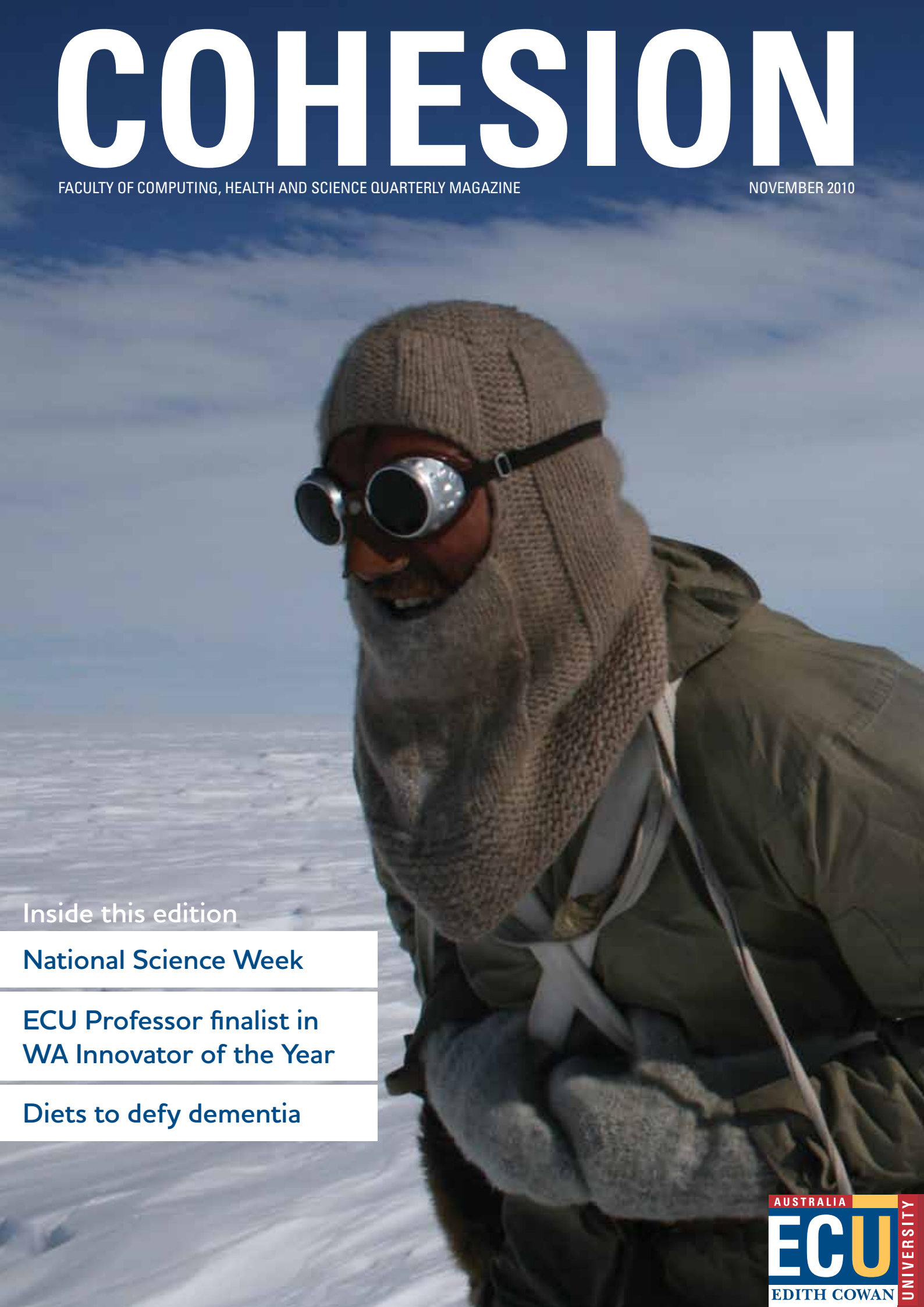


COHESION

FACULTY OF COMPUTING, HEALTH AND SCIENCE QUARTERLY MAGAZINE

NOVEMBER 2010



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Dear Colleagues and Friends,

I am aware that CoHeSion has a wide readership including our many partners and in particular our international partners. I want to take this opportunity to say thanks to the many people who interact with the Faculty of Computing, Health and Science here at ECU and hope to continue developing our relationships in 2011.

CoHeSion has been effective in outlining some of research activities and when combined with the Faculty's Health brochure "ECU Health – Making a Difference" has provided a source whereby researchers have made contact with each other and benefits flow to all involved. We have examples from the US, Korea, China, UAE and within Australia where our activities have attracted attention, particularly in the research space.

The recent ECU sponsored Australia Day Council function "Great Australians" is a good example of expanding relationships in health (see photo top-right) where the Australian of the Year 2010, Professor Patrick McGorry, and the WA Australian of the Year 2010, ECU's Professor Ralph Martins, shared an opportunity to outline the challenges facing Australia and the world with regard to mental health issues. Both these world experts had some very sobering and constructive advice for Government and we can only hope they are listening to protect our future and improve the quality of life for so many.

As 2010 draws to an end it is pleasing to see that the new Engineering and ICT building is up to roof height and will be occupied late in 2011. The area will house additional facilities including some leading edge research equipment in nanophotonics and security as well as engineering. Given the rapid advances in technology overseas, particularly in Asia, it is important that Australia ensure we have world class graduates in science and engineering especially in the post graduate domain. Australia's need also includes the scientific expertise to solve the environmental sustainability issues and ensure we leave the environment in good shape for future generations.



Professor Ron Oliver, Professor Kerry Cox, Professor Ralph Martins, Professor Patrick McGorry, Mr Malcolm McCusker QC and Professor Tony Watson

The success of the Faculty's courses in Speech Pathology, Physiotherapy and Occupational Therapy combined with the growth in health simulation activities have strengthened the Faculty's position as a significant contributor to the health infrastructure of Western Australia. The large numbers of ECU nursing graduates also ensure that Western Australian hospitals have the opportunity to employ highly qualified professional nurses.

I thank the staff, our partners, and students of the Faculty for their contribution in 2010 and wish you a safe and enjoyable festive season.

Yours sincerely,
Professor Tony Watson
Executive Dean



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ECU Professor finalist in WA Innovator of the Year awards

Congratulations to the Head of the School of Computer and Security Science and Director of the secAU - Security Research Centre, Professor Craig Valli, whose research team has been selected as finalists in the 2010 WA Innovator of the Year Awards.

