Teaching applied psychology at the University of Adelaide: A personal view

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The beginning of applied psychology training in South Australia

In 1974 the introduction of the Diploma in Applied Psychology marked a major change in the teaching and research within the then Department (now School) of Psychology at the University of Adelaide. Prior to that time, the Department of Psychology had been almost entirely experimental in its approach to psychology, exemplifying the 'rats and stats' tag given by students to the subject. The 'stats' tag was to endure to the present time, but 'rats' ended in 1996 with the phasing out of practicals using rats in 'Skinner boxes', which had been organised for many years by Frank Dalziel to demonstrate operant conditioning principles.

Before 1974, the major division within the teaching of psychology in the department was not, as it is now, between theoretical and applied psychology, but between experimental and social psychology. A general first-year course was followed by Psychology 2A and then 3A, which involved topics like cognition and animal behaviour, and by Psychology 2B and then 3B, which included developmental and social psychology. In neither type of course was there any practical training in how to apply psychology within the community. The A and B streams of psychology were eventually combined into a single second- and third-year course, still without the inclusion of any training in the application of psychology. The third year in psychology was followed by an honours year, again with an experimental focus, and the honours year prepared students interested in research for a PhD in experimental psychology.

The circumstances that led to the Diploma in Applied Psychology began with what became known as the Anderson report (Anderson, 1965), after the state of Victoria

set up a Board of Inquiry to investigate complaints about Scientology. The report investigated complaints concerning the practice of Scientology and, in particular, its use of what were considered by the report to be pseudo-psychological assessments using an E meter. The E meter measured galvanic skin response, but Scientologists used it to diagnose psychological conditions as part of a process designed to recruit often-unsuspecting members of the public to the practice of Scientology. The review recommended legislation that would ban Scientology and set academic training requirements for the use of the term 'psychologist'. This legislation was enacted in 1967 but was subsequently amended in 1982 to remove any reference to Scientology; it was repealed in 1987.

However, other states were also concerned about people such as Scientologists acting as psychologists without having had any formal academic training in psychology. This led these states to enact similar legislation concerning the training requirements for being a professional psychologist but without referring specifically to Scientology. In South Australia, the legislation came into force in 1973 and required a progressive three-year course of study in psychology at a university, and not less than three years of experience working as a psychologist, which was considered sufficient evidence of competence to practise psychology. The legislation included a 'grandfather clause', which allowed those who had already completed sufficient study, and had been working as psychologists before the commencement of the act, to be registered. The Diploma in Applied Psychology was set up in 1974 as a fourth year of study which provided instruction in the application of psychology. A fourth year of academic study followed by two years of supervised experience subsequently became a requirement for registration.

The completion of a three-year degree in experimental psychology as a requirement for entry into the Diploma in Applied Psychology was consistent with the proposal of Lightner Witmer more than 100 years ago for a profession of clinical psychology that would require its (scientist) practitioners to have rigorous training in the scientific methods used in experimental psychology (as cited in Hergenhahn, 2009). Witmer's proposal was published in 1907 in an article entitled 'Clinical psychology' in the first edition of the journal *The Psychological Clinic*, which he founded. Another early proponent of a scientific applied psychology was Hugo Munsterberg, who in 1913 published *Psychology and industrial efficiency*. In this book (2012/1913), he promoted 'a new science' that could contribute significantly to the improved performance of organisations.

It is only relatively recently that questions have been raised (for example, as indicated in the recent green paper from the Psychology Board of Australia, 2015) about why it should require so many years of study to become a professional psychologist, and accordingly why there should be so much theoretical training before learning to apply psychology.

Applied psychology before the diploma program at the University of Adelaide

Many of the skills taught in the diploma program — such as clinical interviewing, counselling, training and psychological assessment — were already being applied in the community as a result of training courses or supervised practice in government, education and commercial organisations. It was for this reason that legislation for registration allowed for the inclusion of those who had already been practising as psychologists, without requiring them to complete additional supervised experience or professional training. Psychological tests like the Stanford-Binet and the Wechsler Adult Intelligence Scale [WAIS], which can now only be administered by a registered psychologist after completing a Master of Clinical Psychology or its supervised equivalent, were being used before registration and before the advent of the diploma, particularly in education and in government agencies. Those using such tests had been taught by someone within education, the government or a commercial organisation, or they had taught themselves to use such tests. This had led to some unprofessional behaviour in this regard. According to some anecdotes, one psychologist at the time the diploma was established was still using the original Wechsler Bellevue, which had been published in 1939, instead of the 1955 revision of the test. When asked how he managed the use of the outdated norms in his assessments, he had apparently indicated that he made mental adjustments concerning the IQs associated with particular scores on the test.

However, those practising as psychologists before registration and the diploma course did have the advantage of being able to advocate for, and act in the best interests of, their clients before being increasingly constrained by legal requirements associated with registration and other forms of legislation. I remember comments at a conference on disability in the 1990s from participants lamenting the fact that many leisure activities that were very beneficial for the development of independence and self-esteem in children and adults with disabilities (for example, activities involving physical exercise and cooking skills) could no longer be offered because of safety legislation and the consequent concerns of organisations about being sued if an accident occurred.

Research in applied psychology: The Bedford Industries fellowship

In 1972, not long before professional training in applied psychology began with the diploma program, there was a substantial increase in the potential for teaching and research on applied psychological topics in the Department of Psychology, as a result of a research fellowship in psychology. This fellowship was funded by Bedford Industries, a large rehabilitation centre situated at Panorama in Adelaide. The position involved working half-time as a lecturer in the Department of Psychology and half-time as a consultant psychologist at Bedford Industries. The lectureship aspect of the position involved some specific teaching on disability at the university. Meanwhile, the consultant

role included working with management, staff and clients at Bedford Industries, plus supervising research that involved honours, diploma, PhD and subsequently, after the discontinuation of the diploma in 1988, master's programs students. The fellowship was created and funded by Bedford Industries as a result of discussions at that time between the then director of Bedford Industries, Kenneth Jenkins, and the head of the Department of Psychology, Professor Alan Welford.

In addition to the establishment of the Bedford Industries research fellowship, Bedford Industries also funded a professorship in rehabilitation in the Department of Medicine at the Flinders University of South Australia. Dennis Smith was appointed to that position and he also served on the Board of Bedford Industries.

The first person to be appointed to the research fellowship was Ted Nettelbeck, and then, in 1974, when he became a full-time lecturer in the Department of Psychology, I was appointed to the position. I became a senior research fellow in 1983 and remained in that position until the research fellowship and the professorship in rehabilitation were both discontinued in 1991. I was then appointed to a full-time lectureship in the Department of Psychology, but went on to serve on the board of Bedford Industries until 2006, at which time a requirement for limited-term appointments to the board had been introduced. After retiring from the board, I was made a life member of Bedford Industries for my services to that organisation. After the professorship in rehabilitation was discontinued, Dennis Smith left Adelaide to take up a similar chair in rehabilitation medicine at the Northern Clinical School, associated with the University of Sydney.

Although Ted Nettelbeck had left the Bedford Research fellowship in 1974, he remained involved in teaching and research related to disability within the Department of Psychology in association with myself and research students. His continued involvement in disability also included contributions to other disability organisations, including serving on the board of Minda from 1977 to 1984 and on the Welfare Committee and the Services Advisory Committee of the Phoenix Society from 1978 to 1990. From the Phoenix Society he received an award in 1990 for outstanding service to the organisation.

During my time as the Bedford Industries research fellow in the 1980s, I was also engaged in activities with other organisations which contributed to my teaching of applied psychology in the diploma program and in the subsequent master's programs. In particular, I served as a committee member in other organisations involved in disability, including Panorama TAFE, which had a committee concerned with the welfare of students with disabilities; I was a board member of SA Group Enterprises, an organisation set up by the Commonwealth Government to provide employment for people with severe disabilities, and which is now associated with Minda Incorporated; and I served on the eligibility review committee of the South Australian government's

Intellectual Disability Services Council [IDSC]. Major problems in reviewing the eligibility of clients who had not been accepted into the service included determining whether the adaptive behaviours of adults had been sufficiently low during the developmental period to meet the intellectual disability criterion for entry,[5] and deciding on the extent to which the additional mental health issues of some clients could be accommodated within the services provided by the agency. During this time, I also provided disability-related teaching in a course for sheltered workshop supervisors at Marleston TAFE and lectures on disability at the then Burwood College of Advanced Education in Melbourne.

Ted Nettelbeck and I continued to conduct and supervise research on disability throughout the 1990s, and in 2001, a Disabilities Research Unit [DRU] was established by John Taplin, who was the head of school at that time. Members of this unit included myself, as director, Ted Nettelbeck and John Taplin, who had also conducted disability research in other universities prior to his appointment as head of school. Research managers for various DRU research grants included Julia Harries, Roma Guscia and Leah Wilson. Computing assistance for assessment projects undertaken in the unit and funded by the state government was provided by Rakesh Chandrasekharan. In 2013, the unit was renamed the Wellbeing Research Unit [WRU] in order to include organisational research projects being funded by SafeWork SA on the work safety of Disability Support Workers. The DRU provided, and the WRU continues to provide, research opportunities for honours, master's and PhD students.

