Otolaryngologist Gunesh Rajan and his team in the School of Surgery have pioneered cochlear implants for single sided deafness (SSD), which Professor Rajan aptly calls ‘the silent disability.’

“Our studies have shown that children with one deaf ear struggle academically and socially,” Professor Rajan said. “They are the ones who have to repeat a year at school. They find it difficult to work out where a voice is coming from in a noisy classroom, so can’t identify that it’s the teacher’s voice. Even one-on-one conversations can be difficult. And it can be dangerous in situations such as only hearing traffic from one side.”

Australian babies who are born bilaterally deaf are usually fitted with cochlear implants within the first year of life. “But until now, people have assumed that babies who are unilaterally deaf can get by with just one hearing ear,” Professor Rajan said.

“If a child was born blind in one eye and there was a treatment for it, nobody would hesitate to apply that treatment.

By Lindy Brophy

Children who fail at school, who ignore their teachers and don’t socialise with their classmates are often branded as difficult.

But what they might be finding difficult is actually hearing what’s going on.

About three per cent of children are profoundly deaf in one ear – that’s roughly one child in each classroom – and while most people don’t realise these children have a disability, it has a profound effect on their lives.

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“Our studies have shown that children with one deaf ear struggle academically and socially,” Professor Rajan said. “They are the ones who have to repeat a year at school. They find it difficult to work out where a voice is coming from in a noisy classroom, so can’t identify that it’s the teacher’s voice. Even one-on-one conversations can be difficult. And it can be dangerous in situations such as only hearing traffic from one side.”

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continued on page 2
But the same has not applied to a deaf ear."

Professor Rajan and his research group began work on SSD six years ago and they are among the first three groups in the world to fit cochlear implants to people with this disability.

“We know that the earlier you implant, the better it is for development of speech and language,” he said. “After the age of five or six, a child born bilaterally deaf can’t pick up normal language. It is too late – those parts of the brain are already occupied by other functions.

“We made similar observations for the development of binaural hearing or so-called stereo hearing with SSD. The scientific community was unaware of this and we opened up a whole new field.”

Professor Rajan and his colleagues fitted a cochlear implant into a 16-month-old child with SSD. “It’s been 18 months since the implant and the child is doing brilliantly,” he said. “But how do you measure it? There is no difference between him and children of the same age with normal hearing.”

Like many pioneering medical researchers, his group had a tough time in the beginning. “People said we were using our patients as guinea pigs. But that’s what clinical trial and science is about. And it’s working; none of our patients would give their implant back.”

They have fitted implants in two children, aged around seven and eight, who lost hearing in one ear through meningitis or trauma. “We got to them straight away, with excellent results,” he said. “We also tried implanting a couple of children of similar age who were born with a deaf ear but it looks like they are not able to develop stereo hearing because the window of plasticity is closed. This result reflects the importance of timing when you’re dealing with the plasticity of the brain. Fitting an implant at a late stage is like screwing in a light globe when the electrical wiring is faulty or missing – it just won’t work.”

The implants have been successful in adults who have suddenly lost hearing in one ear through disease, trauma or tumour. “Without an implant, these people would have been unable to continue their jobs,” he said.

Sudden hearing loss frequently goes hand-in-hand with tinnitus, which is also debilitating.

“Severe tinnitus can drive people mad, but my colleagues in Belgium have found very good results in controlling it with a single sided cochlear implant, and we were able to replicate the same results in our patients,” he said.

Professor Rajan, who studied in Zurich where a lot of pioneering ear, nose and throat research was done, has been at UWA for nine years. His collaborators are all around the world.

He is currently working with groups at Duke and Seoul National universities on a cheaper implant.

“A cochlear implant costs between $25,000 and $30,000 in Australia. While Medicare doesn’t fund any implants (and that includes hips and other parts of the body), the private health funds cover them.

“Every day in China and India, around 90 babies are born deaf. It is not possible for them all to receive implants. So we are working on a low-cost implant, substituting polymers for the titanium used in the housing and the platinum in the electrodes. Eventually, we are confident of producing cochlear implants for less than $1,000.”

The collaborators are finalising a prototype and hope to start clinical trials soon both here and in South Korea.

“We are not re-inventing the wheel: it’s rather like making the wheel out of carbon instead of steel and making it much cheaper,” Professor Rajan said.
This bug is the most difficult to control

“Threat level URGENT” is how the US Centers for Disease Control and Prevention describe the dangerous bacterium *Clostridium difficile*.

The bacterium, which typically attacks hospital patients who are on antibiotics, has killed thousands in the UK and Europe and is still rife in the US.

“It kills about a thousand people a year in Australia, but knowledge about *Clostridium difficile* infection or CDI here is negligible,” said Professor Tom Riley, a microbiologist in the School of Pathology and Laboratory Medicine.

He is working on a vaccine for CDI, which causes life-threatening diarrhoea, and strikes when patients’ guts are clear of other bacteria, after a course of antibiotics.

“More than 50 per cent of people in hospitals are on antibiotics, so that’s where we see it spread,” Professor Riley said. “It’s got worse with the introduction of more broad spectrum antibiotics that kill more bacteria. CDI is a bigger problem in Australian hospitals than golden staph and more common than salmonella infection, which kills fewer than a handful of people in Australia each year.”

*Clostridium difficile* was discovered in 1935 but not thought to be a pathogen until the late 1970s. It has proliferated because it is naturally resistant to many drugs.

Professor Riley said the infection was also found in animals. “It’s driven by animals and is one of the major causes of death from diarrhoea in racehorses. We can control it in hospitals with scrupulous cleaning, but that doesn’t happen in a piggery, for example.

“We need to work with the veterinary profession to get CDI under control before it reaches epidemic proportions as it has in other parts of the world,” he said.

“I don’t want to frighten people. ‘Normal’ people, who are not taking antibiotics and are not in a hospital environment, are not susceptible.

“But once you take a course of antibiotics, you become susceptible and can remain susceptible for three months, until the bacteria grow in your gut again and can fight the CDI.”

