Science teachers need support

Governments and the higher education sector must join forces to boost the qualifications of high school science teachers in South Australia, according to the authors of a Flinders University study that has revealed many teachers are not qualified to teach the subjects for which they are responsible.

The study, by the Flinders Centre for Science Education in the 21st Century (Science21), found that only 58 per cent of Year 11-12 physics teachers and 72 per cent of Year 11-12 chemistry teachers were qualified in those subjects. Science21’s state-wide survey also found only 75 per cent of Year 11-12 biology teachers were qualified while 84 per cent of science teachers of Years 8-10 were qualified.

The survey, which received more than 600 responses, regarded a person as formally qualified to teach at the senior secondary level if they have an appropriate teaching qualification and a ‘major’ in the subject they are teaching (or a very closely related science subject) in their university degree. For Years 8-10 teachers, in addition to the education degree, a major in any specialist science subject was required to be considered qualified.

Science21 Director, Professor Martin Westwell, said the results of the study, the first of its kind undertaken in South Australia, were likely to be replicated across Australia.

“The lack of qualifications and the age profile of teachers appear to align with...”

continued on page 2...
**Teaching**

New Flinders courses meet future skills demands

Flinders University has moved to meet two future skills demands by offering courses in maritime electronics and environmental systems engineering next year.

Maritime electronics is the application of electronics in all aspects of the maritime industry including naval, commercial or recreational vessels and on-land facilities.

The new four year Bachelor of Engineering (Maritime Electronics) is the result of a collaboration between Flinders University and the Australian Maritime College (part of the University of Tasmania) which is generally regarded as the premier institution in Australia in maritime engineering.

Flinders Head of School of Computer Science, Engineering and Mathematics, Professor John Roddick, said the existing shortage of electronics engineers in South Australia was set to increase following the publication of the Federal Government’s Defence White Paper outlining substantial increases to defence capabilities including significant naval capability.

With the development of the Navy’s new Air Warfare Destroyers as well as the Collins Class submarine re-fit and replacement, it is expected that not only will substantial jobs be created but that ancillary industries will also support long term jobs growth in the State,” Professor Roddick said.

“...continued from page 1

_The Navy’s plan will be a major design and construction program spanning three decades, and will be Australia’s largest ever single defence project._

Flinders is also offering, from 2010, a Bachelor of Engineering (Environmental Systems) to meet the growing need for highly skilled professionals in the environmental field.

“Environmental systems engineering involves using electronics, remote sensing and computer systems to improve our world. This course will allow students to develop skills to investigate, plan, design, manufacture and maintain systems and equipment used in various environmental solutions,” Professor Roddick said.

Peter Gill

**Research**

Poor mental health, price of volatile economy

They presented their findings at this month’s Australasian Housing Researchers Conference in Sydney.

“The evidence is compelling; the longer the time spent in housing stress, the greater the impact on mental health,” Dr Baker said.

“The economic volatility of the global financial crisis, this phenomenon is likely to increase over the next few years,”

Dr Baker said that while the effect is greater for women in the short term, the impact on men is more onerous in the long term.

“We found that women suffered initially but acclimatised more quickly to poor housing affordability, whereas men tended to shoulder the burden of providing for housing costs.”

The findings are based on the responses of 13,000 people – representing the lowest 40 per cent of income distribution who spend more than 30 per cent of their income on housing – who participated in the Household, Income and Labour Dynamics in Australia (HILDA) survey over the five year period between 1999/2000 and 2004/05.

The survey includes a self-reported measure of mental health and wellbeing based on responses to 36 questions.

“Our research confirms that housing policy and health policy aren’t separate things. Governments and policymakers really need to consider them together,” Dr Baker said.

The researchers are now undertaking a project funded by VicHealth to more closely examine the health outcomes of people in vulnerable housing situations through a series of qualitative interviews.

