A muffin a day might just keep the doctor away
Daring to learn how to learn
An incomplete degree is not okay
Welcome to the latest issue of the Go8 newsletter. We began producing a newsletter in this format some two years ago now. My aim was for it always to contain news and views, and always to be a proud window on examples of our research projects that can change and improve lives and living around the world.

The newsletter is produced in both digital and print format, and as a former print journalist from many years back, I am always delighted that so many readers contact us to request print copies, especially Australian Government overseas posts.

The reason I am giving you a short background on the newsletter is because looking through the proofs of this issue it struck me how much this particular issue encapsulated the Go8 and its raison d’etre.

With research we are so often the “go-to” in Australia for business and industry (and of course we invest $6 billion each year on research and development). As a perfect example, please read the short research story of Qantas working with the University of Sydney on nutrition and wellbeing for its customers using Australia’s first non-stop flights between Perth and London which start later this year. Qantas has much to work through to get this right, and the company knew exactly where to go for the research that would deliver it the results it needed.

This issue also includes a number of other highly-readable research examples. As I have previously mentioned, the most difficult job each issue is deciding which of the plethora of amazing examples from our members that we should use!

Our commitment to excellence drives everything the Go8 does and the positions it takes. Please read Professor Marnie Hughes-Warrington’s feature on why the Go8 cannot accept that studying for just part of a degree, a view being promoted by some, is an acceptable student outcome.

The Go8 will remain forever adamant that if you enrol a student, a university must aim to graduate that student; and we must all do better with attrition rates. The Go8 average attrition rate at 7.2 per cent is less than half that of the national figure of 15 per cent.

Professor Hughes-Warrington, as Deputy Vice Chancellor, Academic at the ANU is one of the sector’s strongest advocates for quality student outcomes and the Go8 is proud of her always fiercely articulate stance on behalf of the nation’s university students.

The Go8 enrols quality students and delivers quality graduates.

One strong point I made on behalf of the Australian university sector is the responsibility those releasing rankings and data have, to a nation that is so reliant on the international student market. We all know it is rankings and data that market Australia as a quality student destination. Eroneous data results deter the quality students we need and impact our brand health. It simply must be correct, and the Go8 has been impacted by Australian data that wasn’t, as the speech sets out.

In defence of all of the above, in particular ensuring we provide a quality student experience, quality student outcomes and defend Australia’s third largest export sector currently delivering $22 billion to the nation every year, Go8 Chair Professor Peter Høj spoke of the Go8 (and the sector’s) on-going funding issues at the National Press Club. The speech set out very starkly that whilst it is assumed that Australia’s public universities are almost fully funded by the taxpayer that simply is no longer the case. Public funding of our universities has been slashed from more than 80 per cent in 1987 to an average across the Go8 of below 40 per cent. This issue contains information on Professor Høj’s speech and provides a link to it.

Of course, the issue of the critical need to rectify the Australian university sector’s dysfunctional and distorted funding model is centre stage at present as the sector unanimously fights against the Government’s 2017 Budget higher education funding package which contains the largest cuts to the sector in 20 years.

The Go8 has just appeared before the Senate Education and Employment Legislation Committee to set out why we are so opposed to the legislation. The National Union of Students was on the same page with its evidence to the Committee as the sector, as everyone from north Queensland to WA and all points in between attempt to have the Senate understand the damage to our current students – the nation’s future graduates – in what is proposed. The link to the Go8 Opening Statement is go8.edu.au/article/go8-opening-statement-senate-education-and-employment-legislation-committee-higher-education.

The Committee heard considerable and poignant evidence of what and who would be impacted under
Chair delivers message to Senate

Go8 Chair, Professor Peter Høj, who is University of Queensland Vice Chancellor and President, addressed the National Press Club of Australia on 28 June.

Professor Høj’s speech, which centred on the value of the sector to the nation, also urged the Senate to block the Government’s planned funding cuts to the sector “the worst in 20 years” and set out how little public funding Australian Universities now receive – an average across the Go8 of less than 40 per cent.

A video of Prof Høj’s address can be viewed here: go8.edu.au/article/video-go8-chairs-speech-npc

these proposed budget cuts. It isn’t pretty and it is difficult to understand the Government’s motives in putting such a poorly constructed and damaging piece of legislation before Parliament.

