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School system designed for the past won't prepare young Australians for the future

To prepare for the future young Australians need an education that is holistic, flexible and encompasses a commitment to both work and life a new review of research concludes.

But, according to Australian Education Review 55, released by ACER in early December, there is emerging consensus that a school system designed to meet the needs of Australia in the past cannot prepare today's youth adequately for future challenges.

The review by Johanna Wyn of the University of Melbourne was prompted by papers delivered at last year's ACER Research Conference held in Brisbane on the theme of Touching the Future: Building skills for life and work. The review draws on contemporary research to explore the goals of Australian education and how schools should prepare young people for work and life in the 21st century.

"Secondary schools that were built all over Australia in the 1950s still stand as a reminder of the thinking that informed educational design at that time," Wyn writes. "Although some have had a lick of paint, and others have had new wings and administrative blocks added, their basic design reflects the past."

Wyn argues 'Fordist' ideas about the relationship between education and society, where the main role of schools was to prepare young people for the workforce, are also outdated. Predictable pathways from school to work are increasingly non-existent and less relevant to many young people.

"We are in a new era in which social, economic and environmental change needs to be taken into account in determining what young people need to know. These changes have brought new challenges to individuals and to society that require new ways of thinking and working."

Wyn criticises current education systems for entrenching inequalities, writing "The focus on individual choice within educational and labour market places the onus on young people to draw on their own and their family's resources to reach their goals, further exacerbating already existing inequalities in communities."

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The review stresses the need for gaps in school performance and attendance by Australia's Indigenous students and those from low socioeconomic backgrounds and rural communities to be addressed as a matter of urgency.

ACER's chief executive Professor Geoff Masters said that to face the challenges of life beyond school young Australians need to develop proficiency in ICT literacy, civics and citizenship and a range of employability skills.

Johanna Wyn is Professor in Education in the Melbourne Graduate School of Education and Director of the University of Melbourne's Youth Research Centre.

Australian Education Review number 55, *Touching the Future: Building skills for life and work*, by Johanna Wyn, is available for download from the ACER website at www.acer.edu.au/aer. Print copies can be purchased online from [ACER Press](#). Alternatively, contact customer service on 1800 338 402 or via email on [. \(JavaScript must be enabled to view this email address\)](#)

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Young scientists disinterested in academia

Australia must foster a new generation of young science academics if it is to meet government targets for university participation, a paper in the peer-reviewed journal *Higher Education* argues.

The paper by Daniel Edwards of the Australian Council for Educational Research (ACER) and T. Fred Smith of Monash University's Centre for Population and Urban Research investigates demographic change and other factors impacting on the desirability of a science or mathematics academic career within Australian universities.

It draws on findings of a research project undertaken in 2008 for the Commonwealth Department of Education, Employment and Workplace Relations (DEEWR) with analysis of national data and feedback collected from interviews carried out with 120 individuals, representing academics, science employers, early career researchers and postgraduate students in Australia.

Academics employed in the natural and physical sciences (comprising mathematical sciences, physics and astronomy, chemical sciences, earth sciences, and biological sciences) make up approximately 20 per cent of Australia's total academic workforce.

In general the research shows that the age structure of the science academic workforce is in better shape than the academic workforce as a whole, helped in part by a recent influx of young women. But the authors warn this seemingly positive situation is no cause for complacency when considering the future sustainability of the workforce.

The paper's co-author Daniel Edwards said there are wider issues of sustainability in the science academic workforce beyond its demographics.

"The ageing workforce issue is not as bad in the sciences as it is for the academic sector as a whole and this is a good thing. The bad news is a lot of young scientists seem disinterested in pursuing an academic career and that is a problem."

Research into the career intentions of people with PhDs in science reveals that their interest in the academic profession is low. Disincentives to pursuing or remaining in an academic career in Australian universities include the lure of academic and private sector research jobs overseas, a declining number of tenured appointments in Australian universities and a phenomenon described as the 'post-doc treadmill.'

In the consultations and interviews carried out during this research, "academics of all levels of seniority expressed concern with the 'post-doc treadmill' issue," the authors write.

"Researchers in the sciences indicated that they found themselves stuck in post-doctoral contract after post-doctoral contract, always chasing new grants and never getting time to properly establish their research profile, nor having the opportunity to gain teaching experience."

Edwards said post-doctoral appointments provide a legitimate career path for some academics but it is a worry that for some scientists they are not leading to tenure or ways of expanding research and teaching: "Ultimately, if young and mid-career science academics cannot see long term career options available, we are likely to see them leaving the profession."

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The authors point to two major concerns relating to the future sustainability of the science academic workforce. Firstly if measures are not taken to make academic careers more desirable there is a risk that today's young academics will leave universities before they reach an age and level of experience suitable for replacing the retiring baby boomers in coming years.

