A learning Army is critical to a complex future

Flinders University is playing a leading role with the Defence Science and Technology Organisation in helping the Australian Army develop the skills required to educate soldiers for increasingly diverse and complex operations.

A collaboration between the School of Education at Flinders and DSTO is contributing to the restructuring of learning within the Australian Army, as part of an initiative known as “Adaptive Army”.

Flinders academic Dr Paddy O’Toole said that there is growing military focus in Australia and overseas on the “human dimension”, and particularly on the need to improve the individual, collective and organisational learning capacity among armed services personnel.

DSTO social scientist Ms Maya Drobnjak said that the Army has recognised that the way it does its business is changing. “The key is the soldier, and his or her ability to deal with the various groups and cultures with whom they interact,” Ms Drobnjak said.

Dr O’Toole said the Army acknowledges the need for soldiers to adapt to meet change at the pace it happens around them, and that establishing a supportive learning environment is the key mechanism in becoming adaptive. “When you look at the needs of Army, it’s not really about traditional battles

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The absence of large manufacturing companies such as Mitsubishi means there is an opportunity to make Adelaide’s south the hub of a knowledge-based economy, according to Penny Crocker, newly appointed Head of Flinders Southern Knowledge Transfer Program (SKTP).

And Ms Crocker, who describes herself as a ‘broker’ – creating effective partnerships between stakeholders like government, community groups, and teaching organisations – says Flinders has an important role to play in helping to develop the ‘smart industries’ of the future.

“For a long time I’ve had a very strong interest in collaboration as a powerful way to get the best outcomes for any community or organisation,” Ms Crocker told Flinders Journal.

“And I see my position at the Southern Knowledge Transfer Program as very focused on collaboration and engagement,” she said.

Ms Crocker has served as a senior official across a number of State Government portfolios for 20 years, the past three as Director of the Office for the Southern Suburbs.

“My primary role was working through State and Local Governments to maximise the influence of State policy in the region with a focus on economic development and planning,” she said.

The role also allowed Ms Crocker to get to know Flinders University well, working closely with Professor Karen Reynolds in establishing the Medical Devices Partnering Program, and with Vice-Chancellor Professor Michael Barber in his capacity as a member of the Southern Adelaide Economic Development Board.

“Flinders is a significant leader in the region, and the State Government recognises this,” she said.

“Much of what I was doing has translated to the SKTP role. It’s about making the connections between the University, all levels of government, the community and industry to ensure that teaching and learning at Flinders is responsive to the needs of the southern Adelaide community.

“It’s also about facilitating Flinders community engagement, whether it’s through shared research activities or broader knowledge transfer opportunities.”

Ms Crocker is keen to see that Flinders University is an integral partner in any new development opportunities that arise around the node of the University, Flinders Medical Centre, the former Mitsubishi site and Science Park and further south in locations such as the Noarlunga Centre.

Ms Crocker’s immediate assignment is to gain a clearer picture of how Flinders currently engages with the Southern Adelaide community before undertaking a series of consultations with stakeholder representatives.

Vincent Ciccarello

Community engagement

Heading the knowledge economy in the south

any more – it’s more about warfare in urban areas, it’s about humanitarian operations and peacekeeping, and individual soldiers need to have the capacity to cope with and operate in very complex situations,” Dr O’Toole said.

Teaching critical thinking and giving soldiers the ability to respond on their feet is crucial to the aim of equipping lower ranks to make decisions without necessarily referring back through a chain of command.

A major part of the project is to enhance and accelerate the Army’s development as a “learning organisation”, with a focus on improved learning processes and quicker dissemination of useful information.

Much of the theoretical modelling and language about the development of a learning organisation draws from the corporate sector, and part of the DSTO-Flinders group’s task is to assist the Army in translating the concepts to a more familiar and useful context.

The research plan proposes the use of questionnaires to survey and benchmark current learning capability in the Army at individual, group and organisational levels. Focus groups would identify key issues, and a longitudinal study to follow the learning and training trajectory experienced by new recruits is envisaged.