Establishing an applied diploma program at the University of Adelaide

At the time the Diploma in Applied Psychology was introduced as a fourth-year course in 1974, there were only three lecturers in the Department of Psychology who had any practical experience in applied psychology, as distinct from conducting research in applied areas of psychology. In the case of Ted Nettelbeck and myself, our practical experience was associated with disability, as a result of the establishment of the Bedford Industries research fellowship. However, working in the research fellowship initially involved more applied research and advice on service-related issues rather than the use of applied psychology techniques such as psychological tests. This meant that existing staff of the department who had been trained in experimental psychology, including Ted Nettelbeck and myself, had to acquire the knowledge and skills required to teach applied psychology to graduate students. For example, Ted Nettelbeck and I learnt together how to use the Wechsler Adult Intelligence Scale [WAIS], since neither of us, nor anyone else in the department, had been taught how to use it. In the first year of

5 That is, the intellectual disability criterion was based on three things: low intellectual ability, low adaptive behaviours, and evidence of these during the developmental period.

the diploma program, our teaching each other how to give the Wechsler scales was only one or two weeks in advance of our teaching the students.

The appointment in the Department of Psychology of John Kaye in 1972 provided students in the diploma program with practical expertise in counselling psychology. Most of the remaining practical experience in the course came from psychologists working in the community at that time.

The content of the Diploma of Applied Psychology did not change markedly over the years for which it continued. The content of the course and the associated lecturers, as indicated in the handbook for the last year of the course in 1987, included counselling and psychotherapy (John Kaye), psychological assessment and measurement (Ted Nettelbeck and Neil Kirby), behaviour analysis and modification (Neville Owen, C Hart, Roslyn Glow, Eric Rump, Neil Kirby and Tony Winefield), applied social psychology (Michael Innes), educational psychology (JA Rowel and Maxine Sheppard), statistics and methodology (Peter Delin, Eric Rump and Robert Willson), and practical work, which included introductory interviewing (John Kaye and Neil Kirby), professional practice seminars, research seminars, placements (two, each of forty hours' duration) and visits (eight, each of two hours) to various agencies. There was also a research investigation or critical survey.

Practical instruction at that time was facilitated by the availability of video recording, so that students could complete exercises in courses like Introductory Interviewing and Counselling, which involved videoing themselves in pairs while performing an interview or brief counselling session. The resulting video could then be assessed with feedback provided by the course lecturer. However, the relative unfamiliarity of students at that time with such technologies meant that the equipment did not always work as intended. I remember giving a course in introductory interviewing in the diploma program in which pairs of students were required as a practical exercise to hand up a video in which they had interviewed each other according to guidelines provided in the lectures. On starting one particular video that had been handed in, I was surprised to find a student staring into the camera and asking the other student whether the video recorder had started. On being told that it had not, the student proceeded to ask the other student what it was they were required to do for the exercise, as she said that she had not gone to that particular lecture. The other student confessed that she was also uncertain about what was required as she had not bothered to take notes during the lecture, but she assured the other student that they would make something up that would be okay. The video then went off and on again several times until the students were satisfied that it was indeed recording, whereupon they attempted with appropriately serious expressions to interview each other, although with rather less than more expertise in terms of the requirements of the exercise!

The diploma course included visits to organisations where psychologists were working, and these visits often provided revealing insights into working conditions in

different kinds of organisations. However, these visits sometimes produced unintended effects. On one particular visit, which was to the local abattoirs, some of the students and some of the accompanying staff (including myself) found that their own needs (for counselling concerning what they had witnessed on the production line) made it difficult to listen attentively to the psychologist at the site talking about dealing with the problems of workers and management.

Master of Applied Psychology

In 1988, the one-year Diploma of Applied Psychology program ended, and in 1989 it was replaced by a two-year Master of Applied Psychology. In 1991, this changed to a two-yearly intake, until 1996, when it became the Master of Psychology (Clinical). In 1997, it became the Master in Psychology (Clinical and Health); in 1999, the program changed to a yearly intake; and in 2000, it was renamed the Master of Psychology (Clinical).

The Master of Applied Psychology became an expanded version of the previous diploma program with some of its course topics later becoming part of the subsequent master's programs in clinical, organisation and human factors, and in health. The first year of the Master of Applied Psychology program included the following compulsory courses and associated lecturers: working with human systems — theory and practice (John Kaye, Geraldine Slattery, Helen Menses, Michael White), psychological assessment (Ted Nettelbeck, Neil Kirby, John Kaye), applied methodology (Peter Delin, Eric Rump and Robert Willson), applied social and organisational psychology (Michael Innes), behaviour management (Don Pritchard), professional practice and ethics (Eric Rump, Ian John, Roslyn Glow) and health and community psychology (Michael Innes). Optional courses, of which students were required to choose one, included educational psychology (Maxine Sheppard), ergonomics (John Brebner), disability, vocational training and assessment (Neil Kirby), psychology of unemployment (Tony Winefield), and rehabilitation psychology (Don Pritchard). The program changed relatively little over the seven years for which it operated (that is, from 1989 to 1996), although there were expanded options for placements at clinics in the community.

An advantage of the Master in Applied Psychology was that graduates from the two-year master's course would not only benefit from more instruction with respect to applied psychology but would also have the benefit of three extensive placements working with psychologists in the community. This would serve to enable them to achieve registration without the previously required two years of supervised professional practice by a registered psychologist.

However, the transition from the Diploma to the Master of Applied Psychology was not achieved without additional work by staff. I remember a particular staff meeting in which the then head of the department, Chris Cooper, announced, with respect to

the proposed clinical program, that he had some good news and some bad news. The good news was that the program had been approved by the university administration; the bad news was that there would be no additional resources for the program.

Master of Psychology (Clinical)

The Master in Psychology (Clinical) in 1996 and the Master of Psychology (Clinical and Health) largely continued the curriculum of the Master of Applied Psychology. However, with the appointment in 1997 of Jeffery Richards, who had extensive practical experience in mental health, the program added a more clinical focus. Jeffery Richards taught adult clinical psychology; in addition, child clinical psychology and clinical neuropsychology were added to the program, the former being taught by a guest lecturer and the latter being taught by Jane Mathias. In 1999, the organisational and educational courses were taken out of the program. In 2000, the renamed Master of Psychology (Clinical) program had the following courses and course co-ordinators: adult clinical psychology (Helen Winefield), psychological assessment (Ted Nettelbeck), preparation for psychological practice (Jane Blake-Mortimer), child clinical psychology (Kathy Moar), health psychology (Helen Winefield), applied methodology (Eric Rump), group interventions and preventive practice (Jane Blake-Mortimer), clinical neuropsychology (Jane Mathias), rehabilitation and disability (Neil Kirby), and psychological and health aspects of ageing (Jan Harry).

Budgetary constraints on staff appointments meant that some of those lecturing in the program and in the previous clinical and health program came from clinical positions outside of the School of Psychology. A particularly important issue with respect to the accreditation of the program was the lack of a staff member with expertise in child development, an area that was introduced into the clinical and health program in 1997. This was a requirement for full accreditation, and the course had to rely on external expertise in this area until the appointment of Lisa Kettler in 2003. Until that time, the course remained only provisionally accredited, and this continuing provisional accreditation eventually led to some disquiet amongst students as to whether the course would or would not continue because of this gap in the expertise required of teaching staff.

Current courses in the Master of Psychology (Clinical) program and associated course co-ordinators include evidence-based practice (Michael Proeve), interviewing and intervention (Yvonne Clark), psychological assessment (Rachel Roberts), abnormal psychology (Linley Denson), health psychology (Helen Winefield), clinical neuropsychology and disability (Jane Mathias), and advanced child and adult intervention (Diana Dorstyn). These courses now have individual contributions from many clinical psychologists working in the community.

An important continuing contribution to the Master of Psychology (Clinical) has been the opportunity available to students to complete a supervised placement arranged with clinics outside of the university. These have included an outpatient clinic in the South Australian Mental Health Services, and currently include clinics at the Centre for the Treatment of Anxiety and Depression, which is part of SA Health, a university teaching health clinic associated with a General Medical Practice, and a clinic associated with Families SA, which is currently located within the Education Department.

Master of Psychology (Organisational and Human Factors)

The success of the diploma and clinical master's programs suggested that other similar master's programs might be offered. A major advantage of the existing clinical program in this regard was that there were common basic areas of psychological knowledge and skill, such as professional practice, which included ethics and basic interviewing, and these were required for accreditation of any type of applied psychology program leading to registration as a psychologist. This meant that there could be economies of scale through shared teaching topics in more than one master's program.

As the Bedford Industries research fellow, I was involved over a number of years in the two-year supervision of fourteen trainee psychologists with fourth-year degrees, who were working at Bedford Industries as rehabilitation officers. Ten of these trainee psychologists were graduates of the original diploma program at the University of Adelaide. During my time working at Bedford Industries and while supervising and working with these trainee psychologists, I became aware of the extent to which current psychological training lacked an awareness of, and expertise in dealing with, organisational issues related to working with clients and management.

An illustration of this organisational naïvety in the early work of the Bedford fellowship involved Ted Nettelbeck and me being called to the director's office over a research article we had written which referred to Bedford Industries as a sheltered workshop. We were informed in no uncertain terms that Bedford Industries was to be referred to as a rehabilitation centre and not a sheltered workshop — the reason for this being, as we later discovered, that rehabilitation centres received more government funding than sheltered workshops. Our mistake in terms of organisational politics was due to the fact that, although Bedford Industries did have rehabilitation programs for people who had suffered an accident or illness that required rehabilitation to enable them to return to work, many, if not most, of its clients with disabilities had never worked and were therefore cases of habilitation, and for many of them Bedford Industries was providing long-term sheltered employment. With respect to this issue of rehabilitation versus sheltered employment, I remember a rather disconcerting comment made by this Oxford-educated director on a subsequent occasion when,

discussing my work at Bedford Industries and the university, he said, while leaning back in his chair: 'Ah yes, the university … society's most sheltered workshop!'