An initiative of the State Government, the awards aim to promote and recognise innovation and entrepreneurship across the public, private and education sectors in Western Australia, providing researchers with skills training, mentoring and financial support.

Professor Valli and his team have been nominated in the Start up Category, for the development on an initial response software tool entitled SiMPLE, which can find, view and export files stored on a suspects computer, allowing authorities to then determine whether or not the files are offensive or illegal and therefore undertake further investigation.

"The program was developed in response to the issue of offensive and illegal images being distributed via the internet, which is a major concern for the police force," said Professor Valli.

"It allows authorities to access files on a computer and then assess whether those files contain offensive images. The program is unique in the fact that it requires minimal technical expertise compared to similar programs which require specialist knowledge and training."

Professor Valli is working with fellow ECU researchers from the secAU - Security Research Centre in the School of Computer and Security Science, Programmer, Mr Glen Thompson; Lecturer in Computer and Security Science, Mr Peter Hannay; Senior Lecturer in Computer and Security Science, Dr Andrew Woodward; and the WA Police to develop the program.

"It's a fantastic achievement to be nominated for these awards, and is great recognition of the hard work done by the team of researchers at ECU," said Professor Valli.

The winners will be announced at a special awards ceremony at the Burswood Entertainment Complex on Thursday, 4 November.

For more information on the awards, visit the WA Innovator of the Year website <http://www.wainnovatoroftheyear.com/>.





Host a BBQ for Prostate Cancer raises money for worthy cause

Fighting fit veterans and those wanting to live longer, live stronger were among the many getting behind the Prostate Cancer Foundation of Australia's (PCFA) Host a BBQ for Prostate Cancer last month.

Organised by the Edith Cowan University's (ECU) Health and Wellness Institute along with the Vario Wellness Clinic on September 30, clients turned up to the barbecue by the lake, hands in pocket, donating almost \$200.00 to the worthy cause.

A charity close to the Institute's heart with the PCFA funding the ECU's Health & Wellness Institute research in the area of prostate cancer and exercise, business manager Catherine Bell said the barbecue was a great way to raise awareness of the disease while raising much needed funds at the same time.

"It's important to hold fundraisers like this to enable the Prostate Cancer Foundation of Australia to continue with their research and hopefully find a cure for this disease," Ms Bell said.

"ECU's Health & Wellness Institute is currently conducting research into Androgen therapy (Androgen is the drug given to men who are receiving treatment for prostate cancer) and exercise.

"Many of our clients are prostate cancer survivors so it is timely and appropriate to raise awareness and funds for this terrible disease."

Volunteering his time and barbecuing prowess on the day was Vario Wellness Clinic veteran and prostate cancer survivor Michael Ryan. The 70 years young Ocean Reef resident along with Ray Edwards and Paul Talma helped set up and cooked up a storm in return for a gold coin donation.

"I believe it is crucial that we conduct these types of fundraisers (breast, prostate etc) as they raise awareness of the diseases and also lead to the raising of valuable funds for research," Mr Ryan said. Currently receiving treatment for advanced prostate cancer, Mr Ryan added he was personally keen to help advance the research into prostate and other cancers.

"I have lost many mates to this disease and believe research is always the answer and funding is vital," he said.

Donations were still coming in for the PCFA from clients of the Wellness Clinic at the time of going to print.



ECU working to improve WA healthcare

Associate Professor Moira Sim and her team at the Systems Intervention Research Centre for Health have been awarded \$145,000 through the State Health Research Advisory Council Research Translation Projects 09/10 to test a new pathway to having care at home.

The joint project between ECU, the University of Western Australia, St John Ambulance and Silver Chain, will see paramedics called to the scene of an incident first assessing whether a patient could be treated at home before being taken to the hospital.

If the patient can be treated at home, they will be allocated to an assessment by Silver Chain Home Hospital for in home care. If not suitable, they will be treated as usual and the outcomes between these two conditions will be compared.

Associate Professor Moira Sim hopes the study will help improve healthcare in Western Australia by finding ways to reduce hospital wait times.

"Today an ambulance called to the home results in transport to the hospital, where the patient will join the queue of those seeking treatment in our busy Emergency Departments (ED)."

"The present lack of alternative pathways for paramedics who are called to the scene contributes to a significant number

of unnecessary transports to ED on a daily basis, adding to waiting times for patients and ambulance queuing and diversions," said Associate Professor Sim.

"We hope that by doing the study, we can find ways to reduce the pressure on ED services and contribute to ambulance resource availability."

Steve Johnston, Senior Lecture Paramedical Science and Project Manager, noted that this project is an exciting development for the recognition of the potential for growth in the scope of practice for paramedics in WA and furthermore positions ECU as a leader in pre-hospital care research at a state and national level.

Associate Professor Richard Brightwell, one of the Chief Investigators in this study said, "Paramedics have for too long been the forgotten health profession, often referred to as "ambulance drivers" and omitted in health service planning. Studies in the UK and Canada have shown that using paramedic skills in innovative roles such as this can reap huge benefits for the community."

For more information on the study, contact Associate Professor Moira Sim at m.sim@ecu.edu.au.

Diets to Defy Dementia

Edith Cowan University Nutrition and Dietetics and the Centre of Excellence for Alzheimer's Disease Research will partner with the Council on the Ageing WA Inc (lead organisation) and Nutrition Australia WA Division to deliver a state of the art nutrition education program to the community on how to fight dementia. The yearlong project received \$58,629 of funding from the Australian Government - The Dementia Initiative - supporting Dementia Community Grants Program.

The aims of the project are to raise awareness about Dementia and Alzheimer's Disease, to provide the latest scientific information on nutritional aspects of these conditions and encourage and challenge participants to make lifestyle changes to reduce the risk of dementia and Alzheimer's Disease.

Alzheimer's Disease is a debilitating disease that is progressive and is caused by nerve cell death resulting in shrinking of the brain. It is the most common form of cerebral degeneration among people aged 65 and older.

Diet is now considered an important environmental factor involved in the development of Alzheimer's Disease. Fruit and vegetables contain many compounds known as phytochemicals, in addition to traditional nutrients, that can elicit biologic responses that may improve brain health and vascular function. Recent studies have investigated the role of different types food components including omega 3 in fish, catechins in tea and curcumin in the spice turmeric in relation to neurological health and function. Neurological health benefits from these food components seem promising.