Secondly the government target to have 40 per cent of people aged between 25 and 34 qualified with a bachelor degree or above by 2025 will require a new large group of academics to provide the training to more students.

Edwards said Australian universities need to go beyond sustaining the current number of science academics; they will need to find more.

"If we are going to get anywhere near the government targets we need to encourage young scientists to pursue academic careers. We need to find and develop a new generation of science academics," he said.

The paper concludes that there are key challenges to ensuring the sustainability of the science academic workforce in the future:

"While there is recent growth in the number of younger academics in these fields, retaining these academics in the middle and latter stages of their careers remains a big issue. Key challenges in this regard include providing security of tenure, realistic career pathways, and providing incentives for bright young scientists to remain in Australia or to be lured back from overseas positions."

Dr Daniel Edwards is a Senior Research Fellow with ACER's Transitions and Post-School Education and Training research program and an Adjunct Research Associate at the Centre for Population and Urban Research at Monash University.

Emeritus Professor T. Fred Smith is an Honorary Professorial Fellow in the Monash University Centre for Population Research.

The paper, Supply issues for science academics in Australia: now and in the future, was published online by Higher Education on 30 October 2009 and will be published in a forthcoming print edition. The online article is available from SpringerLink at <http://www.springerlink.com/content/I363081783601811/>

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AUSSE 2009 insights

The Australasian Survey of Student Engagement (AUSSE) has provided the most extensive insights yet into how Australasian students engage in university study. The 2009 collection, involving 35 universities and also including a parallel staff survey, has provided universities with data that they can use for quality improvement. Statistics from the 2009 AUSSE can be found at <http://www.acer.edu.au/ausse/australasia.html> This data profiles detailed results of around 100 facets of engagement for Australia and New Zealand. It also includes results for 'Australasia University', which represents the averages of all students surveyed for the AUSSE in 2009.

Reports on individual universities' performance in the 2009 AUSSE were released to institutions in early December, and analysis of results will be released in 2010.

It comes as no surprise, for instance, that one in five first-year Australian students drop out of university, says Principal Research Fellow Hamish Coates of the Australian Council for Educational Research (ACER).

The national university attrition rates released this month by the federal government only confirm AUSSE findings just released to universities that show as many as one in three students across the country seriously considers leaving university during their first year of study.

On average, 28 per cent of students surveyed in 2009 said they had considered leaving their institutions before graduation.

Dr Coates, who directs the AUSSE, said the student engagement survey had revealed startling statistics about students' study intentions but had also provided universities key information to help them better support, engage and retain students through to graduation.

"Collecting feedback from students themselves is beneficial in that it provides key insights into what university students are actually doing," Dr Coates says.

"AUSSE provides insights that can help universities better support student learning and development, monitor academic standards and outcomes and ensure students are getting the most out of their university experience," he said.

"This information is vital to improving student engagement and retention through to graduation," he says.

"AUSSE provides information that is imperative to ensuring the quality and productivity of the higher education system," Dr Coates says.

Latest figures released by the federal government show that almost one in five students drops out of Australian universities by the end of their first year.

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In the recent review of higher education, Professor Denise Bradley suggested that retention targets should be set for each university to reduce attrition. The Bradley review acknowledged that students' decisions to complete or leave courses were affected by students' satisfaction and engagement with courses, students' expectations and circumstances, the level of support from staff and institutions, and course content.

Reflecting this recommendation, the federal government has announced it will negotiate targets, including student completion rates, with universities in 2010. Universities that agree to targets will receive funding in 2011, with funding related directly to performance against those targets to start in 2012.

AUSSE is developed and managed by ACER and was designed to stimulate evidence-focused conversations about students' engagement in university study.

The 2009 administration of AUSSE, which took place earlier this year, surveyed more than 30,000 students from 35 Australian and New Zealand universities. Reports on individual universities' performance in the 2009 AUSSE were released to institutions in early December, and analysis of results will be released in 2010.

For more information about AUSSE, visit www.acer.edu.au/ausse

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ACER UPDATE

New ACER research program announced

ACER is establishing a new research program within its research division. The Psychometrics and Methodology Research Program will provide high quality psychometric and data analytic support to projects; manage externally commissioned data analysis/methodology projects (including the national analysis of NAPLAN); and undertake, publish and present research on psychometric and other quantitative research issues. The new program, headed by Dr Khoo Siek Toon, will commence operation in January.

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Australian Council for Educational Research
Private Bag 55, Camberwell, Victoria Australia 3124
Tel: + 61 3 9277 5555
Fax: + 61 3 9277 5500
Web: www.acer.edu.au