While I was supervising trainee psychologists at Bedford Industries, it also became apparent to me that much of the work being carried out by the rehabilitation officers — which included assessment and induction of new clients; working in teams with managers and supervisors to place clients in appropriate jobs; conducting staff training; organising client training, work experience and jobs in open employment; program planning and evaluation; working with other professionals including nursing staff; and writing reports for management — had more to do with organisational psychology than with rehabilitation itself. It was also the case that the rehabilitation officers' work was strongly influenced by changes in disability service models such as deinstitutionalisation; activity therapy centres; work enclaves in commercial organisations; work preparation centres; supported employment in the community; specialised training programs for adults with severe disabilities; centres for day options; and the recent National Disability Insurance Scheme. Many of these programs and models were tried and replaced by subsequent models designed to improve quality-of-life outcomes for people with disabilities.

The work of rehabilitation officers was also strongly influenced by changes in government legislation with respect to disability, such as the *Disability Services Act 1986* (Cth), with its emphasis on consumer participation in services and consumer outcomes, and the *Disability Discrimination Act 1992* (Cth), with its emphasis on the rights of people with disabilities to housing, education and services. These changes in disability service models and government policies meant changes to the ways in which management, supervisors and other staff, including the psychology graduates as rehabilitation officers, worked with clients and with their families. In particular, it involved the rehabilitation officers in setting up and taking part in client representative and family representative committees, and it meant working with professionals in external services.

Of particular value with respect to the client representative committee was a process I initiated while I was a board member whereby a member of the board on a rotating basis attended one of these meetings each year. This enabled the client representatives to meet and question board members whom they had never met before, and it gave the board members an awareness of clients' issues within the organisation. In my time on the board, I noted a number of important issues for clients that were quickly dealt with as a result of their being mentioned by a board member who had attended a recent client representative committee, and it seemed to me that this arrangement of a board member attending worker committees on a rotational basis might be beneficial in most if not all organisations.

Changes in government policy reflected international changes in attitudes towards people with disabilities and the services provided for them. Of considerable

influence in the 1960s, particularly with respect to deinstitutionalisation, was a report from President Kennedy's Presidential Panel of Mental Retardation (1962), which in 1963 resulted in legislation to increase research on, and improve services for, people with mental disabilities. In the 1970s, as part of a review of progress, senators from the US Congress were sent to different countries to investigate disability services, and I was involved in taking one of these senators from his hotel in Adelaide to Bedford Industries, where he was given a tour of the facilities. On returning to his hotel, we discussed improving disability services and he met my expressed concerns about difficulties in that regard with a forthright 'can-do' attitude: 'Listen', he said, 'this is our society and we can do whatever we want!' The outcomes of Kennedy's initiative, prompted partly by his own personal interest because of his sister Rosemary's mental health problems, were to have a major positive impact on disability services in the US and internationally.

However, the influence of government officials on disability services was not always particularly positive. A situation at a much later time, which I found difficult to comprehend, concerned feedback from a government official about what needed to be included in an application form for government funding for the employment services that Bedford Industries was providing. The government official stated that it was very important that organisations fill in the application form correctly and, to make the point, said that there were some employment agencies interstate that had been very successful in placing people with disabilities into open employment but had not had their funding renewed because they had not filled in the form correctly. Given the difficulties associated with achieving open employment for people with disabilities, it seemed incredible to me that such organisations should be discontinued because they had not filled in a form correctly. When I suggested that perhaps filling in forms was not the forte of such agencies and that it might be useful for the government to provide them with some assistance in this regard, the government official promptly said that it was not their job to provide that kind of assistance.

An example of assistance by the government for placing people in open employment was a computerised program in the 1980s which suggested a range of suitable jobs for people with different kinds of qualifications and skills. At Bedford Industries, most employees had very few qualifications and skills, so we were interested in what kinds of jobs might be suggested for the employees we were seeking to place in open employment. To test the limits of the program, we entered a fictitious person with no qualification and no skills, and to our surprise and delight there was only one job that was suggested: politician. Whether this was a joke by the programmers or democracy in action we were not able to determine.

As a result of my concerns about the importance of organisational issues with respect to disability, I introduced undergraduate courses on psychological assessment with an emphasis on work, and a course entitled Applied Behaviour Change and

Training, which provided instruction on the use of behaviour management and training in work settings.

I also began to conduct and supervise research in organisational psychology. During my supervision of Liz Kummerow's PhD on organisational culture, she and Michael Thalbourne, a graduate, tutor and then research fellow in the Department of Psychology, contributed to the department's culture by organising an annual picnic for staff and students. This picnic, which in its first few years included live music, continued for ten years or more with the assistance of professional staff, including particularly Carmen Rayner, Robyn Meyer, Lynda Klopp, Bob Willson, Jeffrey Mathews and Steve Tupper. A large barbecue with a trough for coals was constructed in the department's workshop, where it was referred to in the job lists as an 'Otter bath'. The professional staff continued to support annual events of this kind until very recently when most of them were centralised with other professional staff in the Faculty of Health Sciences as part of a faculty restructure.

When John Taplin became head of department (after having been a student and tutor in the department many years before), it was decided to introduce a Master of Organisational Psychology. The program, which began in 2002, had the same format as the clinical program and other such programs nationally, in that it involved a first year of intense teaching on relevant topics plus one placement in the community during the second half of the first year, followed by two further placements and a research thesis in the second year.

As with the diploma course, there was an initial lack of teaching staff with experience in the practice of organisational psychology, and limited resources to appoint such staff, although research-related courses on organisational psychology and employment had been taught in the Master in Applied Psychology. Carlene Wilson, who was a visiting research fellow at that time, assisted in the development of the program and in the initial teaching of courses. I was able to bring my practical experience working as a consultant psychologist at Bedford Industries to the following courses in the first year of the program: professional and ethical practice, psychological assessment, individual and organisational change and development, and organisational behaviour and management. In the second semester of the first year of the program, assistance in the teaching was provided by Aspa Sarris, who had recently completed her PhD under my supervision on the topic of organisational culture and had previously worked in the South Australian government on policy-related issues.

Sarris also taught human resources management, with the other courses being presented by academics in the School of Psychology, including methodology and statistics (Paul Delfabbro), psychological assessment (Ted Nettelbeck and Neil Kirby), human factors (John Brebner), applied perceptual and cognitive psychology (Michael Lee and Douglas Vickers), decision making in applied situations (Michael Lee),

consumer psychology (Paul Delfabbro) and environmental psychology (John Brebner). The structure of the program changed over time and now includes evidence-based practice (Deborah Turnbull), professional practice (Aspa Sarris), Human Resources (Aspa Sarris), organisational behaviour and management (Neil Kirby and Aspa Sarris), contemporary organisational psychology (Aspa Sarris and Neil Kirby), psychological assessment (Neil Kirby), and human factors (Anna Ma-Wyatt).

The inclusion of human factors as a course in the program was due to the available academic expertise of John Brebner, and this led to the naming of the program as the Master of Psychology (Organisational and Human Factors). Although there were some subsequent accreditation concerns about whether human factors should be included, it has remained a unique part of the program compared with similar courses locally and interstate. In the third year of the program, a further development in human factors involved students being able to complete placements and research projects at the Defence, Science and Technology Organisation [DSTO] in Adelaide. These placements and research projects were supported by scholarships from DSTO for the second year of the program. As a result of this arrangement, a number of students from the course obtained employment at DSTO and they now provide some of the supervision of subsequent student placements supported by these scholarships. Graduates who have had DSTO (now DST-Group) scholarships have also obtained positions in other government and commercial organisation using their expertise in human factors. This would have been a source of considerable satisfaction to Professor Alan Welford, a previous head of the Department of Psychology, whose work on information processing was closely aligned to human factors.

During the time the Master of Psychology (Organisational and Human Factors) has been operating, there have been significant changes in employment, including generally more part-time, contract and casual work. These changes are designed supposedly to make organisations more agile and able to respond to the challenges of changes in society, many of which have been driven by globalisation. Evidence on the effect of these changes in employment within universities was presented in a research paper by Millear and Nugent at the APS 11th Industrial and Organisational Psychology Conference in 2015. Comments from a sample of academics employed on a casual basis in the eastern states of Australia included concerns about their future employment and the lack of a sense of belonging with respect to their colleagues. There are clearly problems here for organisational psychologists in motivating staff employed under casual and contract conditions and in retaining such staff, who are also becoming increasingly 'agile' in the sense of being less committed to particular organisations and more willing to move from one organisation to another if it benefits their careers.

Globalisation has also been evident in universities trying to achieve higher rankings in terms of other universities worldwide. An example of this with respect

to a master's degree in organisational psychology was a relatively recent decision by one university to discontinue the program because it had apparently decided that departments should be centres of excellence in one particular area of the discipline. Accordingly, other areas, in this case including organisational psychology, were to be discontinued, to the detriment of vocational options for the university's students and to the detriment of psychology's contribution to the improved functioning of organisations in the community.

Evidence for psychology's much needed contribution to the improved functioning of organisations in Australia, particularly with respect to the role of managers, was provided by the Karpin Report in 1995, entitled *Enterprising nation: Renewing Australia's managers to meet the challenge of the Asia-Pacific Century*. In this report the poor person-related skills of Australian managers were highlighted. This report led to the establishment of a tertiary Graduate Certificate of Management/Graduate Diploma of Business Administration for managers offered by the Consortium of Australian Management and Business Schools [CAMBS]. This consortium included the University of Adelaide, and my involvement in the CAMBS course from 1997 to 2001 provided important teaching experience for the subsequent Master of Psychology (Organisational and Human Factors). A follow-up to the Karpin report by Sampson (2011) concluded that many of the recommendations of the first report had been acted on, although more by business organisations than government, mainly in response to market forces. However, the need for a continuing contribution from organisational psychology was indicated by three of this latter report's nine recommendations relating to the need to improve leadership, management education and people management.

