Paramedic education: developing depth through networks and evidence-based research

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Paramedic Discipline Based Education Project

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<th>Full Form</th>
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<tbody>
<tr>
<td>AHPA</td>
<td>The Allied Health Professionals Australia</td>
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<td>ACAP</td>
<td>Australian College of Ambulance Professionals</td>
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<td>AHWAC</td>
<td>Australian Health Workforce Advisory Committee</td>
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<td>ANF</td>
<td>Australian Nursing Federation</td>
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<td>ANMC</td>
<td>Australian Nursing and Midwifery Council</td>
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<td>APAN</td>
<td>Australasian Paramedic Academic Network (APAN)</td>
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<td>APEN</td>
<td>Australian Psychology Educators Network</td>
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<td>AQF</td>
<td>Australian Quality Framework</td>
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<td>ASNSW</td>
<td>Ambulance Service New South Wales</td>
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<td>BPA</td>
<td>British Paramedic Association</td>
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<td>CI</td>
<td>Clinical Instructor</td>
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<td>CAA</td>
<td>Council of Ambulance Authorities</td>
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<td>COAG</td>
<td>Council of Australian Governments</td>
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<td>CALD</td>
<td>Council of Australian Law Deans</td>
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<td>CDU</td>
<td>Charles Darwin University</td>
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<td>CSU</td>
<td>Charles Sturt University</td>
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<td>DASSH</td>
<td>Deans of Arts, Social Sciences and Humanities</td>
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<td>EMJ</td>
<td>Emergency Medicine Journal</td>
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<td>EMS</td>
<td>Emergency Medical Staff</td>
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<td>GAPP</td>
<td>Graduate Ambulance Paramedic Programme</td>
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<td>GP</td>
<td>General Practitioner</td>
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<td>ICP</td>
<td>Intensive Care Paramedic</td>
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<td>KPIs</td>
<td>Key Performance Indicators</td>
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<td>MOU</td>
<td>Memorandum of Understanding</td>
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<td>NHWT</td>
<td>National Health Workforce Taskforce</td>
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<td>NHWTWC</td>
<td>National Health Workforce Training and Education Council</td>
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<td>NHS</td>
<td>National Health Service</td>
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<tr>
<td>NP</td>
<td>Nurse Practitioner</td>
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<td>NRS</td>
<td>Nurse Research Consultant</td>
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<tr>
<td>PBS</td>
<td>Pharmaceutical Benefits Scheme</td>
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<td>PBL</td>
<td>Problem Based Learning</td>
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<td>PN</td>
<td>Practice Nurse</td>
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<td>PRM</td>
<td>Practice-Research Model</td>
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<td>QAA</td>
<td>Queensland Ambulance Association</td>
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<td>QAS</td>
<td>Queensland Ambulance Service</td>
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<td>QUT</td>
<td>Queensland University of Technology</td>
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<tr>
<td>RPL</td>
<td>Recognition of Prior Learning</td>
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<td>RTO</td>
<td>Registered Training Authority</td>
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<td>SAAS</td>
<td>South Australian Ambulance Service</td>
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<td>VET</td>
<td>Vocational Education and Training</td>
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The Paramedic education: developing depth through networks and evidence-based project was a collaboration between the nine universities that had undergraduate paramedic programs in 2006 and the Australian College of Ambulance Professionals (ACAP). The project proposal was first presented at the 2006 ACAP annual conference in Adelaide. A Steering Committee was appointed and the proposal prepared and submitted to Australian Learning and Teaching Council Ltd, (formerly the Carrick Institute for Learning and Teaching in Higher Education) under the Discipline Based Initiatives Scheme.

The primary aims of the project were three-fold:

To investigate the following two questions:

i) What can be learnt from international pre-hospital service providers, professional associations, universities and the research literature that might contribute to meeting the future educational needs of paramedic graduates in Australia?

ii) What international and national models of collaboration and working relationships between ambulance service providers, professional associations and universities offer best practice examples for fostering an ideal working relationship for the education of future paramedics?

The third aim was to formally establish a paramedic academic network to foster the exchange of educational ideas, and to further collaborative educational practice within the tertiary sector.

Data gathering included interviews with paramedic educators in the United Kingdom, New Zealand and Canada, focus group interviews with key academics, industry leaders and paramedic unions in all states in Australia, and a review of relevant literature.

The Steering Committee meet twice; first in September 2007 and then in February 2008 to refine and ratify the project process. The project team and directors meet on a fortnightly basis via teleconference. The inaugural meeting of the Australasian Paramedic Academic Network was held on September 4, 2008 at Victoria University, Melbourne.

Key outcomes of the project are:

- **Future Education of Paramedic graduates**

This report scopes the current issues being addressed by university paramedic programs in Australia and then details international and national developments in the field that address these issues. Importantly, the report canvases ideas for effective paramedic education for the future in line with the
The two major educational issues identified were i) differences between industry and universities over road-readiness, and ii) the need to identify a signature paramedic pedagogy;

- **Guidelines for relationships with industry**
  The report on processes and models of engagement between service providers, universities and the profession outlines strategies engaged in by other professional groups to enhance the smooth transition from university to employment for graduates. This section also reflects on how the profession might respond efficiently to the changing role of experienced paramedics, and address the demands placed on services to respond to COAG and the Productivity Commission (2005) findings. Analysis of focus group data indicates considerable tensions and differences in expectations between industry and the tertiary sector still prevail. A major tension is whether students should be educated for specific services or for a health professional role. Importantly, this study established the paramedic profession as uniquely placed because of the industry’s monopoly employer status. This report concludes that much can be learnt from other professions, but the unique status of the industry presents the profession with opportunities for innovation not possible for other professions;

- **The establishment of the Australasian Paramedic Academic Network**
  A major outcome of this project has been the formation of the Australasian Paramedic Academic Network. The inaugural meeting was held on September 4, 2008 in Melbourne. This forum provided an opportunity for 62 educators, service providers and professional association representatives from Australia and New Zealand to meet and establish the Network. The development of aims, objectives, membership, leadership, nomination and election of officer bearers will be completed by 2009 and the group will formally meet in New Zealand at the annual ACAP Conference. The Network will initially seek an alliance and support from ACAP.
CHAPTER ONE: THE PROFESSION AND DISCIPLINE OF PARAMEDIC:
CONTEXTUALISING THE ISSUES

University based paramedic education into the next decade will require collaboration across the three sectors: service providers, professional associations and universities, in order to meet the requirements of a rapidly changing health care industry dealing with tight budgets, isolated populations, workforce shortages and new models of care. The aims of this study are to answer the following two questions:

i) What can be learnt from international pre-hospital service providers, professional associations, universities and the research literature that might contribute to meeting the future educational needs of paramedic graduates in Australia?

ii) What international and national models of collaboration and working relationships between the three parties offer best practice examples for fostering an ideal working relationship for the education of future paramedics?

In addition, a third aim was to establish a network of paramedic academics across Australia and New Zealand.

Background to the study

- Paramedic education in the university sector in Australia

The discipline of paramedic education is relatively new in Australian universities. In 1994 Australia’s first university based degree qualification for paramedics, the Bachelor of Health Science (Pre-Hospital Care) was established at Charles Sturt University in NSW (Lord, 2003). It was the result of collaboration with the Ambulance Service of NSW aimed at increasing the professionalism of paramedic officers and developing new allied skills such as health services management. Working paramedics were given significant Recognition of Prior Learning (RPL) for their in-house diploma qualifications. The pre-employment course was established fulltime at the Bathurst Campus in 1998, and the course structure and teaching methods were evaluated to help it meet the needs of cohorts of school leavers without work experience. In 2001 the NSW Nurses Registration Board approved CSU’s new four-year integrated Bachelor of Nursing/Bachelor of Clinical Practice (Paramedic).

Other universities quickly established degree programs, beginning with Victoria University’s conversion program in 1995, and its three year pre employment degree in 1999. The Flinders University conversion program was established in 1996 and a three year pre employment degree in 1997. Tertiary level paramedic courses are now available in all states of Australia. In each state there is an ambulance service answerable to state bodies, working in discrete collaborations with universities. At present only three states (Victoria Western Australia and South Australia) have discontinued all in-house paramedic programs and made the move to an exclusively higher education
model, although Victoria has made some transitional arrangements for 2008 to meet workforce demands with the recent amalgamation of ambulance services. In Queensland where three universities have new paramedic programs, the Queensland Ambulance Service (QAS) is committed to a move to a tertiary education model. The first cohort from Queensland University of Technology’s Bachelor of Health Science (Paramedic) graduated in 2007 (Fawcett & McCall, 2008). In NSW where graduates now make up 10 per cent of recruits, there is also a commitment to make a rapid transition to a university model (NSW Department of Premier & Cabinet, 2008).

• **The wider health sector**

The transfer of paramedic education and training to the university sector is occurring at a time of significant reform within the health care industry. This reform is not isolated to Australia. Its origins lie in the world wide shortage of health professionals, increasing consumer demand for high cost medical technology, increasing life expectancy, particularly in the developed world, and a shift in the disease profile from acute infections to chronic diseases. These trends have called for more highly skilled health professionals at a time of significant labour shortages. A number of Western countries initially dealt with workforce shortages through immigration programs. For example, in rural and remote Australia up to 30% of medical practitioners are overseas trained (Productivity Commission, 2005). However, the issues confronting the health sector are not simply labour shortages. A more accurate analysis suggests the system operates inefficiently with many professionals under-utilised given their skills base. The solution to more effective productivity lies in innovation and increased flexibility including role substitution (Productivity Commission, 2005).

In the Australian context the major driver for reform is the Council of Australian Government (COAG), specifically through the National Health Workforce Strategic Framework Taskforce (NHWT) currently under the direction of the National Health Workforce Taskforce. The other major impetus has been the 2005 Productivity Report; *Australia’s Health Workforce*. Both the Productivity Commission Report and COAG have worked in tandem to define the health workforce crisis as more than a shortage of trained personal, to one of a need for new ways of working and thinking about health care. For example in 2006 COAG responded to the Productivity Commission’s recommendations endorsing a number of them as consistent with its own agenda. While all twenty-one recommendations are relevant to the Paramedic profession, those dealing with Workforce Innovation (4.1), Education and Training (5.1; 5.2; 5.3), Accreditation (6.1; 6.2), and Registration (7.1; 7.2; 7.3), are of particular importance to the university sector. Ambulance services will take particular interest in those recommendations dealing with Workforce Planning (9.1; 9.2) and Rural and Remote issues (10.1; 10.2; 10.3).