“The Army has to achieve an improved learning environment by itself: our role is to provide the support and the tools to assist them on an action learning journey,” Dr O’Toole said.

“From a Flinders point of view, it means we are involved in a very important project at the national level, and in terms of adding to the body of knowledge concerning learning and adaptation in the military, it has implications on an international scale.”

Dr O’Toole said the broad conceptual approach proposed by Flinders and DSTO was recently embraced at senior levels within the Army following a workshop in Canberra.

Charles Gent

Cover photo: Australian Army patrolling near a village in Oruzgan Province, Afghanistan. © Australian Army
Special math adds up for Masters students

Where is the best place for Master of Education students to learn how to support children having trouble with maths? In the classroom, of course. Since 2005, lecturer Anne Bayetto has taught and supervised the topic Numeracy, Mathematics and Learning Difficulties, which brings postgraduate students into one-on-one contact with students at the local Bellevue Heights Primary School.

“One of the qualities we’re trying to engender with our Uni students is their ability not only to understand the research and the theory, but also how they transfer that into working practice,” Mrs Bayetto said.

And so, once a week, every week for a semester, Mrs Bayetto and her MEd students spend three hours at the school.

The topic introduces some of the big issues in numeracy and mathematics for students with learning difficulties and their teachers, as well as the practices for dealing with them.

“We discuss why some students struggle with maths and numeracy and we start to unpick big questions around teacher knowledge, about curriculum, about delivery,” she said.

Bellevue Heights Primary School teachers nominate students who they believe would benefit from intervention. Each MEd student is assigned a young person for the semester. They observe the student in the classroom, undertake a diagnostic assessment and write a report for the teacher and parents. They then implement an intervention program.

At the end of each session, the MEd students participate in a lecture-workshop and discuss their intervention program with each other.

“Toward the end of the semester, the students prepare summative reports for the teacher and parents, indicating what has been achieved and what recommendations they have for ongoing support in that area of maths.”

Bellevue Heights Primary School Assistant Principal Mary Arnold said the school is very keen to continue its role in the program, which has been a positive experience to date.

“Making links with the broader community, including Flinders University, is a school priority,” Ms Arnold said.

A new era of good corporate governance is more likely to come from the values of Gen Y than through stricter government regulation, according to the Dean of Flinders Business School, Professor Angèle Cavaye.

Professor Cavaye said the baby boomer mindset of personal prosperity, materialism and shareholder wealth will be replaced by the next generation’s strong sense of social responsibility.

“Corporate governance has come under increased scrutiny thanks to the global financial crisis, and that can only be a good thing,” Professor Cavaye said.

“However, I think the business world will be shaped by the values of Gen Y – their concern for the environment, equity, philanthropy, and caring for others rather than just seeking personal gain,” she said.

“This generation doesn’t strive for the same things that baby boomers aimed for in life. In 20 years time, they will be the CEOs and they will be the ones in control and business will be done differently.”

Professor Cavaye says that despite criticism in educating some of the high profile business leaders associated with the crisis, business schools internationally will play a vital role in the recovery from the global financial crisis.

“While the finger has pointed at a small group of elite business leaders for the global downturn, we need the best financial and economic brains to help us out of this crisis. The world needs the insights and knowledge of the emerging business leaders and we have an opportunity to complement their new values with the skills required to tackle challenges in the modern economy,” she said.

Vincent Ciccarello
The Federal Budget expanded medical training in the Northern Territory in a move that should increase the number of Indigenous doctors and help address health inequalities in remote communities, according to Flinders Vice-Chancellor Professor Michael Barber.

Professor Barber said the $28 million Government commitment to Flinders Northern Territory Clinical School would allow NT students to undertake their entire medical training in the Territory for the first time.