Vincent Ciccarelli

Flinders Centre for Science Education in South Australia? - is Science21’s report - Who’s teaching science in South Australia? - is available at www.flinders.edu.au/science21

Cover photo: Aliston Claxton, Jonathan Guppy

**Simpler funds prescribed for Indigenous health**

Researchers at Flinders University say that Indigenous community health services can be significantly improved by governments adopting a simpler model of funding.

The Ovemberburden report, launched in Canberra on August 17 argues that the ability of Australia’s 150 Aboriginal Community Controlled Health Services (ACCHSs) to provide primary health care is detrimentally affected by a fragmented and complex system of funding contracts.

Professor Judith Dwyer, Mx Kim O’Donnell and Dr Lining Maralina of the Department of Health Management are three of the report’s authors.

The project, funded by the Cooperative Research Centre for Aboriginal Health (CRCAH), found that multiple funding sources and complex contracts work against the delivery of an effective, integrated health service and also inflict a burden of reporting that is inconsistent and out of proportion to the funding.

Separate funding grants received by ACCHSs sampled in the research survey ranged from five up to 51, averaging 22 each: the result, according to Professor Dwyer, is "a bureaucratic mish-mash."

Professor Dwyer said the provision of funding in separate parcels for different aspects of primary health services, such as eye care, hearing or diabetes treatment, also risks compromising health care workers in providing a holistic service to individual patients or a needs basis.

Mx O’Donnell cited one remote Aboriginal health service that was funded from 42 different "buckets" of money, some of which totalled only $500.

The trouble with all these targeted government funding contracts is that they are for specific purposes, and it makes hard work for the agencies to pull them all together to provide comprehensive care. They also have to meet quarterly or six-monthly reporting for each of the contracts, "she said.

The report recommends the introduction of so-called relational or alliance contracting in place of the current system of "classical" contracts, in order to reduce red tape.

Professor Dwyer said that ACCHSs should also receive their core primary health care funding from single, long-term contracts that would also permit the flexibility needed.

"The true indicator of success of funding programs should be an improvement in health outcomes for Indigenous people," she said.

A full text of the report is available online at the Department of Health Care Management and CRCAH websites.

Charles Gent
Getting back into the swing after rehabilitation

Intensive rehabilitation is a vital step towards recovery for people with an acquired brain injury (ABI), but it also takes them out of circulation – their normal social routines and contacts tend to fall by the wayside.

For the past 15 years, the Disability and Inclusion Unit at Flinders University has run a Community Re-entry Program (CRP) that aims to reintegrate people with ABI back into their communities.

The program recently completed a Service Excellence Framework, renewing the CRP’s government accreditation and funding.

The program’s manager, Ms Jamie Gardner, said that people with ABI – whether they have had motor vehicle accidents, have been assualted or have had a stroke – often lose their social contacts and networks while they are in rehab.

“What we try to do is to help people build their skills, become part of a community here and then move back into the wider community, whether it’s through volunteering, recreation, employment or whatever interests them,” she said.

Development workshops that focus on physical skills and movement alternate with creative-based activities, such as writing, drama, painting and craft, and promote skill development in areas such as computing, sport and active recreations, healthy eating, employment and volunteering opportunities. A program of social activities is also included.

Students in placements from Flinders degree courses in Disability and Community Rehabilitation, Behavioural Science and Health Science and from Masters programs in related areas frequently assist in organising and running activities to gain experience, with other volunteers coming from TAFE certificate courses.

The program offers places for about 40 adults with brain injury at any one time, catering to people with moderate to severe brain injuries, and a range of disabilities from the primarily physical to memory loss and other intellectual deficits.

Acquiring useful skills – social, recreational or vocational – is at the heart of the program, Ms Gardner said.

“It’s about people having purposeful things to do with their day that they find rewarding, and that leads them into an involvement that reduces their risk of depression, anxiety and mental illness,” she said.

Charles Gent

Appointment of foundation Sidney Myer Chair

Dr John Halsey has been appointed the foundation Sidney Myer Chair for Rural Education and Communities from an international field of candidates.

A senior lecturer in educational leadership and management at Flinders University, and a consultant in rural education through the Center for Relational Learning, Santa Fe, New Mexico, Professor Halsey will lead a program of research and teaching aimed at improving access to high quality education and training for people living in rural and remote Australia.

