mathematics and six in science. The big picture view of Australia’s achievement in PISA is largely positive. However, when we break this big picture down into smaller components, some worrying findings emerge.

In an increasingly global economy and workforce, Australian students appear to be losing ground on students from nations they may find themselves competing with for jobs in the future. This is particularly evident at the top end of student achievement. While Australia’s reading literacy achievement declined significantly between 2000 and 2009, 10 OECD countries recorded significantly improved reading results over the same period.

One of the reasons for Australia’s overall decline in performance was a decrease in the number of students performing at advanced international levels. The number of high achievers in reading declined in Australia between 2000 and 2009, and the number of high achievers in mathematics and science declined significantly in some states. Previous international studies showed the top 10 per cent of Australian students in mathematics and science performing at about the same level as the top 30 to 40 per cent of students in countries such as Singapore and Chinese Taipei. The latest PISA report includes newcomer Shanghai. In Shanghai, 50 per cent of students performed at the same mathematical literacy levels as the top 16 per cent of Australian students.

Achievement gaps

While the primary focus of PISA is on reading, mathematical and scientific literacy, a great deal of background information is also collected from students and schools. This helps us to analyse the influence on achievement of student background including gender, geographic location and socioeconomic status. When we use this information to help take a closer look at how Australian students compare with each other we can clearly see some alarming gaps in achievement in this country, which can sometimes be the equivalent of several years of schooling.

Results in PISA 2009 suggest that achievement decreases with distance from a major city. For example, students in metropolitan schools scored 521 points on average in reading literacy, which was 24 points higher than students from provincial schools, who in turn outscored students in remote schools. The gap between students in metropolitan and remote schools is equivalent to three-quarters of a proficiency level or about one-and-a-half years of schooling. In addition, students from remote schools were less likely to achieve in the higher levels of proficiency and more likely to achieve in the lower proficiency levels. In remote schools, 29 per cent of students failed to reach proficiency level 2 (the OECD regards students unable to reach level 2 as being at risk of being unable to fully participate in the modern workforce), compared to 17 per cent in provincial schools and 13 per cent in metropolitan schools.

The gender gap in mathematics, which appeared to have closed over recent decades, has re-emerged with boys again significantly outperforming girls. Significant gender differences in reading literacy, in favour of girls, were found in all PISA 2009 countries. The gender difference in Australia was similar to the OECD average. This shows that gender is still an issue in Australian education. If overall mathematics performance is to improve, then efforts must be made to raise the mathematics achievement of girls. Similar efforts are required to boost boys’ interest and achievement in reading.

Considerable achievement gaps remain in Australia between Indigenous and non-Indigenous students. In reading literacy Indigenous students scored on average 82 points lower than non-Indigenous students. This difference is equivalent to more than two years of schooling. Indigenous students were also significantly below the OECD average by 57 points. Indigenous girls performed 47 points higher on average than boys in reading literacy, placing
Indigenous boys more than one year behind girls in reading.

Similar gaps between Indigenous and non-Indigenous students were noted for mathematical and scientific literacy. The low achievement of Australia’s Indigenous students continues to be a concern. Further investigation at a later date will examine the data more closely to attempt to isolate factors that could assist in boosting the performance of Indigenous students.

The widest achievement gaps were found between students from the highest and lowest socioeconomic backgrounds. Students from the highest socioeconomic group outperformed students from the lowest socioeconomic group in reading by the equivalent of almost three full years of schooling. Four per cent of students from the lowest socioeconomic group, compared to 25 per cent of students from the highest group, performed at the higher end of the reading literacy proficiency scale. In contrast, a quarter of students from the lowest socioeconomic group, compared to just five per cent of students in the highest socioeconomic group, were unable to reach proficiency level 2 in reading.

In 2009 PISA examined achievement by school sector for the first time. Scores for students in independent schools were significantly higher than scores for students in Catholic schools, which were in turn significantly higher than scores for students in government schools. However, closer analysis shows that these differences between school sectors are explained by differences in socioeconomic background, indicating that socioeconomic background matters more to student achievement than the type of school.

Conclusions

Should we be concerned by Australia’s above average but declining performance in PISA? Australia has now participated in four cycles of PISA. Throughout these four cycles, Australian students have performed at a level significantly higher than the OECD average in all three assessment areas: reading literacy, mathematical literacy and scientific literacy. It is clear from the latest round of PISA results that while our average performance overall remains strong, some Australian students are not being equipped with the literacy skills they will need to participate fully in life beyond school.

Australia faces the urgent challenge of closing the achievement gaps that exist between students from metropolitan and rural Australia, between Indigenous and non-Indigenous students, between students from higher and lower socioeconomic backgrounds and, in some cases, between boys and girls.

To put the widest of these achievement gaps into perspective, some Australian teenagers may be trying to enter the workforce and forge a future for themselves with reading, mathematics and scientific literacy skills equivalent to a Year 7 or 8 education or worse. These achievement gaps place an unacceptable proportion of 15-year-old students at serious risk of being unable to effectively participate in the 21st century workforce and contribute to Australia as productive citizens. That
Call to embed Arts in all curriculum areas

As Australia moves towards the implementation of a national curriculum in the Arts, a new review of research calls for the Arts to be embedded in all academic disciplines and fields as a way of cultivating creativity and imagination.