The NT Clinical School, which is part of Flinders School of Medicine, currently provides medical training in the NT for the last two years of a medical degree after the first two years have been completed in Adelaide. The Budget funding will finance new buildings and facilities at Charles Darwin University and the Royal Darwin Hospital that will support the full four years of training in Flinders postgraduate-entry medical course. The degree proposed to be taught in the Territory will have an NT-specific focus on Indigenous, rural and remote health.

Professor Barber said the new funding would help train up to 40 doctors a year in the Northern Territory, more than doubling the number of current graduates.

“Flinders is the largest provider of rural health education and training in Australia and this new funding offers potential for the graduation of more Indigenous doctors and a positive contribution towards ‘closing the gap’ in Indigenous health,” Professor Barber said.

Dean of the NT Clinical School Professor Michael Lowe said many local people had passed up the opportunity to study medicine in the past because it would mean leaving the Territory.

“We also believe that there are Indigenous people who, given the opportunity and appropriate support and pathways, will undertake medical training and graduate as doctors — these are exactly the sort of students we hope will stick around to practise medicine in the Territory,” Professor Lowe said.

Peter Gill

Flinders strong presence in NT

Flinders University’s strong role in rural and remote health education in the Northern Territory was underscored this month with a series of events in the Territory.

In Alice Springs, the tenth anniversary of the establishment of the Centre for Remote Health (CRH) was celebrated. A joint venture of Flinders University and Charles Darwin University, the CRH provides high quality tertiary education, training and research focusing on remote health from facilities in Alice Springs, Katherine and Darwin.

Flinders University Vice-Chancellor Professor Michael Barber said the Centre “is an amazing collaborative model that includes both universities and, critically, the community”.

The CRH’s first Director, Professor John Wakerman, said the organisation’s work over the past decade had established it as an important institution in remote Australia.

“We have made significant progress in achieving our mission which is to make a serious contribution to improving the health outcomes of people living in Australia,” Professor Wakerman said.

Earlier in the month, Nhulunbuy hosted a meeting of the Northern Territory Rural Clinical School (NTRCS) Community Advisory Board and attracted more than 40 health educators, practitioners and administrators to the remote Arnhem Land centre. The NTRCS is a program of Flinders University, and has been operating in Nhulunbuy since January 2008.

Peter Gill

Vice-Chancellor honoured

Flinders Vice-Chancellor Professor Michael Barber has been recognised for his “outstanding contribution to the field of applied mathematics and computational science” by the US-based Society for Industrial and Applied Mathematics (SIAM).

Professor Barber was named in the SIAM Fellows Class of 2009 in the inaugural SIAM Fellows Program.

SIAM President Douglas N Arnold said “the announcement of the first class of SIAM Fellows is an important milestone for the applied mathematics and computational science community”.

“Reflecting the diversity of the SIAM membership, these men and women come from five continents, and work in academia, industry, and government laboratories. Advancing the frontiers of research in branches of mathematics as distinct as number theory and partial differential equations, these professionals have applied their work to endeavors ranging from mining to medicine. They have designed algorithms to make computing possible and written textbooks to train the next generation of mathematicians. Their contributions are truly outstanding,” he said.

Peter Gill
Report finds retirement housing inadequate

The vast majority of older people don’t want to live in the sort of housing found in most aged care villages and increasingly will insist that the retirement industry lifts its game to build what they want.

This is one of a series of key findings released in the most comprehensive research into what South Australians want from retirement housing. Our Homes, Our Communities: the Aspirations and Expectations of Older People in South Australia, a report into the retirement housing expectations of older South Australians, was prepared by the Flinders Institute for Housing, Urban and Regional Research (FIHURR).

Commissioned by ECH Inc, one of South Australia’s largest not-for-profit providers of independent retirement living and aged care, the research took two years and involved more than 1200 South Australians over 50 years of age. FIHURR Director and project leader Professor Andrew Beer said the report found that the research participants reject any notion that aged housing is a container into which older people retreat to live out their later years.

“They want their retirement home to be just like the home that they have now – a base from which they go out to engage their neighbourhood, their community and the world,” Professor Beer said.