The Committee heard that the students and prospective students who need the most help – especially those in the invaluable enabling courses – have been treated with disregard and without consultation. It heard of more definite staff redundancies, lack of funds for campus maintenance and student equipment upgrades. It heard of course cuts, larger classes and diminishing research funds. The Government has achieved something those before it have never managed. It has united a sector and that unity has delivered a powerful message that the Go8 is proud to be at the forefront of – this package is a tipping point for the economy, for our universities and for our students – current and prospective.

However, in the end the Senate vote comes down to the cross-benchers, in particular the Nick Xenophon Team. It is to be hoped that the evidence the Committee has heard is a document they, and their Senate colleagues, read closely.
Baking meets science in a delicious University of Queensland health initiative that really takes the cake.

‘Good heart’ muffin, developed by UQ scientists, could help lower the risk of heart disease.

UQ Centre for Nutrition and Food Sciences scientist and keen baker Dr Nima Gunness said the muffins contained three grams of beta glucans – a healthy soluble fibre that occurs naturally in the cell walls of oats and cereals, and meets the food standard guidelines for cholesterol-lowering properties.

“There is good evidence that three grams or more of oats beta glucan consumption a day can help reduce cholesterol levels,” Dr Gunness said.

Her work follows an earlier discovery by UQ and the Australian Research Council Centre of Excellence in Plant Cell Walls that demonstrated how beta glucan fibre in oats can slow absorption of fats to reduce blood cholesterol.

“I wanted to turn my discovery into a product, like a muffin, that people could eat to help reduce the amount of cholesterol in their blood stream, lowering the risk of heart disease.”

Gunness perfected her low-fat blueberry muffin recipe over several months.

“The trick was to avoid making the muffin gluggy from all the extra oat bran and beta glucan fibre.”

Now UQ’s commercialisation company UniQuest and a UQ Business School student are identifying opportunities for the muffins to be packaged, frozen, and sold in supermarkets, cafés and health food outlets around the country.

“We are not suggesting that people go off any cholesterol-lowering medication,” Dr Gunness said.

“Rather, we are aiming to provide a convenient, healthy and very tasty way of helping to reduce cholesterol levels.”

Now UQ’s commercialisation company UniQuest and a UQ Business School student are identifying opportunities for the muffins to be packaged, frozen, and sold in supermarkets, cafés and health food outlets around the country.

“I was really amazed by how positive the consumer feedback has been,” she said.

“There is good evidence that three grams or more of oats beta glucan consumption a day can help reduce cholesterol levels.”

“Eating a muffin a day is a convenient way for people to improve their heart health.”
Universities the world over are struggling with the digital disruption. For traditional academics, this question is an existential one: can universities survive in an environment where content is ubiquitous from a myriad of sources and the ‘sage on stage’ approach loses currency with Gen Y and Z brought up as digital natives? Can these august and conservative institutions now jump into future where private providers and massive online open courses (MOOCS) all but ‘steal’ the potential audience from under their feet? As vice chancellors and deans across the globe ponder the future, many assume that technology increasingly encroaches on their capacity to educate future generations.

I take a very different view. It seems to me that, despite appearances, universities were never in the content business but in the knowledge business.

Universities can now concentrate on the business of creating and inducing meaning. We can coach young (and older) minds to wade through a plethora of facts and figures and to extract from it understanding. We do this by demonstrating critical thinking, by building up analytical skills, by showing up logic and, perhaps as importantly, by teaching students how to express clear thinking in understandable terms, how to share that understanding with others in order to lead effective problem-solving teams. Unlike Kodak who never predicted their own demise because they saw themselves as film-makers, as opposed to image suppliers, universities have a choice. They can remain content merchants, and die or they can transform in knowledge brokers and thrive. If they chose the latter, as most of the smartest ones do, they will need – not fear – what technology can offer. They will harvest, not decline, the bounty that is the internet. They will praise, not denigrate, the digital natives who will come to them to seek not merely content or information about the past, but the understanding and the key to a different, but equally rewarding, future. In my university, the 143-year-old University of Adelaide, we have embraced MOOCs and now count over 450,000 learners from 90 per cent of world countries. They have joined an on-campus community of some 25,000 and I feel that we are all very much the richer for it. After all, was it not to encapsulate a universal ideal that they are called universities?