COAG and the Productivity Commission Report both argue that inefficiencies in the Australian health care system arise out of practice restrictions placed on a number of professions, particularly nursing and physiotherapy and we would argue the paramedic profession should be included in this list. These restrictions curtail the full development of multidisciplinary care and the
efficient use of professional skills. The solutions being proposed are to some extent contradictory. They include role substitution, a shift to competency-based training over time-based education, the creation of new generic professions at the VET level and changes in funding to support shared and multidisciplinary care. The challenge for the various professions is to position themselves to make the best of these innovations in the interest of providing career opportunities for their members that ensures they stay in the health field. At the same time these reforms raise issues of concern, particularly around safety and risk management. While the National Health Workforce Taskforce (NHWT) is consulting with the professions, a number of innovations are proceeding without due consideration to industrial issues, or to existing career structures. It is also true that a number of the states are forging ahead with reform independently of the Commonwealth due to frustration with delays. Examples include the proposed Queensland and South Australian decisions to trial Physician Assistants and in the case of Paramedic, a range of state-based trials for advanced/enhanced paramedic practitioners. Similarly, a number of states are exploring the employment of increased numbers of allied health assistants with an expanded role and career structures offering articulation into the professions.

These developments can of course be seen in a positive light. The NHWT has also commenced an examination of issues associated with clinical education for health professionals and is proposing a National Health Workforce Training and Education Council and a taskforce for dealing with clinical education. Reform is likely to push standardisation across the country of clinical education in terms of hours and competencies. Further support for a national standardised approach to clinical education will come from the proposed new registration, accreditation and disciplinary body, the Australian Health Workforce Advisory Committee (AHWAC). This body will initially encompass medical practitioners, nurses, midwives, pharmacists, physiotherapists, psychologists, osteopaths, chiropractors, optometrists, and dentists (including dental hygienists, dental prosthetists and dental therapists) and be in place by 2010. COAG moved this proposal one step further in 2008 by signing the Intergovernmental Agreement on the Health Workforce. Presumably other professions, including paramedics will seek to be admitted to the national registration and accreditation body given the power this body will wield in terms of resources and government sponsorship. Despite this, as late as 2008 the CAA was against national registration, primarily out of consideration for the number of volunteers working for ambulance services. However, lack of national registration is not an impediment to the adoption of national standards of clinical education; already podiatry has sought inclusion as have Aboriginal Health Workers. Importantly, this move will assist professions to standardise registration across the country in what is now a difficult nine jurisdiction system. The CAA has already moved towards national accreditation of education and training programs in what is seen by universities as a highly positive move.

Other examples of innovations being trialled in a number of jurisdictions in Australia are broadly defined as ‘hospital avoidance’ schemes. These are of
particular interest to paramedics as they occur at the pre-hospital level. These include:

- programmes in chronic disease self management whereby people with chronic conditions in collaboration with their GPs are being trained to self manage their condition in an attempt to reduce hospital admissions;
- the creation of new health professional and occupational groups such as Life-style Coordinators to assist people at risk of chronic illness to avoid hospitalisation through health promotion activities;
- the extension of Medicare rebates and prescribing rights to a range of allied health professionals and nurse practitioners in an attempt to provide more comprehensive and coordinated multidisciplinary primary care; and
- the introduction of enhanced paramedic practitioners and paramedic single responders working in pre-hospital settings to ensure patients gain access to appropriate community based care and avoid hospital admissions (O’Meara, 2006).

These last two innovations beg the question of an appropriate name for paramedics. As their work shifts and expands beyond stabilisation and care prior to transport to hospital, the profession may require a new name. Already forward thinking paramedics are exploring their role in primary health care, as opposed to primary care, and in health promotion and education.

- **Issues within the sector of paramedic education**

Paramedics constitute 1.5 to 2% of Australia’s 450,000 paid health professionals with approximately 7,000 employed by state and Territory based monopoly employers. The growth in paramedic numbers between 1996 and 2001 is around 12.5%, similar to that in medicine at 12.6% and greater than for nursing at 7.3% (Productivity Commission, 2005).

The majority of academics teaching in the newly formed university programs are experienced paramedics, or in the case of the supporting sciences, academics seconded from other health programs. There are a number of professional challenges facing these paramedic academics. As previous employees of ambulance services they must develop robust mechanisms for maintaining industry credible curriculum, yet meet the demand for an autonomous university program. They must also balance the need to maintain their own clinical expertise, while at the same time devote considerable effort to achieving credibility in the university sector through completion of higher degrees and the development of a research profile. Likewise, those academics teaching the supporting social and behavioural sciences (sociology, psychology, communication skills, law, ethics and research methods) to paramedic students require a deeper understanding of the industry in order to demonstrate the relevance of this knowledge to the profession.

Some states still recognise VET sector on-the-job training, which competes with university programs complicating job prospects for graduates.

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1 Nursing and Midwifery allow registration for educators. Should a Nurse Educator return to clinical work they are required to do a refresher course.
Complicating this, as recent research (Waxman and Williams, 2006) shows, there is considerable resistance by university graduates to moving interstate or to rural and remote regions for employment. This leaves services with ongoing difficulties in balancing workforce needs, and universities with the problem of graduate employment. In South Australia the ambulance service has dealt with this by sponsoring a number of ambulance officer volunteers to complete the degree program and move to paid employment within the service. These candidates have transferred to full time employment and committed to live in a rural or remote location in return for financial assistance in completing the paramedic degree program. Ambulance Victoria will trial a similar program in 2009. Attracting health professionals (nurses, doctors, allied health and paramedics) to rural areas remains a major issue in the Australian health care system with mixed success from the various incentive programs promulgated by the Federal Government.

Tensions between service providers and universities over whether graduates should be work-ready or require internships have not yet been resolved to the satisfaction of both parties, although research by Dawson (2008) now indicates that the majority of graduates are adequately road-ready within 12 months of graduation. Further to this, university applicants tend to be younger school leavers, while Vocational Education Training (VET) paramedic programs attracted a broader population range. Differences in maturity between these two cohorts confound what is understood by road-ready; is it facility in the performance of clinical skills, or is it a capacity to respond to the social and interpersonal issues that arise during on-road emergencies or during a routine transfer of an elderly patient from hospital to nursing home? This tension also brings into relief differences between the VET sector and the universities in approaches to education. While these differences are traditionally polarised as competencies versus theory, as O'Donnell (2006) notes they need not be mutually exclusive. Another challenge for universities is to take seriously their responsibilities to provide in-service education for clinical educators employed by service providers who mentor students during their on-road placements.

These issues are compounded by reform within the higher education sector. Several universities around the country are shifting health professional education to the University of Melbourne graduate model. Examples, beyond the University of Melbourne include the University of Sydney, the University of Western Australia and La Trobe University. The University of Ballarat already offers a Graduate Diploma for applicants with an undergraduate degree in a related field such as nursing. The graduate model would see the base paramedic educational preparation at either Masters or Graduate Diploma level. While this would provide an additional year of education with opportunity to increase the science component in the first degree and to produce a more mature graduate, salary, career opportunities and workforce needs will need to keep pace with these developments. The anomaly here will be that in some

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2 The concept of road-ready remains undefined in this research. The study found that there was no shared definition of what this term meant with differences across industry and between academics. See Chapter Six for discussion on road-ready.
states paramedics may well have post-graduate qualifications, while others will be VET sector trained. These issues can be resolved if paramedics come under the Federal Government’s proposed framework for accreditation and registration of the professions, and through the development of a national career structure as has occurred in Britain. Impediments include the fact that Australia is a federation of nine jurisdictions, unlike Britain with its centralised National Health Service and the concern for and on-going reliance on volunteer paramedics in many rural and remote regions in Australia.

A total shift to university based entry into the profession has and will continue to disenfranchise some population groups who previously were able to take up this career opportunity because of on the job training and income. Finding ways to open up university education to these groups requires innovative thinking and the development of alternate pathways. Conversely services now have to grapple with a younger workforce and in some instances significant increases in the number of female graduates who may interrupt their career because of family responsibilities. New flexibilities in career pathways are required to meet the needs of this emerging cohort.

A number of university programs initially provided education for a specific service provider. Establishing Memorandums of Understanding (MOUs) that satisfy the mission statements and strategic plans of both the ambulance services and the universities requires maintaining and nurturing existing good relationships as service providers become more hyper-complex and universities grapple with rapid change in the higher education sector. Current difficulties arise from limits on student quotas enforced by internal arrangements within Universities, the difficulty of obtaining accurate workforce predictions within services, philosophical differences in employment protocols between the universities and services which can leave graduates without any prospect of employment, and impediments against universities recruiting overseas students given the limits on clinical venues. These issues must be dealt with in order to maintain and nurture the good will of service providers and enhance educational opportunities for graduates.

Clinical education - a key component of work readiness and capacity for graduates to gain employment is major resource burden on universities and ambulance service providers. Ambulance services provide student places in an already over-stretched organisation operating within tight budgets, while universities bear the high cost of clinical simulation equipment in an industry severely underfunded. The fact that paramedic education is a new-comer to the university sector in a time of fiscal constraint exacerbates this issue. Glib recommendations for students to do clinical placements in other venues such as hospital critical care units miss the point. Clinical facilities in many instances are saturated with students from medicine, nursing and allied health. Reform of clinical placements is now being addressed across the sector with many state governments centralising arrangements.

• **Networking for paramedic academics**
  As a consequence of dealing with the above issues there has been little time for academic educators to formalise and develop collegial networks across
the university sector in order to foster best practice curriculum design, to share solutions to sector-wide problems, or to explore the most effective ways to work with the major professional associations; the Australian College of Ambulance Professionals (ACAP) and the Council of Ambulance Authorities (CAA).

Other academic disciplines have established formal networks in order to foster the development of their programs within the university sector. These networks or associations lobby government and enable academics and researchers to maintain a close working relationship with the profession. Examples include the Deans of Arts, Social Sciences and Humanities (DASSH), the Council of Australian Law Deans (CALD), The Council of Medical Deans, the Council of Deans of Nursing, and the Australian Psychology Educators Network (APEN). Opportunity for paramedic academics to establish a network of paramedic academics with a focus on collaboration with the profession in the development of solutions to shared problems would be an effective use of resources and assist the CAA, the major representative of the service providers, in its goal of planning for future workforce needs.