Australian Education Review 58, The Arts and Australian Education: Realising potential by University of Sydney academic Professor Robyn Ewing, stresses that the Arts (dance, drama, literature, media arts, music and visual arts) must not be seen as servants to other curriculum areas.

The review highlights international research that shows those students whose learning is embedded in the Arts achieve better grades and overall test scores, are less likely to leave school early, rarely report boredom and have more positive self-concept than those students who are deprived of arts experiences.

Examples from education and community education programs that embed quality arts processes and experiences demonstrate the potential of the Arts to change the lives of children and young people, particularly those experiencing difficulties.

According to Professor Ewing, achieving the demonstrated educational and social benefits of Arts in education will require a change in thinking by policymakers to ensure that cultivating imagination and creativity become the priorities rather than ‘add-ons’.

Australian Education Review (AER) number 58, The Arts and Australian Education: Realising potential, is written by Robyn Ewing, Professor of Teacher Education and the Arts at the University of Sydney, with a foreword by John O’Toole, Foundation Chair of Arts Education at the University of Melbourne and lead writer for The Australian Curriculum: The Arts.

The report was launched by Sydney Theatre Company’s Artistic Directors Cate Blanchett and Andrew Upton in March, pictured.

AER 58 is available for download from the ACER website at <www.acer.edu.au/aer>. Print copies can be purchased from ACER Press. Contact customer service on 1800 338 402 or via email on sales@acer.edu.au.

is something everyone involved in the education of Australia’s youth should be concerned about.


The Australian report was released to coincide with the OECD’s launch of the international study in Paris on 7 December 2010.
School–community partnerships benefit all

Michele Lonsdale explains new research into the nature of school–community partnerships.

New research into the NAB Schools First program shows that school–community partnerships are having a positive effect on student outcomes.

This national awards program, which is based on a partnership between National Australia Bank (NAB), ACER and the Foundation for Young Australians, has pledged $15 million over three years to recognise and reward outstanding school–community partnerships.

More than 1500 schools applied for either an Impact or Seed Award in 2009, the inaugural year of the program.

ACER conducted a review of the 800 Impact Award applications from 2009 to investigate the nature and impact of the partnerships that schools have established around Australia.

This review, School–Community Partnerships in Australian Schools, has created a rich database of information into why schools are forming partnerships with business and community groups, the kinds of partnerships that are being formed, and the positive impact these partnerships are having on students and schools.

Underpinning almost all these Impact Award partnerships was a desire to improve student learning.

Schools either approached, or were approached by, potential partners for a wide range of reasons, including to:

• improve student literacy or numeracy skills
• expand the performing arts curriculum
• develop bilingual capabilities in students and staff
• develop a better understanding of local history or Australian history
In 2010, Centenary Heights State High School was awarded $500,000 to maintain and improve an outstanding school–community partnership with The Older Men’s Network (TOMNET), the University of Southern Queensland, Rotary East Toowoomba, the Toowoomba Regional Council, and the Friends of Flexi network.

At the time of its NAB Schools First application in 2010, the school comprised 1193 students from the regional city of Toowoomba and the surrounding rural communities in southern Queensland. Of these students, 70 attended the annexed Toowoomba Flexi School campus, which provides relevant educational opportunities to break the cycle of disengagement for students faced with significant social and emotional disadvantage.

The school faces particular challenges arising from some of the issues affecting their students, such as homelessness, drug abuse, single parenting or mental illness.

To help address these issues, a school–community partnership involving 50 members of TOMNET provides volunteer support within the school. TOMNET’s membership is made up of retired professional men and tradesmen from around the region. The volunteers visit the school weekly to interact with and mentor students, improving their numeracy and literacy and undertaking specific projects, such as gardening, cooking and trade work. They also support the unit financially through donations of money to purchase equipment, improve the facilities and provide food for students. The University of Queensland produced an online Mentoring Training Program, a Governance Group oversees the planning for the students and provides human resources to undertake activities, Toowoomba Regional Council provides the facility where the activities are held and Toowoomba East Rotary provides financial support for the projects.

The program has improved students’ health and wellbeing, with the school noting:

- a reduction in student drug taking and drinking
- a significant reduction in student smoking, and
- a reduction in student sick days and visits to the school nurse.

The impact on students’ vocational outcomes includes the following:

- 95 per cent of 2009 graduates have found employment
- 32 per cent of current students have a school-based traineeship
- 95 per cent of previously disengaged students are now motivated to take on work placements or work experience, and
- there has been a significant increase in regular student attendance.

School staff members have also benefited, because the exceptional experience, skills and knowledge of the TOMNET volunteers makes them an invaluable resource and support for teachers.