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Professor Pascale Quester

Pascale Quester Deputy Vice Chancellor & Vice President (Academic) University of Adelaide
Daring to learn how to learn

Associate Professor Sandra Milligan, University of Melbourne

A study of over 100,000 online learners finds that learning is a skill in itself that involves being prepared to take a risk, engaging with peers and having an independent streak.

Why do some of us learn easily and quickly, while others struggle, left behind plodding along?

Part of the answer, at least in the online learning space, is that learning is a real skill in of itself, and some people are more skilled at it than others. And the good news for the plodders is that it is a skill that can be readily grasped when we break it down. I’ve analysed the data from over 100,000 learners on the University of Melbourne’s various MOOCs (Massive Open Online Courses) – every click, tap, swipe they make, every document they consult, and every word they write in chat forums and exercises.

What emerged was a remarkably consistent pattern of what learning behaviours work and which don’t. It means that it should be possible to design online learning systems that not only teach skills and knowledge, but also at the same time teach students how to best learn.

Skilled online learners are active, collaborative, independent, prepared to take risks and are not frightened of embarrassment.

In essence, this progression describes the differences between learners more or less skilled in learning in MOOCs, and supports the view that learning is a learnable and transferable skill. It means that people can get better at learning if they know how to go about learning to learn. Indeed, it is possible that the progression captures something about learning skill in general, and that it can easily be adapted to any learning by anybody at any level.

By analysing the progression of learners I was able to identify five distinct levels of learning:

- Level 1: Reader – MOOC as a textbook
- Level 2: Consumer of Instruction – MOOC as a tutor
- Level 3: Self-regulated producer of learning – MOOC as a tutor with a user support group
- Level 4: Collaborative learner – MOOC as a collaborative learning environment
- Level 5: Reciprocal teacher – MOOC as a reciprocal, distributed learning environment

For me the most exciting aspect of the research is the potential for putting it to work. Because the analyses are based on learning progressions along which individuals develop, and not just an end result, assessments of expertise in learning can be fed back to every participant in even the most massive of MOOCs. That feedback could show every learner the level of expertise in learning they are at, together with hints, encouragement, suggestions and resources to help them move to the next level of learning expertise. And feedback, learning science suggests, can be the rocket fuel of learning.
With this possibility in mind, the algorithms underpinning the assessment of learner position on the progression in MOOCs are being further developed for use in the Melbourne MOOC program in ways not previously attempted.

Early results suggest that these progression-based analyses do indeed have practical utility in providing formative feedback as well as informing course developers and learning designers about ‘what works’.

By showing that learning is a skill within large-scale digitally mediated programs, the research will help to develop both the quality of programs and the capacity of learners to make the most of them.

In a society categorised by fast-moving technology, business disruption, and multiple career changes, knowing how best to learn will be a critical skill.

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**Research to improve long haul experience**

Qantas and the University of Sydney’s Charles Perkins Centre have announced a world first air travel health and wellbeing partnership to reshape customers’ experience of long haul flights.

The university is working with Qantas to help develop the airline’s new approach ahead of the first Boeing 787 Dreamliner non-stop flights between Perth and London later this year.

The Charles Perkins Centre brings together researchers across a variety of fields from nutrition to physical activity, sleep and complex modelling systems.

The Qantas projects include strategies to counteract jetlag, on-board exercise and movement, menu design and meal timing, plus pre and post flight preparation. Cabin environment is also critical with cabin environment research including lighting and temperature.

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Recognition as an Entrepreneurial and Engaged university

The University of Adelaide has become the first Australian university to receive accreditation for being Entrepreneurial and Engaged. The dual accreditation has been awarded to the University by the Accreditation Council for Entrepreneurial and Engaged Universities (ACEEU), based in the Netherlands, and was announced at the June University-Industry Interaction Conference in Dublin, Ireland.

“The University of Adelaide has long been an Australian leader in business innovation, entrepreneurship and engagement with industry. It’s pleasing to receive such recognition for our work, which will help to promote the role of entrepreneurship and engagement within universities, and with the broader community,” says Professor Noel Lindsay, Pro Vice-Chancellor Entrepreneurship at the University of Adelaide.

The University participated in an eight-month accreditation process with the ACEEU, a newly formed council established as an initiative of the International University Industry Innovation Network (UIIN) which was founded in 2012 to have universities around the world as the vital link; connected with industry and innovation through entrepreneurship.