The Australian College of Ambulance Professionals and the CAA have made significant contribution to the development of paramedic education in Australia. ACAP has developed a post-registration professional development program, and runs an annual research conference for the dissemination of evidence-based paramedic practice which exposes the entire industry to national and international evidence-based research. Both these professional associations have done much to move paramedic from an occupational group towards full professional status. An issue not yet resolved is how to refer to paramedic as a health profession. Paramedic is not formally recognised as an allied health profession, nor do all paramedics welcome this term. The Allied Health Professionals Australia (AHPA) does not recognise paramedic as an allied health profession, yet the Productivity Commission acknowledged that at times paramedics were included under this heading (Productivity Commission, 2005). In South Australia the state government has formally defined paramedics as an allied health profession that provides clinical treatment (SA Health Department, 2007). While there is debate over the use of the term ‘allied health’, no alternative term has been coined.

This is an issue of serious concern to paramedics, many of whom see the move to multidisciplinary care and role substitution as innovations that may well blur the boundaries between professions. Significantly, major developments in careers structures, and by default in the professionalisation of other health workers, such as nurses, has not been achieved by professional associations, but through the industrial process. For example, since 1996 major changes to the nursing and midwifery career structures has been achieved by the Australian Nursing Federation (ANF) through the enterprise bargaining rounds (Australian Industrial Relations Commission, 2007).
The CAA represents the major providers throughout Australia and New Zealand and has recently developed and instigated a professional accreditation process for university programs under the direction of Professor Judith Walker from the University of Tasmania (CAA, 2006). This process was trialled with two universities in Australia (Charles Sturt and Edith Cowan) in 2007 with provisional registration applied to all other university programs on approval of a written application for accreditation. There is no doubt that as each university undergoes the accreditation new educational questions will emerge that may challenge institutional diversity and educational philosophies for both the universities and the CAA. What is clear is that the accreditation process has not produced sufficient standardisation to allow paramedics to seek employment across state borders without undergoing further training. This issue remains problematic.

The CAA and the various services it represents are currently grappling with calls for the development of an enhanced/advanced paramedic practitioner. This extended role, already developed in the United Kingdom offers exciting potential career paths for paramedics, one of a number of possible solutions to the Australian rural workforce crisis, and an opportunity for universities to develop post-graduate programs and to re-shape existing undergraduate education with a view to the future. However, achieving a shared understanding of what would be the ideal educational preparation for this advanced practitioner remains a key dilemma to be resolved, and one that must be done in collaboration. The CAA is ideally placed to lead this discussion, but universities will no doubt want to offer the educational preparation. Resolution of the issues will involve robust collaborations as the profession works through possible inter-professional tensions and possible public resistance to the paramedic of the future. The British experience found the need to prepare the public for this new role (NHS, 2007)

A significant factor in paramedic education in each state is the fact that the profession can be easily identified through a small number of services (most of which are monopoly employers/providers), two professional associations (ACAP and CAA) and a small number of research units. The monopoly provider status of services means that universities tend to negotiate with them over curriculum issues, unlike other professions that may well do their negotiations with professional associations. The advantage of this model is that universities can develop a clear link to industry and to the two professional associations. At the same time some state services are outsourcing non-emergency care to private providers. Developing mechanisms for collaboration across an industry expanding in terms of complexity, players and graduate opportunities must go beyond the traditional university advisory group structures to forge new ways of genuine and respectful collaboration.

Aims of the study (Vision)
This project takes the above ‘definition of the situation’ as its starting point. The aims of this scoping study were two fold. The first aim dealt with scoping national and international educational developments within the profession with a view to sharing this information across the discipline (universities) and profession (service providers and professional associations). The second aim focused on
exploring effective models of engagement between the profession/service providers and the university sector in order to plan cooperatively for the future. This was achieved through literature searches, interviews with international educational experts in the discipline of paramedic and six focus group interviews within each state in Australia.

The aims in detail are:

1.1 To build on existing work done by CAA, ACAP and others (e.g., Brightwell, 2006a, 2006b; O'Meara, 2003) to map commonalities and shared issues of concern within existing university programs of study, bearing in mind that there will be considerable diversity in programs of study;

1.2 To scope the national and international research and grey literature on contemporary developments in paramedic education that provide models of best practice for the 21st century;

1.3 To identify a collaborative research agenda in paramedic education that can be systematically addressed by the project stakeholders through subsequent Australian Learning and Teaching Council proposals and other sources.

2.1 To conduct a scoping study that identifies the range of formal and informal relationships between the profession and universities;

2.2 To conduct a series of state by state focus groups composed of the relevant universities, service providers and professional associations that explores models of effective engagement in the on-going development of paramedic education to meet the needs of rapidly changing health services;

2.3 To examine the most effective way to develop a network of paramedic academics that has the capacity to effectively engage with local service providers across state and Territory boundaries, and with the two professional associations in a shared educational research and practice program that is sustainable.

Goals of the study

The study has produced the following:

1 A report that scopes the current and future issues being addressed by university paramedic programs in Australia and then details international and national developments in the field that address these issues. Importantly, the report canvases ideas for effective paramedic education for the future in line with the COAG reforms and Productivity Commission recommendations on the future of the health workforce (2005). Chapter Three addresses these issues.

2 A report on processes and models of engagement between service providers, universities and the profession that outlines strategies engaged by other services that enhance the smooth transition from university to employment for graduates, responds efficiently to the changing role of experienced paramedics, addresses the demands placed on Services to respond to COAG and the Productivity Commission findings, and provides articulation processes that allow
career progression within the industry or a related heath field without jeopardising the integrity of all parties. This issue is addressed in Chapter Four.

3 A major outcome of this project has been the formation of the Australasian Paramedic Academic Network (APAN). The inaugural meeting was held on September 4, 2008 in Melbourne. This forum provided an opportunity to meet with a critical mass of educators (62 in all from Australia and New Zealand), service providers and professional association representatives in order to maintain the project impetus. At this stage it is seen as imperative to link the network to a strong professional association for reasons of sustainability. The processes for forming the Network are discussed in Chapter Five.

The success of this project
The success of this project owes much to the willingness of Associate Professor Peter O’Meara to take on responsibility for the first project question. Ann Lazarsfeld Jensen did much of the ground work on the curriculum and her insights into paramedic signatory pedagogies provided a useful framework for thinking about the profession. Assistance from ACAP was most helpful, especially in facilitating the inaugural meeting of the Australasian Network of Paramedic Academics and from Associate Professor Tony Walker for ensuring liaison with ACAP was always easy going. We also owe a debt of thanks to Helen Webb from Victoria University for hosting the Network event at the university’s city campus. Thanks should also be extended to those academics who took time out from their overseas conference trips to interview paramedics in NZ, Canada and the UK; Cindy Hein (SAAS), James Thompson and Dr Claire Drummond (Flinders University) and Associate Professor Peter O’Meara (Charles Sturt University). Richard Brightwell from Edith Cowan University established the Network web site, Phil Clarke (Flinders University) did much of the ground work on the Network during Tim Pointon’s study leave and Dr Louise Reynolds provided additional references that went some way to ensuring we captured work done in Australia and the USA by paramedic academics. Importantly, the project team have remained engaged in the study right to the end.

There is an assumption given the advances in communication IT that academics can work across universities in easy collaboration. This is a myth. There is no substitute for co-location and for opportunity to bounce ideas around. In some ways this was achieved for this project at the annual ACAP conference held in early September 2008. Many new ideas linked to the future of the profession were discussed at this conference. However, inevitably the organisation of the final report has fallen primarily to the project team and leaders. There is always a danger that the ideas expressed in any report, particularly in those sections that sum up findings, reflect the views of those who write the last pages! Whether this is a limitation or strength remains to be seen.
CHAPTER TWO: METHODOLOGY FOR THE STUDY

Introduction

This project used a qualitative approach to data collection. This included a review of existing literature, interviews with key personnel in the UK, NZ and Canada and six focus groups in Australia. The project agenda was divided into two distinct questions for the purposes of developing a review of the literature. These were:

i) What can be learnt from international pre-hospital service providers, professional associations, universities and the research literature that might contribute to meeting the future educational needs of paramedic graduates in Australia?

ii) What international and national models of collaboration and working relationships between ambulance service providers, professional associations and universities offer best practice examples for fostering an ideal working relationship for the education of future paramedics?

The project team at Charles Sturt University managed question one along with focus group interviews conducted in Victoria, New South Wales and Tasmania, and interviews in NZ and Canada, while the project team at Flinders University dealt with question two and the focus group interviews in South Australia, Queensland and Western Australia and all interviews in the UK. The budget was managed by the Flinders University team, with three payments made to Charles Sturt in September 2007, January and July 2008. Australian Learning and Teaching Council required two accounting reports; one in February and the final one in September 2008.

The project process

- Ethics and project process

The project was presented to the Flinders University Social and Behaviour Research Ethics Committee in September 2007 and received ratification by the Ethics Committee at Charles Sturt University in early 2008.

The project team divided into a core and supporting members. The core team was made up of Project Directors and a Project Team from Flinders University (Willis, Pointon and McCarthy) and Charles Sturt (O’Meara and Lazarsfeld Jensen). This team met fortnightly via teleconference facilitated by Lazarsfeld Jensen. Notes, agenda, and minutes were posted on a shared web page hosted by Charles Sturt University and managed by Ann Lazarsfeld Jensen. The Steering Committee members had access to the web page and were alerted on a regular basis to new postings, readings, or developments. Several members of the Steering Committee contributed to the development of the interview schedule, production of conference papers, organisation of the focus groups sessions in their state and the final writing of this report.
Three planning meetings were held during the life of the project. In September 2007 the Project Directors (Willis, Pointon and O’Meara), plus Melinda Service and Richard Brightwell from the Steering Committee met in Queensland to attend a briefing session sponsored by the Australian Learning and Teaching Council. This provided opportunity for some modifications to the project design including planning for a team meeting in February 2008.

The two project team members (Carmel McCarthy and Ann Lazarsfeld Jensen) attended an Australian Learning and Teaching Council sponsored Project Management workshop in September 2007.