There have also been benefits for the wider community and the partner organisations, such as TOMNET, as the program keeps senior volunteers active, connected with their community and less prone to depression.
increase knowledge and appreciation of other cultures
• generate greater interest in mathematics and science
• use science-based projects to connect students with the world outside school
• provide learning around livestock breeding, farm management, horticulture and agriculture
• teach students about the impact of human behaviour on the environment
• give students a better understanding of the workplace and of educational and vocational pathways
• improve students’ physical and mental wellbeing, and
• provide opportunities for students to demonstrate leadership capabilities.

Many schools wanted to help improve the academic outcomes of specific sub-groups of students. Others wanted to extend the academic potential of highly able students.

The review shows that school–community partnerships benefit students and schools as well as the community, business and government organisations that partner with them, in a number of ways.

Students benefited through improved engagement and academic outcomes, wellbeing, and broader vocational options and skills.

School staff benefited directly from professional learning as a part of some partnerships, but also indirectly if the partnership resulted in improved behaviour of students, allowing teachers more time to concentrate on teaching, with less time spent on behaviour management.

Parents and families benefited from partnerships that focused on the whole family. They may have gained access to a range of services, including parenting support and counselling.

Partner organisations also benefited in a number of ways. Partnerships involving student community service contributed to the wellbeing of members of the partner organisation, such as aged care residents. Employers had access to students and were sometimes able to address particular staffing or skill needs, and some organisations, such as environmental groups, were able to increase their volunteer base.

Community and business groups were exposed to new ideas generated by young people and developed a better understanding of the capabilities and potential of young people. They reported a sense of satisfaction from investing in the future of local youth and contributing to positive outcomes for the wider community.

Partners also benefited from positive local media attention and public acknowledgement. The resulting higher profile enabled partners to extend their reach to others in the community.

While the review found positive benefits for the partners involved, it also found that not enough businesses were committing to partnerships.

The majority of school partnerships were with community organisations.

Of the school–business partnerships, around half involved state or national corporations and around half involved local businesses.

ACER suggests that more could be done to support businesses in particular to develop partnerships with schools.

Schools clearly benefit from the skills, resources, ideas, training, mentoring and support that community and business organisations can offer. There are many activities and programs that community and business groups could be doing to support schools and, in return, many ways in which they can also benefit, including raising their profiles and expanding the reach of their services to others in the community.

To help build viable and productive partnerships with schools, community and business organisations could consider:
• Thinking about the kind of support that they could provide. For example, what skills, expertise and interests do members of these organisations have? What could the organisations potentially offer to schools? What could schools potentially offer these organisations?
• Meeting with the local school to identify the particular needs or opportunities that exist.
• Community and business groups could also contribute to the data collection that has helped identify the needs.
• Identifying how the organisations and schools might work together to develop a program or project that would meet the school’s needs, make good use of the partners’ expertise, and bring benefits to all.

The review highlights the need for industry, business and government to invest more heavily in school–community partnerships. This conclusion is further supported by another recently-released report, the First Interim Report of NAB Schools First: Evaluation of the 2009 awards, by ACER Principal Research Fellow Dr Robert Simons, which shows the positive impact of corporate investment into school–community partnerships on the capacity of these schools to deliver innovative and sustainable partnership programs that help bring about positive outcomes for students.

The School–Community Partnerships in Australian Schools report is available from <research.acer.edu.au/policy_analysis_misc/7>

The First Interim Report of NAB Schools First: Evaluation of the 2009 awards report is available from <research.acer.edu.au/policy_analysis_misc/6>

Applications for NAB Schools First Impact Awards for established partnerships and Seed Funding Awards for new or developing partnerships close on 29 July.

Further information about the program, including details of how to apply for 2011 awards, can be found at <www.schoolsfirst.edu.au>
Maximising the impact of philanthropy in education

New research is investigating the impact of philanthropy in education. Michelle Anderson explains the Leading Learning in Education and Philanthropy (LLEAP) project.

An estimated 5000 trusts and foundations distributed $1 billion in grants and donations in Australia last year.

A significant proportion of this was directed to education. In the 2010 Philanthropy Australia members’ survey, more than 60 per cent of respondents nominated education as a specific funding priority. This is great news for schools – but it’s not the whole story.

Most of the Philanthropy Australia survey respondents said the biggest challenge they face is evaluating the impact of grants. Many also identified challenges in collaborating with other funders and communicating with applicants and grantees. From a grant seeker’s perspective, there are also challenges relating to everything from gaining access to information through to finding the time and confidence to apply to or even contact a grant maker.

A new research project, Leading Learning in Education and Philanthropy (LLEAP), aims to address these issues by exploring whether the full potential of funding and partnerships available to Australian schools is being achieved. The project aims to find ways to improve the quality of grant seeking and grant making in Australia, with a focus on identifying better ways for the philanthropy and education sectors to connect and collaborate.

The LLEAP project is an initiative of the Tender Bridge in partnership with The Ian Potter Foundation. The Tender Bridge seeks to direct funds into schools to support educational projects and is a service of ACER.
LLEAP

In its first year, the LLEAP project will collect information through interviews with leaders in both education and philanthropic sectors, followed by an online survey and focus groups. This will help form a clearer picture of the impact of philanthropy on education projects.