There also is an increasing divergence between, on the one hand, an emerging number of 55-to-64-year-olds who will have greater assets than previous generations and increasing buying power to influence the industry and, on the other, low-income tenants that are vulnerable and short on options.

Current funding models for aged housing often leave vulnerable people exposed and confused and may impede movement to more appropriate housing.

“All of this presents significant challenges for governments and the housing industry that will only be resolved by working together in a much closer partnership,” Professor Beer said.

Among the reported qualities of ‘ideal’ purpose-built aged housing are groupings of 10 or fewer single-storey dwellings with two bedrooms and larger, more spacious rooms; location within the broader community, rather than confined to estates; and proximity to local neighbourhoods in order to stay connected with friends, family, healthcare professionals, service providers and importantly, public transport.

Top disaster medicine role for Flinders dean

As populations grow along coastlines and the urban poor find homes in larger cities with inadequate infrastructure, the impact of natural disasters is likely to grow rather than subside, according to Professor Paul Arbon, the Dean of Nursing and Midwifery at Flinders University.

Professor Arbon is the new president-elect of the World Association for Disaster and Emergency Medicine (WADEM), an international organisation of some 1,000 members that is devoted to improving the delivery of pre-hospital and emergency care and enhancing disaster health and preparedness.

“Unlike the Red Cross or Medicins Sans Frontieres, WADEM is not a response agency; rather, it provides the scientific support for developing practice and evaluation of responses,” Professor Arbon said.

Professor Arbon is the first non-physician to be elected president, a post he takes up in 2011. He said the membership is interdisciplinary, comprising not only health professionals, but also engineers, social scientists and historians.

WADEM publishes a journal, which as well as communicating the latest research developments to a network of international health bodies, is the organisation’s chief source of funding. Professor Arbon’s own research interests lie in the area of mass gatherings, supplementing his work on first aid and emergency triage methods, all of which are relevant to his new post.

“There’s a real overlap between large populations of displaced people and massed gatherings in terms of the health issues they face,” he said.

Professor Arbon said that worldwide, living conditions and population shifts are creating a potential increase for casualties from natural disasters.

“If there is an earthquake, a cyclone or a bushfire, it will have a bigger impact than it would have had a few years ago, so there needs to be more understanding and support of what might be done in terms of prevention and, to some extent, response,” he said.

Professor Arbon said that several staff from the School of Nursing and Midwifery at Flinders had presented papers at the recent WADEM conference in Canada. “It’s good for us to be doing something that is truly relevant in terms of humanitarian work and is making a difference out there.”
No simple solution to sustainable irrigation

Finding the most efficient and sustainable solution to irrigating crops is more complicated than most people think. As Bachelor of Science (Honours) student Samantha Conner’s project examining the irrigation of almond groves shows, there are many, sometimes conflicting, factors that farmers have to consider when deciding how best to water their crops.

“Drip irrigation might deliver water exactly where it’s needed, but it has several disadvantages,” Ms Conner said.

“As far as almond trees are concerned, it produces weaker trees and can allow water to penetrate the soil before the trees can use it,” she said.

“Sprinkler irrigation, however, produces stronger, more stable trees but allows more water to be lost to evaporation.”

Add to these quandaries the need to occasionally leach the soil with water to prevent the accumulation of salt, and harvesting methods that limit measures to control evaporation, and the irrigator’s plight becomes apparent.

Ms Conner, with her supervisor Flinders University meteorologist Dr Cäcilia Ewenz and colleagues from the South Australian Research and Development Institute, has completed phase one of her project thanks to a National Program for Sustainable Irrigation scholarship that allowed her to conduct field research at Loxton for six weeks.

“We’ve measured the water lost from almond groves through evaporation from the soil and transpiration from the trees,” Ms Conner said.

“The aim now is to use that data to make irrigation more precise by getting the balance right between tree and atmospheric needs.”

Archaeology supporting Indigenous communities

Flinders University students have been working with Indigenous communities in Western Australia to uncover the archaeological history of important cultural sites with a view to developing plans for their management and conservation.