Nine members of the Steering Committee met on 11th February, 2008 at Melbourne Airport. The focus of the meeting was to:

1. up-date team members on literature review data
2. work on refinement of the interview schedule
3. brief all the team on the focus group process. This included the process for conducting the session and the role and responsibilities of the Steering Committee members for each state.
4. receive from the Steering Committee the names and position of appropriate personnel to be invited to the focus group in each state in order to achieve across-state standardisation of participants
5. develop a process for communicating project outcomes to the two professional bodies. Associate Professor Tony Walker, did this for ACAP and Professor Judith Walker agreed to report to CAA at its June meeting. Eileen Willis also made a formal report to the CAA at the June meeting held in Adelaide, 2008.
6. plan for the inaugural meeting of the Australasian Paramedic Academic Network (APAN) September 2008 at the annual conference of the Australian College of Ambulance Professionals.

Two project papers were prepared for the ACAP conference. These are listed in the references as O’Meara and Jensen Lazarsfeld (2008) and Willis at al., (2008).

The inaugural meeting of the APAN was held at the ACAP conference on September 4, 2008 and chaired by Timothy Pointon and Brett Williams. A list of names of possible members was provided by the Steering Committee from each state and disseminated through out various networks in order to capture a wider audience. All suggested participants were formally invited to the inaugural meeting. The agenda for the meeting is outlined in Appendix B.

- **Literature review**

Background literature relevant to the two questions was systematically collected by the two project teams. This was achieved through web-based searches and contact with members of the Steering Committee. Much of the relevant literature is in the form of unpublished papers, industry or professional association reports, or commentary by key opinion leaders. The project team members provided an initial inroad into this literature. Literature
was also gathered as a result of interviews and contact with international paramedic leaders.

Peer reviewed literature was sparse, especially literature relevant to question 2. Two issues are pertinent to this dilemma. It became clear very early in the project that while there was a scarcity of literature on curriculum developments in paramedic education for the university sector, there was ample evidence-based research on the education and training of other health professions such as medicine, physiotherapy, dentistry and nursing and considerable grey literature on VET based programs (for example, O'Meara, 1997; Caldwell et al., 2008). A key project question arising from this must deal with separating out transferable knowledge from data specific to each profession. This has yet to be achieved, but could form the basis for a future research projects. Secondly, literature on new models of collaboration between the university sector and industry was almost non-existent. What became clear is that new models of collaboration between the sectors will probably only emerge as structural changes occur within the broader health care system. For example the establishment of the Australian Health Workforce Advisory Body by the Federal Government in 2007 may lead to the development of Key Performance Indicators (KPIs) and principles for engagement that require closer working relationships between university programs and industry providers should the paramedic profession come under this accreditation and registration body. The review of literature for both project questions is provided in Chapters Three and Four.

• **Interviews with key personnel**
The interview schedule was designed to capture both project questions. A draft was developed by the core project team (Lazarsfeld Jensen, McCarthy, O'Meara, Pointon and Willis) and made available to the Steering Committee for comment and finalised at the 2008 February meeting.

Interviews were conducted with key personnel within the university and industry as well as Steering Committee members. Interviews with key personnel were opportunistic. Five paramedics/academics from the UK were interviewed by Dr Claire Drummond and Cindy Hein (Department of Paramedic and Social Health Sciences at Flinders University) in December 2007 and June 2008. Associate Professor Peter O'Meara conducted two focus groups in Canada in May 2008 and interviews in New Zealand in March 2008. The interview schedule was also sent to the Steering Committee members with a request they send back their responses. Three responses were received.

Interviews were taped and transcribed. They were not sent back to participants for verification, unless requested since the focus group methodology is presumed to have an inbuilt reliability mechanism (Grbich, 2004).

• **Focus group process**
Six focus groups were conducted with a selection of paramedic practitioners, paramedic academics, ambulance administrators and the relevant unions in
South Australia, Victoria, Western Australia, New South Wales, Tasmania and Queensland between April 2008 and May 2008. The focus group format was standardised (See Appendix C).

1. Focus groups sessions were organised by state based Steering Committee members who were responsible for the venue, time, and refreshments. They also assisted the project team in the conduct of the sessions.
2. Focus group members were composed of heterogeneous groups of academics and practitioners / paramedics and social scientists / industry representatives and academics.
3. Focus groups were limited to 12 participants
4. The time frame for each focus group was approximately 90 minutes
5. All focus group participants were sent a pre-reading to stimulate reflection. The pre-reading was Shulman (2005a).

Analysis of data

First level analysis was done manually by the two project team members (Lazarsfeld Jensen and McCarthy) using a thematic approach. This was then verified by Willis and O’Meara before being written up. The draft was then sent to the Steering Committee members for comment. Where appropriate thematic issues were linked to the literature, or analysed in terms of current directions in health care in Australia such as the principles outlined in the COAG reforms, the 2005 Productivity Commission Report on the Health Workforce or known state or federal government reform agendas.

- Issues of reliability and validity

The usual issues of reliability, validity and trustworthiness that accompany any qualitative study also apply to this investigation. The project has been a collective exercise with five people conducting interviews, with only an overlap of two members of the team. Despite the best efforts at standardisation, triangulation of approaches and member checking, not all analysis is free of bias or accurately captures participant’s views. The best test of reliability and validity of results is when findings resonate with the views of those reading the account. As noted above following the first level of analysis, the draft report was sent to the Steering Committee, all of whom had been part of the interview and focus group design. They were asked to check the literature for gaps, and to make comment on the findings. Their suggestions were checked with the data, and if appropriate incorporated into the report. The major limitations to the findings, results, and analysis come from the usual time constraints associated with joint projects.

Conclusion

In many ways this report outlines the status quo, rather than what might be an ideal curriculum or relationship with industry and the profession for 2013. The value of the project has been in bringing together paramedic academics to form the Network, and in identifying shared educational issues for future study.
CHAPTER THREE: THE PARAMEDIC CURRICULUM FOR 2013

Introduction to the literature

This review examines the literature dealing with innovation in paramedic education in the tertiary sector with the aim of identifying emerging and distinctive features of the discipline. The focus is on Australian literature, published and unpublished, followed by a less intensive search of overseas literature. The search of published literature was done using combinations of the following keywords paramedic, ambulance, training, higher education and education, with Medline and OVID from 1950 to the present. This search produced in excess of 600 publications, but an analysis of the first 50 of high relevance yielded only two Australia articles. The Emergency Medicine Journal (EMJ) was a high yield search. A search of the Gale database of the Journal of Higher Education (1987-2008) using the keywords paramedic, ambulance and pre-hospital returned no results, while a search using the keyword medical produced 10 journal articles dealing with medical education, a few of which were relevant to emergency medicine, but none dealing directly with education innovation for paramedics.

The grey literature was searched using Google and Google Scholar key word searches, with the same keyword combinations as used with the peer reviewed literature. The focus was on statutory or ambulance authority reports and the training of academics in Australia and internationally. This included specific ambulance authorities in UK, USA and Australia which were searched by name for the presence of accessible online literature. This was supplemented by unpublished material acquired from paramedics in the project team. There was a low level of cross-referencing between publications in all data bases. Clinical topics were well discussed, which is not surprising because most journals are aimed at the practitioner, and the paramedic academic is still rare.

Literature dealing with innovative approaches to teaching paramedic students in Australian universities fell into four broad categories, the work of a handful of academics. These were;

i) case-based and problem based learning (Williams, 2006),

ii) simulation and other technologies in clinical education (Boyle, Williams & Burgess, 2007; Brightwell, Stewart & Pask, 2003; Pointon, Clarke & Reynolds, 2005; Reynolds 2007),

iii) students' perspective on their clinical education (Michau et al., 2008; Waxman & Williams, 2006; Boyle et al. 2008), and the differences between competency and university-based programs (O'Donnell, 2006; Margolis, 2005; Raynovich, 2006).

Educational research drawing on both Australian and international literature in paramedic education generated the following; i) the development of virtual problem solving (Mackway-Jones, Carley & Kilroy, 2007), ii) the use of web technologies for international classrooms to provide additional cultural insights and different clinical perspectives (Williams & Upchurch, 2006); and iii) issues of accreditation and benchmarking (BPA, 2006; QAA, 2004; Walker et al., 2007) and iv) a small number of innovative ideas were evident in the
USA literature. These categories can be further refined into the following major themes: the impact of rapid changes in the health care sector on new roles for paramedics in Australia and the UK; the problem of identifying the distinctive characteristics of the discipline; the need to establish a unified approach to work readiness within the curriculum; and flexible learning approaches to teaching including academic literacy.

- The impact of major changes in the health care sector on paramedic education

Australia’s health care sector has undergone rapid change in the past two decades making new demands on the education and training of paramedics. Complex community expectations, social and economic pressures on health services has led academics and industry to rethink the aims and expectations of paramedic education in the light of the new models of care (Grantham, 2004; O’Meara et al., 2006). For example, following British proposals for a new type of practitioner in emergency care, there is interest in Australia in developing a ‘generic health worker called a paramedic practitioner who can move between a variety of community and health settings’ (O’Meara, 2003: 199). Paramedic practitioners are not restricted to delivering patients to overcrowded accident and emergency departments, but are educated to assess, triage or treat patients in community settings, be it the patient’s home or in public spaces.

Several examples of this emerging role for paramedics can be found in the literature. For example, the need to reduce transportation responses and develop skilled practitioners was central to a pilot study of a B.Sc degree at Coventry University in the UK, where academics hypothesised a sound educational foundation would: ‘develop research skills to support evidence based practice, ensure credibility and recognition from other clinicians, and facilitate student progression to higher levels of education and training’ (Gregory, 2006: 2). Similarly, the development of joint programs of study for paramedic practitioners, alongside physician assistants and nurse practitioners in Britain arose from an understanding of the efficiencies of providing care in the community, rather than in overcrowded emergency rooms of large public acute hospitals, along with the need for multidisciplinary professional relationship in a range of settings. The strength of the London Ambulance Service and St George’s program is that it allows all three professions to select a tailored program from an extensive range of topic specialties (St George’s, University of London, 2008).

In Australia the recently developed educational program offered by James Cook University at Mt Isa for paramedic practitioners meets the needs of health workforce skill shortages in the remote outback (Raven et al., 2006; CAA, 2008; Reeve et al., 2008). The challenge of Australia’s remote

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3 Despite the diverse and complex state of paramedic training in the USA, a search of the literature using keywords such as paramedic and education did not produce many articles focused on higher education or innovative teaching. The strong competency-based training perspective was reinforced by some early research such as exploration of the perceived importance of a set of 21 specific patient care interventions (Pollock, Brown & Dunn, 1997).
population has also been answered in part by the exponential growth of new technologies which has led to an evolution of paramedic practice. As Ball (2005: 896) notes most Western countries are now ‘moving away from a focus on basic first aid and patient transportation to encompass higher levels of patient care’.