The aims of this project are to (1) raise awareness of Dementia and Alzheimer's disease in our community among

sufferers and their families as well as other community members, and (2) translate the latest biomedical research of the role of nutrition and these diseases into practical applications for everyday life. The second aim involves a more intensive cooking program, which uses ingredients which have been shown to reduce disease risk. This hands-on cooking program puts theory into practice and will engage more than 100 participants and provide them with the cooking skills and food knowledge to make relevant behaviour change.

If lifestyle interventions can delay the onset of the disease by five years, there would be a 50% reduction in the number of Alzheimer's disease cases. Moreover, if the onset of the disease can be delayed by 12 months; 9.2 million fewer cases would be seen worldwide.

This partnership believes health and wellbeing are key components of active healthy ageing and addresses the Commonwealth's National Health Priority Areas, specifically Mental Health. Nutrition not only directly affects mental health outcomes, including improved cell to cell communication and reduction of cerebrovascular systemic inflammation and plaque build-up, but is also associated with reduction of other disease risk factors such as being overweight, raised cholesterol levels and central adiposity, all of which increase the risk of Dementia and Alzheimer's disease.

The project launch is planned for 20th September at Edith Cowan University.



Review shows carers undervalued and under stress

With cancer patients living longer, carers in Australia are finding it increasingly difficult to cope, reporting health issues including stress, anxiety, burnout and depression, according to a study published today in Cancer Forum (www.cancerforum.org.au).

The review of literature on unpaid caregiving highlights a range of health and other issues for carers of cancer patients, noting that in carers of advanced cancer patients, between 32% and 70% have experienced high level distress or depressive symptoms suggesting clinical depression.

According to the author, Professor Anne Wilkinson, from the WA Centre for Cancer and Palliative Care, despite their crucial role (carers' replacement value is estimated at \$30.5 billion annually), carers' needs are often neglected or underappreciated, including by palliative care health professionals.

"The number of unpaid carers in cancer is growing, due to several factors including improvement in cancer survival rates, meaning people are living with the disease for longer," said Professor Wilkinson. "We also know 90% of terminally ill patients spend their last years at home cared for by lay carers."

Professor Wilkinson said carers were spending an average of 40 hours a week providing care. They were doing more hands-on activities, including nursing and medical procedures. As patients moved through the cancer trajectory, and disease progressed, their needs increased "exponentially".

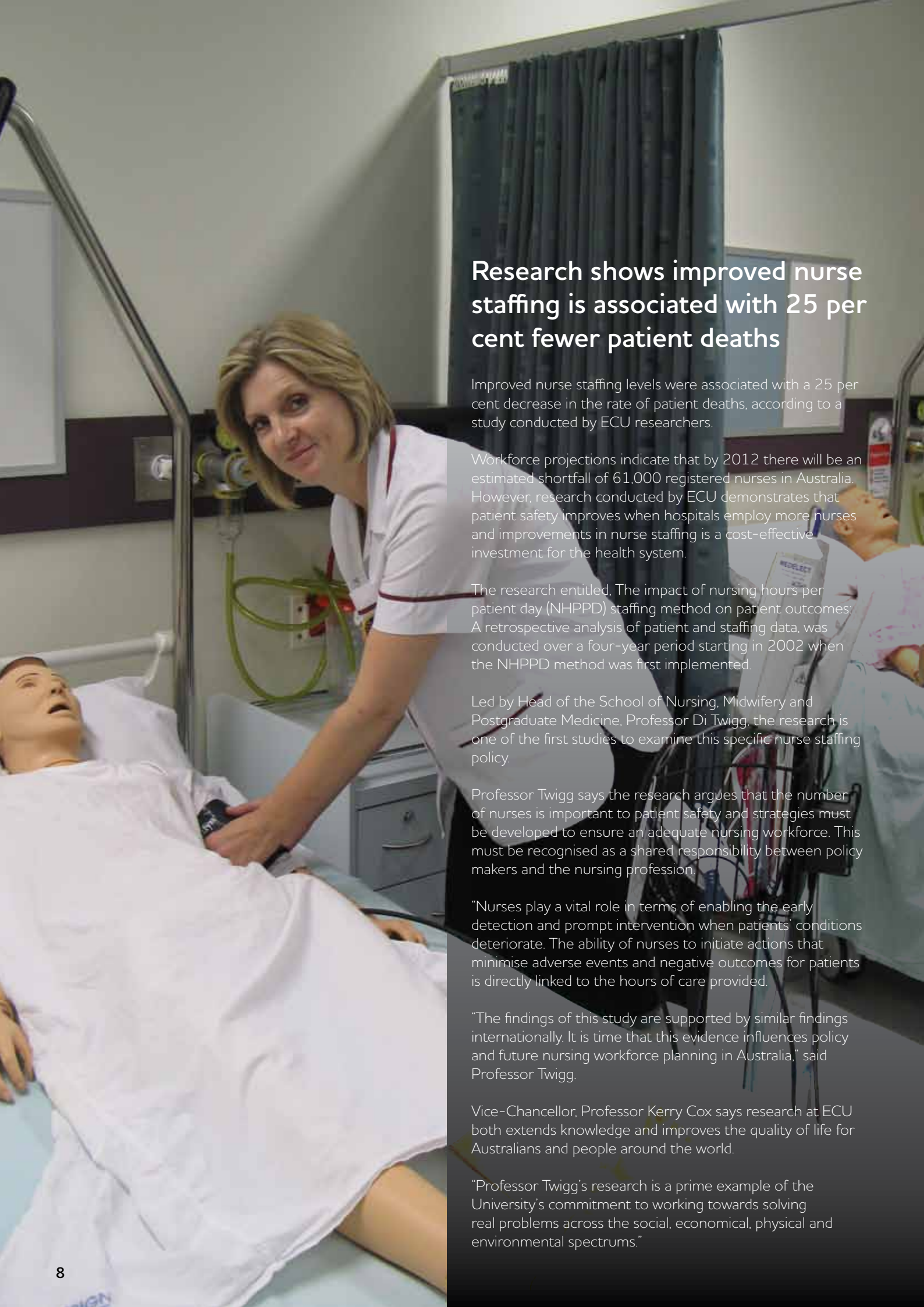
"The research shows caregiving places far reaching demands on the carer, physically, emotionally, financially, in existential and social domains, and can negatively impact the carer's health, wellbeing, immune system, risk for disease and life expectancy when compared to non-carers," she said.