LLEAP is a three-year research project that seeks to build knowledge about the impact of philanthropy in education. The first national study of its kind, it will evaluate the relationship from both philanthropic and education perspectives. The project will also build pathways for sharing this information.

Over the next three years, the LLEAP project will document and share best practice approaches to improving educational outcomes. Each year as the project continues, a practical, progressive guide will be published about how to grow great educational projects for maximum impact.

LLEAP will:
• identify perceptions and current practices within grant making and grant seeking
• build understanding of effective engagement
• inform decision-making and share successes, and
• explore opportunities for greater collaboration to build capacity in the education and philanthropic sectors.

Throughout the project, LLEAP will be underpinned by three key questions:
• What are the current perceptions and practices of philanthropic engagement in education?
• How is successful philanthropic engagement in school education defined and configured in practice?
• Who benefits from philanthropic engagement, in what conditions and to what effect?

Context

Improving educational outcomes for students involves a raft of relationships and resources. Philanthropic organisations can play a key role.

There are nearly 9500 schools in Australia. Great educational projects could be coming from any one of them – but we know, from the research and from experience, that that’s not the case.

Schools have very different starting points in terms of their capacity to secure philanthropic grants and to use these for maximum impact in their schools and communities.

What happens to schools that don’t have good networks or the skills and experience in grant writing, and not to mention the time and resources to devote to grant applications?

We need to know more about how schools enrolling disadvantaged students are gaining access to and using grants, to ensure these schools are able to make the most of the resources available to them.

We also need to understand the impact of philanthropy. What happens once schools have secured grants?

How can schools plan, implement, monitor, improve and maintain effective programs? What expectations do philanthropics have of grant seekers and are these being met? How do these expectations align with the values and priorities of schools?

In her address at the LLEAP launch, The Ian Potter Foundation Chief Executive Officer Janet Hirst noted the need to use funds strategically.

‘When supporting education programs, the Governors of The Ian Potter Foundation have often questioned, and rightly so, whether the programs we are being asked to support are actually meeting a need for the schools,’ she explained.

‘We should be concerned as a community and as funders if schools are simply (and quite understandably) attempting to access whatever funding is available in order to bring investment into their communities – especially if those communities are disadvantaged.

‘There is a power dynamic that we in philanthropy do not often speak about, but that as funders we should be aware of. Philanthropy works at its best when it seeks out and provides support to those who are best placed to innovate within their communities. Philanthropy is less effective as a vehicle for change when it is attempting to set the agenda. The relationship between philanthropy and education is often complex,’ she said.

Making informed decisions

Ultimately, what schools, systems and philanthropic organisations need is good data to make informed decisions about the impact of philanthropy in education. They need assistance to create networks in a systematic way, so that like-minded schools and organisations can connect and collaborate. The Tender Bridge service is working towards achieving this.

They also need to know what projects have succeeded in the past, and why and how. LLEAP is working towards improving our understanding in this area.

If we believe that filling a knowledge gap about the impact of philanthropy in education is important – and the long
history of philanthropy in education and the significant dollars it provides suggests that it is – then we need to grab with both hands this project and shake it for all it’s worth. The LLEAP project will provide us with reliable, independent, national data, which in turn will enable us to collectively improve the quality of grant seeking and grant making in Australia; identify better ways of connecting and collaborating to maximise positive outcomes for students; and understand what the impact of philanthropy in a great educational project looks like in practice.

On the road to filling this knowledge gap, the project in its benchmark year will seek to answer such questions as:

- How many schools are accessing philanthropic grants, either directly or in partnership with other organisations?
- What projects are schools seeking philanthropic grants for? Who do these projects aim to benefit?
- Is this similar or different to what those in the philanthropic sector state are their areas of focus?
- What helps and hinders those in education and philanthropy to maximise the impact of a grant?

These are fundamental questions to be answered collectively. This is because at the end of the day, there is a need to provide a space for great educational projects to be examined, not just great grant writers to be funded.

Schools and philanthropic organisations are invited to express their interest in the project by contacting the LLEAP team via email to tenderbridge@acer.edu.au

For further information see <www.acer.edu.au/lleap> ■

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**Powerful Learning: A strategy for systemic educational improvement**

A case study of the reform program carried out in 195 schools located in areas of high socioeconomic disadvantage in Victoria’s Northern Metropolitan Region between 2008 and 2010. The region’s School Improvement Strategy supports all teachers to improve their practice, in order to create the conditions for powerful learning which allow all students to achieve at high levels. The book outlines how teachers from the region were selected for training focusing on literacy, numeracy, assessment and student management, which they could then use to coach their colleagues.

The reform strategy is an inside-out approach to school improvement based on the commitment to every student reaching their potential, and is not just about improving literacy or numeracy but also the desire to learn. It is seen as an ideal model for educational system reform due to the innovative approach and successful results. There has been strong government support and wide interest across all states about the program and its success.