- **Avoiding more of the same and addressing future needs**

  In Britain it has been recognised that ambulance services cannot be enhanced by ‘more of the same’ (Ball, 2005: 896). The emerging industry calls for a contemporary research agenda. Ball’s review of British literature intended to, ‘clarify the future demands of the paramedic in the primary care setting, and identify the basic skills, training and professional capacity which paramedics of the future … require’ (Ball, 2005: 897). The pre-hospital or primary care model calls for well developed clinical skills, combined with a capacity for rapid, autonomous and informed decision-making. The need for paramedics with the ability to utilise evaluative skills in critical situations has helped define the role of universities in educating paramedics in Britain (NHS, 2007; British Paramedic Association, 2006).

  The move to integrate Britain’s ambulance services into the health care system began in 2003 with calls from the NHS for a more responsive Service (British Paramedic Association, 2008). The strength of the British ambulance service is its coherence when compared to the state-fractured Australian model which is further confused by volunteer and St John Services, and differences between rural and urban demands. However, as late as 2005 UK ambulance services were providing paramedic training that, ‘concentrates on life threatening conditions with protocol driven practice, based on limited underpinning knowledge’ (Cooper, 2005: 375) suggesting that a unified system does not necessarily lead to quality education, or that university claims to provide education in autonomous and informed decision-making is being done effectively. Cooper provides a systematic analysis of the needs for professional graduate level training, while Woolcock, Gregory and Jones (2005) have taken up the critique and analysis of various syllabi and abbreviated training programs, to contribute a pen sketch of what is needed to produce autonomous practitioners.

  Another quality central to autonomous practitioners is a capacity for collaboration with other health professionals and engagement in multidisciplinary care (Willis, Dwyer & Dunne, 2008). There is limited evidence of this in the Australian research literature on paramedic practice or education (Tracy et al., 2008; Williams & Boyle, 2008; Williams & Brown, 2007). The explanation for this is partly found in the fact that in some jurisdictions ambulance services have been outside the health portfolio, while in others they remain under the control of St John Priory and as a consequence not directly linked to the public health system. A second factor relates to the past nature of the work. Paramedics have had few opportunities to discuss patient outcomes with other health professionals or for that matter interact with patients beyond the immediate presentation, assessment and treatment. Despite these impediments, any development of expanded roles for paramedics requires them to have a deeper and broader understanding of the
healthcare system, including an understanding of the work of other health professionals. This will need to be reflected in the curriculum. One example taken from the international literature comes from Scandinavia (Hallikainen et al., 2007). In this study an inter-professional program was trialled that allowed medical and paramedic students to study together. To emphasise the teamwork aspect of emergency medicine a three-part program of advanced life support, trauma life support and acute illness in childhood was taught to the combined group of up to 25 students. Student feedback indicated that it was regarded as an effective and useful way of enhancing skills and knowledge and that it should be included in the educational curriculum (Hallikainen et al., 2007). Work done within the Monash University program also has a strong focus on teamwork in multidisciplinary settings (per comm. Williams, 2008). Another example from the Australian context, found in the grey literature comes from Flinders University where a first year topic on the Australian health care system requires paramedic students to work collaboratively with nursing, health promotion, dietetics and health management students on assessment exercises that focus on understanding a range of health professional roles (Flinders University, 2008).

• Identifying the distinctive characteristics of the discipline

A major focus of this study was to identify literature that defined the distinctive characteristics of the discipline. A distinctive model of education can be summed up in the idea of a ‘signature pedagogy’ (Shulman, 2005b) used to describe the attributes, strengths, characteristics and unique concerns that set one discipline apart from others in higher education. For example, the discipline of nursing developed two distinctive signature pedagogies in the 1980s; these were i) defining nursing through a focus on care as distinct from cure; ii) and grounding nursing theory in reflective practice rather than the ideas of the various nurse theorists (e.g., Nightingale, Calista Roy, Leininger and others) (Watson, 1985). What the nursing signature pedagogy provided was a framework for understanding what professional nursing care was as distinct from medicine or mothering, along with a move to critical reflection and evidence-based practice. A paramedic signature pedagogy would describe the priorities and purposes of teaching pre-hospital care in higher education and would have its origins in a theory of the profession.

The concept of signature pedagogy was developed through longitudinal studies into professional education conducted by the Carnegie Foundation for the Advancement of Teaching based in the USA. It is based on a belief that modern professionals cannot make decisions based on simple protocols. One of Schulman’s illustrations is the medical teaching model of morning hospital rounds where medical students, professors and high ranking doctors share the brain-storming, evaluation and analysis of complex problems in their search for answers and best practice. Shulman sees the goal of tertiary education as answering the need for autonomous professionals who can ‘link ideas, practices and values, under conditions of inherent uncertainty’ (Shulman, 2005a: 19). He identifies signature pedagogies as those that deeply engage students, and are visible in the learning process. For example, while the interactive model of bedside teaching creates anxiety in students, it also facilitates learning. Once the routine or predictable nature of a teaching
practice is established students can focus on content rather than be overwhelmed by a variety of processes.

The use of signature pedagogies in higher education should produce graduates who bring an additional dimension to their profession. Shulman (2005b: 19) suggests that the genuine professional does not ‘merely practice: he or she performs with a sense of personal and social responsibility … they must be characterised by integrity, by a commitment to responsible, ethical service.’ This implies that a signature pedagogy will shape attitudes towards the profession that enable practitioners to recognise the social and moral implications of their decision-making and practice. In pre-hospital care in Australia this is an evolving, rather than established signature pedagogy.

By more clearly naming the unique attributes of the professions’ signature pedagogy, it becomes easier to map and identify those areas where further research and development is needed. Using this model of signature pedagogy three strands of paramedic education are evident in the literature:

1. Clinical skills acquisition;
2. Clinical apprenticeship; and
3. Clinical decision-making.

The first strand is self-evident, and further emphasised by the predominance of clinical skills issues in the literature as outlined above (McGeehan, Richardson & Bowers, 1997; BPA, 2006). The second and third strands are at the heart of Williams’ publications as well as work by O’Donnell (2006), Boyle, Williams and Burgess (2007), and Waxman and Williams (2006). Williams (2005) is clearly concerned with the development of independent clinical decision-making through the use of case based learning. Clinical reasoning is thought to be enhanced by providing a memory bank of cases, albeit classroom samples, where the student has worked with others to plan a response. Williams also explored the effectiveness of the university’s program which utilised case-based learning by interrogating graduates entering the workplace about their experiences. His work addressed both the adequacy of educational preparation and the supportive structures in the apprenticeship process. In relation to clinical placement, Williams found only one other study, so that evaluation of pre and post educational models remains a significant area for research.

The quantity of clinical placement and its timing varies dramatically between programs across the various states, and the only consensus is that quality is preferable (Grubbs, 1997). Williams, in his relatively small sample, found limitations in the clinical placement model, and raised concerns about the physical capacity of some female candidates, all of which point to a need for further study. Similar interests in the use of both problem-based learning and technologies was found in the English literature (Mackway-Jones, Carley & Kilroy, 2007).

Resource intensive case-based and problem-based learning models rests on an extensive and reliable discourse in higher education which explores the
role of problem solving in building team and communication skills and self-directed learning (Kolodner, 1993a, 1993b). Problem-based learning has been used effectively in medical and allied health education, although there is a growing literature questioning its effectiveness from a resource intensive perspective (Pointon, Clarke & Reynolds, 2005). The effectiveness of case-based learning models developed specifically for paramedic education could be an arena for further research.

The dimension that at first glance seems to be missing from the paramedic signature pedagogy is what Shulman (2005a) suggested were the ethical or moral preparation to serve communities and individuals in times that are perilous and unpredictable. These are sometimes referred to as soft-skills, but more accurately, ‘non-clinical’ or ‘underpinning sciences’. This dimension of paramedic education is found in the grey literature of course descriptions. For example, Queensland University of Technology’s Bachelor of Health Science (Paramedic) offers ‘Professional Studies’; Monash University offers ‘Professionalism and Community Based Emergency Health Systems which Explore(s) at an introductory level the professional self and contemporary professional models including principles of ethical practice standards, legal issues, and models for helping culturally and linguistically diverse populations (online)’ (Monash University, 2008).

The subjects of other university handbooks showed social sciences and psychology content under a variety of subject names that may have addressed this dimension.

Interestingly, the Australian programs appear to give more attention to subject areas such as law, ethics, politics of the health care system, health psychology and sociology and social epidemiology than those British programs examined (Thomas, 2005; British Paramedic Association, 2006). While the British university education programs for paramedics do incorporate these subject areas into the curriculum they tend to be integrated into existing paramedic practice topics (Thomas, 2005). Australian based paramedic programs tend to have the supporting sciences as separate topics. While this strengthens the theoretical component of the supporting sciences it does not necessarily ground the knowledge in paramedic practice. One of the major findings of this study has been the failure of the supporting sciences to provide experiential learning. For example, the Flinders University curriculum includes a topic in the health care system that presents health policy as one of the foundations of a student's personal framework for care. Similarly the topic in social epidemiology provides a secular rationale for understanding disadvantage in healthcare, but more importantly, it provides an intellectual tool for theory building that should allow students and graduates to transfer learning to other situations across their professional careers (Flinders University, 2008).

The centrality of the social, behaviour and human sciences is perhaps best illustrated through the topic of death and dying. Literature exploring the teaching of this topic was not prominent in the Australian paramedic literature, although it is evident in the American and English literature through the pages of the Death Studies journal, and Charles Sturt University deals with death as
a stand alone topic in first year of the program with a focus on the social aspects, rather than the complex clinical issues. A nationwide study of paramedic training programs in the USA (n=537) found death education was widely included in curricula, although there was a tendency to offer ethical approaches, didactic teaching methods and formal written testing methods (Smith & Walz, 1995). The lack of formal training among paramedic educators to teach the social issues of death and dying, and poor utilisation of multi-disciplinary staff for the purpose of death education, were two key problems. The need for better preparation to deal with the spectre of death in emergency situations was emphasised in an editorial in the *Annals of Emergency Medicine*, and in the work of Haughey (2000). The need for paramedic academics to move into the social and behavioural education of students, or for other staff to provide more grounded education is a further area for development and research.