The situation was exacerbated by health professionals failing to refer patients to specialist or community based palliative care services in time, with almost 15% referred too late to receive services.

Despite the challenges, Professor Wilkinson said carers did report positive aspects of end-of-life caregiving, including emotional strength, personal growth and strengthened relationships.

Other papers in the Forum on 'Symptom management in supportive care':

- Palliative care: compassion, care and complexity (Meera Agar)
- Role of pharmacogenomics in pain therapy: focus on opioids (Andrew A Somogyi, Janet Hardy)
- Delirium in advanced cancer (Christine Sanderson, Meera Agar)
- Lymphoedema management in palliative care (Bronwen Hewitt, Erin Bugden, Polly Levinson)
- Management of refractory dyspnoea: evidence-based interventions (Patricia M Davidson, David C Currow)
- Rehabilitation in advanced cancer (Andrew MD Cole)
- Therapeutic use of self and the relief of suffering (John H Kearsley)



Research shows improved nurse staffing is associated with 25 per cent fewer patient deaths

Improved nurse staffing levels were associated with a 25 per cent decrease in the rate of patient deaths, according to a study conducted by ECU researchers.

Workforce projections indicate that by 2012 there will be an estimated shortfall of 61,000 registered nurses in Australia. However, research conducted by ECU demonstrates that patient safety improves when hospitals employ more nurses and improvements in nurse staffing is a cost-effective investment for the health system.

The research entitled, *The impact of nursing hours per patient day (NHPPD) staffing method on patient outcomes*: A retrospective analysis of patient and staffing data, was conducted over a four-year period starting in 2002 when the NHPPD method was first implemented.

Led by Head of the School of Nursing, Midwifery and Postgraduate Medicine, Professor Di Twigg, the research is one of the first studies to examine this specific nurse staffing policy.

Professor Twigg says the research argues that the number of nurses is important to patient safety and strategies must be developed to ensure an adequate nursing workforce. This must be recognised as a shared responsibility between policy makers and the nursing profession.

"Nurses play a vital role in terms of enabling the early detection and prompt intervention when patients' conditions deteriorate. The ability of nurses to initiate actions that minimise adverse events and negative outcomes for patients is directly linked to the hours of care provided.

"The findings of this study are supported by similar findings internationally. It is time that this evidence influences policy and future nursing workforce planning in Australia," said Professor Twigg.

Vice-Chancellor, Professor Kerry Cox says research at ECU both extends knowledge and improves the quality of life for Australians and people around the world.

"Professor Twigg's research is a prime example of the University's commitment to working towards solving real problems across the social, economical, physical and environmental spectrums."



Interprofessional Leadership Program

The Faculty of Computing and Health Science has developed an Interprofessional Leadership Program for students transitioning from Stage Four to Stage Five in respective bachelor's degrees. The Faculty views leadership as an integral attribute of professionals in an environment of change and dynamics such as health care and is committed to developing students' skills, knowledge and attitudes which prepare them for leadership roles.

The program was offered to 2nd year students studying Nursing, Psychology and Engineering. Dr Joyce Hendricks structured the program with the assistance of Vicki Cope which saw 19 students complete the project, with the outcome of developing effective communication, team building and collaborative skills. The students also learned how to improve their the ability to influence, persuade and motivate others; develop problem solving, risk taking, and perseverance skills to overcome obstacles; develop an understanding of cultural diversity and develop an understanding of the importance of participating in leadership and social change for the common good.

Leadership in Action which is central to the program, involved the students working with a Leader Mentor, a senior manager in Industry to and draw upon their skills to lead a project. The Leadership Projects required the students to complete a minimum of 30 hours of work on their respective projects.

One Mentee and 2nd year nursing student Sarah Holden organised the Graduation Dinner for the graduating mentees. Sarah was mentored by Associate Professor Lynne Cohen. The Graduation Dinner commenced with a speech from

Professor Tony Watson, who congratulated the students on their extracurricular activity and achievements. Professor Watson also thanked the Mentors for their continued support of the Leadership Project, emphasising the importance of having community and industry involvement and support.

Quotes

"This program taught me that you can't always rely on others and being a leader means I actually have to take control and lead" – Sam Mann, ILP Student

"I enjoyed seeing the students gain confidence throughout the program. You don't know everything, and you can't know everything, it's about learning and having confidence in yourself to work through tasks that might seem overwhelming in the beginning"

"Being a good leader means always learning to be a good leader" – Vivian Hendricks, Leader Mentor

"I think that elements of the ILP Program should be included in the nursing curriculum as well as other disciplines. So as to equip all students with the ability and empowerment to 'speak for themselves in the field'" – Agata Hallidan, ILP student

"I am enthused and confident in the skills of these young nurses; I feel we are leaving patients in safe hands with the next generation" – Rosemary Hoffman, Leader Mentor



Secure My Computer Project keeping parents and elderly safety

This year students and staff in the School of Computer and Security Science are working towards a security program for computer users with little or no understanding of the ways and means to secure their internet. Aimed at Baby boomers and their parents, the Secure My Computer initiative takes standard computer security concepts and re-packages them into simplified easy-to-learn steps and procedures for those with without computer literacy. In a remarkable achievement, the project has drawn over 30 undergraduate students to work on the initiative as part of their 2010 Applied IT semester project work.

The Secure My Computer team has been constructing an impressive instruction and information portal, aimed squarely at helping older citizens with limited computer experience. The portal uses 20th century language to explain 21st century computer security concepts without the heavy restrictions of jargon, geek-speak, and overly confusing terminology. The Secure My Computer program will be rolled out to the older community who are often left behind the fast paced intuition of GenY and Gen X citizens, yet still need the security protection to operate their home computers, small business enterprises or simply engage with the wireless opportunity of countless cafes and public spaces.

Project coordinators David Cook, Patryk Szewczyk, and Krishnan Sansurooah were delighted with the response from students. "The opportunity for students to give back something in the form of security training to the community reflects a re-engagement with ECU's core values by engaging minds and communities," said David Cook. "These first 30 students have laid the foundations for the program to expand well past website information into face to face community instruction, training workshops, and individually tailored responses to suit clubs, associations, and individuals in need of a secure computer environment. Stage One of the project has seen the collation of an impressive range of security-related knowledge become packaged to suit those with the least understanding, and probably the greatest need for computer security."

Pictured are five students from the Secure My Computer project Team in 2010, from the left Badde Liyanage, Lorin Cox, Dee Kong, Ru Maramwidze and Allan Kapoma.