This book helps identify and, importantly, adapt appropriate teaching strategies, organisational structures and policy options to support improvement plans in any given school. Ultimately, school principals, administrators, policymakers and the teachers themselves will see a discernible reduction in the variance of student performance, an overall rise in school standards, and a narrowing of the educational divide.

**Powerful Learning** is co-written by Emeritus Professor David Hopkins of the University of London’s Institute of Education, Victorian education department regional director Wayne Craig and Dr John Munro, Head of Studies in Exceptional Learning and Gifted Education in the Graduate School of Education at The University of Melbourne.

The book is available to purchase from <www.acerpress.com.au> ■
Examining the use of ICT in mathematics and science teaching

Australian science and mathematics teachers are leaders in the use of ICT in school education according to an international comparative study, and ACER is set to lead further research in this area. John Ainley explains.

Information and communication technologies have changed the environment in which students develop and impacted on the way they learn in schools. The importance of information and communication technology (ICT) in education is acknowledged in the policy documents of many countries. Here in Australia the Commonwealth Government’s Digital Education Revolution is providing significant support for improving ICT provision in schools through the delivery of computer equipment, enhanced internet connectivity, digital curriculum resources and teacher development in ICT.

We have known for some time that Australian students are among the world’s leading users of ICT both at school and at home. Several international studies including the Organisation for Economic Cooperation and Development (OECD) Programme for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS) show us that Australian students are already among the most computer savvy in the world. For example, an analysis of 2003 PISA data found that access to computers in Australia was among the highest in the OECD with 94 per cent of Australian students reporting that they have access to a computer at home for school work compared to the OECD average of 79 per cent. All (100 per cent) reported having access to a computer at school. Australian students were the highest users of computers for word processing and among the most frequent users of the internet.

While these studies have told us a lot about how students around the world gain access to and use ICT, less has been known about the international...
differences in the outcomes of students’ computer use or the extent to which ICT is used in teaching. ACER is leading research in both of these areas.

ACER is the international study centre for an international comparison study of the outcomes of students’ computer use. The International Computer and Information Literacy Study (ICILS), conducted by the International Association for the Evaluation of Educational Achievement (IEA), will use computer-based assessment instruments and include surveys of students, teachers and schools as well as an online national contexts survey. About 20 countries plan to take part in the study, and work is underway to prepare for a field trial in 2012.

Meanwhile, ACER has released a report on the extent to which ICT is used in teaching. The recently released study has revealed that Australian teachers are leaders in the use of ICT in the teaching of science and mathematics at Year 8.

The IEA Second International Technology in Education Studies (SITES) is an international comparative research program studying the use of ICT in education. Its central focus is on understanding how ICT affects the way teaching and learning takes place in schools. The SITES project was conducted internationally in 22 countries during 2006 and then implemented in Australia as a comparison study in 2007. The resulting Australian report, prepared by ACER, was released in December 2010.

In Australia an online survey was administered to a nationally representative sample of Year 8 mathematics and science teachers. Information was also provided by school principals and ICT coordinators.

Overall, SITES showed that Australia is well placed to take advantage of the benefits of using ICT in education. Among OECD countries Australia recorded the second highest level of computer use at school, after the United Kingdom.

Teachers’ use of ICT

SITES also showed Australian science teachers to be leaders in the use of ICT. A significantly greater percentage of Australian Year 8 science teachers used ICT in teaching than in all other participating countries. Australian mathematics teachers were also among the leading users of ICT. Australia was also a moderately high user of other ICT resources such as smart boards but is relatively low in
terms of providing email facilities for students and data logging technologies for use in science classes.

Information from SITES suggests that while Australia is already a leader in the use of ICT in teaching, there is more to be done in extending professional development for teachers. Given Australian teachers’ relatively high ICT competence, this should not be at the level of introductory courses.

SITES tells us that Australian teachers of science and mathematics have relatively high levels of confidence in their capacity to use ICT. Where ICT is not used in teaching it is not generally due to a lack of confidence or knowledge on the part of teachers. In all SITES participating countries the most common obstacle cited to using ICT in teaching was ‘the time necessary to develop and implement the activities’. Within Australia, more than 60 per cent of mathematics and science teachers saw lack of time as an obstacle to using ICT in teaching. In contrast, less than 40 per cent of teachers saw a lack of digital learning resources in their school as an obstacle to using ICT in their teaching.

Despite their confidence in being able to use ICT competently, fewer Australian science and mathematics teachers than their peers in other countries had participated in ICT-related professional development (over introductory, technical, applications, internet, pedagogical use of ICT and multimedia). According to ICT coordinators in schools, science and mathematics teachers most frequently acquired knowledge about ICT and teaching through observation of and discussion with colleagues, informal contacts and communication with other teachers, the ICT coordinator or technical assistants, in-school courses and training from a teacher who had attended a course.

The use of ICT is greater when teachers have a higher level of or confidence in ICT and when teachers have participated in ICT-related professional development. This suggests that the implementation of ICT in teaching would be enhanced by building the capacities of teachers through an expansion of professional development as well as removing remaining obstacles by improving the resources available to students and teachers.