The Master of Psychology (Organisational and Human Factors) has been successful insofar as it has attracted more than sufficient numbers of highly qualified students to fill the quota of ten students each year. However, a significant question, as for the graduates of the previous diploma program and the other master's programs, is whether the graduates from the course have had successful careers in organisational psychology and/or human factors. A recent survey by Chodkiewicz (2016) provided positive answers to this question insofar as approximately 90 per cent of graduate respondents from 2004 (when the program began) to 2015 were employed in jobs involving organisational, human factors or related areas of work. Of the respondents, 92 per cent rated their job satisfaction as 'moderately satisfied' or 'very satisfied', using a five-point scale (very dissatisfied, moderately dissatisfied, neutral, moderately satisfied, very satisfied). In terms of work outcomes, 86 per cent gave positive ratings (moderate, good or great) for the extent to which they felt they had been able to improve organisational performance in their current role, and 79 per cent gave the same positive ratings for the extent to which they felt they had been able to improve employee job satisfaction (in both cases using a five-point rating scale — no improvement, minimal, moderate, good, great).

There is informal evidence of the success of some of these graduates, who have returned to contribute to the program. For example, Stephen Kohl, who is the managing director of Genesys Australia, provides instruction and accreditation free of charge to students in the program on the range of Genesys computerised psychological tests. Kohl also serves on the program's advisory committee. Other graduate members of that committee include Hayley Lokam, who now has her own consulting company, and Agata McCormac and Kathryn Parsons, both of whom have senior positions at Defence, Science and Technology Group in Adelaide.

Master of Psychology (Health)

Another master's program introduced in 2008, while Deborah Turnbull was head of school, was a Master of Psychology (Health). This program became possible due to recent appointments of additional staff with expertise relevant to health psychology; the fact that some of the courses could be taught in common with the clinical master's program; and the interest of students, many of whom could not obtain places in the clinical master's program. The appointment in the School of Psychology in 2003 of Helen Winefield, a former graduate of the Department of Psychology who came from the Department of Psychiatry, and the appointment in 2005 of Deborah Turnbull, who came from the Department of General Practice, provided teaching expertise relevant to a Master of Psychology (Health) as well as to the clinical master's. Although the health master's degree shared courses with the clinical master's, it differed in its focus in being more concerned with community health issues and programs designed to improve public health, rather than with dealing with individual mental health problems.

Courses in common with the clinical master's programs included applied methodology, preparation for psychological practice, adult clinical psychology, psychological assessment, child clinical psychology, clinical geropsychology, health psychology, and rehabilitation and disability. Courses exclusive to the health master's course (with their associated course co-ordinators) included introduction to epidemiology (Peng Bi), and public health interventions (Christian Gericke), these latter two courses being taught by guest lecturers from outside of the School of Psychology.

Current courses taught in the health master's program and associated course co-ordinators include evidence-based practice (Deborah Turnbull), interviewing and intervention (Michael Proeve), psychological assessment (Helen Winefield), abnormal psychology (Linley Denson), introduction to epidemiology (Peng Bi) and health policy and public health interventions (Teressa Burgess). The health master's program has taken fewer students than the other two master's programs because of the limited available psychologists in the community for placement supervision. Also, like other master's programs, the growing standards required for such supervisors make it increasingly difficult to provide courses of this kind.

Master of Psychology (Defence)

A fourth master's program developed in an arrangement with the Department of Defence in 2010 provided more specialised training for psychology graduates working in that organisation who had become registered as psychologists by pathways other than a master's degree. The program basically followed the same format as the clinical master's degree but it was discontinued in 2012 after a total of thirteen students had been enrolled, due to funding restrictions in the Department of Defence.

The development of the psychological test library

Although there had been a test library in the Department of Psychology at the University of Adelaide before the advent of the diploma course, it had relatively few tests. The needs of students in the diploma program and in the subsequent master's programs for training and practice in class and in placements required a much greater investment in tests, particularly in major tests such as the Wechsler scales of intelligence.

The original Wechsler Adult Intelligence Scale was published as the Wechsler Bellevue (after the hospital in New York where Wechsler worked) and there have now been four progressively updated revisions. These revisions have included more comprehensive norms, particularly for older adults, revisions to test items that had become out of date, the addition of new tests and new subscales, and revised theoretical formulation in accord with current hierarchical multifactorial models for intelligence.

Other Wechsler scales were added to the WAIS, including most notably modifications to the scale to make it suitable for children, thus challenging and eventually overtaking the Stanford-Binet's dominance in the assessment of children's intelligence. These tests were all expensive, which was understandable given the extensive research and testing that had to be completed in order to make their norms as representative as possible of the US population at the time. As administrator of the test library shortly after the beginning of the diploma course, I was associated with the acquisition of many more tests for both teaching and research purposes. I was assisted in this work for many of those years by Carmen Rayner, who was responsible for acquiring new tests requested by staff and students, for cataloguing the tests, for lending them out to students and staff, and for conducting an annual stocktake. In 2001, after many additions to the test catalogue, Rayner developed a computerised and online version of the catalogue to make it easier to search for tests. Wanda Prokopiak took over the day-to-day administration of the test library in 2007 and was responsible for acquiring many more tests requested by staff and students. Recently, Kate Chadwick from the centralised professional staff in the Faculty of Health Sciences has taken over responsibility for administering the test library, which now contains over 2000 tests, with an estimated value of more than half a million dollars. The test library has been,

and continues to be, an essential resource for teaching applied psychology and for research in theoretical and applied psychology by staff and students.

The most recent editions to the test library have been computerised scoring and report-writing programs that provide time-saving assistance to test administrators but also dangers associated with the need to edit carefully the computerised reports. As expected, the report writers for tests like the Wechsler scales make it clear that the responsibility for the report lies entirely with the psychologist who signs it. The importance of intensive training in learning how to administer intelligence tests correctly, score them and write reports based on them has been revealed over the years of teaching in the diploma program and in the subsequent master's programs that replaced it.

An obvious failure of such training was demonstrated by an alarming example from a registered psychologist who attended a course that Ted Nettelbeck and I conducted for psychologists in the community who wanted to learn about a new edition of the Wechsler Intelligence Scale for Children. As part of this course, Ted Nettelbeck asked the participants to present any examples they had from their own use of the previous edition of the test which could be discussed in terms of limitations that the new edition would hopefully overcome. One particular participant brought in a test report that she had found puzzling because it indicated a borderline level of intellectual disability for a student who had been tested as part of an assessment of difficulties he was having at school. The results surprised the teacher and alarmed the parents, neither of whom had thought there was any issue with the child's level of ability. Once the test results had been examined, it was found that the early items on the subtests, which are supposed to be credited as correct if it proves unnecessary to go back to those items from the starting items, had not been credited. This had resulted in a much lower IQ than was in fact the case, and accounted entirely for the apparent discrepancy between the original test results and the teacher and parent evaluations of the child's intellectual ability. What was most alarming about this particular example was that the participant, after realising her mistake, commented that that was how she had always scored the test!

A similar example from a student in the diploma program occurred when students were required, as part of an assignment, to score a video of a young girl being given the Stanford-Binet. One student made a similar mistake in not crediting the first items that need to be credited if it was not necessary to give them, and duly handed up a report indicating a low-average IQ, when it would have been obvious to anyone watching the video that the young girl was highly intelligent.

Attempts to emphasise the importance of adhering strictly to the instructions and careful scoring were not always sufficient to ensure satisfactory performance in giving the test. In the earlier editions of the WAIS, it was left to the person giving the test to make up an appropriate way of introducing it, based on suggestions in the test manual.

One student who was giving the test in a disability organisation under my supervision had clearly forgotten to do this, and, after laying out the test materials and the manual, suddenly found himself at a loss as to how to introduce the test to the person sitting opposite. After hesitating for a few moments he blurted out: 'Well, I'm going to give you some questions, and you're going to give me some answers!' I hastened to correct any impression the examinee might be having that this was some kind of interrogation by explaining as calmly as I could the purpose of the testing session. I also found that it was important to check students' pronunciation of certain words before administering the test. One student who was giving the information subtest of the WAIS under my supervision asked, 'Who wrote Foost?' instead of 'Who wrote Faust?'

In the subsequent master's programs, the introduction of a computerised report writer for the Wechsler scales posed new problems for teaching. This included the need to emphasise care when editing the computerised report to ensure that it was accurate with respect to the person and their circumstances. In a similar assignment to the one using the Stanford-Binet, students were asked to score a video of a WAIS being administered to a middle-aged woman who had a mild intellectual disability but no other disabilities. The students were advised in the background information that the woman being tested had been working successfully for many years at Bedford Industries. The computerised report writer usefully provides a list of possible recommendations that can be included in a report. However, in spite of being informed about the need to select appropriate recommendations, some reports included the entire list of possible recommendations, including in one report recommendations that was provided concerning the woman's psychiatric condition (which had obviously been cut and pasted from another report left on the computer containing the report-writer program) when there had been no indication in the background information provided that she had any such condition.

That students were not the only problem with respect to the use of the WAIS report writer was shown by the fact that the current WAIS report writer did not seem to have been tested by its developers on someone who had uniformly low scores across all the subtests. In describing the intelligence scores of another adult working successfully at Bedford Industries, the report writer referred to that person's abilities seven times as 'extremely low' in consecutive sentences, implying a much more limited coping capacity than was apparent in the video of the person being tested, who was able to converse with the test administrator in a way that was not much below normal limits and who had demonstrated his capacity to work successfully in sheltered employment.