Professor Riley is working with a Japanese pharmaceutical company, Otsuka, on treatments. “A vaccine is the best approach to preventing infectious diseases, but it will be years before one is licensed. In the meantime, we have to look at alternative treatments, which involve antibiotics.”

And antibiotics could set the cycle in motion again.

He is part of an epidemiological study that covers 13 countries in Asia. “There are not the same controls over antibiotics in Asia as there are in Australia and it’s very concerning. I’m working with people across three projects and hoping to get something going in China. I’ve had a researcher from the Chinese Centre for Disease Control working with me at UWA on the project for Otsuka.

“The pharmaceutical companies are very keen to get some trials going, because CDI is out of control in the US, with 14,000 deaths a year.”

Professor Riley said increased awareness of the infection in Australia was the first step to keeping it under control here.
“UWA’s researchers are amazing!”

Deputy Vice-Chancellor (Research) Professor Robyn Owens has a passion for UWA’s research and wants everybody to feel it too.

“Staff and research students alike combine to build our vibrant intellectual community with exciting new discoveries and insights every day,” she said.

“I hope the whole University will take an opportunity to celebrate UWA’s research during UWA’s inaugural Research Week from 3 to 7 November. You can learn more about the wonderful work that is being done across and between disciplines, and I hope you will be as inspired as I am.”

Kelsey Kennedy hopes UWA will retain the title she won last year’s Trans-Tasman 3MT

The week will kick off with snappy three minute research presentations on the first day, when UWA hosts the Trans-Tasman finals of the Three Minute Thesis competition, or 3MT.

When medical scientist Kelsey Kennedy won the national title last year, she earned us the right to hold the finals here.

PhD scholars from 46 universities in Australia and New Zealand will fight it out in the Octagon Theatre, their weapon of choice a dynamic three-minute presentation of an aspect of their research.

Every day of the week is filled with events, lectures, workshops and presentations covering everything from ethics to patents and even wellbeing.

The UWA Research Excellence and Innovation Awards will be presented; the Faculty of Medicine, Dentistry and Health Sciences will run their annual Research Day in the McCusker Auditorium at the Harry Perkins Institute; and the new National Geosequestration Laboratory (NGL) will be opened.

The NGL is a world-class carbon storage research facility focused on delivering research and development solutions to help enable commercial-scale storage of carbon dioxide (CO₂) to reduce greenhouse gas emissions.

It is a national, multi-site facility. UWA’s $10m state-of-the-art facility supports research into new techniques to capture and store carbon emissions and also features the latest geophysical surveying and data analysis equipment.

During the week, the Office of Research Enterprise (ORE) will launch its innovative Crowd Research initiative. It seeks to engage our global community in UWA research, whether it is participating as volunteers to help carry out the research, or by the community contributing funds to make the research happen.

The MicroBlitz is already a great example of Crowd Research and will be used to launch the initiative.

Under the supervision of Winthrop Professor Andy Whitely, a wide range of people including school children, weekend walkers, and the ‘grey nomads’ on their seasonal migrations, are part of MicroBlitz.

With the help of these citizen scientists it is detailing the biodiversity and health of our environment through the analysis of microbes in the soil.

There will be two public lectures from the Institute of Advanced Studies: the Wesfarmer’s Oration by Winthrop Professor Jane Lydon on Defining Humanity, Photography, Humanitarianism and Empire; the other by Professor Peter Quinn, WA on the Threshold – New Understanding, New Discoveries and New Opportunities with the SKA.

The ARC and the Australian Research Landscape is the subject of a public lecture by Professor Aidan Byrne, the CEO of the Australian Research Council.

Professor Byrne brings with him a wealth of industry knowledge and
expertise, particularly in the physical and mathematical sciences and engineering.

Winthrop Professor Donna Cross from the Telethon Kids’ Institute will share her ideas about teacher wellbeing and its impact on student learning.

From wellbeing to a clinic of a different kind: a Patent Searching Clinic will be run by ORE’s Development and Innovation staff, Tom Schneppe and Dr Samantha South.

Has someone already patented your idea? Do you have ‘freedom to operate’? Which companies hold patents in your area…?

Patent searching is an excellent way to supplement your knowledge of your research area. Book an appointment, bring your project or idea, and let UWA’s resident patent experts do some searching or give you some tips.

UWA’s Legal Services and UniSearch come together in a session on Preparing to be an Expert Witness.

John Arneil, Group Executive, UniSearch, will explain how experts are supported in their role of providing independent objective evidence and how this can be a financially attractive pathway.

Preparing to be an Expert Witness includes: briefing instructions and dealing with lawyers and barristers; how to ensure your evidence/report is admissible; the key elements of an expert report; preparation for trial; factors which impress judges in the presentation of expert evidence, and more, presented by Kim Heitman, UWA’s General Counsel and Director, Legal Services.

At all sessions, you can pick up a coffee voucher for the University Club. Coffee is free for anyone presenting the voucher during Research Week, as long as you promise to talk research.

“And we’ll be watching!” Professor Owens said.

All this and much more. Please go to research.uwa.edu.au/researchweek for all the details.

How WWI affected UWA

Next weekend, we commemorate the centennial anniversary of the departure of Australian and New Zealand troops, many of whom were destined for the battlefields of Gallipoli and Western Europe.

Never before had Western Australia experienced such mass involvement in war. The consequences of World War I were felt by everybody, not least the fledgling University of Western Australia.

Just one year old when war was declared, the Commonwealth’s first free university took a heavy body blow when a third of its staff enlisted in the war effort.

We were a tiny institution then, located on Irwin Street in the city, with fewer than 20 academic and support staff. Their expertise and industry backgrounds were in demand and seven of them chose to enlist. They included engineers, laboratory assistants, the caretaker and the University’s veterinary lecturer. It was a difficult time for the young university, losing some of its most highly qualified teachers, several of them gone for more than three years, with one never to return and far too many coming home badly wounded.

