

## **Introduction**

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This is a book of signposts to an education revolution. The chapters have been prepared by a diverse group of leaders and scholars in government and education. They converge remarkably on the same group of messages. In clear-minded, evidence-based prose they catalogue the state of the nation in education, training and university research. They develop ideas for new policies and innovative federal programs that can address longstanding weaknesses in Australia's effort.

*Education, Science and Public Policy* is published at a key moment in Australia. The election of the Rudd Labor government generated a surge of expectations among the community that the long neglect of education, training and research issues was over. Kevin Rudd came to power committed to an 'education revolution', the main positive concept that was advanced during the election campaign. These chapters were prepared originally as speeches during the pre-election period. The chapters have since been slightly updated to take account of the change of government; but there was surprisingly little change in the substance of the papers because the Rudd government has yet to put the commitment to an 'education revolution' into practice. Little was done in the first Labor budget in May 2008, which confined itself to specific pre-election commitments at modest fiscal

cost rather than the larger scale renovation promised by the 'education revolution'. The issues are too large to be disposed of quickly, and policy, and policy priorities and strategies, are still evolving. In a modest way the book is designed to assist this process.

### **The Rudd government's position**

During the 2007 election campaign Labor issued a short list of immediate risk-free funding commitments, avoiding the kind of 'revolutionary' investments that would have exposed it as a target for big spending jibes, but it nevertheless focused pointedly on the decline in the public funding of education under the Howard government, as evidenced in the comparative international data. The implication was that Labor would engineer a significant long-term growth in national outlays on education and innovation so as to restore comparability with other countries. The incoming Prime Minister said as much. After the election the education portfolio was taken by the Deputy Prime Minister, Julia Gillard, signifying its place at the top of the government's priorities.

Labor's in-principle commitment to education, training and research is grounded in its overall economic and social policy. The Australian Government sees workforce skills as the key to productivity advance, meaning that it is essential to push year 12 retention at school towards universal levels, raise participation in tertiary education, improve quality at all levels, and enhance skills in information and communications technologies. Likewise the government sees innovation as the key to global competitiveness in industry and to the capacity of the nation to meet mega-challenges such as climate change, water, energy, the contraction of agriculture, the growth of cities, security, and intercultural relations in a globalised world. This century is likely to see the end of the Holocene and the transition to a hotter world and a drier Australia, in which food, population and infrastructure issues will press closely. All of this puts basic university research at the centre of policy, along with links between research and industry and the facilitation of the broad social dissemination of knowledge that is crucial to the shaping of new behaviour.

By adopting this position the government has set a benchmark for itself. But in any case it is certain that national governments in this period will be judged by the extent to which they build a wide and

deep capacity in education and research. This is also the century of the knowledge economy. On the world scale, the 'education revolution' is already more than an election slogan. Here the Howard government, which placed education on the back burner except where votes were directly at stake, was out of step with global trends. The Rudd government's position is broadly similar to that of the stronger nations in Europe, especially in Scandinavia, the Low Countries and the Germanic world, Canada, and the rising Asian knowledge economies in China, Singapore and Korea. It is also the policy position advocated by the global policy organisations, the Organization for Economic Cooperation and Development (OECD), UNESCO and the World Bank. Already many nations have sharply increased their investments.

Above all, China has upped the ante on the education revolution. Between 1998 and 2005 the number of students enrolled in tertiary education in China rose by an extraordinary 4.4 times to 15.6 million, not far short of the total tertiary enrolment in each of the USA and the European Union. The rate of school leaver participation in China has risen from 3 to 20 per cent since 1990. China will soon have the largest annual output of tertiary graduates in the world and the majority of PhDs in science and technology. At the same time China has lifted the quality of its institutions and created a layer of top research universities. The annual number of research papers published in international journals rose by 4.5 times between 1995 and 2005, and the level of investment in basic research in its universities is already third largest in the world after the USA and Japan and rising.