The future of psychological testing will increasingly involve not only computerised reports but also online testing, which will eliminate the need to check that tests have been scored correctly. However, there will still be the need to ensure that the reports are accurate with respect to the person who has been tested and their circumstances.

Online testing is also likely to mean that such teaching will need to be carried out by agents from the company that has developed and marketed the test and that requires accreditation for its use. This already occurs in post-registration training in which psychologists have to pay for the training and accreditation required to use the tests. However, some of this kind of training also occurs in the current Master of Psychology (Organisational and Human Factors), to the benefit of the students who do not have to pay the relatively high cost of the training. The advantage to the test developers is that students are more likely as a result of that training to use their tests.

The increasing cost of some psychological tests has also made it difficult for students to conduct research that involves the use of such tests. This may become even more of a problem with online tests that not only are expensive but also require students to have accredited training to use the tests, even for research purposes. This may affect the extent to which commercial psychological tests can be appropriately evaluated because the companies themselves may have limited incentive to research the reliability and validity of tests that already have 'financial validity' in terms of successful sales.

Commercialisation of instruction and accreditation has also occurred in specific therapy and intervention workshops available to registered psychologists who work, or intend to work, in specialised areas such as the treatment of trauma from neglect and/or abuse in children. These workshops can require weeks of costly training plus supervision, and additional costs and training to become a supervisor of other psychologists who complete the workshops. To the extent that such training programs produce knowledge and skills required for certain types of psychological practice, this could affect the future teaching of applied psychology in universities. While they have not been used as yet in the clinical or health master's programs, they might in the future follow psychological testing workshops in being made available to students as part of their coursework.

If in the longer term such commercialised teaching courses were to become available in undergraduate teaching, it might have major implications for the role of lecturers, their work being progressively taken over by online teaching that only needs local tutors to support student learning.

The Bedford Industries research fellowship and research in applied psychology

The Bedford research fellowship was of direct assistance to students of the Applied Diploma in Psychology in terms of teaching content, research projects, student visits to the centre and subsequently for employment of students as rehabilitation officers. Research projects at Bedford Industries included not only those associated with diploma student theses but also honours and PhD theses and subsequently master's degrees.

Many of these research projects were carried out within the experimental psychology tradition in which Ted Nettelbeck and I had been trained.

The information processing model of human behaviour which guided much of the teaching and research in the Department of Psychology during the 1970s owed much to the influence of Alan Welford, head of department from 1969 to 1975. He had previously written a book that took an information processing approach to ageing (*Ageing and human skills*, 1958) and, while head of department, he completed another book called *Fundamentals of skill* (1968), which became an influential textbook guiding much of the information processing research carried out by PhD, diploma, honours and master's students under the supervision of staff including Ted Nettelbeck, Douglas Vickers, Donald McNicol, John Brebner and myself. The information processing approach was used to study perceptual, memory and motor performance across the lifespan from childhood to old age, including the slower and more variable performance of people with an intellectual disability.

One of these information processing studies had an unexpected rehabilitation outcome. In this study, scores from adult intelligence tests used to assess eligibility for Bedford Industries were checked to ensure that participants were in the appropriate range of intellectual disability required for publication of the research. The scores revealed a number of workers in the food packing room within the required moderate IQ range, but one particular worker who did not have an IQ score and needed to be tested was found to have an IQ in the 120s. Investigation of this anomaly revealed that the person in question had been at university but had suffered a mental breakdown, and had been sent to a psychiatric hospital and from there to Bedford Industries, where he had completed his rehabilitation. However, he confessed that he had found working in the food packing room quite congenial and had continued to go on working there, given that no-one seemed concerned about it. On being advised that having completed his rehabilitation, he should now return to the university to complete his degree, he did so.

Practical applications of psychology at Bedford Industries which involved research students included the setting-up of training vestibules in the furniture assembly area and in the industrial sewing area. These six-week training programs taught work behaviours and basic work skills before new employees graduated to the production lines of these departments. Task analysis and the training techniques developed by Neil O'Connor in the UK and Marc Gold in the US were used to teach work skills, with considerable success. However, a problem for conducting and evaluating applied research theses on projects such as those involved with training was that, unlike experimental studies using rats or first-year students, it was often difficult to obtain representative samples and matched control groups, particularly amongst people with disabilities who, in spite of having the same diagnosis, could differ markedly in how the disability manifested itself because of other associated disabilities. This was demonstrated in Antonergias's (1983)

thesis, which involved developing and evaluating a video-based training program in the woodwork training vestibule for how to lift correctly.

As the supervisor of this research project, I had asked the woodwork training officer to choose a number of clients working in furniture assembly with mild to moderate intellectual disabilities who would be suitable for the study. The nominated participants were duly assembled on the designated day, during which the student, with my assistance, was to make the training video as part of her research thesis. The format for the video was to show first how they would lift a heavy box without instructions and then how they would lift it correctly with accompanying voice-over instructions.

A relatively large empty cardboard box was used for the demonstrations so that it could be lifted easily without causing any problems. At the beginning of a videoed trial, the box was placed on a certain spot on the floor and while the student operated the video camera, I told the participant to pick up the box as they would normally, and carry it about six paces and then place it on another marked spot on the floor. The first participant was given these instructions and approached the box to pick it up but slipped and fell over the box. After we had checked that he was okay, he was asked to try again, which he did, but with the same result. I thought that perhaps there was oil on the floor, but he indicated that it was not the floor but his leg that was to blame. When we enquired about his leg, he informed us that he had a wooden leg, which made it very difficult for him to bend down. After revealing the wooden leg beneath his trousers, he was excused from taking any further part in the study.

The next participant was given the same instructions and he approached the box to pick it up but gave a sudden skip as he did so. Since this would be distracting on the video, he was asked to perform the task again but this time without the skip. He again attempted the task but at the last moment gave the same sudden skip before picking up the box. On asking the training supervisor why he might have done that, we were informed that he had an additional disability that involved sudden involuntary movements, particularly when he felt under pressure. He was also thanked for his participation and was excused from the study.

Before giving the instructions to the next participant, I checked with the training supervisor that he was suitable for the task, and, in particular, that he did not have a wooden leg or sudden involuntary movements. Once I had been assured that none of these issues applied, the third participant was given the instructions to lift the box and carry it to the designated spot. The third candidate approached the box and was about to pick it up when he paused and looked first at the box and then at me. I asked him if everything was okay, whereupon he asked what was in the box. I asked why he wanted to know that, and he said that how he picked it up would depend on how heavy it was. I informed him that in fact there was nothing in the box, whereupon he asked why, if that was so, he was being asked to lift it. I explained that it was an exercise in lifting

and that he was to imagine that the box was quite heavy when he picked it up. Once he was satisfied on these issues, he was again given the instructions and his actions were videoed. He approached the box and bent down as if to pick it up, but then, instead of doing so, he pushed it across the floor to the designated spot, explaining as he did so that if the box was quite heavy as I had indicated, he would not pick it up but slide it.

At this point I could see that the student was obviously worried about how her research project was proceeding, so we had a break during which I asked the training supervisor why the third candidate had acted as he had. We were informed that he had an additional mental health condition that made him suspicious of other people's intentions. Fortunately for the student, the following participants were able to perform the lifting task as required and she went on to complete her research thesis satisfactorily.

The research caravan

To assist in the applied research carried out by staff and by diploma, honours, master's and PhD students, a specially equipped caravan was built and stationed at Bedford industries. From there it could be towed to schools and other organisations in the community, where it provided a room equipped to carry out experiments, particularly with respect to information processing tasks including reaction time and vigilance. It was at this time that the department acquired its first computer, which could be connected to lights and keys in order to obtain reaction time data. The computer was considered portable, although it was the size and weight of a small fridge and the program to collect data took approximately twenty minutes to load using perforated paper tape, which often broke, requiring another twenty minutes. This original computer was replaced by increasingly smaller and more powerful computers that could be programmed much more easily to provide more complex reaction time tasks including, in particular, the inspection time task used by Ted Nettelbeck in his studies of intellectual disability and changes in information processing capacity across the lifespan.

Changes in the demographics of students in applied psychology

A survey of organisational psychologists in Australia by Kirby and Hartstone (1998) showed a significant increase in the percentage of female organisational psychologists from 14.6 per cent in an earlier similar survey by Barkway and Kirby (1983) to 35.1 per cent, although this was still much less than the 67 per cent female membership of the Australian Psychological Society at that time. The survey also showed significant gender differences in job functions, with females being more involved in job functions like conflict management and communication effectiveness and males being more likely to be involved in job functions like psychological testing. In the research thesis on which this study was based (Hartstone, 1994), these

differences were related to the way male and female psychologists think about therapy, with females tending to prefer relational thinking and men preferring instrumental thinking (Johnson & Stone, 1989).

A similar increase in the percentage of females to that in the above study occurred during the years of the diploma program and the subsequent Master in Clinical Psychology and Master in Health Psychology which replaced it. I taught in all these programs since their inception, and was not particularly aware of this gradual change in gender balance until 1997 when, teaching in the clinical program, I was suddenly struck by the fact that I was the only male in the room. Going back to the photographs of students in each year and counting the numbers of males and females, I found that although there were marked variations from year to year the diploma program had approximately equal numbers of males and females during its first four years but the proportion of females had then increased until in 1987, its final year, 86 per cent of the students in the course were female. Figure 4.1 shows that this change in the proportion of females in the diploma program continued in the subsequent clinical master's program, reaching 100 per cent in 1997, and that a similar change occurred in the corresponding years of the honours program and in the health master's program. A lower overall proportion of females is evident in the organisational master's program, which began in 2002, although there are marked variations because of the relatively small number of students in the course each year. The overall increase in the proportion of females in these programs has also been evident in the profession generally and suggests that psychology may become a predominantly female course and profession.