Wale, Dr David McDougall

24 November 1943 - 23 September 2010

Dr David McDougall died peacefully on Thursday 23 September, five weeks after he had been diagnosed with liver and pancreas cancer. David was a senior lecturer in the School of Engineering and Mathematics (now School of Engineering) till his retirement at the end of 2006.

David was born in Hartlepool, England, into humble circumstances, the eldest of four children. His life as a child and teenager was not easy, with his family being separated as a consequence of his mother's illness and his father's shift work. David spent his years at grammar school as a foster child in the home of an elderly widow. Following his successful completion of Sixth Form he enrolled in a Bachelor's degree in mathematics at the University of Newcastle, where he also completed his Master's degree in pure mathematics. He then moved to London where he completed a PhD in group theory at the University of London, St Mary's College, under the supervision of Derek John Scott Robinson. After a short stint at the University of Hull, he emigrated to Australia. David's first position was a post-doctoral fellowship at the ANU in Canberra where he worked with Bernhard Neumann.

His Postdoc was followed by a two-year lectureship at the ANU and a further two years at the University of Tasmania, lecturing in mathematics and statistics.

In 1977 he and his wife Kay, whom he met whilst at the ANU, moved to Perth where David spent the remaining 30 years of his career lecturing first at the Secondary Teachers College, Nedlands College of Advanced Education, then as a senior lecturer at the Western Australian College of Advanced Education and, finally since 1991, at Edith Cowan University.

David's contribution to ECU and its predecessor institutions were manifold. While at Nedlands CAE and WACAE he participated in practicum supervision for teacher trainees and taught mathematics for students in the mathematics education program. At ECU he taught mathematics and statistics at the undergraduate level to a wide variety of

students. Teaching was clearly more of a passion for him than research and he excelled at making students from varied backgrounds comfortable with having to learn some mathematics. He certainly inspired his students (a lot of whom were service students) to regard mathematics as more than a necessary evil. Indeed some of them chose to switch

to mathematics as a career because of his enthusiasm for mathematics and commitment to mathematics education. In addition to being an excellent teacher, David served ECU in several administrative roles. From 1994 until the disestablishment of departments in 1997 he was Head of the Department of Mathematics. Other roles included the Teaching and Learning Coordinator at the School of Engineering and Mathematics for several years, the Mathematics Discipline Coordinator, Acting Head of the School (2002), and Head of School (2004-2005).

In addition, for a period of nine years he served the broader mathematics community as a tertiary entrance examiner; first on the Discrete Mathematics panel, then on the Applicable Mathematics panel. Except for the first year his role was that of chief examiner. His service extended also to an involvement in the ECU Mathematics Problem Solving Program. From 1997, David taught two classes per week of Year 8 school students in mathematics problem solving skills. Over a period of 14 years, more than 600 gifted and able school students benefitted from his mentoring.

David chose voluntary redundancy at the end of 2006. However, he maintained his link with the School and his former colleagues through visits for the School's regular Friday morning teas, always willing and interested to discuss points of

mathematics pedagogy or affairs of the world more generally. He generously supported his colleagues and his students with a strong commitment to mathematics and to education. David will be remembered for his integrity, sense of duty, and the courage of his convictions.





The Challenge of the Accessible Web

For most of us surfing the Internet typically involves opening our favourite web browser and navigating to a stored bookmark, or entering a web page address, or perhaps searching for information via one of many available search engines. We watch as the page loads, and are quickly able to process the information as it is displayed on our screens, but for some users this is not the case and understanding a web page can be a far more complex task. Some users may have a visual impairment, others an auditory impairment, and thus accessibility guidelines were established to provide web developers with strategies to ensure equality of access to information irrespective of any possible impairment.

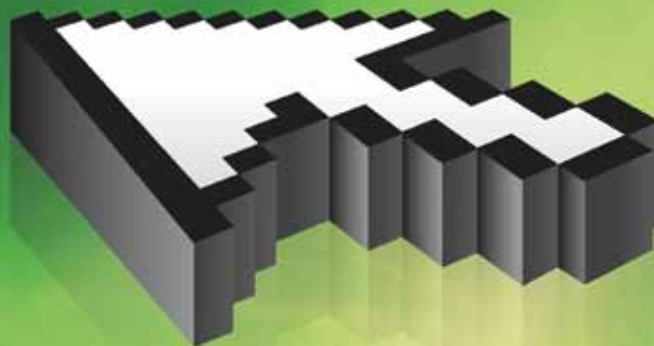
Vivienne Conway, a student in the School of Computer and Security Science has been conducting website audits as a part of her Honours research to determine adherence to Australian and internationally-recognised guidelines for website accessibility. Vivienne's research has led to her develop an audit method that combines both quantitative and qualitative methods in order to ascertain both the accessibility and usability of the websites. The use of automated tools was shown to not provide a complete picture.

The research project involved the auditing of 29 public library websites across Western Australia having links to online catalogues. The audit used two automated website accessibility tools, HTML and CSS validation tools, a manual checklist and an evaluation of a selection of the websites with the most popular screen-reading software, JAWS.

Two surveys were conducted to gain an understanding of the perspectives of the libraries, directed to reach all public library communities in Western Australia, including those with and without a library website. The surveys were designed to ascertain the willingness, barriers and benefits to compliance perceived within the public library community. Follow-up interviews were also offered to add still further understanding of the issues faced in achieving website accessibility compliance.

Surprisingly, it was discovered that none of the public library websites audited had complied with even the most basic Web Content Accessibility Guidelines (WCAG 1.0 or 2.0). WCAG 2.0 is the level proposed in the Australian Government's Web Accessibility National Transition Strategy that was released in June 2010, the purpose of which is to "set a course for improved web services, paving the way for the more accessible and usable web environment that will more fully engage with, and allow participation from, all people within our society." While the libraries expressed a desire to have an accessible website, they cite the barriers of time and cost as the chief problems in achieving this. In addition, there is great uncertainty as to who is actually responsible within a local government for ensuring that the website meets the compliance requirements.