UWA’s first registrar, Captain Samuel Townshend, died at Gallipoli. Our first Warden of Convocation and second Chancellor, Archbishop Riley, served as Chaplain General to the Australian Imperial Forces (AIF), and our second Warden and third Chancellor, Athelstan Saw, was a surgeon serving on the hospital ships.

The University also lost students and members of Convocation. Convocation was then made up of graduates from other universities who were living in WA.

A total of 24 members of Convocation enlisted across the war years. Convocation members, six in the first convoy, included 15 medical practitioners and five engineers. Nine of them were killed in action or died of wounds, five at Gallipoli and four in France.

Over 90 students enlisted. Part-time students, already in the workforce as teachers, surveyors, engineers or clerks, were among the first. Others enlisted in the AIF voluntarily as soon as they had completed their studies; some were given permission to depart before completing their final exams as the Professorial Board recommended to the Senate that a special War Degree be granted.

Sixteen students were killed, three in Gallipoli; and several more were so severely injured that they died within a few years of their return to WA.

There were very few families in Western Australia who did not feel the loss of a male relative.

Harold Ernest Whiteman, our 1915 Rhodes Scholar, was also killed on military service. An Arts student and captain of the UWA Cricket Club, he was awarded a Rhodes Scholarship in 1915, so he sailed off to Oxford.

After only a year there, he enlisted and, in 1916, he was killed in an aircraft accident.

With many of the male students fighting in Europe, our female students found Irwin Street virtually to themselves. Many female students lost their fiancées. Herb Appel, a Guild Councillor, a representative on Convocation and a star cricketer, died in Northern France. His fiancée, Margaret Fairweather, who was also on the 1913 Guild Council, chose to remain single for the rest of her life.

University life, teaching and research were made much more difficult during the war years, but how much more of a sacrifice was made by individuals and their families?

Let us commemorate their efforts – and their lives – which helped to build the society – and the University – we have today.

Paul Johnson
Vice-Chancellor
If you see very broad smiles on some students’ faces, they could be part of the Broadway UWA scheme.

The program targets schools which may not have the socio-educational advantages of other schools, and their students are automatically accepted into UWA if they have an ATAR of 75 or above. This is slightly lower than the cut-off for students from other schools and many of those who receive the Broadway advantage don’t even know about the scheme ... which could account for some smiles of surprise, especially early in the academic year.

Broadway UWA began nearly three years ago, in conjunction with New Courses.

“It was New Courses that made it possible for us to set it up and offer what really amounts to a second chance to students from Broadway schools,” said Pathways co-ordinator Elaine Lopes.

Dr Lopes, a learning skills adviser in Student Services, said the Broadway students were so grateful for the chance to study at UWA that they tended to throw themselves into University life with enthusiasm. “In the three years since Broadway began, we’ve had 248 students on the program including siblings, twins, and students who arrived in Australia on humanitarian visas, and they’ve done really well.

“Some of them have become student leaders in their faculties, while others have taken part in the UniSkills and UniMentor programs, student societies and sporting activities, and they’ve generally made the most of what UWA has to offer,” she said.

The Broadway program differs from the Fairway program in that it identifies disadvantaged schools whereas Fairway identifies and supports students with individual disadvantage. Broadway and Fairway students are eligible to apply for UWA SWANS Scholarships, which are intended to assist undergraduate students experiencing financial hardship with the costs associated with higher education and are worth $3,000 a year.

“Most of the Broadway schools are rural or outer metropolitan, which may lack the resources and facilities available to other schools. Therefore the students’ WACE results may not necessarily reflect their true academic ability,” Dr Lopes said. “Our research shows that they tend to perform slightly better academically than their ATAR would indicate. We’ve compared them with students who had an ATAR of 80 to 82 and, on the whole, they do better.”

Dr Lopes said Broadway students currently studying at UWA are from all over WA including Esperance, Karratha and even Christmas Island.

“We have a couple of students who travel from as far away as Warnbro and Waroona each day, which is a really big effort.”

Comments from some of the Broadway scholars include: “If it wasn’t for this program, I wouldn’t be pursuing my dream” and “I wouldn’t be here if it wasn’t for this program, and I don’t take it for granted.”

All the Broadway students are interviewed by Dr Lopes or her colleague Dr Fiona Burrows. “Their first interview is some time in the first four weeks of semester so we can see how they’re settling in and they get a chance to meet us.

“Because some of them haven’t heard of the Broadway program, I think they suspect they’re being called in because there’s been a mistake made and we’re going to tell them they shouldn’t be here!

“Over the year we get to know them really well and they know we are here for them if they ever need us, and I think they appreciate that.”
A $10 million investment from Woodside is supporting an ambitious cross-disciplinary project that could ultimately influence the direction of UWA's teaching and research.

The generous gift from Australia’s biggest independent oil and gas company will be sunk into EZONE UWA, a revolutionary Engineering research, teaching and learning facility.

Peter Lilly, Director of EZONE, said its philosophy was to get all the Engineering, Computing and Mathematics disciplines together in one place for cross-fertilisation of ideas, multi- and inter-disciplinary research, cross-disciplinary teaching and all the advantages that this brings to industry and the community.

“Not only are civil engineering, mathematics, electrical engineering and so on taught in different buildings by different people, those people rarely collaborate,” Dr Lilly said. “And it’s partly due to the old buildings, which have no collaborative meeting spaces.

“We hope to turn this around with EZONE, initially with a new hub building on the west side of the Crawley campus, which will link with what is currently the Environmental Engineering Systems building and provide spaces that we expect will help to create a culture change – a culture of creative collaboration both internally and with industry,” he said.

Dr Lilly estimates the EZONE vision will cost around $200 million but he hopes the Woodside investment will encourage further funding. The realisation of EZONE is very much a cross-University collaboration in its own right, involving Development and Alumni Relations, Energy and Minerals Institute, Campus Management, Financial Services and the Faculty of Engineering, Computing and Mathematics, among others.

The plan is to house staff, PhD scholars and Masters of Professional Engineering students in the hub.