Kimble (1984) published an article entitled 'Psychology's two cultures', in which he contrasted two very different attitudes to psychology amongst both academic and applied psychologists. He developed a measure consisting of twelve dimensions including, for example, beliefs about scientific versus humanistic values, determinism versus indeterminism in behaviour, objectivism versus intuitionism as a source of basic knowledge, laboratory versus field research, and cognition versus affect. Each alternative was accompanied by a description in favour of that alternative and participants were asked to rate their endorsement of each pair of alternatives on a ten-point scale, from fully endorsing one alternative to fully endorsing the other. Kimble used the sum of scores on these dimensions to contrast a more scientific approach with a more humanistic approach to psychology and found significant differences on this measure in the expected direction between different divisions of the American Psychological Association at that time. For example, members of the psychotherapy division were more humanistic in their approach than those in the experimental division. Kimble noted what he saw as a trend towards a coming-together of some but not all aspects of the two cultures.

Kimble did not report gender differences, but an undergraduate exercise that I conducted in 2006 as part of a history of psychology course, using Kimble's measure,

showed a significant difference between male and female students, with the female students being more humanistic in orientation and the males more scientific. An implication of this finding, if it were replicated on larger samples after following formal research procedures, is that an increasing proportion of females in psychology may result in a shift to a more humanistic rather than scientific orientation in research and practice.

To test this predicted gender difference with respect to applied psychology, it would be interesting to follow up the subsequent careers of the more than 300 students from the diploma course. That this has not been done in what purports to be an evidence-based profession may be surprising, but this may be because before the diploma it was assumed that graduates from the existing PhD program would obtain academic positions, while those with a third-year or honours degree might obtain employment in many different kinds of jobs. This research could also be extended to graduates from the subsequent master's programs. Interestingly, in a recent survey of graduates from the organisational psychology program, Chodkiewicz (2016) found no obvious differences between the types of job functions of male and female graduates from that program.

It would also be interesting to determine the extent to which male and female graduates have moved into management positions in organisations that allow them to influence the policies and strategic planning of the organisations in which they are employed, particularly with respect to the use of applied psychology and applied psychologists. In the survey by Chodkiewicz, the percentage of organisational graduates in middle or higher levels of management increased from 15 per cent in their initial employment to 56 per cent at the time of the survey, with significantly more males having moved into middle or higher levels of management.

Applied research in the Department (now School) of Psychology

The establishment of the Bedford research fellowship in 1972 and the introduction of the Diploma in Applied Psychology in 1974 led to an increased focus on applied research not only in the diploma and subsequent master's programs but also in the PhD program. However, unlike the applied courses there was no marked increase in the proportion of females completing PhDs and no marked increase in the proportion of applied PhD topics until the year 2000. Figure 4.2 shows the total numbers of males and females in blocks of five years, from 1975 to 1979, 1980 to 1984 and so on until the present time. Also shown are the equivalent numbers of theoretical and applied PhDs as indicated by a rough classification that I made based on the title of each thesis. It is evident that there were generally similar numbers of male and female PhD students and theoretical and applied topics for their theses until the year 2000, after which a dramatic increase is apparent in the two five-year blocks since that time

in both the number of female PhD students and the number of applied PhD theses. There was a similar increase in the percentage of female students undertaking applied research when opportunities for PhD research were facilitated by the Faculty of Health Sciences (to which the School of Psychology belonged), as the faculty wanted to increase the numbers of PhDs in order to improve access to available Commonwealth Government funds. This marked increase in research was achieved with only a modest increase in staff.

I do not intend to provide a detailed account of applied research in this chapter but it is interesting to note that the increase in applied PhDs was not only due to research on disability or on problems in the community such as gambling, unemployment and how patients deal with medical conditions. The demise during the late 1990s of the 'rats' part of the 'rats and stats' description of psychology involved the elimination of the first-year and second-year rat practicals that were used to investigate operant conditioning principles. This ended an experimental tradition within the department which had involved the use of monkeys and cats in studies of the corpus callosum in the 1960s by the first head of department, Malcom Jeeves, and work using rats during the 1970s and 1980s which was conducted by Peter Glow on the effects of drugs on the nervous system, and by Tony Winefield and Frank Dalziel on learning.

However, the end of teaching and research using rats did not entirely end animal behaviour as a teaching or research topic within the department. The laboratory work with animals was subsequently applied to animals in the Zoo, just as, during that time, other topics in psychology like intelligence, personality and learning were being applied in the community. Frank Dalziel, who had taught classical and operant conditioning and who had organised the first-year and second-year rat practicals, now began to supervise studies of animal behaviour at the Adelaide Zoo, and his students' studies were influential in designing environments involving novel stimuli for the animals to explore and puzzles to solve to obtain food, which created a more natural environment for the animals. This applied work in the department ceased with Frank Dalziel's death in 1999, but the legacy of that theoretical and applied work was continued elsewhere by a number of his postgraduate students.

Although the dramatic increase in PhD research that began in the late 1990s (as shown in Figure 4.2) was largely due to the aims of the Faculty of Health Sciences to markedly increase PhD research, the availability of necessary funding was partly a consequence of the continuing impact of the Dawkins reforms on higher education, which placed a much greater emphasis on university research.

The Dawkins reforms

The Dawkins reforms, first announced in *Higher education: A policy discussion paper* (the 'green paper'), which was published in 1987, and subsequently in *Higher education:*

A policy statement (the 'white paper') in 1988 by the then Labor government, resulted in Colleges of Advanced Education [CAE], which had focused on vocational training, being changed into universities with a requirement to pursue research in addition to teaching, and existing universities having a greater emphasis on research output and more of a teaching focus on vocational training. The aim was to make the resulting university system more efficient and internationally competitive.

Criticisms and benefits of the Dawkins reforms are discussed in an article by Ashenden (2012), a former ministerial consultant to a federal minister of education and a founder of the *Good Universities Guides*. The criticisms have included that it was an attempt to reduce public funding and shift the cost of universities onto students (including overseas students from non-English-speaking backgrounds who paid full fees); it aimed to commercialise university education with consequent managerial constraints on teaching and research; it demonstrated an intensified 'publish or perish' attitude at the expense of teaching and community service; it involved the dumbing-down of the curriculum to accommodate a much larger number of students; and it resulted in the relative neglect of the state-based TAFE systems. Similar criticisms have been made in other publications (see, for example, Cain and Hewitt, 2004).

Those criticisms notwithstanding, my experience of overseas students has been very positive in terms of many of the students' motivation to study, their intellectual ability and their capacity for hard work. However, providing feedback on drafts of some theses by overseas students often meant additional work. Nevertheless, the input from overseas students in the Master of Psychology (Organisational and Human Factors) program, in particular, has been highly beneficial to that course in terms of providing a more international perspective on organisations and working conditions, and some overseas students in the program have completed placements in Hong Kong and Shanghai.

As indicated by Ashenden in the above article, advocates of the benefits of the Dawkins reforms argued that it made Australian universities more competitive internationally in terms of teaching and research, and the way in which students could delay payment of university fees until they were employed meant that a university education became available for many more students. Advocates further argued that the existing university and CAE systems were woefully inefficient in teaching, research and administration, and that academics abused what was essentially a position of wealth and luxury. Certainly, there were instances of abuse, as there are in every profession, but I only ever attended one of many informative seminars given by staff returning from their study leave which consisted of little else but travel slides. However, a rumour at that time, that a full-time CAE academic had organised all of his teaching into one day so that he could spend the other four days working on his farm, certainly did not help this perception of academics.

Prior to these reforms, the university academic was expected to know what was known and not known about a particular topic within a university discipline, and to conduct research into how more could be known about the topic. After these reforms, what was taught in universities was increasingly influenced by what employers of graduates wanted them to know, and what was researched was increasingly determined by what the government was prepared to fund. I for one have a considerable feeling of nostalgia for the inspiration provided by teachers and research supervisors who were enthusiastically interested in their teaching and research topics, rather than, in some cases, in what they had to do to obtain promotion or, increasingly, to have their employment contract renewed or their casual employment continued.

With respect to promotion, the reforms resulted in the neglect of teaching and service to the community in the pursuit of research projects that the academic might be more or less interested in. As indicated in the article by Ashenden, the reforms also resulted in the obligation to quantify the quality of research through setting objectives to be achieved in terms of the size of grants and the numbers of publications in 'high impact' journals and citations. I remember attending a committee meeting discussing the research-funding objective that had been set for the faculty. At the meeting, one member of the committee mentioned a grant of tens of thousands of dollars, only to be dismissed impatiently by another member of the committee, who said, 'That's no use; we need grants worth hundreds of thousands'. Certainly, these reforms posed increasing funding problems for university administrations, and these problems have continued to the present time.

The criticism that, as a result of the Dawkins reforms, universities were increasingly required to teach a vocational curriculum determined more by the employers of their graduates than by the requirements of the academic curriculum can be countered by the observation that some university courses related to the professions had always been involved in vocational teaching. It is certainly the case that vocational training in the School of Psychology at the University of Adelaide began a decade and a half before the Dawkins reforms. Nevertheless, the dramatic increase in the number of its PhD graduates is consistent with the increased emphasis on, and funding for, research that followed the Dawkins reforms.

The future of applied psychology research for teaching

An important issue concerning the application of psychology in society was raised in a seminar given in the Department of Psychology by Jeffery Richards, who was appointed to the department in 1997. The issue concerned the effective implementation of applied psychology. As I remember, he argued that psychology did not need any more theories of behaviour; what it needed was research in how to apply its knowledge effectively —

for example, how to develop effective teams to deliver services and how to ensure that what is learnt in training is transferred as intended to the workplace.