Within the web development community there is a demonstrated lack of understanding of the guidelines, and the necessity to comply with them, as well the costs



New course in 2011



The World Wide Web plays a pivotal role in business, personal communication, education and research. From desktop pc's through mobile phones and even fridges, connectivity to and via the Web has become as much a part of daily life as has televisions, cars or mobile phones. For businesses, large and small, the Web provides a universal platform through which software applications can be delivered. These applications may take the form of social networking sites, search engines, online shopping systems or business process tools. Regardless of the application or the end user, developers are in demand to create, deliver and manage online systems and to keep up with the ever changing range of Web technologies.

of non-compliance. The surveys indicated that website sponsors did not seem to understand the business benefits that arise from having an accessible website:

- Increased ease of use for all;
- Increased search engine 'hits' based on search engine compatibility; and
- Avoidance of hefty fines from complaints lodged with the Australian Human Rights Commission.

The results of this research outline the far reaching implications non-compliance can have for any personal, government or business entity with a web presence. Creating or modifying websites, especially those with interactive elements such as web forms, involves a need to comply with WCAG 1.0 or 2.0 guidelines. Whilst some considerable time may be required to ensure compliance of websites against these guidelines the regulatory landscape within Australia, and indeed around the world, means that accessibility can no longer be considered optional.

To this end the School of Computer and Security Science has developed a new Bachelor of Science (Web Technology) degree with the sole aim of serving the web development community. The course features a hard-core blend of computer science and software engineering units aligned with a large number of web-specific programming units covering a wide range of development technologies in-depth. The degree has been designed to be both challenging and highly practical, including a Work Integrated Learning program for industry placements as well as an assortment of real-world project units. Graduates from the new course, which commences in semester 1, 2011 will be highly employable in a global context and across a variety of careers, including web application designers and coders, systems analysts and project managers.

LabRats

The "LabRats" program again provided an opportunity for enthusiastic year 10 students to try out some of the science laboratories on ECU's Joondalup campus and be a university student for a day. LabRats is very popular with schools in the northern corridor as a way of inspiring their students to continue study in science subjects. Through the program we aim to offer groups of high school students from many different schools a taste of science at ECU. The students are able to choose between a pair of activities to select the activity that best suit their subject interest.

Each school group is escorted around the campus by a current ECU student. These student ambassadors talk about making future study decisions as a high school student and about their experiences at university. Thanks to Sian Roberts, Chloe Gaborit and Peter Claassen for a superb effort.

The workshops this year were:

- 'Kangaroo Paw Tissue Culture' - thank you to Dr Ian Bennett and Michael Pezzaniti for running this very popular activity.
- The Chemistry activity, 'Will analysis using TLC' analysed pen inks to determine the authenticity of a will. Well done to Dr Janette Head, Dr Mary Boyce and Nardia Bordas for their efforts and also for managing to squeeze in making of slime and silicone balls into the activity.
- The 'Oil Spill Clean Up' activity returned this year. The school students tried out various methods to clean up a simulated oil spill comparing some simple but effective methods with high tech ones. Thank you to Dr Andrea Hinwood, Brad Mettam and Chandima Weerasekara for all your hard work.
- The ever popular environmental management activity had school students wading into the campus lake collecting samples and testing out various meters and equipment. They also took samples back to the laboratory for further investigation using microscopes. Thank you to Candace Willison, David Galeotti and Rob Campbell for running the sessions.
- 'DNA testing for Melanoma' was included again this year. This activity is very popular during the ECU open days and it was very popular with the school students. Thank you to Dr Mel Ziman, Pauline Zaenker and Jayde Croft.
- Thanks to Physics student Gary Allwood and Associate Professor Steven Hinckley for presenting an amazing array of activities under the title of 'Adventures in Physics'.
- Scott Jamieson and Jane-Anne Gardner presented the Wounds and Dressings activity on behalf of the School of Nursing, Midwifery and Post Graduate Medicine. Some of the students were shocked at how real some of the bed sores looked.

The success of LabRats relies on the goodwill of staff who put in their time, effort and enthusiasm to ensure that the students' experience is enjoyable and that they leave with a positive impression of a welcoming, friendly and professional university at ECU. A sincere thank you to all Faculty staff and students who contributed in any way to another successful "LabRats" event in 2010.





National Science Week 2010



Several events were run this year to celebrate National Science Week in late August.

Staff and Students from the School of Natural Sciences, Astronomy unit participated in the Shopping Trolley Science event at Lakeside Joondalup shopping centre. This event was coordinated by staff at Scitech and involved several spectacular science shows as well as many static displays in the 'Great Space' at the shopping centre. Thank you to Rick Tonello, Nardia Bordas, Rylan Shearn and Rebecca Pietruszko for their wonderful work.

ECU was fortunate to get access to National Science Week National Tour Guest, Tim Jarvis, who spoke to 2 groups about his adventures trekking in Antarctica and in the Arctic. Tim has replicated several famous survival treks and is currently preparing his latest expedition, an epic recreation of Shackleton's historic rescue journey using period clothing and equipment and an exact replica of the explorer's famous boat, the James Caird. The first event was held at John

Septimus Roe Anglican Community School in Mirrabooka for students from several local high schools. This was followed by a general public evening event on the ECU Joondalup Campus for 120 people. Both events went really well and the audience responded to his very inspirational lectures with an endless number of questions. A special thank you to Professor Paul Lavery, the MC, at the Joondalup evening event.

The final key event was held in the Joondalup Campus Tavern and Degrees Brewery. About 60 people joined ECU brewing lecturer Hugh Dunn for several beer tastings in the tavern. Hugh delighted everyone with information about beer styles and techniques used to make the different beers. This was followed by a tour of the brewery including the recent renovations to house the new malting plant, improve storage and space available to the brewing course. Thanks to School of Natural Sciences staff, Hugh Dunn, Jon Luff and Nardia Bordas and a special mention to Sarah Cole from the tavern for all her help running the event.





Child Health Promotion Research Centre receives state-wide recognition for mental health promotion research

ECU's Child Health Promotion Research Centre was announced the 2010 winner of the Mental Health Good Outcome Awards; Curtin University of Technology Research and Education Category at an awards breakfast held at the Parmelia Hilton on Tuesday October 12, 2010.

Presented by Western Australia's Mental Health Commission in partnership with sponsor Curtin University, the award recognised the Centre's outstanding contribution to improving mental health outcomes in Western Australian communities.

Established in the 2004, the Centre has conducted extensive research into school bullying for students aged 5 to 15 years, their teachers and families. It has developed and evaluated school, parent and community based resources to increase understanding and skills to reduce the negative mental health outcomes associated with aggression and bullying, including cyber bullying, in both Aboriginal and non-Aboriginal communities.

Current research projects include a world-first trial to reduce cyber bullying among adolescents and a project addressing ways to increase school and teacher capacity to reduce social aggression among students.