- **Developing the scholarship of teaching in paramedic education**

The absence of a sustained and cohesive discourse on the key elements of the paramedic signature pedagogy points to a lack of research into the education of the paramedic particularly at tertiary level. It is likely that authors of articles that are concerned with pedagogy will continue to find it hard to win a place in the extant journals, simply because of the emphasis on practitioner concerns. Paramedic journals target practitioners rather than the small number of academics, and a large proportion of practitioners have come though competency models of education. However, a related issue was raised at the 2008 annual ACAP conference. Several presenters argued that defining the discipline was a difficult task, made doubly so by moves towards multidisciplinary care, role substitution and blurring of professional roles (O’Meara, 2008a, 2008b; MacDonnell, 2008). These authors suggested that the relative newness of the discipline meant that it was under threat given the move towards multidisciplinary roles.

A second perspective in scoping the pre-hospital care higher education literature is the development of the scholarship of teaching among pre-hospital care academics. The scholarship of teaching is defined by Kreber and Cranton (2000: 276) as a ‘process comprised of reflection on experience-based knowledge and research based knowledge in teaching’. Developing the scholarship of teaching encompasses the application of teaching theory as well as research and reflection on the discipline. Reflection results in pedagogical knowledge which includes such things as capturing student motivation, encouraging collaboration, meaningful feedback, critical thinking, and development of teaching materials to address difference in learning styles and learning difficulties (Kreber & Cranton, 2000). As paramedic academics define and develop the scholarship of their teaching, they will also shape the signature pedagogy that will profoundly influence the emerging new practitioners, and ultimately, the industry itself.

The interactive processes in creating a professional body of literature are essential to the development of the profession’s academics (Weimer, 2006). It is not sufficient to produce material for its personal value as a publication. Writing is a form of reflection and analysis that develops academics in the
discipline. Reading professional publications is equally a form of professional development that enables academics to sharpen their practice as they reflect on the work of others. The development of the signature pedagogy depends on a pool of academic publications, whereby the writers engage with one another on issues that relate to teaching and learning. Signature pedagogy emanates from mutually honed philosophies of education by research, reflection and discussion.

The professional development of paramedic academics in the scholarship of teaching, through reading and writing is complicated by the critical importance of course content, largely relating to clinical skills. The presence of a set of essential skills and knowledge that must be competently acquired gives precedence and defines content (Walker et al., 2007). Yet the emphasis on competency may also perpetuate teaching processes that are protocol-based (McGeehan, Richardson & Bowers, 1997). This is partly attributed to the fact that tertiary courses have been built on competency based models, taught by paramedic academics who have come through the competency system themselves, and little has been written about the assumptions underlying these models. Brightwell (2006a, 2006b) insists that only evidenced based clinical education separates universities from VET sector or ambulance school competency based training, suggesting that the primary paramedic signature pedagogy may still be competency-based education. O’Donnell (2006) makes a similar claim. There is no doubt that internship programs conducted by ambulance services for university graduates rely much on protocol based education, although there have been suggestions that this is as much to do with the learning styles of generation Y, as it is to do with any paramedic pedagogy (MacPherson, 2008).

There is a vast quantity of published clinical research on pre-hospital care, but a dearth of research and writing around the content and communication of this within the tertiary curriculum. Paramedic practice in Australia is not well described in international texts and references. The forthcoming book prepared collaboratively by Australian paramedic academics, ready for publication in 2009 and edited by O’Meara and Grbic will hopefully be the first of many (O’Meara & Grbic, 2009). This book addresses key practitioner issues, and its presence in multiple universities will go some way to unifying and defining practice in the Australian context. The text captures the broader university agenda for paramedics.

In addition to supplying the ambulance services with quality candidates, the university agenda includes the training of paramedics who will become field leaders, lecturers, trainers, researchers and academics. Traditionally university academics have also seen their role in discipline development. This is highlighted in work by O’Meara (2006). As Brightwell notes (2006), leaving this process to chance is a high risk strategy.

- **Establishing a unified approach to work readiness within the curriculum**

  In 1995 the need for a unified approach to paramedic education in Australia was recognised at a symposium in Adelaide (Granath, 2004). Foundations
for an agreement on standards between ambulance services were laid, and the education committee of the CAA was established. In 2004 a second symposium in Adelaide began to overcome resistance to national accreditation and underlying this some standardisation. The potential for greater cooperation between employers and educators to produce adequate numbers of work ready graduates was also seen as an important goal.

The work readiness of graduates has been identified as a key concern for paramedic academics (Gibson & Brightwell, 2006; Lambert, 2003; O'Donnell 2006) although there are few descriptions of a work-ready graduate outside of formal graduate attribute statements. Many professions share this concern about the gap between education and practice. Bowman (2007: p1) stated: ‘Few medical students are prepared for the challenges that await them after completion of formal training’. The challenges Bowman described were related to social awareness, and the need to give leadership in improving community health care in remote regions. He described the best students as those who often came through back-doors into the university, and had low formal entrance qualifications, and came from the 70 per cent of the population on middle and lower incomes. Those achieving medical leadership were most likely to come from elite families and schools, and were poorly equipped to understand the needs of middle-America. While the shift in student demographic profiles following the move from in-house VET programs to tertiary education is a known concern in Australia, along with a desire by industry to have more control over student selection, we could not find any discussion of it in the literature. It highlights an additional area for research.

Research and commentary on work readiness of university graduates is found across a range of professions and is not peculiar to paramedics. For example, in a study of Victorian child protection workers, a similar lack of work-readiness was found in relation to stressful social realities (Gibbs, 2001). This common complaint about work readiness across professions indicates that it is not tied to skills so much as workplace culture and the more subtle attributes of resilience, teamwork, and the ability to communicate with the client group. Lack of maturity among pre-employment graduates is refuted by some researchers on the basis that it was often conflated with lack of life or work experience (Waxman & Williams, 2006). Some programs define the level of work readiness of their graduates. For example, Edith Cowan University’s program does not regard its graduates as work ready until the end of a one year internship, despite the fact students are employed by the service during their educational preparation. Flinders University similarly regards the internship period as an essential component for authority to practice.

The role of these internship programs in graduate education provides another area for fruitful research. The recent research by Dawson (2008) is consistent with work in other disciplines where it has been found that clinicians perceive university graduates to very quickly gain the necessary skills of the profession, usually within 12 months of graduation. For nursing students their deeper theoretical knowledge was seen to position these university graduates for more advanced practice (Goldsworthy, Pickhaver & Young, 1984). This is
countered usually in the popular press with claims they have lost the skills of comfort, or that work intensification and high patient acuity has meant less time for patient-nurse interactions (James, 2001).

Graduate students have their own concerns about their readiness to be working paramedics (Waxman & Williams, 2006): they expressed fears about the availability of work, the recruitment process which includes behavioural interviews and psychometric assessments, and the oppositional attitudes of some of their mentors who were trained in the vocational sector and retain a cynical attitude towards university education. These recruitment factors remain points of tension between universities and industry and offer further topics for research.

Considerable work has already been done in Australia by the CAA and ACAP on standardisation, accreditation and possible registration of the profession. The introduction of course accreditation across the country will have a significant impact on curriculum in all universities. While it will not lead to standardisation of curriculum, it should provide for standardisation of outcome of all graduates.

- **Attributes of work readiness in the nursing literature**
  
  One of the most significant contributions to work readiness comes from the work of Patricia Benner (2001), a contemporary nursing theorist. Drawing on the functionalist work of Dreyfus (NurseScribe, 2007), Benner categorised professional nursing into five levels of competence. The current Australian competency standards are based on Benner’s approach (ANMC, 2008). Benner argues that there is a natural progression of skills and competence within the educational process from novice to expert, and that universities at best produce a competent novice. Novice nurses focus on the performance of technical skills in a way that is both clumsy and often oblivious to the humanness of the patient. This is to be expected of novices. It is only when technical expertise is achieved or improved, and anxiety abates through familiarisation, that the young nurse moves to attend to the interpersonal aspects of care. This approach had particular relevance to nursing during the 1980s when theory development defined the profession as distinctly focused on *caring* over treatment. Caring assumed much more than the performance of technical skills; it assumed care through inter-human connectedness performed by a professional with a high level of interpersonal skills and operating out of evidence-based knowledge (Watson, 2001). An example of this can be seen in the taking of a patient history or assessment. Novice nurses follow a check-list, tick a box set of questions in order to obtain all the necessary information. An expert nurse who is very comfortable with the technical skills, to the extent that they are second nature, will obtain all the necessary information for a nursing assessment through what appears to be an ordinary conversation between two humans; one sick, the other caring. Information useful for discharge planning will be gained simply by asking the patient what they do at home or how they spend their leisure.
Attributes of work readiness in the international literature

In Britain work readiness has been a major factor in the type of university based programs introduced. The mandatory establishment of 1500 hours of clinical experience is one example (British Paramedic Association, 2006). Research in this area has seen factor analysis methods used to develop a set of attributes that could inform curriculum (Kilner, 2004). This approach was motivated by the belief that the curriculum did not provide the range of skills needed for modern practice, and was weighted towards dealing with life threatening conditions which were the 'comparatively uncommon … workload profile of ambulance staff' (Kilner, 2004: 384). In each of three paramedic employment categories, the desirable attributes of ambulance officers were developed using expert panels. In each category, core clinical and professional skills were foundational, with increasing emphasis on approaches to health and safety, self management, life-long learning and role-modelling, varying with the role. In some instances the generic factor label masked the content, such as common sense as the most highly weighted aspect of approaches to health and safety. Despite the curious nomenclature, factor analysis provides a set of attributes that could be developed through curriculum modification.

An American study, by Grubbs (1997) used national data from accredited programs to explore the experience of students in patient contact. He found that: ‘quantity of patient contact experiences facilitates development of judgment skills, and offers a value measure of progress towards competence’ Grubbs, 1997: 250). Quantity of clinical exposure is hotly contested in other professions and COAG is keen to rule on this (National Health Workforce Taskforce Report 2008). The problems of developing critical thinking in the clinical setting were raised early in the American pre-hospital education literature, but approaches became quickly dated by the forward march of technology. Janing wrote (1994; 1997) that paramedic practice in the USA was moving towards protocol-driven care and training remained rooted in rational and technical concepts that were deemed inadequate for the emerging world of ill-defined or unusual medical emergencies. Janing conducted a two year longitudinal study with 55 paramedic students to assess the use of written scenarios in enhancing self-directed tendencies and higher levels of critical thinking. He found the targeted skills did improve although it was difficult to demonstrate the effectiveness of scenarios in traditional examination settings.