Having attempted to apply psychology at Bedford Industries over many years and having observed attempts to apply psychology in other government and non-government service organisations, I was certainly in agreement with his argument. As already indicated in the section concerning the Master in Organisational Psychology, I had begun to consider that the particular branch of psychology that was most relevant to effectively applying psychological knowledge in community settings was organisational psychology. In my work with rehabilitation officers at Bedford Industries, I came to believe that many of the problems they encountered in applying their psychological knowledge were due to a lack of knowledge about how organisations function. As a result, I became interested in learning about and teaching organisational psychology, and this led to my introducing courses on the topic into the curriculum of the Department of Psychology. Ultimately, it assisted in the development of the master's program in organisational psychology.

The need for more teaching about change in organisations has been discussed in reviews of the role of organisational psychologists in Australia by Barkway and Kirby (1983) and Kirby and Hartstone (1998). In the masters thesis on which the latter article was based, a participating organisational psychologist commented: 'Not much in your list of functions covering facilitating organisational change as a result of downsizing/retrenching/merger/acquisition and so on — which is the reality in organisations, but not so apparent when viewed from an academic "classificatory" perspective' (Hartstone, 1994, p. 68). Comments were also made in both these reviews on the need for organisational psychologists to promote the services that the profession could successfully apply to organisations.

Subsequent work in trying to apply psychology has led me to believe that there was also a need for research into how to ensure that successfully implemented changes are maintained over time. The research literature supports this need for research into how and why implemented change programs fail to be maintained. Meta studies have shown that between 28 per cent and 93 per cent, with an average of 3 per cent, of implemented programs in organisations fail (Decker, Durand, Mayfield, McCormack, Skinner, & Perdue, 2012, p. 29). Surprisingly little seems to be known about the critical factors that facilitate or inhibit the maintenance of organisational change, and little is also known about the time scale within which these failures occur. Given the costs associated with implementing many organisational change programs, a failure rate of this kind provides a financial imperative to investigate such poor cost-benefit results. How to facilitate the maintenance over time of successfully implemented change programs would be a very valuable skill for applied psychology students to be taught.

A particularly telling example related to me in conversation can be used to illustrate how successful change can fail to be maintained. At a conference on disability in Adelaide in the 1990s, I was told by one of the delegates about his previous experience of working at an institution for adults with severe intellectual and other disabilities, where he had been involved in a behavioural training program designed to teach dressing and toileting skills to clients using techniques based on operant conditioning principles. After many months, he and his co-workers had succeeded in teaching some of these skills, in particular the ability of the clients he was working with to dress themselves.

He had subsequently left that organisation and gone to work in another disability organisation for a number of years, after which he moved to a third disability organisation. While waiting to start this new job, he decided to return as a volunteer to the organisation where he had been involved in the training program. To his surprise, he was assigned to the same villa with the same clients whom he had previously trained. Even more surprising was the first instruction he received from the supervisor, which was to dress the clients. His claim that they could dress themselves was dismissed by the supervisor, who said that they were much too disabled to do that. To prove that they could dress themselves, he laid out their clothes as he had done when he had trained them and instructed them to dress themselves. To the astonishment of the supervisor, the clients did so. When asked how he could have possibly known they could do that, he said it was because he had trained them to several years ago.

This is a very good example of how psychology can be applied effectively but only in the short term. An interesting research project at that time would have involved finding out how those clients ended up being dressed again by the staff. My own speculation is that time may have been a critical factor. A busy schedule that involved getting clients ready for an outing or staff having a number of duties to be completed within a particular time, or an unwillingness to allow (or to waste) time while clients slowly dressed themselves, could have led to speeding up the process by helping the clients to dress themselves, and eventually dressing them completely. It would only take a change of staff for the previous knowledge that they could dress themselves to be lost and, accordingly, for it to be assumed thereafter that they needed to be dressed.

The failure of successfully implemented change programs to be maintained can also apply more broadly to successful approaches to, and policies concerning, particular issues in the application of psychology. As part of the consultancy to Bedford Industries, the research fellowship developed a client induction manual as well as assessment, placement and training guidelines for rehabilitation officers and training programs to be given by the rehabilitation officers to supervisory staff. Training manuals were written for these programs, which provided instructions and practical exercises for supervisors on how to supervise their employees with disabilities, how to use behaviour management techniques appropriately to improve work and social behaviours, and

how to use task analysis and training techniques based on operant conditioning and information processing theories to facilitate the acquisition of work skills.

These training techniques led to much greater acquisition of work skills than had been previously achieved with the commonly used 'show and tell' or 'sitting by Nellie' techniques that were used by supervisors who had had no such training. Procedural manuals were also written for the furniture assembly section, the industrial sewing section and the metalwork section of Bedford Industries. All of these developments were used to inform my teaching in applied psychology at the undergraduate and postgraduate levels. I had assumed in my teaching at the time that such successfully implemented training techniques would continue to be developed and implemented, but this did not happen. The relevant research literature showed a decline in research on the development and application of training techniques after the 1980s in favour of more research on disability rights and advocacy (Hampel, 2007).

I was personally made aware of this decline in interest in training techniques, in relation to Marc Gold's *Try another way* system for training people with severe intellectual disabilities. Gold had developed this task-analysis-based system with associated videos and had published it in his *Try another way training manual* (1980a); he had commented further on it in his book *Did I say that?* (1980b). To assess the learning skills of people with severe intellectual disabilities as a basis for using training techniques of this kind, Irvin, Gersten, Taylor, Close and Bellamy (1981) had published a revised version of a test called 'The Trainee Performance Sample'. When a master's student wanted to use this test for her research thesis, it was found to be missing from our test library, so I contacted the publishers, only to be told that it was out of print. I then contacted the senior author, Larry Irvin, who wrote back saying that unfortunately he did not have a copy that he could send us. He also commented that he was retiring and that looking back he lamented the fact that there now seemed to be so little interest in applying these training techniques. He further commented on the pleasure that he still derived from seeing people with intellectual disabilities in open employment for which he had been involved in training them. Partly prompted by this apparent decline in research and application of training techniques, a PhD in Education at the Flinders University of South Australia (for which I am an external advisor) is now investigating the extent to which these training techniques are currently being used by supervisors in disability organisations. Preliminary results suggest anecdotally that many of the task-analysis-based training techniques pioneered by Marc Gold and others are not being used and that much training has reverted to 'show and tell' and 'sitting by Nellie'.

That organisational change can also mean the reduction or elimination of successful programs is illustrated by an initiative associated with the Bedford Research Fellowship for people with disabilities to attend TAFE colleges in order to learn work skills in simplified apprenticeship courses. These courses, which were arranged

to teach woodwork and metalwork skills at Marleston and Panorama TAFE colleges respectively, were also very successful in developing the participants' self-esteem. The courses were taken on by teachers at these colleges who had no training in teaching people with disabilities but who volunteered to do so because they found the idea challenging and exciting. There were initial concerns that such training would not be successful; indeed, I remember waiting anxiously with several Bedford rehabilitation staff for a phone call to say that the training was not working. But no such call came, and when the woodwork trainer, in particular, was asked how the Bedford workers had behaved themselves, he answered that he wished his first-year apprentices were as eager to learn as they were.

On the basis of the success of these courses, I argued in a published article (Kirby, 1985) and as part of a Commonwealth Government review of disability services that resulted in the *Disability Services Act 1986* (Cth) that the TAFE system was ideally placed to provide the tertiary education appropriate for young people with developmental disabilities who took longer to acquire work and independent living skills than their nondisabled peers and who therefore needed, and would benefit from, the additional time in education which TAFE could provide. This recommendation was consistent with new service guidelines in the *Disability Services Act 1986* (Cth), which included the use of generic services, including education. Changes in disability service guidelines of this kind were incorporated into my teaching of disability service concepts in undergraduate and postgraduate courses. The TAFE programs associated with Bedford Industries were eventually extended into horticulture, with many workers in the garden maintenance department along with those completing other similar courses receiving certificates at annual ceremonies. These programs continued for many years during and after the ending of the Bedford research fellowship until approximately five years ago, when they were unfortunately discontinued due to restructuring in TAFE.

That worthwhile applied psychology changes in organisations may come and go and come again was illustrated in a seminar to a master's class on mental health services some years ago by a psychologist who had had extensive experience over many years in these services. When asked by students to comment on how these services had changed over time, he drew a circle on the whiteboard and proceeded to explain how these services in his opinion had improved and declined and improved and declined with changes in government, changes in the economy, and with new and sometimes misguided enthusiasms about how to run such services. Such changes, he said, all variously involved new approaches to treatment, amalgamations and renaming of services, decentralisation of services, employment of more psychologists, downsizing and changes in the roles of staff, greater resources, and reductions in resources. He then commented on the stage of this circle at which he believed services were at the time of his seminar.

The future of teaching applied psychology

At the time of writing, topics in undergraduate teaching in the School of Psychology at the University of Adelaide continue to be more theoretical than practical in their approach. These topics include research methods; perception and cognition; health and lifespan; psychology in society; individual differences in personality and assessment; learning and behaviour; mind, brain and behaviour; and organisational psychology. There are three master's programs: Clinical; Health; and Organisational/Human Factors.

All such master's programs currently face challenges, as discussed in a Psychology Board of Australia green paper (2015), particularly with respect to providing student placements. This is because of the increasing standards for placement supervisors, which include registration, supervisor training and endorsement. These requirements, which must be in place by 2018, will make it difficult for some master's programs to continue, and it has been suggested that some may be forced to close. An organisational psychology alumni survey by UQ Centre for Organisational Psychology at the University of Queensland in 2015 conducted a survey to assess the appeal of a program in business psychology which would avoid these requirements by not leading to registration. A further problem created by the need for supervised placements as part of the master's programs is that their limited availability means that enrolments in these programs must likewise be limited, thus making them expensive to operate.