Principals’ priorities for the future were focused on developing teachers’ and students’ skills rather than on resources. Three of the four top priorities nominated by school principals for enhancing the use of ICT in their schools involved improving the ability of teachers to make good pedagogical use of ICT, improving the technical skills of teachers and increasing the number of teachers using ICT for teaching and learning purposes.

Digital revolution

Comparative international studies such as SITES can provide a context for national perspectives on educational issues such as the use of ICT in teaching. When data from SITES in Australia are compared with data from other countries they suggest that ICT has been relatively widely adopted (at least in science and mathematics in secondary schools), that there is a relatively strong provision of computers in schools and that teachers are more confident in their ICT capability than their peers in other countries. This suggests that the digital revolution will be building on underlying strengths in Australian schools.

ACER is also leading large-scale research into Australian students’ ICT skills. ACER will conduct testing for the Australian Government’s National Assessment Program – ICT Literacy in October 2011. This study involves a nationally representative sample of around 12,000 students at Year 6 and Year 10 in 660 schools.

The report, *ICT in the teaching of Science and Mathematics in Year 8 in Australia: A report from the SITES survey*, by John Ainley, Frances Eveleigh, Chris Freeman and Kate O’Malley, is available from <research.acer.edu.au/acer_monographs/6/>.
ACER Award for Student Journalism 2011

ACER is offering an award for excellence in an article relating to education for the second time in 2011. Currently enrolled journalism and professional writing students across Australia are invited to enter.

Applications are now open and close on October 28. In 2011 small cash prizes totalling $600 are on offer. In addition the winning and short-listed entries will be considered for publication in one of the magazines published by ACER Press – Teacher or Inside Teaching. Further information and last year’s winning entries are available from <www.acer.edu.au/journalismaward>.

New Director, Assessment and Psychometric Research appointed

Dr Michael J Timms has been appointed to the role of Director, Assessment and Psychometric Research at ACER. This position was created as part of a divisional restructure following the retirement of Dr John Ainley as Deputy CEO (Research) in 2010. Dr Timms is currently Associate Director of the Science, Technology, Engineering and Mathematics Program at the non-profit research and development agency WestEd in San Francisco. He also serves as Managing Director of the Center for Assessment and Evaluation of Student Learning funded by the US National Science Foundation. Dr Timms will take up his position at ACER on 1 August 2011.

New Director, Assessment Services appointed

Mr Ralph Saubern has been appointed to the role of Director, Assessment Services at ACER. This position was previously held by Ms Deirdre Jackson from 1998 until her retirement in late 2010.

Ralph has previously held a number of positions at ACER, including Electronic Publisher, Test Publisher and Agencies Manager (2000-2005); Publishing Manager (2005-2006); General Manager, ACER Press (2007-2009); and General Manager, Schools Program in Assessment Services (2010).

During his time working in ACER Press Ralph was involved in the development and publication of a range of ACER school education and psychology assessments, including PAT Maths, PAT Reading, TORCH and ACER Select, and commissioned and published works for the ACER Press book publishing program, particularly in the areas of educational leadership, pedagogy and special needs.

US expert endorses teacher observation

Prominent US education consultant Charlotte Danielson visited ACER in March to present a workshop on classroom observation and the evaluation of teacher performance.

Charlotte Danielson is an internationally-recognised expert in the area of teacher effectiveness, specialising in the design of teacher evaluation systems that, while ensuring teacher quality, also promote professional learning. Her Framework of Teaching is one of the most widely used systems for classroom observation, professional learning and teacher evaluation in the USA.

According to Danielson, classroom observation will almost certainly be a part of any set of teacher assessment and certification methods developed in response to Australia’s National Professional Standards Framework for Teachers. Danielson said teacher observation is a means of promoting teachers’ own learning and encouraging teachers to be more reflective about their practice.

The workshop was part of the ACER Institute Leading Thinkers seminar series. Among those in attendance were the heads of teacher registration bodies, union representatives and leaders of teachers from within schools. Further information about ACER Institute’s Leading Thinkers series is available from <www.acerinstitute.edu.au>.

ACER Institute launches graduate programs

In 2011 ACER Institute launched two research-based and practice-focused graduate programs for teachers. The Graduate Program in the Teaching of Reading and the Graduate Program in the Assessment of Student Learning are university recognised programs that contribute towards a Masters degree. These two programs were delivered to a group of students from the Queensland Department of Education and Training in March.

The Graduate Programs are delivered to experienced and practicing educational professionals via off-campus study methods incorporating both face-to-face and online components, while the participants’ practice provides the environment for the integral action research component of the program.

The goals of the Graduate Programs are to provide education professionals with relevant, evidence-based information to immediately enhance their skills, knowledge and effectiveness in their role as teachers and school leaders. Further information is available from <www.acerinstitute.edu.au>.