The disparities in training, lack of central licensing or accreditation of individuals and courses, is also evident in the USA literature where there are more than 500 training programs operating across all states: ‘An EMS in one state may not have the same (or even similar) education, training or scope of practice as in another state. This variation causes confusion among the public and colleagues in other disciplines as well as making professional mobility and recognition challenging’ (Margolis, 2007: 250). Margolis has called for a nationally consistent nomenclature and licensing in the USA with a concomitant increase in higher education for EMS, that have been central to the debates on future needs in both the UK and Australia.
One of the most significant innovations relevant to education for Australian universities is the British Paramedic Association development of a career structure with associated expectations for education qualifications, knowledge, skills and position descriptions (British Paramedic Association, 2006). The establishment of eight grades of paramedic from student ambulance officer (Levels 3-4) through to Paramedic (Level 5), Specialist Paramedic (Level 6), Advanced Paramedic (Level 7) and Consultant Paramedic (Level 8) provides a career structure closely aligned with the educational qualifications offered by the tertiary sector. Level 5 is equivalent to the Australian associate diploma, Level 6 to a bachelor degree and Levels 7 and 8 require masters and doctoral qualifications. Two points are relevant to this study: the first is the clear identification of knowledge and skills linked to tertiary education; the second is the authoritative stance of the BPA in defining what should inform the curriculum. While we found no articles addressing the relationship between paramedic professional associations and universities the possible synergies as well as tensions should not be overlooked.

- **Flexible learning approaches to teaching including academic literacy**

The development of innovative educational programs for paramedics in Australia has its origins in the VET programs usually offered by state-based ambulance services (O'Donnell, 2006). The issues faced by these services in providing education to trainee paramedics already employed and often working in remote regions and across a variety of shifts has resulted in several innovations. For example the need for timely and accessible education for a remote and time-poor workforce was a driving factor in the development of Flexible Learning in the Ambulance Service of NSW. As a Registered Training Organisation (RTO) the service delivers accredited VET qualifications within the Australian Quality Framework (AQF). Flexible Learning became a key strategy in 2002 to meet the needs of more than 2500 staff working out of 227 stations, two thirds of which are situated outside the metropolitan area.

In a discussion of the development of the program Morrison and Matheson (2002) saw the fixed income of the training division as a significant challenge, and collaborative teamwork and training of ambulance educators as its strength. Ambulance educators gained insights into Flexible Learning while obtaining a professional qualification in e-Learning at the University of Technology, Sydney. They developed course materials, beginning with a CD that was primarily a text-dense repository of information. An educational evaluation of the CD enabled the team to define the difference between good computer-based resources, and a learning module with adequately planned interactive engagement. Morrison and Matheson said they quickly recognised the need to move beyond the provision of electronic resources, and the risk of expensive technological failures, to the development of interactive programs with a sound pedagogical base. With funding from both Flexible Learning Leaders and LearnScope (DEST, 2006) it was possible to research the use of pre-hospital simulation and scenarios in flexible learning, as well as enhance educator training, and move towards sustainable strategies, including pre-
hospital simulation and scenario training, to develop a 'rationale (that) incorporates issues of application of knowledge, reflection, collaboration and meta-learning' (Morrison & Matheson, 2002: 4).

More recent flexible approaches have been developed by the South Australian Ambulance Service (SAAS) in collaboration with the Flinders University and are reported by Clarke (2008). This program arose out of the shortage of fully trained paramedics in remote regions. The SAAS have offered volunteer ambulance officers with base-grade qualifications from the VET sector full-time paid employment along with generous education resources to complete the Bachelor of Health Sciences (Paramedic) as distance-based students. This has required the university to experiment with a range of electronic tools for delivering materials. To date the solutions have not been state of the art internet based materials because of the unreliability of remote access in rural South Australia. This innovation came not from academics, but from industry. It has also highlighted the need for further development and research into the preparation of experienced paramedic preceptors and mentors in teaching students and has highlighted cultural differences between students (Clarke 2008).

The evidence of the effectiveness of online teaching for other health professional courses such as nursing and allied health courses is conflicting. There is evidence that stand-alone multi-media study facilities without internet access, made available to nursing students, improves student results (Brightwell, Stewart & Pask, 2003). Brightwell, Stewart and Pask (2003) reported demonstrable difference in retention rates and grades between those who did not use the enhanced learning facility, or those who used it only once, and those who accessed it on multiple occasions. In a 2006 journal article Hubble and Richards (2006) reported on the effectiveness of online teaching using research with a small sample (23 online, 10 traditional students) that assessed learning outcomes on the Grasha-Riechmann scale. Not surprisingly, online students were less competitive or dependent in their learning. The lessons from other professionally based courses may well contribute much to paramedic education.

Besides ability to access learning material one of a raft of new skills needed by all professionals in the information age is information literacy. This is best defined as a set of specific skills for sourcing, managing and applying information gleaned from various sources, including libraries and the internet (Hamilton, 2008) for effective evidence-based care. One example of this is a general academic skills including Information Literacy have been embedded in the 13 week Professional Studies course offered in first year at Charles Sturt University. Hamilton describes positive student feedback to the module, which is a core pre-hospital care subject. The module aimed to utilise Australian and New Zealand Information Literacy standards (ANZILL, 2004) to correspond to graduate attributes outlined in the CAA Guidelines for the Assessment and Accreditation of university paramedic programs in Australia and New Zealand (2007). Hamilton (2008: 2) describes the development of Information Literacy as one of the keys 'to develop skills and attitudes that are congruent with critical inquiry and evidence-based approaches to healthcare.
provision’. Her concise description of Information Literacy development implies that generic academic literacies are also embedded in core subjects (Hamilton, 2008). However, there was no international peer reviewed literature describing the development of generic academic literacies in paramedic courses, nor evidence of research into the academic literacy levels of undergraduate candidates, the unique requirements of the discipline, or the specific needs of industry.

Concluding comments on the literature
Paramedic academics involved in innovative pedagogies are looking towards technologies to enhance students’ learning experience and academics’ teaching effectiveness. Online modules, simulations, videos and case-based or problem-based methodologies are favoured. However, there is to date little research evidence to support the application of these technologies to the unusual demands of paramedic education, despite widespread generic evidence of effectiveness, particularly in higher education literature. There is also an absence of research and writing about non-clinical underpinning education including bereavement skills.

In summary there is little high quality literature to validate some of the key pedagogical practices in paramedic education, and insufficient evidence of research into those elements of higher education that might distinguish it from the competency-based training. There is a need for a broad cohesive research agenda to legitimise the key aspects of paramedic education that distinguish it as a profession or help to establish best practice. The specific project questions arising from this review include:

1. the nature of multidisciplinary paramedic practice and the effectiveness of multidisciplinary education for paramedics on patient outcomes;
2. the distinguishing characteristics of paramedic education that separate it from medical, nursing and allied health education;
3. the distinguishing characteristics of tertiary based paramedic education that take it beyond competency-based approaches;
4. the distinguishing characteristics of multidisciplinary tertiary based education that enhance the defining features of the profession;
5. an evaluation of pre and post employment university models of education for paramedics now operating in Australia;
6. an evaluation of clinical education in pre-employment models in terms of quality, quantity and type of clinical exposure;
7. the impact of the shift from in-house on the job training programs to pre-employment tertiary education programs on the industry profile and on graduate work-readiness;
8. the relationship between university pre-employment programs and internships offered by employers;
9. the features and qualities of professional education from medicine, nursing and allied health that are directly transferable to paramedic education;
10. the effectiveness of case-based learning models developed specifically for paramedic education;
11. the effectiveness of various approaches to the teaching of social, 
behavioural, and moral sciences in paramedic curriculum; and 
12. research to identify the education needs of paramedic mentors and 
clinical leaders responsible for the training of students and graduates.

Focus group and interview report

`‘And the challenge I suppose is how do you educate for that 
future? For that unpredictable future.’ (Focus group participant)`

The two models of university-based paramedic education in Australia, a pre-
employment and a contemporaneous employment model, face common 
challenges in developing a cohort of ‘work ready’ graduates for the future and 
diverse needs of the ambulance services. Key issues raised in the focus 
groups in relation to the future development of paramedic education were:

1. conflict over expectations between universities and industry; 
2. the low levels of soft skills/non-clinical underpinning sciences leading to 
attrition of graduates; 
3. attrition of recruits due to interpersonal conflict; 
4. graduate transition to work and the internship; 
5. mentoring of graduates by staff; 
6. work readiness and the educational models; and 
7. the dearth of paramedic academics to transmit to students the cultural 
uiances of ambulance services.

These issues are not peculiar to paramedic education. In many ways they 
mirror the issues raised by practitioners, students and academics in other 
health professions. They summarises an historic tension between university 
objectives and industry expectations. These tensions point to the need to 
develop a shared interpretation of trends that will influence future roles for 
paramedics and a shared agenda for the development of graduate attributes 
specific to paramedics for 2013. Although focus group participants knew 
social change was remaking the role, the lack of clarity was intensified by lack 
of agreement over domains of influence and responsibility and possibly also 
by the fact that focus groups were made up of academics, union 
representatives and practicing paramedics. These tensions are outlined below 
and discussed in Chapter Six.

- **The conflict over expectations between universities and industry**

Confused expectations began with an assumption that the university could 
supply work-ready candidates for both present and future needs:

`‘In the Ambulance world the concept of ‘you call we respond’ 
has sustained us for 115 years but is probably not going to 
sustain us for the next 50. So the practitioner in ambulance is 
going to change in role and the universities have to be up to 
speed to that challenge’ (Paramedic).`

While participants from ambulance services were quick to point out how much 
of the work was now non-emergency social health care, they were equally
quick to emphasise the need to retain protocol driven approaches for
emergency situations where students would be expected to follow
instructions. Graduate ability to function well in both situations was seen as
lacking, and this was a point of conflict. In some focus groups the level of
contempt between old school officers and young graduates, was palpable:

‘Well I was 21 once, but you know, they don’t want to work
nights, they don’t want to work weekends they don’t want to
work public holidays’ (Paramedic).