Cameron McCoy, Associate Vice-President for Engagement at Lehigh University in the United States, who chaired the accreditation committee, says: “The University of Adelaide is a great example of how an institution can create greater social, cultural and economic impacts through the promotion of entrepreneurship and engagement throughout an entire university.”

“The Australian eChallenge, which we’ve run since 2001, has become the nation’s leading student entrepreneur ‘investor ready’ program, helping to foster new generations of business leaders and entrepreneurial thinking.

“Our eChallenge model has been successfully introduced into France, enhancing the growing business links between France and South Australia. And our new ThincLab Adelaide is providing support for start-up businesses and championing innovative thinking in South Australia,” he says.
Students find early signals of the Zika virus outbreak

Gabrielle Dunlevy

A sophisticated tool that can generate early outbreak signals using data from Google Trends, Wikipedia and Twitter has won the UNSW ZikaHACK competition.

The digital disease detection tool picked up signals of an outbreak of Zika months earlier than it was officially detected in Brazil.

The NHMRC Centre for Research Excellence, Integrated Systems for Epidemic Response (ISER) sponsored the international challenge for multidisciplinary teams of students to develop a digital tool for early disease detection. The winning team had an unbeatable combination: a PhD student in public health, an undergraduate computer science student with an interest in health data science, and another final year undergraduate student from Brazil with a strong personal motivation to find novel responses to the Zika emergency.

Jitendra Jonnagaddala (UNSW), Sean Batongbacal (UNSW) and Luan Almeida (Federal University of Alagoas) called the winning tool Gadyan – an Aboriginal word meaning Sydney cockle, pronounced like guardian.

Traditionally, disease outbreaks are detected by governments or public health agencies based on the data from routine reporting from doctors, labs and hospitals. Often this means delays because it depends on the checking and re-checking of test results.

Mr Jonnagaddala said Gadyan used sophisticated, robust statistics-based algorithms to generate early outbreak signals using data from Google Trends, Wikipedia and Twitter.

“This was something that hadn’t been done for Zika before, and other systems had only used one data source,” he said. “For ours we combined all of the data sources and by doing this our system performed better.”

The Zika outbreak was officially declared by the Pan American Health Organization (PAHO) in November 2015, but Gadyan detected raw signals – in last quarter of 2014 and second quarter of 2015.

“While we don’t claim that the outbreak was detected, public health officials could analyse those raw signals, and find out what’s happening on the ground. We call it a triage mechanism for public health officials.”

Brazil recently declared an end to the state of emergency related to Zika, but one feature of the winning tool is that it can be adapted to detect other diseases such as flu, malaria and dengue.

The UNSW-based team members said the involvement of Mr Almeida was invaluable. He had witnessed the outbreak in his region of northeast Brazil and provided local insights and translation.

ISER Director, Professor Raina MacIntyre, said the team won from 11 highly-competitive entries, judged on their ability to identify Zika early, as well as adaptability and ease of use.

Gadyan used sophisticated, robust statistics-based algorithms to generate early outbreak signals using data from Google Trends, Wikipedia and Twitter.

“Gadyan has enormous significance for preventing and acting on epidemics early,” Professor MacIntyre said. “The aim is to prevent illness and death by generating early warning signals.”

ISER will work with the winning team to further develop the tool for wider global application within its Epidemic Observatory, Epi-Watch.
An incomplete degree is not okay, and no-one in the sector should accept that it is

Professor Marnie Hughes-Warrington PFHEA, the ANU’s Deputy Vice Chancellor Academic and National Secretary of The Rhodes Scholarships Australia sets out why the sector must work to reduce attrition rates

They initiate contact, they arrange for support services. They revise their approaches to teaching and to assessment to ensure that everyone is able to be at their best. They believe that people can complete their studies, and they act on that belief. They don’t dumb down; they care up. These teachers deserve our respect and support, as do their students at risk of drop out.

Australia’s higher education attrition rate currently sits at 15 per cent, up from just over 13 per cent from around a decade ago. As you would expect, attrition rates vary across institutions, but no one sits at zero. We all have work to do. And work has been done, with teams from institutions from Monash to Murdoch, and Federation University to La Trobe pinpointing lack of a clear reason for being at university, personal issues such as mental health and financial distress, juggling work and family responsibilities, and a lack of familiarity with university-level study as primary reasons for drop out.

In response to this research, many universities now use school partnerships, new teaching and assessment models, financial support mechanisms, counselling and data analytics to identify and contact ‘at risk’ students, with good results.