Previous research projects include Friendly Schools; Friendly Schools Friendly Families; Supportive Schools; Childhood Aggression Prevention; and Solid Kids Solid Schools. All of these research projects work with schools and local communities and engage student voice to reduce harms from bullying.

ECU's Professor Donna Cross attends International Research Scholars Cyber Bullying Think Tank

ECU's Professor Donna Cross was recently invited to attend a five-day international forum on cyber bullying prevention hosted by the University of Arizona. Nine countries from Europe, South East Asia, North America and Australia were represented at the meeting. Scholars from a variety of disciplines, including public health, psychology, social work, communications and education, and IT shared their research expertise related to bullying and cyber bullying behaviours.

Professor Cross presented the Child Health Promotion Research Centre's bullying research, and particularly its world-first cyber bullying prevention research trial. She and other scholars were given the opportunity to contribute to important discussions about the definition of cyber bullying, methodological and measurement issues, the identification of new research questions, and the planning of future collaborative research projects.

Discussions, conclusions and recommendations will be published in an edited book, special issue journal articles and presented at national and international conferences in 2011. Recordings will also be made available as online podcasts.

These publications and the ongoing partnerships formed between scholars provide valuable tools for future research, increasing the quality, comparability and consistency of cyber bullying prevention research.

For more information about the International Cyber Bullying Think Tank, please visit <http://icbtt.arizona.edu>.

Climate change

Climate change is having direct impacts on biological systems in every habitat on land and in the oceans. Understanding how ecosystems will respond and which adaptation strategies may be appropriate requires knowledge of their resilience to climate change stressors. Globally seagrasses (marine flowering plants) are an important marine habitat, providing ecosystem services of ~ US\$19 000 ha⁻¹ yr⁻¹, yet very little is known on how seagrasses will respond to climate change. Kathryn McMahon and Pippa Moore from the Centre for Marine Ecosystems Research in collaboration with Peter Ralph at University of Technology, Sydney were successful in obtaining an Early Career Research Grant from ECU to investigate the interactive effects of climate change (temperature increases and ocean acidification) on the growth and productivity of seagrasses. This study will improve the understanding of the resilience of seagrasses to climate change and will improve our capacity to predict the effects of climate change on this ecologically important ecosystem. Experiments are being carried out in temperature-controlled rooms in aquaria where CO₂ and temperature are being regulated to reflect present day and predicted future conditions. This is building on the research that Pippa has been conducting on the effects of ocean acidification on a number of key fauna (gastropods) that live in seagrass meadows, particularly how their growth and shell strength is affected by ocean acidification and the implications for trophic interactions i.e. if ocean acidification leads to thinner shells will it result in changes in prey choice within key consumers such as western rock lobsters. Research assistant Natasha Dunham, intern Guilhem Marre and undergraduate student Patrick Stirling have also been working on these climate change related projects.





Reinforced Soils – Cost-Effective and Environment-Friendly Construction Materials

Reinforced soil is a composite construction material formed by combining soil and reinforcement. This material possesses high compressive and tensile strength similar, in principle, to the reinforced cement concrete. It can be obtained by either incorporating continuous reinforcement inclusions (for example, strip, bar, sheet, mat or net) within a soil mass in a definite pattern or mixing discrete fibres randomly with a soil fill before placement. The term reinforced soil generally refers to the former one, although it may more appropriately be called systematically reinforced soil, whereas latter one is called randomly distributed/oriented fibre-reinforced soil or simply fibre-reinforced soil. Although the reinforced soil has been in practice in crude form since the ancient times, it is being used more frequently in the civil engineering applications since the development of the modern form of soil reinforcement in 1966 by Henry Vidal, a French architect and engineer.

The concept of reinforcing soil with fibres, especially natural ones, originated in the ancient times. Applications of reinforced soils using clayey soils and natural fibres can be seen even today in the rural areas of India for making containers, ovens, toys, etc. However, randomly distributed fibre-reinforced soils have recently attracted increasing attention in construction of the geotechnical engineering structures. In comparison with systematically reinforced

soils, randomly distributed fibre-reinforced soils exhibit some advantages. Preparation of randomly distributed fibres-reinforced soils mimics soil stabilization by admixtures. Discrete fibres are simply added and mixed with soil, much like cement, lime, or other additives. Randomly distributed fibres offer strength isotropy and limit potential planes of weakness that can develop parallel to the oriented reinforcement as included in systematically reinforced soil.

Predicting the strength behavior of the fibre-reinforced soils has been a challenging task for civil engineers since its development. This problem has been recently solved by Associate Professor Sanjay Kumar Shukla and his research team members. They developed a simple analytical model, which has been recognised by the American Society of Civil Engineers (ASCE) through its publication in Issue 9, Vol. 22 (September 2010) of the Journal of Materials in Civil Engineering. The model shows that an increase in strength follows the variation as reported by several researchers based on their experimental works.



Human Performance Centre

Operating within the discipline of Exercise and Sports Science, the Human Performance Centre aims to provide a range of quality sports science services to community coaches, teachers, teams and individuals across Perth, Western Australia and even internationally.

Whilst having already worked closely with a number of Western Australia's elite teams and sportspeople, the Human Performance Centre is looking to extend its horizons to engage athletes at all levels, including those less likely to attract government or corporate sponsorship.

The Centre's objectives integrate directly with ECU's Strategic Priority Areas of engaging and serving our communities and providing programs to meet their needs; and support the University's long term goals of providing engagement activities which produce mutual benefits and productive relationships. Not only will the Centre provide valuable services for the community but also create workplace integrated learning opportunities for our undergraduate and postgraduate students, allowing them to integrate theory with authentic real world skills and experiences.

Maximising the use of its world class facilities and equipment, combined with an outstanding teaching and research program, the Human Performance Centre plans to offer services to the community including:

- Physiological testing
 - Maximal aerobic capacity
 - Anaerobic thresholds
 - Body composition
 - Training zones
 - Sport specific laboratory and field testing of agility, speed, acceleration, flexibility, strength, power and endurance
- Development of training programs
- Biomechanical analysis of sports techniques
- Sports Science education workshops for community coaches and teachers
- Curriculum aligned workshops for Upper School Physical Education Studies students.

For more information please contact the Coordinator, Human Performance Centre, Zane McDonald on 6304 2726 or at z.mcdonald@ecu.edu.au.