“Currently, postgrad students in the different disciplines have different experiences,” Dr Lilly said. “We want them all to have the same – and the best – experience. So we are working towards a generation of professional engineers who have all ‘grown up’ with the same cohort, interacting with their cross-discipline colleagues.

“The Faculty sees it transforming Engineering education. We hope it can transform education in this University.”

There will be “hot desk” facilities in the hub, to which researchers from other faculties and members of the industry will be welcomed.

“We plan to create a place where people will want to come and work with engineers, computer scientists and mathematicians including scientists, social scientists and medical researchers,” he said.

The hub on the Crawley campus will be the first stage of a project that will deliver improved teaching and research infrastructure to UWA’s Shenton Park campus and the Australian Resources Research Centre in Bentley.

These facilities will provide a network of flexible teaching and research spaces to promote collaboration, innovation and new thinking at a time when graduates and researchers must adapt to frequently changing industry practices and requirements.

Woodside CEO and UWA Adjunct Professor Peter Coleman said the company was proud to invest $10 million in the EZONE, which had the potential to revolutionise engineering education in WA.

“EZONE will extend the engineering and technical excellence in this State to grow the economy, build new industries and deliver a prosperous future for all Australians,” he said.
From rocketing up the career ladder to simply feeling more confident, more than 700 women have experienced changes in their lives thanks to UWA’s award-winning Leadership Development for Women program.

The program celebrates its 20th anniversary this year. It is the longest-running and most successful program of its kind in Australia and UWA has helped other universities and public sector organisations to set up similar programs.

Leadership Development for Women (LDW) aims to enable female staff to develop leadership skills and knowledge to increase their participation in positions of leadership and the University’s decision-making processes.

It also encourages an organisational culture that welcomes women’s involvement in that leadership and decision-making.

The program was established in 1994, when Fay Gale was Vice-Chancellor, standing alone with no other female members of the executive, no female Deans or Heads of School and very few female professors.

Emeritus Professor Alan Robson, who was Deputy Vice-Chancellor at the time, supported the program and became its champion, to the extent that he won a national award in 2011 (while Vice-Chancellor), Leading CEO for the Advancement of Women.

In the book’s afterword, Professor Robson writes: “This program has been pivotal in improving the position of women at UWA. There have been improved processes for appointment and promotion, improved policies for job-sharing, and improved childcare within the University. Without LDW much less would have been achieved.”

In the foreword, Professor Amanda Sinclair from The University of Melbourne, whose research focuses on leadership, ethics, organisational culture, gender and diversity, writes that the program set an international benchmark.

“Programs like LDW are vehicles for broader social change, and universities like UWA are bearers and innovators for the rest of society.”

LDW has won State and National awards over several years, including the national Diversity @ Work award for best women in leadership program in 2007. In 2009, it was bench-marked as a program of best practice in the Practising Gender Equality in Science project, financed by the European Commission to strengthen women’s progression in science and technology careers.

But the real winners are the alumnae of the program, many of whom have written of their experiences in Leading the Way. They include two early participants, Professor Robyn Owens, Deputy Vice-Chancellor (Research) at UWA, and Professor Jane den Hollander, Vice-Chancellor and President of Deakin University.

Many others’ careers have progressed within and outside UWA, and still more were happy to improve their skills and make changes in the organisational structure of their immediate work environments.

Lucienne Tessens, Associate Director, Organisational and Staff Development Services, and Staff Developer Claire Webb have been co-ordinating all aspects of the program and UWA’s Senior Women’s Network for many years.

Assistant Professor Tessens and others have presented aspects of LDW at conferences in Sri Lanka, the UK, Spain, New Zealand and across Australia.

Ms Webb said under-representation of women in senior positions was not limited to universities.

“THE latest figures from a Perth in Focus lecture, organised by the Committee for Perth, announced that in WA, women hold just 7.1 per cent of directorships, 1.6 per cent of CEO positions, and 1.3 per cent of Chairs in the State’s top companies.

“LDW is definitely leading the way in improving opportunities for women at UWA,” she said.
Each program involves 32 participants from both the academic and professional streams, starting with a three-day core program, followed by a series of one-day workshops, peer learning and mentoring over nine months.

“We have ensured strategic use of male as well as female mentors to broaden understanding of issues affecting UWA women,” Ms Webb said. “A total of 310 staff have been mentors, many of them several times. We offer training and support to both new and experienced mentors.”

During the program, women learn about leadership, gender-based differences in leadership style, understanding personality preferences, diversity, and effecting organisational culture change.

In self-selected peer learning groups, they explore work-related issues they have in common and share ideas, experiences and strategies for the workplace. Participants are matched with more senior staff as mentors, based on their goals and needs.

The program culminates in a presentation to University staff where participants provide considered feedback on their experiences of the program and as women working at UWA.

LDW has well-documented qualitative and quantitative outcomes, including two in-depth program evaluations, the latest of which will be reported in Leading the Way.

The LDW co-ordinators are often asked for support and guidance, both within UWA and externally, on establishing mentor programs and leadership development activities.

To celebrate its 20th anniversary, LDW, in collaboration with the Institute of Advanced Studies, hosted a public lecture last month by Senior Deputy Vice-Chancellor Dawn Freshwater on inclusive leadership. LDW also ran a workshop for women and men on working together to build a more gender equitable workplace.

Next month, Leading the Way will be launched at a big reunion event at the University Club.
Their mathematics skills are on a par with the best high school students across the world and their scientific research is at university Honours level.

The students at Shenton College have virtually no gap between high school and tertiary education, thanks to the highly successful Learning Links program with UWA.

The program that helps high school students experience and produce world-class research has been going for 14 years. Shenton College Principal Michael Morgan said Learning Links gave gifted students and those who wanted to explore ideas or conduct high-end scientific research the kind of support and level of inquiry that the high school was unable to offer on its own.

“UWA is a wonderful environment to really nurture that higher-end learning,” Mr Morgan said.

As a result of research done under the UWA program, many of the school’s students have won prizes at science competitions around the world, including three gold medals and a silver medal at last October’s Beijing Youth Science Creation Competition – the world’s biggest science competition of its kind.