Although placements for students are becoming increasing difficult to arrange, they have been a very important part of the applied training in the master's programs. Their advantages include providing not only practical training in three different work situations within a master's course but also opportunities for students to choose, from a number of different placement options, those options of most interest to them in terms of their future careers. Having three different placements also allows them to try out job options that they may not have considered previously. A potential benefit to placement organisations is that the placement provides them with the opportunity to consider a student on placement with them as a potential employee, should a position become available. Evidence suggests that many students find their first employment through one of their placements (Carless, Cuozin-Wood, Duncan, Imber, Munro, & Novatsis, 2003). Chodkiewicz (2016) found that graduate respondents from the Master of Psychology (Organisational and Human Factors) rated placements higher than coursework or their research thesis in preparing them for their careers, and that 46 per cent had obtained their first employment as a result of a placement. In fact, there have been a number of students who have received job offers from their placement organisations before finishing the program. There have also been examples of students who tried out a placement in human factors work at DST Group and found that they

liked the work so much that they subsequently found employment in jobs requiring knowledge and skills in human factors.

The master's programs have been dependent on the goodwill of placement supervisors who receive no monetary compensation for the considerable amount of supervision that they provide to students each year. As recognition of this essential contribution to these programs, the School of Psychology in 2013 offered the position of adjunct lecturer to all psychologists in the community who contributed to one or more of the courses, as a placement supervisor and/or as a guest lecturer providing seminars. Adjunct lecturers can use this title officially, and it entitles them to use the resources of the test library in the School of Psychology and gives them access to the resources, including the electronic resources, of the university library.

A green paper published by the Psychology Board of Australia (2015), mentioned earlier, discusses critical issues facing the training of professional psychologists (including the relevant evidence for these issues). The green paper includes discussion from representatives of the Psychology Board of Australia [PsyBA], the Australian Psychology Accreditation Council [APAC], the Australian Psychological Society [APS] and the Heads of Departments and Schools of Psychology Association [HODSPA]. A particularly important issue concerns trying to ensure that appropriately high standards are met for the different ways in which students can obtain registration, particularly the standards for the supervision of work for registration after completing an honours degree or an honours degree followed by a one-year graduate diploma.

Other critical issues include the restricted number of places available in master's programs because of constraints on appropriately qualified placement supervisors; the possibility that organisations generally will begin to charge for placements, thus making these programs more expensive; and the diminishing number of non-clinical master's programs, which results in reducing the range of careers in applied psychology. Consequences of the restricted number of places include a bottleneck at the fourth-year level in psychology, with many students unable to access these programs, and the difficulty in meeting the demand for psychologists now and in the future. A more general issue of apparent concern to the government is the amount of study required for registration and whether this could be reduced, for example, by eliminating the honours degree. Reducing undergraduate training in theoretical psychology, if adopted, would begin to undermine Lightner Witmer's (1907) insistence on a sound theoretical basis in psychology before learning to apply it and would, as I pointed out when discussing this issue earlier in this chapter, reduce the scientist part of the present scientist-practitioner model.

Options considered as ways of dealing with these issues include introducing a European style master's program that would involve a three-year bachelor's degree followed by a two-year master's degree and a one-year internship. An alternative

option is having a generic master's program that does not require placements, with specialisation in a particular area of applied psychology occurring in supervised employment subsequent to completing the master's program. These options without the constraining effect of placements are seen as ways of increasing the number of places available in master's programs, making them more economical to administer for universities whilst simultaneously dealing with the demand for more psychologists. Arguments have been considered in the green paper both for and against these and other options, with the only apparent consensus being the desirability of phasing out the present 'four plus two' option (four years of study including an honours year followed by two years of supervised employment in the community) and the need for a simpler pathway to ensure a well-trained workforce of psychologists.

The adoption of a generic master's degree would be a case of 'back to the future', with a two-year version of the original one-year diploma program but without the placements. However, in arguing against the existing master's programs, Lyn Littlefield claims (Psychology Board of Australia, 2015, p. 12) that '[f]or a number of reasons most likely related to the current funding arrangements for psychologists under Medicare, the area of greatest demand is for Masters courses in Clinical Psychology'. Littlefield further argues that

> market forces have already changed the landscape for Masters-level professional programs by creating a homogenising of education and training content around clinical psychology, to the detriment of other areas of practice; the 'standard' Masters professional training is becoming basically a program in clinical psychology. (p. 12)

Given such existing demand, a generic master's program might also end up concentrating on clinical practice at the expense of other areas of applied psychology, thus reducing the contribution that different types of applied psychology could make to society.

The green paper makes it clear that there are many complex issues associated with developing new approaches to the training of applied psychologists. However, at the present time the increasing standards for supervision threaten to markedly restrict the range of applied psychology programs, particularly non-clinical programs, and the numbers able to be trained as clinical psychologists. Perhaps there is a need to question whether it is worth trying to increase standards for supervision if the long-term results are that markedly fewer applied psychologists are working in a very restricted range of clinical psychology jobs. Other professions with perhaps less relevant knowledge and skills will doubtless take over the remaining types of work. Options for supervision standards that would overcome these problems include leaving them as they are, given that the need for higher standards might no longer be necessary if the four-plus-two option and also the five-plus-one were to be discontinued, and/or having less restrictive supervision standards for non-clinical programs than for clinical programs.

There is also a need to consider some kind of work qualification for the many third-year graduate students in psychology who cannot access honours or master's programs. Perhaps there is a need to revive a version of the original diploma program in psychology (without placements) as a fourth-year alternative to an honours program which would not lead on to registration. Such a program could provide basic knowledge and skills in applied psychology useful in a wide variety of jobs dealing with different aspects of life including infancy, childhood, education, work, family, leisure and old age. It would need to provide skills that would put its graduates at an advantage for such jobs — for example, not only basic interviewing and counselling skills, but also skills concerning program design and evaluation, individual and group training, working in organisations, and report writing. Skills associated with working in organisations would facilitate entry into management, where graduates could influence the effective use of applied psychology. The possibility of this kind of qualification has been considered by a committee in the School of Psychology with Anna Chur-Hansen as head of school, but the current need for such a course to be full-fee-paying does not make it a viable option.

A more general problem for the future diversity of applied psychology is achieving a secondary school curriculum in psychology which emphasises the different vocational options within the field of psychology. The present textbooks in the South Australian secondary school system provide a general introduction to theoretical psychology with an applied focus that is mainly on clinical and health psychology, with only a paragraph-long description of other major areas of applied psychology. Such alternative vocational options could be easily overlooked by teachers and might account for the number of undergraduate students who at interviews for the organisational master's program say that they had never heard of organisational psychology (or any other form of psychology apart from clinical) until encountering it in an undergraduate psychology course. A secondary school psychology textbook that devotes separate chapters to the different vocational options in applied psychology would attract a wider variety of students interested in one of the alternative careers to clinical psychology.

It is also likely that more of these students would be retained in undergraduate psychology if there was a range of master's programs in areas such as clinical, health and organisational psychology with their economies of scale, plus a fourth-year diploma in applied psychology that would not lead to registration but would be available to all those third-year graduates who are unable to enter the honours program.

A more general but also important consequence of a secondary school psychology program that represents the diversity of applied psychology would be to educate the public about the variety of ways in which psychology can contribute positively to society.

Summary comments

Over the forty-one years that applied psychology has been taught in the School of Psychology at the University of Adelaide, there has been growth from one diploma program to the present three master's programs in clinical, health and organisational/human factors, offering students a range of vocational options in applied psychology. These programs were organised and taught for many years with very limited additional resources for staff members, most of whom were experimental psychologists with little or no practical experience in applying psychology. The total students enrolled in these programs since they began include 331 students enrolled in the diploma program, 377 in the clinical master's, 13 in the Clinical Master of Psychology (Defence), 47 in the health master's and 152 students in the Master of Psychology (Organisational and Human Factors), making a grand total of 920 students enrolled in applied psychology courses.

Many of the graduates from these programs are known to work, or to have worked, in a wide variety of jobs in government or commercial organisations or in their own businesses, where they have been able to utilise their knowledge and skills in applied psychology. As already indicated, a student research project in the master's program in organisational and human factors is currently being conducted to find out about the subsequent careers of as many as possible of the graduates from that program. Similar research projects in the other master's programs and for graduates of the diploma program would provide useful evidence on the contribution that those programs have made to the implementation of applied psychology in the local community and beyond.

Looking to the future, there are considerable challenges facing the teaching of applied psychology generally that need to be successfully dealt with if the present diversity in vocational training related to applied psychology is to be maintained and, ideally, expanded even further. These challenges include attracting more students into undergraduate psychology who know from high school psychology courses about the diverse career options in applied psychology; providing a one-year qualification in applied psychology without leading to registration, which would enable third-year graduate students unable to access honours to work in many different kinds of jobs that would benefit from basic knowledge and skills in applied psychology; and developing postgraduate pathways that provide specialised training in different fields of applied psychology, supported by supervised placements that allow even greater specialisation within a particular field of applied psychology. Economics and medicine are promising to make us all wealthy and healthy but, without a broad-based psychology applied to individuals, groups, organisations and society, our increasing wealth and health may be accompanied by increasing insecurity and alienation. Meeting the challenges, however, would enable applied psychology to continue to expand the positive contribution to individuals, groups, organisations and society that was envisaged by the founders of the discipline of psychology as an applied science.

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