Further afield, the recently released report What Works? by the Paul Hamlyn Foundation, the Higher Education Academy and Action on Access makes it clear that approaches to teaching that actively involve students, co-curriculum peer mentoring programs, data monitoring and the explicit commitment of a university to retention can make all the difference to student outcomes.

People invest effort and care into retention because it has a demonstrable impact on the life experiences of individuals and their families. Average lifetime wage earnings alone are a reason to care. The Grattan Institute’s 2016 Higher Education report puts the lifetime additional wage-earning value of a degree at $1 million or greater.

Work supported by the Lumina Foundation in the US puts it at $2.8 million USD. The New Zealand Productivity Commission reports a 4.5 per cent per annum boost to wages for university graduates.

It is true, as research by La Trobe shows, that 47 per cent of students return to their studies up to eight years after withdrawing. But 53 per cent don’t: they bear the burden and the debt of an incomplete dream.

You were there one day, and then you were gone. I had no idea what you were going through because you masked your struggle with learning, with mental health, with money, with family responsibilities, with having been assaulted. I am sorry that I could not do more to help you.

Too many of us share this story to accept the view that an incomplete degree is OK. It is not.

Great teachers notice when students stop coming. They ask about those students, even when they don’t have the hunch that something might be wrong.

47 per cent of students return to their studies up to eight years after withdrawing. But 53 per cent don’t: they bear the burden and the debt of an incomplete dream...
But the challenge of attrition also beckons us to think more creatively about public policy areas. Attrition has a relationship with qualification types, for example, although this connection seems to pass most people by.

The world is taking a turn towards micro-credentials, and that turn may help us to walk more in the direction of our most disadvantaged students. Instead of pretending attrition doesn’t matter, we might take advantage of the forthcoming review of the Australian Qualifications Framework to ask whether the higher education qualifications floor should sit at a diploma, and whether certificates are too outsized for some learners and their communities. Better to ask these questions than to pretend that drop out doesn’t matter.

I am not prepared to walk away from identifying the ideas and actions needed to improve the educational outcomes of individuals and communities. None of us should.

Ranking accuracy critical

Go8 Chief Executive Vicki Thomson delivered a keynote address at the recent Edudata Conference in London.

Ms Thomson spoke of the criticality of rankings for Australian Universities, and how high rankings are the key to quality international students seeking out Go8 universities of which there are seven members in the world’s top 100. Consistently high rankings have led to the Go8 welcoming one in three of Australia’s international students. Ms Thomson also spoke of the responsibility of ranking organisations, and all those who produce and release data on Universities to “get it right” as mistakes caused brand health reverberations globally.

As an example Ms Thomson set out the brand health issues encountered by the Go8 from an erroneous HILDA survey in Australia. The Edudata speech can be found at go8.edu.au/article/vicki-thomson-delivers-edudata-summit-keynote-address.
New findings by UNSW neuroscientists represent a whole new way of looking at how our brains make judgements about the environment, and could have applications in telesurgery, prostheses and robotics.

Seven years ago, the pair began working with a pin array device called an optacon (optical to tactile converter). Designed to stimulate the fingertip, the device has 144 tiny pins which all move very fast. When moved over text, the pins move in sync with the letters, allowing a person with sight to teach a blind person to read.

“We could talk to the brain using its own language and see how it interprets the messages we sent to it. Using this dialogue we were in a position to learn the brain’s language or neural code.”

The researchers found the brain uses periods of “quiet” between the impulses to make judgements about the environment, and this flies in the face of the conventional view that says neural activity is the main driver of human perception.

So unexpected was the finding of this new coding strategy, they spent several years trying to disprove it before having the confidence to publish the work to the scientific community.

The paper “Spike timing matters in novel neuronal code involved in vibrotactile frequency perception” has been published online this month in Current Biology.

Dr Birznieks says the work has transformed the understanding of basic principles how our brains encode information.

“We expect this will re-write the textbooks,” he says.

Dr Vickery says the knowledge could help researchers build better brain machine interfaces and haptic devices, providing coding strategies that could add tactile function to robotics, for example.

The researchers are exploring the possibility of developing a method to be used to restore a sense of touch in amputees. It is expected that by manipulating timing of electrical impulse generation in the nerve, it will be possible to make people feel varied tactile sensation, that for example, becomes more intense or feels faster.