The Learning Links program is so important to the University that, recently, the Dean of Graduate Research and Postdoctoral Training, Winthrop Professor Alan Dench, joined Shenton’s

Mr Morgan and others from the school on a tour of high schools in Adelaide, Melbourne and Sydney, to study other similar school-university links.

Professor Dench and Mr Morgan co-chair the Learning Links board, with members from both the college and UWA. Shenton’s Learning Links co-ordinator is Barbara Goldflam, a teacher, former long-term UWA employee and mother of two Shenton College graduates.

“We found that there was no single program like Learning Links anywhere else in the country,” Ms Goldflam said.

“There is no school that has a formal agreement and a board of governance with a university, even those schools that are built on university campuses.”

Laurie Saunders, Elisabeth Lim and Ross McQueen, Heads of Community in the middle school at Shenton, have been running mathematics enrichment for several years, taking high-achieving students to competitions both locally and around the world. For the past few years, mathematics students from UWA have helped with the competition training.

“In July, a team of eight Year 9 and 10 students competed in the Korea International Mathematics Competition, where the students performed brilliantly. We just missed out on a bronze medal by one point,” Mr Saunders said. “To put it in context, our team is the only one that represents a single school. Most of the other 700 competitors from 32 countries represent their nation or a province. Some are from specialist

Science students are doing Honours-level research with UWA mentors

Unique link fosters high level learning

She said the board members were considering setting up a round-table with other schools nationally to promote the program and encourage other schools to make similar links.

Shenton College has an Academic Talent Program for students in both the Humanities and Mathematics and Science. The Learning Links student enrichment program this year included courses, guest lectures, mentoring by UWA academics and students, coaching and master classes in areas as diverse as music, sport, English, Japanese, physics, ancient and modern history and mathematics. The program varies each year according to the UWA academics and graduate students who are available.

The maths team was helped by UWA students Dion Alfonsi and Tom Lymburn
projects in preparation for the Beijing Youth Science competition next year. UWA scientist mentors include Winthrop Professor Andy Whiteley in Earth and Environment, Associate Professor Richard Allcock in Pathology and Laboratory Medicine, Dr Rod Dilley and Dr Rob Marano in the Ear Sciences Institute, and Associate Professor Michael Renton in Plant Biology.

“Our students are working on gene sequencing, tissue engineering, and creating mathematical models to predict the impact of climate change on complex ecosystems. Essentially, they are doing Honours level research at the age of 14 or 15,” Mr Mathews said.

“We are always on the lookout for interesting holistic experiences for the students, so it’s not just about mathematics,” Mr Saunders said. “In Korea, there was a lot of cultural learning, with every team making a cultural presentation,” he said. “For the students at Shenton, maths is fun. In fact, we recently had a comedian come and talk to them about maths.

“And the senior undergraduate students from UWA are a huge bonus. This year, we’ve had Dion Alfonsi and Tom Lymburn. Megan Henderson (UWA’s Learning Links co-ordinator) is always a great help finding the undergraduates to be part of the program.”

In science, under Shenton College’s Director of International Relationships, Warwick Mathews, Year 9 students have been immersed in Einsteinian physics, with Winthrop Professor David Blair’s PhD scholar Jyoti Kaur running a research program to ascertain whether it can be taught to school students.

“Theyir method absolutely works,” Mr Mathews said. “It’s a bit weird, with straight lines that curve and triangles whose angles add up to more than 180 degrees, but the kids love it. It’s not too hard to grasp. And they don’t get confused when, after eight weeks of David’s methods, they go back to Newtonian or what most people would consider ‘normal’ physics.

“I had thought it would be too hard, but David and Jyoti explain it simply. I learned as much as the kids did,” he said.

Several students are also working with mentors from UWA on research mathematics schools, including the City Montessori School in Lucknow, India, which was set up by Ghandi and has 55,000 students.

“Other competitors included a team chosen from the entire province of Alberta, Canada, and a group from the Netherlands picked from specialist maths and science schools across several regions.”

The students begin mathematic enrichment sessions from year 7, when they are identified by the Education Department’s academic talent program. They start competing in year 9.

What makes Learning Links so successful? According to the Principal, Mr Morgan: “Learning Links has flourished over many years, thanks to the commitment and dedication of the wonderful staff at UWA who share their time and expertise so willingly. And thanks also to the creative and enthusiastic students from Shenton College who thrive in the academic environment offered to them at UWA. It is a perfect match.”
By Sally-Ann Jones

Why do men and boys call each other ‘mate’ and ‘bro’? Do these terms of endearment strengthen bonds between unrelated males?

And in the animal kingdom, where male bonding is rare, how and why did human males evolve with ties so strong that even in the 21st century there are still all-male institutions into which no woman or girl can set foot?

These are some of the questions Assistant Professor Cyril Grueter is hoping to answer – by looking at primates.

A/Professor Grueter, from the School of Anatomy, Physiology and Human Biology, said primatologists have known about the value of cooperative female-female interactions in ape and monkey societies for many years. But new research is shining a light on the importance of relatively rare male-male bonding in these mammals and giving us insights into our own evolutionary past.

Some primates, like humans, live in multilevel communities and by examining primate societies, scientists like A/Professor Grueter can learn how our own highly interdependent and cooperative systems evolved.

“A/Professor Grueter, from the School of Anatomy, Physiology and Human Biology, said primatologists have known about the value of cooperative female-female interactions in ape and monkey societies for many years. But new research is shining a light on the importance of relatively rare male-male bonding in these mammals and giving us insights into our own evolutionary past.

Some primates, like humans, live in multilevel communities and by examining primate societies, scientists like A/Professor Grueter can learn how our own highly interdependent and cooperative systems evolved.

“Some primates – such as Guinea baboons – live in environments similar to those in which our ancestors lived: savannah and woodlands,” A/Professor Grueter said. “Primates and humans share a common ancestor so by studying the precursors of male bonding in primate societies, we can better understand its appearance in human ones.