The research has the backing of key stakeholders, including BHP Billiton, the National Trust of Australia’s (WA) Gabbie Kylie Foundation, the WA Department of Indigenous Affairs and the Western Australian Museum.

Head of Flinders Archaeology Department, Dr Heather Burke and senior lecturer Dr Lynley Wallis last month led a two-week field school at Lake Pleasantview (near Albany), Esperance and Munglinup where they undertook vegetation surveys, excavations, artefact recordings and oral history interviews with traditional owners about the significance of the areas to them.

Joining the 15 Flinders students were peers from other universities, as well as staff from BHP Billiton’s Olympic Dam, Queensland’s Ergon Energy and Aboriginal Affairs Victoria.

“The Indigenous communities really drove the research. They were very clear they wanted to know how old and extensive the sites were, whether there were other sites nearby and how the landscape relates to people’s use of the place,” Dr Burke said.

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“The aim now is to use that data to make irrigation more precise by getting the balance right between tree and atmospheric needs.”
Fading memories can learn new tricks

It’s said that old habits die hard, and for sufferers of Alzheimer’s disease, the resilience in the memory of practical skills may provide a pathway to learn new things.

Flinders psychology PhD student Chris Materne has begun a study involving people with probable or mild Alzheimer’s that aims to teach them to learn and remember simple, important facts or instructions.

The technique makes use of the complex, multi-layered nature of human memory, Ms Materne said. “Different bits of memory hold on for longer than others – in particular, things that have become habitual tend to last,” she said.

“Highly practised skills, such as playing the piano, seem to be more resistant to the disease process of Alzheimer’s than short term memory information, such as remembering names of people you’ve just met.

“We are trying to see if we can capitalise on that residual capacity to get information that is important and relevant to the individual into the memory system by bypassing the normal channels.”

Ms Materne says participants will be involved in nine one-hour sessions that aim to improve memory retention, with follow-up assessments after a few months.

The technique works by prompting participants to retrieve a fact or instruction over gradually increasing time intervals. The approach has achieved promising results in the United States, where results suggest that once an interval of about 12 to 16 minutes has been attained, the information is consolidated and can be remembered for days or weeks.

The trial study will test the technique to assess how well it works as the disease progresses.

Ms Materne said that practical nature of the memory tasks – where keys are kept, or the names of grandchildren, for instance – means that environmental reinforcement is likely; that is, the questions will also get asked in real life.

The attitude of partners or carers is crucial, Ms Materne said. “Even if we achieve an effect with the training, if people don’t believe it will make a difference and fail to make use of it in the real world, then you don’t get any benefit,” she said.

Interested?
Interested carers or partners of people with early Alzheimer’s who are living at home can contact Ms Materne about participating on (08) 8201 5870.

Ambition to achieve a bigger picture

As one of two members of University Council elected by general staff, Anthea Williams sees a major part of her role to act as a two-way conduit for information and issues between the main campus and its external sites.

Mrs Williams works in administration for the Faculty of Health Sciences at the Repatriation General Hospital. The ‘Repat’ plays a major role in the University’s education and research through its 100 salaried and academic status staff and the 700 students from courses including nursing, medicine, clinical rehabilitation, palliative care, nutrition and speech pathology who work, study and train there each year.

“The Repat is a pivotal part of University life, and I want to take that back to Council with the idea of keeping it top-of-mind,” Mrs Williams said.

Mrs Williams, whose two-year term began in January, is also gaining a new perspective on the wider operations of the University, its four faculties and various campuses, and their strategic management.

She said she has been particularly inspired and impressed by the calibre of the Council’s external members. “I don’t know that staff fully realise the depth of knowledge and expertise of the people who are driving the direction of the University; it was a bit of an eye-opener for me,” she said.

A Flinders graduate in Health Science, Mrs Williams is currently studying for her honours degree. “I made a choice to keep Flinders as my preferred employer,” she said, “so I’m doing some professional development along the way.”