ACER and CBSE conduct international assessment conference

ACER collaborated with the Indian Central Board of Secondary Education (CBSE) to conduct an international conference on ‘Development in Assessment: Scope of Assessment in Teaching and Learning’ in Delhi in January.

On 24 and 25 January, around 1000 delegates from India, UAE and neighbouring countries came together to hear from a range of speakers who are internationally renowned in the field of educational assessment. ACER chief executive Professor Geoff Masters and Principal Research Fellow Professor Gabrielle Matters were among the keynote speakers.

The conference addressed issues related to student assessment and student learning including developmental assessments and what can be learned from research; understanding best practice in assessment; using assessment to monitor teacher effectiveness and encourage school improvement; developing support systems for using assessments in the classroom; and policy changes in the new educational framework for improved assessments.

The conference follows the signing of a memorandum of understanding between CBSE and ACER in Melbourne in April 2010 to collaborate on programs and initiatives that apply international best practices in educational research and assessment to support educational development. Further information about the conference is available from <www.acer.edu.au/international/news/international-educational-conference-2011>.

Australasian Education Directory now online

The Australasian Education Directory (AED) has been redeveloped and is now a free, publicly available online database.
It has been developed by staff at ACER’s Cunningham Library in cooperation with library staff at the New Zealand Council for Educational Research (NZCER). This free directory identifies and groups by category, educational organisations throughout Australia and New Zealand. It contains links to the websites of educational organisations in the following categories:

- Ministries, education departments and government education authorities
- Non-government authorities
- Universities/higher education institutions
- TAFEs, polytechnics and training institutes
- Aboriginal and Torres Strait Islander education
- Maori education
- Religious education authorities
- Adult, community and migrant education
- Associations in education

AED was previously published by ACER as a book and as an online database and only updated annually. This new free online version will be regularly updated. To browse the AED please visit <http://opac.acer.edu.au:8080/aed/index.html>

**ACER and UNESCO collaborate in Arab States**

ACER and UNESCO Beirut office have signed a memorandum of understanding that creates opportunities for joint research and the development of a learning assessment to monitor educational quality in the Arab States.

The memorandum was signed by Peter McGuckian, ACER Director of International Development, and Abdel Monem Osman, Director UNESCO Beirut, at UNESCO’s Beirut office in Lebanon in November 2010. The signing heralds joint endeavours to perform educational research in the Arab States, particularly related to UNESCO’s Education for All program, to support educational policy development in the region and to organise and participate in jointly sponsored conferences, seminars and workshops.

Under the initiative, ACER and UNESCO Beirut will collaborate to develop a common regional learning assessment framework to be used as a benchmark for measuring educational quality in the Arab States. The completed framework will be presented to the meeting of the Ministers of Education of the Arab States at the UNESCO General Conference side meetings in October 2011.

**Early childhood expert joins ACER**

In October 2010 Professor Bridie Raban joined ACER as a Senior Research Fellow specialising in early childhood education research, with a focus on language and literacy development, and on curriculum and assessment in the early years of childhood.

Professor Raban is currently involved in a number of ACER research projects on behalf of the Victorian and Commonwealth departments of education and is currently introducing the ACER Longitudinal Literacy and Numeracy Study in preschools.

In addition to her role at ACER, Professor Raban is a Professorial Research Fellow (Early Childhood) at the Melbourne Graduate School of Education at the University of Melbourne and is a Fellow of the Royal Society for the Arts. She has published in excess of 150 publications including books and monographs, journal articles, research reports, chapters in books and international encyclopaedias.

**Using TV to improve Indigenous learning**

An ACER report released in 2010 provides an evidence base for the development of a high-quality educational television program aimed primarily at Indigenous children aged from three to six years.

The report, by ACER Principal Research Fellow Michele Lonsdale, is based on a review of the literature on the importance of early childhood learning, the nature of Indigenous learning needs, and the role of educational television programs in improving outcomes for children.

Studies show that television is playing a critical role in reviving Indigenous languages and encouraging a sense of pride among Indigenous viewers in other countries. The report discusses the benefits of educational television programs and includes research relating to popular programs such as Sesame Street, Dora the Explorer, Playschool and Pinky Dinky Do.

The report, Using television to improve learning opportunities for Indigenous children, is available from <research.acer.edu.au/indigenous_education/20/>

**Principal for a Day gears up for 11th year**

2010 marked the 10th anniversary of the Principal for a Day (PFAD) program, a joint partnership between ACER and the Victorian Department of Education and Early Childhood Development (DEECD) that sees business and community leaders take the reins of schools across the state.

PFAD provides a unique opportunity for business and community leaders to gain a first-hand, behind-the-scenes experience of the strengths and challenges facing schools every day. Research shows that there are benefits in forming partnerships between schools, business and the wider community. The Principal for a Day program can help forge these partnerships.

More than 100 schools participated in last year’s program. This year PFAD takes place on 23 August. Further information is available from <www.acer.edu.au/leadership/principal-for-a-day>

**Setting primary course for university study**

Findings from the largest survey of current Australian university students ever undertaken suggest that most students set a course for university much earlier than usually expected.