“In humans, male bonding is ubiquitous,” A/Professor Grueter said. “It is a prerequisite for survival and even today men still have the urge to bond. The male-female pair bond is the core bond in all societies, but in humans and some primates, male bonding is also important.

“By hunting and defending their territory cooperatively, males increase the likelihood of their offspring surviving, or, in evolutionary terms, their ‘fitness’. Males in cooperatives gain strength, higher rank and more popularity – and increase their chances of attracting females and having offspring.”

Yet male bonding in the animal world is unusual, A/Professor Grueter said. It is only practised when it provides an increase in net fitness.

His research takes him to amazing locations around the world. In May he was at the Dian Fossey Gorilla Fund’s Karisoke Research Centre in Rwanda where his PhD student Melanie Mirville is working for a year.

He plans to visit her there again in November, where she is investigating the escalation and prevention of intergroup conflict among 10 groups of mountain gorillas who have overlapping home-ranges.

And earlier this year he visited remote villages in the Solomon Islands where people still speak their traditional languages, enjoy their ancient cultures and where the men practise bonding rituals in their men’s houses.

In both primate and human societies, there is tension between the bonds that hold the nuclear family together and the urges males have to form bonds with other males, he said.

For the woman who’s left at home while her partner goes off to the pub with his mates, at least there is some consolation in knowing that it has been going on for maybe millions of years!

Mate, it’s been going on for millennia!
Discussions about exchange opportunities for high performing students have resulted in a unique residential exchange program with the National University of Singapore.

Kelly Smith, Director of the International Centre, said the program, with college residency and experience embedded in the exchange was a first for both UWA and NUS.

“In fact I don’t know of any university in Australia which has such a program,” Mr Smith said. “It’s a great opportunity for students from both universities to experience college life in another culture.

“Though NUS is not a fully collegiate university like Oxford and Cambridge, it has established a collegiate style program with two of its residential colleges. In the NUS version of the collegiate model each residential college is aligned to a discipline, such as arts or science. Some of the classes are run in the colleges and the academic staff also live in, alongside the students.”

Two NUS colleges are party to the exchange agreement: the College of Alice and Peter Tan, and Tembusu College.

“It’s a completely new experience and a different learning opportunity for our students,” he said. “The program has already started at this end, with two students from NUS living at University Hall.

“They are high achieving students and part of the deal was that they would participate in ULTRIS, the Undergraduate Learning and Teaching Research Internship Scheme.”

In this program, one undergraduate student from each faculty is chosen each year to take research training and then complete a research project with a focus on teaching and learning. The scheme involves interaction with students from some of the universities in the Matariki network. The ULTRIS students are paid a scholarship because their research means they have no time for part-time work. The NUS students do not receive the scholarship.

“As this new program is a direct exchange between colleges, each student just continues to pay his or her college fees at home,” Mr Smith said. “There are no extra charges for the exchange students. It works just like the academic fee exchange.”

Purnima Bairaju from Tembusu College and Wei Xuan Ng from Alice and Peter Tan, are half-way through their semester at University Hall.

They have particularly enjoyed ULTRIS, through which they met other undergraduate students via Skype sessions while they were still in Singapore.

“Then we got to meet them in person during the International Conference of Undergraduate Research last month, where Purnima and I both presented,” Wei Xuan said. His science college has about 50,000 students.

Purnima said coming to University Hall had been a big shock for her at first.

“I am so used to the close college life at Tembusu. Here, everybody does their own thing and everybody is very independent,” she said.

UWA’s Director of Student Residences, Chris Massey, said the new program was as much about University Hall as it was a UWA academic exchange.

“It’s early days and we are already learning from the first two participants about what they enjoy, what they expect, what they want from a residential exchange,” he said.

“There is likely to be more emphasis at this end on extra-curricular activities than there is at NUS.”

Mr Smith said that although the program was born from talks about BPhil students, it was open to all residential students at University Hall.

“Our students tend to choose exchange and study abroad destinations that are a long way from home. For some reason, Singapore has not been as popular with them, although we are seeing more students interested with the Government’s focus on the New Colombo Plan.

“I guess many of them see Singapore as a close-to-home stopover on the way to somewhere more exciting. So we were looking for a way of encouraging them to go there, musing about offering a program to the BPhil students, then the idea of the residential exchange changed everything.”

Applications are now open for this unique opportunity: for two University Hall residents to swap their rooms with two NUS students for the first semester next year.
The long-term goal of our work is to develop new treatments to reduce brain damage following stroke,” he said. “In Australia, it is the second most common cause of death after heart disease. And after a stroke, a third of survivors suffer disability that impedes their daily life.”

By using brain tissue from the embryos of rats, A/Professor Meloni can significantly reduce the number of animals required because once the tissue is cultured, it can be used for numerous experiments. “I estimate we are sparing hundreds if not thousands of animals each year,” he said.

As well as reducing the number of animals, he and his team at WANRI have replaced them with cultured neurons for use in in vitro stroke models. “We have shown that the neuronal cell culture models mimic the most significant damaging events that occur in the brain during a stroke,” he said.

His group has worked hard on maximising the number of tests that can be done with each tissue sample. “We have further refined our tissue collection to allow for surplus tissue to be stored at 5°C, so that it can be used for a second round of neuronal cultures a week later.”

A/Professor Meloni won $5,000 towards his group’s research costs.

Mental health starts with wellbeing

A washing line of wishes danced in the wind on the Oak Lawn during Mental Health Week.

Students and staff made pledges throughout the week to work towards improved wellbeing, committing to one of the Five Ways to Wellbeing: Be Active, Give, Connect, Keep Learning and Take Notice.

Their pledges were pegged out ‘to dry’ as part of the inaugural Australian and New Zealand Universities Mental Health.
Bronwyn Milkins has never had any problem getting to sleep, staying asleep or waking up bright-eyed and bushy-tailed in the morning. Yet the 23 year-old is so fascinated with sleep, and insomnia, that she is making it the focus of her PhD.