The position has been established with a $1 million grant from the Sidney Myer Foundation as part of the Myer Family Philanthropy’s 2009 Commemorative Grants Program.

Professor Halsey said vibrant, productive rural communities are integral to the long-term sustainability of Australia.

“There’s a tendency to associate sustainability with the natural environment, but sustainability is dependent on other factors, too, such as measures of social capital and economic performance,” Professor Halsey said.

“Schools in rural communities are critical to these measures. Research and experience shows that when a school closes in a community, the likelihood of other human services and economic activities shutting down or moving, dramatically increases,” he said.

“And so access to high quality, relevant and affordable education, training and care at all ages and stages of life is vital to the sustainability of these communities.”

In addition to addressing the educational challenges of attracting and retaining staff including leaders to rural and remote areas, access to relevant curriculum and information and communication technologies will also be a priority for the role.

Professor Halsey said his new role will also encompass aspects of nation building through the promotion of rural and regional sustainability and the study of the impacts of drought and climate change on rural communities.

The Executive Dean of the Faculty, Humanities, Law and Theology, Professor Faith Trent said she was delighted at Professor Halsey’s appointment as it built on his long time commitment to rural and remote education and communities, demonstrated through his extensive experience as a former teacher, principal and senior curriculum and policy advisor, in both rural and metropolitan settings.

Vincent Ciccarello

Open Day attracts thousands of people to Flinders

Flinders Course and Careers Open Days held this month attracted more than 9,200 people to the University. Highlights from the event included interesting and engaging displays across all faculties, the graffiti wall, a paramedic car crash simulation, the computer gaming area and an outside broadcast by radio station Fresh 92.7.

Photos Rob Wild, Ashton Clarkidge and Paula Alexander
The researchers found jawbones of four *Zygomaturus gilli*, a species ancestral to the giant hippo-like animal that roamed Australia up to 45,000 years ago. Dr Gavin Prideaux from Flinders University said the discovery was very exciting. “One of the problems with Alcoota is that we’ve never been able to date it directly,” Dr Prideaux said. “These *Zygomaturus gilli* specimens give us a strong tie in with similar specimens found at a site to the south of Melbourne that have been dated at about 5 million years. It is going to help us lock Alcoota in to a tighter timeframe,” he said. The discovery gave an insight into “how much there is to learn just at the one site, let alone the whole of Australia”, Dr Prideaux said.

Dr Prideaux said special tribute to Dr Dirk Megran, the NT Museum’s Curator of Geology and Palaeontology in Alice Springs, who passed away after a long illness while at Alcoota in July.

Vincent Ciccarello

### Fossil discovery another piece in the puzzle

Scientists from the NT Museum and Flinders University have discovered the remains of a giant hippo-like animal near Alice Springs, a find that will shed new light on the Territory’s prehistoric past.

For 25 years, palaeontologists from the two institutions have been painstakingly extracting the remains of giant flightless birds, wombat-like creatures and crocodiles from a nearly 7 million year-old fossil site near Alcoota, 180km northeast of Alice Springs.

This month, in addition to finding fragments of a new species of wallaby, and a 50cm-long crocodile skull – the first such complete specimen to come from the site – they uncovered another important piece of Australia’s early history.

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Vincent Ciccarello

### An eye for the genetic causes of disease

Ground-breaking research in teasing out which genes are contributing to complex eye diseases has won Dr Kathryn Burdon a Young Tall Poppy Award for Science at the recent South Australian awards.

Most debilitating eye diseases that can lead to blindness are caused by a combination of genetic and environmental factors, and Dr Burdon, who is the Peter Doherty Research Fellow in Ophthalmic Genetics at Flinders University, is part of a team working on common diseases including cataract, glaucoma, keratoconus and diabetic eye diseases.

Dr Burdon said her work involves comparing the DNA of large cohorts of disease-affected people with that of people who do not have the diseases, to begin to identify the underlying causes. Thanks to recent progress in technology, Dr Burdon said, researchers are able to compare the entire genome of affected patients with that of normal controls, making the investigation much more cost-effective and speedy than even a decade ago.