In a paper for the National Bureau of Economic Research in the United States, 'The higher educational transformation of China and its global implications' (2008), Yao Li and colleagues suggest that China's accelerated investment might generate a global 'arms race' in investment in innovation:

Previous efforts in other countries to use educational transformation as a mechanism either to maintain high growth or to initiate episodes of high growth have generally been regarded as unsuccessful, but the focus has been primary and secondary education, not tertiary. In China's case, these latest efforts seem to be motivated by a desire to maintain

high growth by using educational transformation as the primary mechanism for skill upgrading and raising total factor productivity. If China succeeds, other countries may follow with higher educational competition between countries as a possible outcome.<sup>1</sup>

In other words, if China maintains a rate of economic growth that remains considerably above the world average while making the transition to a tertiary-educated society, then the high investment model will become globally hegemonic, whether or not the growth is primarily due to education and research. The USA is almost certain to respond in competitive terms, by upping its own investment in education and research, even though it is already the world leader. In the wake of this, no government will resist the 'education revolution'. At the same time, economic and cultural trends will also drive it, inside and outside the policy sphere. It is becoming apparent that a nation left outside the dynamic of continuous improvement in education and knowledge will face difficulties. Not only does it become increasingly dependent on knowledge sourced from elsewhere but also it is unable to solve its own problems. At the same time the serious work of government, in the face of intractable global and local problems, becomes much more difficult in a society in which advanced education remains the preserve of a minority, evidence-based policy has little standing with the media and the bulk of the people, and politics is confined to an electoral auction over tax cuts and special payments to targeted groups of voters, with little policy discussion.

In this context there is nothing remarkable about the Rudd commitment to an enhanced national effort in education, training and research. The government's position is nothing more or less than mainstream international practice. The question is whether this commitment will be followed up with an investment that can really transform education and innovation.

It is already apparent that translating that commitment into actual policies and programs, in the political context of a tight fiscal regime, three years of tax cuts, rising fuel prices and an economic downturn, is not easy to achieve. The first Labor budget provided for the pre-election promises of computers in government schools, vocational training units in schools (the largest single education promise

in dollar terms), the abolition of full-fee programs for local undergraduate students, an increase in scholarships for needy students, and medium-scale increases in research scholarships and fellowships. There was a half billion dollar allocation to infrastructure in higher education, additional to the election commitments. Most of the larger policy areas were left untouched, including federal support for vocational education and training (VET), the Higher Education Contribution Scheme (HECS) funding rates, tertiary student assistance, and basic research grants.

Some of these matters awaited the outcome of two federal government reviews in train when the 2008 budget was brought down. The first of these reviews, that of the innovation system, reported in September 2008, and at the time of writing the government's response to that review was awaited. The second review, that of the higher education system, was due to complete its work by the end of 2008. In tertiary education and university research—policy areas where the federal government is the primary government—the first opportunity to implement a new regime is the May 2009 budget.

### **Scale of the problem**

Given that education, training and university research are still in much the same condition as at the end of the Howard years, it is useful to review what this means.

In 2004 Australia spent 5.9 per cent of its gross domestic product (GDP) on education. This was still a little above the OECD average of 5.7 per cent but, as Barry McGaw notes in chapter 4, international averages hardly constitute the gold medal standard. The USA, the world's leading knowledge economy, invested 7.4 per cent of GDP in 2004. The international data also suggest that Australia is overly dependent on private investment in education, where the benefits are captured on an individual basis by a small part of the population. Australia was the third largest private spender on education in 2005. It is also a relatively low public spender on education at 4.3 per cent of GDP, compared to the OECD average of 5.0 per cent, the level that applies also in the USA and UK.<sup>2</sup>

Australia's public spending on education as a proportion of GDP is at 22nd place of the 29 OECD countries that provide data. It is public investment, rather than private investment, that underpins

common school and tertiary education systems of good quality, and supports basic research, which is the foundation of national innovative capacity.

In early childhood education, Australia is at the bottom of the OECD table. As Collette Tayler notes in chapter 3, in 2004 Australia spent 0.1 per cent of GDP on the early learning of 3–4 year olds compared to an OECD average of 0.5 per cent, and 0.9 per cent in Denmark. We staff our preschools with the worst-paid teachers when they ought to be among the best. A strong foundation before age five is crucial to everything that follows.

The families with the best access to early learning are those that can afford to pay for it privately. The legacy of this fragmented educational preparation of preschoolers, compounded by a divided school system of uneven quality, is the long tail of under-achievers who are carried all the way through the educational system. This translates into poor basic literacy, a high drop-out rate in the upper secondary years and lower productivity at work. Comparative testing shows that average student achievement in Australia is good by international standards, but the bottom cohort is significantly weaker than that in Canada, Korea, Finland and some other European nations (see chapter 4).