And she is so passionate about telling the world about her research that she entered – and won – this year’s UWA Three Minute Thesis competition from a field of 24. Now $2,000 richer, she will compete against 44 other 3MT presenters at the national finals, the Trans-Tasman, which will be held at UWA on 3 November.

Bronwyn wowed the UWA judges with her sparkling and well-argued presentation, Can retraining the way you think improve your sleep? but confessed it had been difficult for her to distil her research into three minutes worth of lay person’s English.

Bronwyn is in the School of Psychology’s Elizabeth Rutherford Memorial Centre for the Advancement of Research on Emotion and hopes that when she graduates she will be able to work in mental health advocacy and community psychology.

“There is such a strong link between sleep and mental health,” she said.

“I love sleep and have never had insomnia problems. Sleep fascinates me because we spend one-third of our lives doing it, yet we know relatively little about it. I have so many questions.”

Bronwyn said insomnia affects millions of Australians and is associated with cognitive impairment and daytime dysfunction. She is interested in designing effective interventions for insomniacs and believes that cognitive-based interventions may provide an answer.

“People tend to worry the most just before they go to sleep so I am hoping to design an iPhone app that may help to retrain the brain of people who suffer with insomnia and enable them to relax in the minutes before they close their eyes.”

UWA 3MT runner-up was David Gozzard, a PhD candidate in the School of Physics’ Frequency and Quantum Metrology Research Group, whose presentation was A Matter of Time: stabilising signals for precision space science.

Rowan Lymbery won the people’s choice award for A Tale of Two Gametes: what role do sperm and eggs play in reproductive success? Rowan is a PhD scholar in the School of Animal Biology’s Centre for Evolutionary Biology.

Bronwyn is busy refining her presentation for the Trans-Tasman and has consulted an acting coach to help. Hopefully she won’t lose any sleep over it.

The UWA Health Promotion Unit and Student Guild offered a range of activities for students, and representatives from Lifeline, Headspace, Reachout, Students Passionate About Mental Health (SPAMH), UWA Student Assist and Counselling and Psychological Services discussed their services.

SPAMH ran an art exhibition, Under the Rug, at the Cullity gallery designed to stimulate meaningful discussion about mental health through art.

Lots of free events for staff were also held across the campus to celebrate Mental Health Week, with opportunities to stimulate both the mind and body. They included 10-minute massages, free yoga and pilates sessions and lunchtime seminars.

Dee Roche, Senior Management Consultant with AIM WA-UWA Business School Executive Education, offered her insights into how we can contribute to a positive workplace culture, reminding us that we all have an important part to play in making UWA a great place to work. Kathryn Choules from Mind and Movement introduced us to the concept of mindfulness and how it can benefit us in our busy lives.

Sarina Hilton, UWA Health and Wellbeing Officer, said Mental Health Week provided a great opportunity to think about what we could do to boost our own and others’ wellbeing. “That said, it’s one week out of 52, so it’s the actions we commit to that really make a difference.”

To find out more about what the University offers on an ongoing basis to help you to maximise your mental health visit safety.uwa.edu.au/health-wellbeing/health/psychological
Most undergraduates would feel a bit nervous if they were asked to interview the Vice-Chancellor.

But US exchange student Matt Matasci took it in his stride, when he spent 40 minutes with Professor Paul Johnson as part of the Full Circle project, gathering the stories of British migrants to Western Australia.

Matt, from Hawaii, is majoring in Engineering at Notre Dame University Indiana, and chose to take Jenny Gregory’s third year course, WA History and Heritage, during his semester at UWA.

Full Circle is a collaborative project between Winthrop Professor Jenny Gregory, Director of the Centre for Western Australian History, and Dr Andrew Green, visiting senior research fellow in History, from the University of Hertfordshire.

They are recording the stories of those who emigrated from Britain to Australia after WWII, and those of the friends and families they left behind.

The students were all trained by Dr Green (ex BBC) and Dr Bill Bunbury, ABC broadcaster and one of Australia’s leading oral historians, before interviewing 100 migrants at both the Crawley and Albany campuses.

Professor Gregory said her course and the project were popular with international students.

“Matt is one of 12 students from the US, England and France who are involved. That’s about a quarter of the class,” she said.

Matt was not fazed at the prospect of interviewing “the boss.”

“I don’t even know what a Vice-Chancellor is,” he admitted, before the interview.

We can’t share with you the Vice-Chancellor’s insights into the impact on his life of the decision to migrate to Australia because the raw recorded interviews are confidential.

Eventually, the interviews will be stored at the JS Battye Library of West Australian History and at the University of Hertfordshire.

“The Communication Studies students are making a documentary about the project and Andrew Green and I plan to write a book and probably also a teaching and learning journal article,” Professor Gregory said.

She said the students had loved being a part of the innovative project, learning oral history skills and sharing the stories of concern, separation anxiety, excitement and fear of some of the estimated 1.28 million Britons living permanently in Australia.

“We look forward to hearing stories of recent migration as well as those from the more distant past,” said Dr Green. “How were lives changed by the new opportunities that opened up in Australia, and what adjustments did those remaining in the UK have to make?”

“Was fitting in to a similar culture really so easy?” asked Professor Gregory. “How did they cope with separation from loved ones back in the UK?

“I think we will have some wonderful stories.”

New address for UWA’s Campus Management

UWA’s Campus Management team has relocated to 55 Broadway, Nedlands.

Formerly located at the Ken and Julie Michael Building on Fairway, Campus Management staff are now operational at the new location.

While the office location has changed, staff phone numbers and the mailing address will remain the same (M458, 35 Stirling Highway, Crawley WA 6009).

See the map atcm.uwa.edu.au for the new office location at 55 Broadway, Nedlands, just south of Clark Street.
CLASSIFIEDS

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HOLIDAY HOUSE INJIDUP BEACH: Zamia House is an elevated, north facing contemporary home with 180 degree views across Wyadup valley and an ocean view towards Canal Rocks. Injidup Beach is 2km away. The house, set on five acres of bush, is central to Margaret River wineries, restaurants and attractions. The home has 3 bedrooms and 2 bathrooms (one an ensuite), a large covered deck and open plan living. The house sleeps 8. Discount prices for inquiries through UWA News, starting from $200 per night. Contact Jani on 0418 949 318 or zamiahouse@gmail.com

LEEDERVILLE: Townhouse available for short term rental. Comfortable 2-storey townhouse in excellent location. Walk to cafes and shops in Leederville and Mount Hawthorn. Easy access to parks, playgrounds, cycle paths, buses, train station and Lake Monger.