Kathryn Burdon has also won the Fellowship for Science at the recent South Australian Science Awards, which recognises her work in genetic diseases of complex eye diseases.

Elected to Council as an academic staff representative at the beginning of the year, Associate Professor Smigiel is Director of Academic Development in the Staff Training and Development Unit, where she has responsibility for supporting academics in developing their research and teaching practice and in taking on leadership roles.

As well as giving her a broad knowledge of Flinders, Associate Professor Smigiel’s job provides her with wide contact across the tertiary sector and an awareness of the major issues affecting higher education.

“I liaise with my counterparts and I run two national projects with the Australian Teaching and Learning Council in which I work closely with eight other universities,” she said.

“Teaching and learning is the thing I live and breathe and love, and fortunately Council this year has decided to pursue quality teaching as one of the priorities in the University’s strategic plan, so I feel I can really contribute something.”

Associate Professor Smigiel said she felt her entry into an unfamiliar role had been well supported, particularly through the Council’s mentoring program, which pairs each new appointee with an experienced member.

“I’m starting to understand how Council operates, and one of the things I’ve learned is that we have a dedicated group of external members who advocate on behalf of the University and who are totally committed to Flinders,” Associate Professor Smigiel said.

“I didn’t realise how strong that commitment was, and I’ve found it a real eye-opener.”

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Making good drama on the cheap

Adventurous programming on a shoestring budget is paying off for local theatre company Accidental Productions.

Formed two years ago by Flinders drama lecturer Joh Hartog and several graduates of the Flinders Drama Centre, the company has managed to combine high output with critical acclaim, recently gaining several nominations in Adelaide’s Curtain Call Awards as well as winning the prize for best professional ensemble for their production Worlds End.

Mr Hartog said the company was formed with two main aims: one is to stage interesting works, and the other is to help graduating students into the market.

Most of the company’s six productions to date have been of European origin.

“We wanted to do plays that don’t come from English-speaking countries; it’s not that we have anything against them, it’s just that they are done all the time,” Mr Hartog said.

He said Accidental Production’s role in providing performance opportunities for graduating students is important, since finding acting work, let alone major roles, can initially be difficult for new actors.

“It maintains their confidence and it also maintains their skills,” Mr Hartog said.

“Some very talented people in our company might not have worked at all because the chances might not have come their way: instead, they have acted in several productions, and their skills are getting better all the time.” Working to low budgets means that the company is not wholly dependent on funding grants or sponsorships, and getting back to basics can actually work in a production’s favour, Mr Hartog said.

“The great advantage of theatre is that it doesn’t have to be wildly over produced.”

Fiction: making real life up as you go

With Berlin as a backdrop, an encounter with a mysterious woman sounds like the stuff of fiction – and indeed it is.

For David Sornig, however, a real episode in his own life almost 20 years ago provided the starting point for the central character in his newly published novel, Spiel.

Dr Sornig, who teaches in the Creative Writing course at Flinders, said travelling to Berlin as a 21-year old was a defining moment.

“Coming to a place where history had happened, and to feel yourself stepping through a place where some of the most momentous events of the 20th century had occurred, was really powerful for me,” he said.

For the Melbourne architect who is the narrator of Spiel, the byzantine quest to trace the enigmatic woman also becomes a journey of self-discovery.

“He has to confront his own past: he has left behind something in Melbourne that he has to atone for as well,” Dr Sornig said.

Dr Sornig said his story was fed by notions of the fictionalised self, drawing on characters like Frankenstein and the folktale of the golem, the mud-man who wreaks revenge on the anti-Semites of Prague.

“The production of East German Stasi files produced fake, unauthorised biographies of people. These are kinds of golems, Frankensteins – people who exist in a way that they have no control over themselves,” he said.

“Fiction does the same thing – it looks at real experiences, at a real person, and changes them somehow: it turns them into words.”

Charles Gent