Looking at the public funding of tertiary education, in 2004 Australia was a relatively low public investor at 0.8 per cent of GDP compared to the OECD average of 1.0 per cent. Australia was 25th of the 29 OECD countries for which data are available. Between 1995 and 2004, in the average OECD country public funding of tertiary education rose by 49 per cent. Increases of more than 60 per cent occurred in several nations pursuing 'catch-up' policies of capacity-building in what have been relatively under-provided tertiary sectors. Ireland (108 per cent) and Switzerland (76 per cent) also benefited from substantial extra funding. In the USA public funding of tertiary education rose by 54 per cent, in the UK 6 per cent. In Australia it fell by 4 per cent, although student numbers rose by a third. This is an extraordinary outcome and a crucial problem for the nation.

Higher education is now just 41 per cent government funded, and fee-based courses have been pumped up to fill the gap. A quarter of students are fee-paying foreign students, which is distorting priorities. While the number of international students has risen to three times the level of the mid 1990s, the participation of domestic

students is flat, tuition charges are among the highest in the OECD, student assistance payments are at their lowest ebb for four decades, and almost three-quarters of full-time students have to work during semester, mostly in areas unrelated to their program of study. Many say that the hours they are working are negatively affecting their studies.

The low level of public funding of universities is also of particular concern in relation to basic research that depends heavily on this source. Research cannot be substantially funded from foreign student fees, which are mostly ploughed back into the business. Our investment in basic research appears less than fully competitive in world terms (see chapters 7–9). Australia has two research universities in the world's top hundred, the Australian National University and the University of Melbourne, but the UK has 11, Canada and Sweden each have four, and even tiny Switzerland has three (see chapter 6).

At the same time funding levels and learning conditions in VET are worse than in higher education. Australia was once a world leader in student participation in tertiary education, but we have fallen back to the OECD average. In Australia in 2005, 82.5 per cent of 15–19-year-olds were enrolled in education compared to an OECD average of 81.5 per cent. The Australian enrolment was above that of the UK but well below Korea and most countries in Western Europe. What is most interesting is the ten-year trend line in Australia compared to the rest of the OECD. In Australia there was little change between 1995 (81 per cent) and 2005 (83 per cent), yet the OECD average rose from 74 to 82 per cent. There were substantial rises in the enrolment levels of 15–19-year-olds in most other OECD countries.

In sum, there are at least seven areas of education, training and research where provision is so substantially deficient as to require a major investment of public funds. These are early learning, government schooling, vocational training, the rate of funding of university student places and the level of student charges, tertiary student living support, the infrastructure of institutions at all levels, and basic research capacity. Addressing these issues requires not just billions in national investment but also a more mature system of federal–state relations than we have seen, especially in schools and training.

A strategy for phased national investment over a period of time involves difficult decisions about priorities and mechanisms, and

invokes trade-offs. There is a danger that some sectors will be looked after and others neglected. There is also a danger that in an atmosphere of conservative fiscal politics the 'education revolution' will be consigned to the 'too hard', if not the 'too big', basket and Australia will slip further behind. Much depends on the quality of public policy-making and implementation, and of the agencies charged with that responsibility. Much will depend on whether public policy can take the long-term view, the comparative international view, the expert-driven view and the outcomes-driven view. And, one suspects, that in turn means that much will depend on whether an informed public can make itself heard in policy development. Governments do not operate in a political vacuum. In previous times, every major federal initiative in education in Australia has been underpinned by substantial and active public support.

### **The public policy seminars and the book**

The chapters in this book had their origins in a series of five pre-election public policy seminars mounted by the University of Melbourne between June and August 2007 through its Centre for the Study of Higher Education. This was a public discussion whose time had come. The papers were stimulating, the discussions were lively and there was never enough time for all to be said. Those who took part in the seminars left them with a greater understanding of the issues, and perhaps a greater hope for the future.

The book has been drawn from the seminar papers, updated and edited so as to turn pre-election speeches into post-election chapters. With one exception (not included in the book) the speakers at the seminars provided written papers for this publication. The chapters cover most issues in education, training and research, although the universities have received more attention than other areas. Our intention in publishing the papers is both to inform current public and policy discussions and to provide a resource of enduring value.