Dr Gilly Smith elected to board of Motor Neurone Disease Association of WA

On Saturday 9 October 2010, the Motor Neurone Disease Association of WA (MNDAWA) had its AGM at The Niche, Sir Charles Gardiner Hospital. Dr Gilly Smith from the School of Nursing, Midwifery and Postgraduate Medicine was successfully nominated to the board.

The purpose of the MNDAWA is to raise funds to support those diagnosed with Motor Neurone Disease to live as full and productive lives for as long as possible, and to support them and their family and carers when the disease progresses. The funds raised also go toward research into a cure for the disease.

Motor Neurone Disease is a progressive fatal neurodegenerative disease of motor neurons (responsible for voluntary muscle movement) for which there is no known cure. From diagnosis, patients may have as little as months to live or as long as several years. All patients progressively have neurological deficit leaving them unable to use their hands or limbs; their minds are still active, yet they lose the capacity to communicate.

Feasibility of a pre-operative exercise intervention in prostate and colon cancer survivors

Recent research suggests that exercise is safe for cancer survivors and has shown to alleviate a number of treatment side effects. Although exercise has positive effects for the management of cancer related treatments in terms of the quality of life (QOL), functional performance and has demonstrated to be beneficial prior to surgical procedures including lung cancer patients, no information currently exists on the role of pre-operative exercise prior to prostatectomy and colon resection.

Incontinence and sexual dysfunction are common adverse effects associated with prostatectomy. Colon resection survivors receiving a chemotherapy or radiation therapy prior to surgery tend to suffer from an increase in fatigue, reduction in cardiovascular function, loss of muscle strength and deterioration of lean body mass.

A PhD research study by Favil Singh, a student from the School of Exercise, Biomedical and Health Sciences supervised by Professor Robert Newton and Associate Professor Daniel Galvao, is to look at how to improve the QOL and functional performance of cancer patients using exercise. His research will look at alleviating the side effects of surgery for both prostate and colon cancer survivors using a pre-operative exercise intervention. The intervention program will run at the ECU Health and Wellness Institute.

His proposal will comprise of two randomized controlled trials (RCT) examining the role of exercise prior to major surgical procedures for both prostate and colon cancer survivors to improve clinical outcomes, promote recovery and improve QOL. The first trial will compare the effects of a

Motor Neurone Disease is also known as amyotrophic lateral sclerosis (abbreviated ALS, also referred to as Lou Gehrig's disease). The condition is often called Lou Gehrig's disease in the US, after the famous New York Yankee's baseball player who was diagnosed with the disease in 1939. Today, renowned physicist Stephen Hawking is perhaps the best known living person with Motor Neurone Disease.

"It's a fabulous organisation to be associated with for a professional with an intensive care background. I've cared for many patients with Motor Neurone Disease throughout my nursing career, so the opportunity to be involved in supporting this group of patients, their carers and families is something I feel privileged to do. They show a determination for living life to the fullest, despite knowing their prognosis."



pre-operative exercise intervention to usual care in survivors scheduled to undergo radical prostatectomy. The second trial will assess the similar effects of exercise in colon cancer survivors scheduled to receive surgical resection following chemotherapy or radiation therapy.

His proposed work has the potential to improve physical reserve capacity in prostate and colon cancer survivors' prior to complicated surgical procedures, minimize adverse effects associated with chemotherapy/radiation treatment and improve clinical outcomes by facilitating recovery.



Health and Well-being: Good nutrition important in recovery

Residents at alcohol and other drug rehabilitation centres are learning more about the impact of nutrition on their health, thanks to a research project conducted by Master of Nutrition & Dietetics students Bianca Nas and Jessica Milliner. The 'Healthy Eating for Wellbeing' project is the result of a partnership between ECU and the Western Australian Network of Alcohol and other Drug Agencies (WANADA).

The Consumer Health Project, now the Health and Well-being Project, aims to support improved health for people with alcohol and other drug issues in response to evidence that their general health needs often go unmet. The project began by consulting with workers and consumers at alcohol and other drug services about consumers' general health needs.

"The importance of good nutrition in assisting in recovery from alcohol and other drug dependence became increasingly evident as the project progressed," says Consumer Health Project Coordinator Kim Ziapur.

Bianca Nas, who is also Health and Well-being Project Officer at WANADA, and Jessica Milliner conducted their research project at Cyrenian Therapeutic Community in the north of Perth and Serenity Lodge in Rockingham. Undergraduate Nutrition students assisted with the physical assessments.

"It's wonderful to see the enthusiasm generated by the project and to assist in providing a service that consumers and alcohol and other drug services have asked for," says Kim Ziapur.

The Healthy Eating for Wellbeing project ran for eight weeks and involved residents in four nutrition education sessions and two nutrition assessments. The project gained assistance from Kristy Law, a dietitian from Womens Health Services, who worked with Bianca and Jessica to provide the nutrition education sessions.

"The nutrition assessment looked at the physical health and nutrition status of residents," says Bianca Nas. "An eating disorder questionnaire was also given to provide residential rehabilitation centres with knowledge about the prevalence of eating disorders among their residents." Preliminary results indicate a need for nutrition education as part of alcohol and other drug rehabilitation.

The partnership not only supports residents to make changes that improve overall health and supports services in their work, it introduces students to the alcohol and other drug sector highlighting ways that students can apply their knowledge and skills in community services.

"We hope that the partnership continues to benefit consumers, services and students alike," says Kim Ziapur.



Student Information Centre

On November 1st, the Faculty opened its doors to the new Computing, Health and Science Student Information Centre located on the Joondalup and Mount Lawley campuses of Edith Cowan University.

The main Centre at Joondalup is based in building 19 and has been newly renovated, offering a warm welcome to students with vibrant decor and a student focussed advice area. Course information and guides are readily available, students have internet access and walk-in support is accessible at any time between 8.30am–5.00pm Monday to Friday, no appointment necessary.

With a new central contact point, undergraduate and postgraduate students can now access support in one location at each campus and be confident that a Student Information Officer will always be available to respond to any queries.

Our friendly Student Information Officers are dedicated to assisting current and future students with course information and advice and can provide access to academic support. The Centre is also responsible for assessing and administering eligibility and recognition of prior learning and student exemptions. We are the first point of contact for your Faculty related student support needs.

As ECU is committed to working collaboratively and in partnership with Indigenous Australians, we have a dedicated Indigenous Student Information Officer to ensure that our support services reflect our diverse University culture. Please take the time to visit the new Centre and encourage students and colleagues to do the same.