NOTICES

Call for nominations to the Academic Board
Nominations are invited for the election of academic staff and general staff to the Academic Board. Elections will be carried out by postal ballot. Research staff should apply in the relevant category according to whether they hold an academic or general staff appointment.

Further details at: www.governance.uwa.edu.au/committees/academic-board/elections/call-for-nominations-to-academic-board

Given that there is considerable gender imbalance on the Board, nominations from women are encouraged.

Completed nomination forms must be returned to the Academic Secretary by 5pm Monday 10 November 2014.

The Academic Board has four scheduled meetings a year, at 2:15pm on the third Wednesday of March, June, September and November.

Are you an Old Boy or Girl from 'Mod'?

The Perth Modern School graduating class of 1964 will be celebrating 50 years since graduation with a Reunion at the school on 28 November.

It will be in the school refectory (best entrance off Hamilton Street) from 5pm – 8pm and will be a chance to catch up with old schoolmates while enjoying a finger food buffet and refreshments at a very reasonable price. There will also be the opportunity to look through the History Centre.

For catering purposes and to arrange registration and pre-payment, please urgently contact Russell Stephenson on rgs@iinet.net.au or telephone Janet Beed (Wright) on 9453 1282 for further information. Dress is smart casual.

The steering committee has spent the year trying to locate all the ex-students but there are still several who have not been traced. If you were at school in this period, please make contact with the committee now, so that you can find out all about it and be part of the fun.

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Friends of the UWA Library Talk

What history has taught me

ABC broadcaster and author
Adjunct Professor Bill Bunbury

Tuesday, 11 November 2014
Reid Library Ground Floor Meeting Room
7pm (refreshments) followed by the talk at 7.30pm

Professor Bunbury will illustrate early influences on his awareness of the importance of contemporary history, both as a child growing up after World War II; later as a teacher and how later still his work in Radio National’s Social History Unit enabled him to explore individual histories and sometimes uncover ‘hidden’ histories.

Friends of the Library members: Free
Non Members: $5 donation
Contact: susan.oconnor@uwa.edu.au or 6488 2384

Oral health for baby boomers.

From early childhood literacy to high school science, UWA’s teaching graduates are sharing their expertise in classrooms around the world. Our employer reputation score is higher than that of any other WA education faculty, so wherever you want to make a difference, a teaching degree from UWA will help you get there. For more information call 6488 2389 or visit education.uwa.edu.au.
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We need to enhance future research strategies

Professor Miranda D Grounds
Senior Honorary Research Fellow
Anatomy, Physiology and Human Biology

Having progressed from young researcher to Emeritus Professor with an undiminished passion for research and creativity, I have three issues.

The first is the current dire lack of support for basic research and career scientists in Australia.

My independent research career started in 1980 at UWA (where I graduated) with my first sole investigator grant from the NHMRC of Australia. The funding was for a year, to focus on skeletal muscle research. Sheer luxury. I was funded continuously by NHMRC grants and became a senior research fellow in 1994.

Such secure career support from NHMRC for lone young investigators was normal and provided the basis for developing highly original research within Australia. It is of great concern that this funding priority has almost vanished.

NHMRC funding models now promote big science, large collaborations, and translational medical research. Also needed is parallel strong support for basic biomedical science and young independent researchers to develop their full potential. Creativity and the opportunity to challenge established ideas lies at the heart of good science. It is essential to quarantine funding for this.

The second issue relates to WA's unique qualities. An independent approach to excellence in science (and many other activities) is enhanced by the isolation of Perth. In contrast with much of Australia, WA is geographically remote, travel to all other states is expensive, we lack a large critical mass of scientists, there are fewer research job opportunities and, importantly, WA faces the Indian Ocean with many interesting neighbours.

These and other unique features of WA need to be more strongly considered by UWA in strategic planning. Business models devised for major urban centres with dense populations in the USA, UK and elsewhere may be inappropriate for WA. Instead, different approaches might far more effectively enhance the research activities, collaborations, networks and productivity of the excellent academic researchers who choose to dwell in remote WA. We need to remain mindful of our individuality.

Third is the nexus between research and teaching. In 1994, I was encouraged to apply for a Professorial Chair in the School of Anatomy, Physiology and Human Biology, a great honour. I embraced this new challenge, greatly enjoyed undergraduate teaching for over 15 years, have supervised about 30 PhD students and mentored many young researchers. A wealth of initiatives resulted including SymbioticA (the unique science/Art laboratory) and the Indian Ocean Rim Muscle Colloquia.

Recently, when class sizes and teaching loads rapidly increased, it became impossible to maintain both my teaching and research commitments. Since UWA so strongly promoted the need for high profile international research, I proposed a salary cut to exempt myself from undergraduate teaching: the School happily agreed. Our research prospered.

However in 2012, I was asked to consider premature retirement. I still maintain my full research momentum (with more than 22 papers already published in 2013/2014). As the extent of activities of Emeritus staff across campus is likely to increase with the rapidly ageing population, an Emeritus Faculty like that pioneered at the Australian National University seems a fine idea.

While teaching directly brings significant dollars into the Schools, research unfortunately is considered a financial burden. Indeed many research scientists at UWA are told their activities ‘cost the School’: this is not good for morale. Without research, UWA would not be in the top eight universities of Australia nor would it now be ranked in the top 100 universities of the world.

To help promote the research priorities of UWA, it seems that the Vice-Chancellor should initiate increased funding for researchers. Schools and individuals need to be better rewarded financially for high quality academic research activities.

An organisation that demonstrates a culture of strong support for extant researchers is also attractive for recruiting top external scientists to Western Australia.