Mrs Williams is also acquiring new skills through her role on Council, and is enjoying the benefits of a mentoring scheme that matches new members with longer serving members to assist them in understanding procedures and reporting.

“I hope that my placement on Council is valuable to Council and to the wider University community,” she said. “I’m not there to keep the seat warm – I want to become actively involved and make a difference.”
Murder mystery has a short story solution

The Appin murder mystery, the historical 18th century event at the centre of Robert Louis Stevenson’s novel Kidnapped, may have been solved 150 years ago by another great Scottish novelist. Flinders University’s Professor Graham Tulloch, an authority on the works of Sir Walter Scott, believes that Scott not only may have known the identity of the murderer, but also wrote a short story about him.

Stevenson’s famous novel centres on the unsolved 1752 murder of Colin Campbell, shot by an unknown assailant in woods on the west coast of Scotland. The murder of Campbell, who was the manager of lands forfeited to the British Crown in the wake of the Jacobite uprising of 1745, caused a hue and cry. Alan Breck Stewart, who in a famous sequence in Kidnapped hides in the heather from pursuing English soldiers with the fictional hero, David Balfour, was a real suspect in the murder, but escaped to France.

It was another local clansman, James Stewart, who, despite his alibi, was convicted as an accomplice to the murder in a show trial and hanged. In the course of his research for a new edition of Scott short stories, Professor Tulloch has put together three pieces of previously unlinked evidence that point to the murderer’s possible identity.

One is A Highland Anecdote, one of four stories submitted by Scott for the 1829 edition of a Christmas compendium, The Keepsake. Published later and separately, it was never included in Scott’s collected works and is little known. Professor Tulloch said A Highland Anecdote tells the story of a character, Duncan, who is crippled by a stag during a hunt. The story also mentions Duncan’s alleged role as the perpetrator or accomplice in a “famous murder”.

Professor Tulloch says there also exists a printed letter of Scott’s that reveals he had not only met the man on whom he based the story, but that the murder in question was the Appin murder.

“One on top of that, Scott writes in his journal that he has sent to the Keepsake’s editor the story of ‘Duncan Stewart’ and the stag,” Professor Tulloch said.

While literary detective work seems to have revealed the murderer’s name, the case can’t quite be closed – there are records of four contemporary Duncan Stewarts who might match the details given by Scott.

Professor Tulloch and research associate Dr Judy King have edited eight Scott short stories which will appear shortly in the Edinburgh Edition of the Waverley Novels under the title Shorter Fiction.

Charles Gent

Experimental art takes on new meaning

The art of Niki Sperou continues a long tradition of dialogue between art and science, but rather than observing from a distance, the Adelaide artist has immersed herself in her subject matter.

Ms Sperou is artist-in-residence in the Department of Medical Biotechnology at Flinders. She began her regular visits to the laboratories at Flinders three years ago, and moved rapidly from observing the scientists at work to learning the techniques and processes that are used in the teaching and research laboratories.

“My aim is to demystify the processes of science and art, and bring them to a broader audience,” Ms Sperou said. She incorporates biological organisms and lab products and processes into works of sculpture, photography, painting, drawing, and installations. Together with Flinders staff and postgraduates, Ms Sperou recently ran a four-day workshop for 11 artists, including three from overseas, as a theoretical and practical introduction to the creation of biotech art.

“Biotech art is a global movement, and it isn’t just about commenting on the science, it’s about using scientific methods to generate the artwork,” said biotechnology lecturer Dr Lisa Schmidt.

Welcoming an artist into a university science facility may seem unusual, but according to Dr Schmidt, it is in the nature of biotechnology to be open to new ideas. She said part of the artist’s role is to offer new perspectives on science to the community, and to the scientists themselves.

“Artists have a major impact on public perception of areas like science, and Niki is someone who is out in the public domain who can be communicating between the sciences and the public, in a different way,” Dr Schmidt said.

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