Some material critiquing the then Howard coalition government was removed from the speeches because that material had lost relevance in the post-election situation. Nevertheless, not much extra work was required to update what were Howard-era speeches for the Rudd era. As noted, a year after the election of the Labor government,

the issues and problems discussed in the papers largely remain to be acknowledged and addressed. These issues constitute a major and bi-partisan challenge for the nation and an ongoing test of its public policy culture, its mechanisms of government, and its capacity to concentrate political will on the identification of problems, targets and solutions.

In the first chapter Terry Moran, then Victoria's chief public servant and a principal leader in policy on education, training and innovation, and now head of the Prime Minister's department in Canberra, provides an overview of the challenges and issues. In an argument that systematically covers all of the sectors concerned, Terry provides a grounded rationale for investment in human capital and innovation in the global context, and identifies some of the key policy difficulties and capacity constraints, including the structural and political problems of shared federal–state responsibilities.

In the second chapter Maxine McKew provides a reasoned and passionate argument for renewed policy attention to education and training, focusing especially on schooling. Maxine was an incandescent presence at the seminar and during the election campaign in the federal Sydney seat of Bennelong, which was then taking place. On election day, 24 November, Maxine secured a 5.5 per cent swing against the incumbent Prime Minister, John Howard, winning by 2434 votes. It was only the second time in Australian history that a Prime Minister has been defeated at a general election. In the first Rudd ministry Maxine McKew was named as Parliamentary Secretary assisting the Prime Minister with a special responsibility for early childhood education, an area that she addresses at some length in her chapter.

In chapter 3 Collette Tayler provides a definitive treatment of the research and policy issues on this new and vital policy terrain. It is clear that given the influence of early learning on later capacity, and given the cost of early learning compared to the costs of remedial education (and the cost of failure to educate), an enhanced emphasis on early learning is cost effective. In chapter 4 Barry McGaw, former Director of Education at the OECD, addresses the crucial issue of the comparative performance of Australian schools and students. Using the OECD's Program for International Student Assessment (PISA) data he finds that, contrary to some public claims, our schools do

very well overall. Nevertheless, learning in Australia is more uneven across the socioeconomic groups than in some other countries; and in the most recent PISA data from 2006 there are disturbing signs that not only are we slipping relative to our comparators but also in some respects the performance of our better students has declined in absolute terms. Barry provides a matchless set of data to tell the story.

The focus then moves to higher education and research. Shih Choon Fong, as President of the National University of Singapore at the time of the seminar program, headed one of the world's most dynamic universities. In chapter 5 he provides an overview of the global university landscape and the strategic issues facing nations and individual institutions, including the rising importance of the Asia-Pacific region and the need to reconcile our awesome capacity in science and technology with the development of human ethics, and social and cross-border relations.

Simon Marginson (chapter 6) works through the problems generated by a decade of under-funding in higher education, coupled with frayed government–university relations and an over-dependence on the international student market. A key part of the solution is the creation of an Australian Tertiary Education Commission able to operate at arm's-length from day-to-day politics. Michael Gallagher (chapter 7) explores the potential for new policies and policy mechanisms that are able to transcend past neglect, forge a new political goodwill, and meet the need for long-term thinking and global effectiveness.

Finally, two of Australia's vice-chancellors address issues and problems in innovation and research. Margaret Gardner from RMIT University (chapter 8) works through the policy issues. Margaret argues that Australian research policy has been unduly focused on allocation mechanisms for a constant cake and that we need a greater emphasis on capacity-building if we are to keep pace with other nations. Ian Chubb from the Australian National University (chapter 9) calls for a renewed emphasis on long-term policy planning (a recurring theme through all the chapters), draws out the crucial importance of building capacity in our strong research universities on the global stage, and uncovers gaps, distributional anomalies and perverse incentives in current policy.

## Notes

- 1 Li, Y., Whalley, J., Zhang, S., and Zhao, X., *The Higher Educational Transformation of China and Its Global Implications*, NBER Working Paper No. 13849, National Bureau of Economic Research, Cambridge, MA, 2008, p. 4.
- 2 All data in the Preface are from Organisation for Economic Cooperation and Development (OECD), *Education at a Glance 2007*, OECD, Paris. For further analysis of Australia's comparative position see Simon Marginson, *Education: Australia and the OECD*, Background Paper prepared for Australian Policy Online, at [http://www.sisr.net/apo/election\\_education.pdf](http://www.sisr.net/apo/election_education.pdf) (accessed 21 October 2008).