Results reveal that 40 per cent of first year students first considered university study while in primary school. Females (43 per cent) were more likely to set this early course than males (36 per cent), as were international students (48 per cent) compared with domestic students (39 per cent). A further 23 per cent first considered university study when in lower secondary school, 22 per cent during senior secondary schooling, 13 per cent while working and 3 per cent during prior post-school study such as at TAFE or another course.

ACER’s Director of Higher Education Research, Associate Professor Hamish Coates, said the results indicate that measures to encourage university study aimed at senior high school students may be misdirected. He suggested engaging students with the idea of university study at a young age.

The Australasian Survey of Student Engagement was conducted by ACER in August 2010 and involved around 55 000 students at 55 tertiary institutions. Further information is available from <aussie.acer.edu.au>

**Research Conference**

The ACER Research Conference 2011 Indigenous Education: Pathways to success will be held in Darwin on 7-9 August. It will be relevant to those directly involved in Indigenous education as well as those concerned more broadly with what we can learn from research about creating and sustaining positive educational outcomes for Indigenous students. Early bird registrations close 1 July. For more information visit <www.acer.edu.au/conference>
Research Conference 2011

7-9 August 2011
Darwin Convention Centre
Darwin, Northern Territory

Indigenous Education: Pathways to success

Research Conference 2011 will focus on what we can learn from research about creating and sustaining positive educational outcomes for Indigenous students. Presenters will highlight the conditions, contexts, curriculum, pedagogy and practices that establish pathways to success for Indigenous students.

Enquiries and registrations:
Margaret Taylor T: 03 9277 5403 F: 03 9277 5544 E: taylor@acer.edu.au

www.acer.edu.au/conference

Speakers include:
Professor Geoff Masters
ACER

Professor Jeanie Herbert
Charles Sturt University, NSW

Professor Lorna Williams
University of Victoria BC, Canada

Professor Lesley Irwinm Rigney
Flinders University, SA

Professor Jonathan Carapetis
Menzies School of Health Research: NT

Professor Sven Silburn
Menzies School of Health Research: NT

Professor Jill Milroy
University of Western Australia, WA

Professor John Lester
University of Newcastle, NSW

Assoc. Professor John Bradley
Monash University VIC

Mr Noel Pearson & Ms Danielle Toon
Cape York Partnership, QLD

Ms Catr Morris
Australian Association of Mathematics Teachers

Dr Chris Matthews
Griffith University, QLD

Mr Justin Brown & Ms Gena Milgate
ACER

Mr Kevin Lowe
NSW Board of Studies, NSW

Ms George Nutton
Menzies School of Health Research: NT

Dr Kate Reid
ACER

Dr Grace Sarra
Queensland University of Technology, QLD

Ms Kate Conners
COAG Reform Council

Dr Sarah Buckley & Ms Stephanie Armstrong
ACER

Mr Chris Freeman & Ms Frances Eyveleigh
ACER
 Powerful Learning: A strategy for systemic educational improvement is a case study of the successful reform in the Northern Metro Region of Melbourne. The reform strategy is an inside-out approach to school improvement based on the commitment to every student reaching their potential, and is not just about improving literacy or numeracy but also the desire to learn.

David Hopkins, John Munro and Wayne Craig | $29.95

Why not the Best Schools What we have learned from outstanding schools around the world draws on a five-year study culminating in the International Project to Frame the Transformation of Schools conducted in Australia, China, England, Finland, the United States and Wales. It goes beyond system characteristics to provide an in-depth account of how transformation occurs in schools.

Brian Caldwell and Jessica Harris | $39.95

The Business of School Leadership: A practical guide for managing the business dimension of schools provides the key principles and tactics of business operation that school leaders need if they are to effectively manage both the educational and business imperatives of their schools. The book is a single, reliable resource school leaders can turn to, to assist them in addressing business issues.

Larry Smith and Dan Riley | $34.95

Developing a Networked School Community is the first major work which defines and explores the concept of the Networked School Community and details the challenges and opportunities of its implementation from the perspective of the system, the school, the teacher, the student, the home, and the parent. It argues that schools, educational leaders and bureaucrats need to overcome their fear of digital technologies and embrace the challenges and opportunities.

Chris Betcher & Mal Lee | $34.95

Dancing on a Shifting Carpet: Reinventing traditional schooling for the 21st century argues that an urgent paradigm change is needed to transform education systems to prepare young people to function in today’s world of rapid technological and social change. It offers practical advice on how to bring about such breakthrough change from within schools.

Lorri Degenhardt and Patrick Duignan | $39.95

Learning in a Changing World Series is a joint publication of ALIA, ASLA and ACER that addresses how the process of learning is evolving – including the array of resources available in the digital age, changing curriculum, and the different teaching strategies needed in order to use new media and technologies.

Various authors | $19.95 each

$69.95 set

For a catalogue or further information contact ACER Customer Service
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Visit an ACER Bookshop in the Melbourne, Brisbane or Perth offices

www.acer.edu.au

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