Some of this conflict appeared gendered. Where there was a strong female
presence in focus groups, the expression of conflict was modified by an
educative and developmental approach to graduates. The potential for culture
wars between individuals with entrenched perspectives made it clear that the
ambulance services must educate and prepare their officers to mentor a new
generation whose skills are different, yet part of their future. Although most
focus groups pointed to the poor communication skills of graduates, there was
also a view that poor communication was also endemic in places where
command and protocol approaches prevailed. It is possible that the purported
failure of graduates to fit in is in response to a lack of readiness of older
officers to support young graduates. However, this issue is not solely the
responsibility of services.

The difference between protocol-driven approaches and autonomy in clinical
decision making was regarded as a cultural conflict between some students
and their mentors. However, it was also clear that some mentoring
relationships simply did not work, and that in some cases both students and
mentors were not flexible in their approach. The questions or criticism raised
by students were sometimes interpreted by mentors as either personally
threatening or a danger to quick response during road events:

‘The mentors, if they are not prepared properly, actually feel
threatened by graduates if they are not a graduate themselves,
and can actually then turn that into a negative’ (Paramedic).

One male student reported unproductive conflict with mentors, although his
female colleagues experienced the difference in approaches as a constructive
learning opportunity.

‘They’ve been educated differently to what the people who’ve
come through university and learnt things differently, and
they’re having trouble relating themselves to the students, they
go, okay, well you’re been at uni for two or three years and I’ve
haven’t been in there, and I don’t know what you’ve learnt, like,
I don’t know what level you are at’ (Student).

The potential for conflict between universities and ambulance services to be
played out through students in placement was well recognised in focus
groups. In some states the service saw itself, rather than student cohorts, as
the client of the university. The issues were specific to the kind of structural
relationships that existed in each state, but interestingly, it is a problem that exists in other places as evidenced by this extract from an interview with a British paramedic academic:

‘I think the tension over who owns the program could be a problem. Is it really an ambulance program being run at university, or is it an academic program which the ambulance service is buying into….without the ambulance service it’s a dead program and hasn’t got any business’ (Academic).

The strengthening of relationships between university and services at structural and administrative levels needs to include a more focused educational strategy that empowers non-graduate serving officers to support the graduate generation. Although universities may lack a clear insight into the needs of 2013, there is a conviction that the resilience and flexibility for new roles will require a critical, informed practice approach to the profession and a commitment to lifelong learning, all of which are best supplied by tertiary education, but much of which will be done post graduation. The need to mentor or apprentice graduates into the role of working paramedic was agreed on by most focus groups, and there was a general concern about the capacity of the services to find suitable paramedics to fill the role of mentor, and the failure of Universities to take up their responsibility in this area.

- **Intrapersonal paramedic practice**
  ‘We’ve got together and developed a curriculum but whether it really does reflect the job of a paramedic….I don’t think we [have] really defined what the job and role of the paramedic is so we can build a curriculum. Most of the curriculum we have is built on past experiences and histories of people developing it rather than what the job is out there now’ (Academic).

In some universities curriculum has developed out of VET sector training, and there has been insufficient time, research and expertise available to explore curriculum in the light of service needs, and social change. Two issues need to be clarified at this point. Firstly, we expected focus group members to identify a difference between university graduates and VET trained paramedics in terms of depth of theoretical knowledge of clinical issues. We assumed this would translate into a deeper grasp of anatomy and physiology and as a consequence graduate confidence in making accurate assessments on road once skills had become habituated, possibly one or two years post graduation. We pick up on this issue in later themes below, suffice to say at this point that the major issues raised were lack of clinical competence and the need for a curriculum strongly linked to competency in clinical skills.

In all states curricula appeared to be heavy in clinical skills and light on soft skills, such as communication, teamwork, human understanding and relationships. Given the historic context of paramedic education, it is probably not surprising that most programs do not have a strong social science perspective, and topics such as sociology and psychology are regarded as non-core add-ons by some working paramedics and paramedic academics.
and with a lack of interest by many students. How much is necessary has not been determined, or whether it can be effectively taught in an integrated manner as is often the case in PBL approaches. Some non-clinical topics found in the USA, such as social gerontology and bereavement education, were not evident. Paramedic practitioners in the future may need an indepth understanding of the social ills that compromise and impinge on health, such as mental illness in the de-institutionalised society, social deviance as it intersects with drug dependency, alcoholism, and long-term unemployment, as well as cross cultural sensitivity, and issues of social welfare.

Sociology and social psychology are generally regarded as subjects that develop critical thinking, social awareness and reflective practice. In saying this it also needs to be acknowledged that critical thinking is a key component of the teaching of clinical skills and many attitudinal skills are taught both tacitly and overtly in these topics. It is also important to make a distinction between the kinds of attitudes and responses that can be taught, and those that emanate situationally from the personality of an engaged and reflective individual. A competent practitioner may learn many skills, yet fail to perform in a situation that requires flexibility, spontaneity and clear judgement. Despite their best efforts to avoid recruiting graduates with socially dysfunctional attitudes, this remains a problem in all states and indicates that the emphasis on high score academic results in clinical skills does not necessarily produce a compassionate and caring clinician.

Despite widely reported clinical competency among graduates who were recruited, it was generally believed that more skills were needed than a university education could supply. However, the focus groups often had difficulty defining the missing skills, which could be described as intrapersonal and interpersonal aspects of the non-clinical topics. Intrapersonal skills are the self-awareness of reflection that enables clear judgement, allowing an individual to focus outside of their own needs and emotions. Interpersonal skills enable individuals to communicate an open and co-operative attitude, to ensure the smooth operation of a team. Without these skills the paramedic may become an obstacle at a critical incident, and the capacity to learn the theory of teamwork does not guarantee its implementation.

Although industry participants knew there was a missing factor in graduates, some seemed to think it could be supplied by more of the same, such as clinical skills.

I think the challenge for universities….is in the rationalisation of the basic anatomy and physiology development. Most of our work occurs away from controlled environments, so the applied anatomy and physiology has got to be quite situational. The critical issue I am talking about is developing a judgement in the practitioner so that the judgment is relevant and effective. If they get the diagnostics wrong at the start they’re flying blind (Paramedic).
In other focus group discussions the missing factor was named as maturity and given as a common reason for the non-recruitment of graduates, particularly in NSW and Tasmania. Chauvinistic and non-inclusive attitudes and poor empathy with the elderly were a growing problem among students as well as inappropriate questioning of officer’s decisions at critical incident scenes. Non-clinical or soft skills were named in the Victorian focus group as a problematic area for graduates entering their year-long mentoring program. In Tasmania it was suggested that around 50 per cent of graduate applicants to the service were rejected on the basis of a recruitment process using a mixture of psychometric evaluation and behavioural interviews, which target behaviours in the soft skills categories, rather than clinical competence. The Tasmanian focus group members believed that as a remote state it was attracting poor quality candidates, who had missed out on an internship in either Victoria or NSW. In NSW there was both a low recruitment rate among recent graduates, and high attrition rate reported. While some focus group participants felt interpersonal skills could be taught, either at university, or during the apprenticeship period, in NSW psychometric testing precluded that possibility.

‘A lot of people we would not progress in the recruitment process because of their lack of team work, lack of communication skills, because we think….they wouldn’t fit into an environment where there is pressure….where you’ve got to be mature’ (Paramedic).

In NSW student failure to follow instructions on road, in what one participant described as a ‘para-military organisation’, was regarded as a risk to the industry. The inability to empathise or support patients was a serious issue among some graduates:

‘I had a gentleman [student] tell a 60 year old Italian lady with a broken arm that she should chill out!’ (Paramedic).

Some thought the skills shortfall was dispositional, intrinsic and irredeemable, while others thought it related to a lack of life and work experience and the youth of graduates. Many wanted a program or further education to equip the large numbers of students who were not being recruited. The complexity of developing the underpinning science skills (soft skills) was the subject of extended discussions in which practitioners felt the university was failing in its role to supply graduates who were work ready in non-clinical areas:

‘Soft skills development: it is something that is missing, and maturity will play a part in it, but if the universities can actually start to develop those soft skills and by that I mean things like being able to communicate, being able to talk and listen appropriately [for] the uniform you’re wearing, not get judgemental, and things that they might not be expecting….here’s this person who’s dishevelled and they’ve got papers everywhere and you can’t get in or out of the front door because they’ve got junk everywhere….they’re
[graduates] completely blown away to be able then concentrate on standard approach to patient, you know, clinical guidelines, when they're missing some of the basic soft skills, I think makes it really hard, and that probably affects them more than the maturity level as such’ (Paramedic).

Students in the Victorian focus group suggested that the underpinning science skills were developed through exposure to people who were not part of their own social milieu, in non-emergency transport, nursing homes and voluntary work among the aged. It can be suggested that students with the insight to recognise their own shortfalls, are demonstrating capacities that make possible the transmission of further soft skills.

‘I didn’t get a job the first time round and went and worked in the non-emergency sector, so doing patient transport, and being young, just like learning to talk to the elderly and knowing that they’re not healthy, you can sit there and have a chat and just learn how to interact with, you know, on the stretcher, in the back of the ambulance, one little thing that I think more paramedic students need to do’ (Student).

‘University doesn’t prepare you for the social cases that you go to … ’(Student).

Some focus groups participants discussed ways in which the university could better prepare students in the area of underpinning sciences/soft skills, although there were problems of insurance, a shortage and resistance to alternative placement sites such as clinics and hospitals, and the need to change expectations in the new culture of graduate paramedics. In the UK one program offered clinical placement in a children’s hospital. Most groups, however, reported difficulty in finding adequate alternative placements for students, although some students, of necessity, found ways of getting their own soft skills.

The importance of soft skills was raised as a priority issue in Canada, but the terminology used was more precise. The Canadian interviewees suggested that there had been a steady, but specific move away from the acquiring of ‘humanistic’ or ‘nursing’ skills by the profession:

‘We have changed our emphasis from the time I started to a much more technical orientation where we are now teaching paramedics all kinds of wonderful toys and tools and in my view, missing some of those essential hands-on human skills’ (Paramedic).

In Canada much of the training is carried out by private schools accredited by the Canadian Medical Association. There were variations in the length of courses, and focus group participants asserted that the trainers were often clinicians with brief on road experience. The schools were regarded as technical but not sufficiently medical by focus group participants. In Canada a
plethora of issues that could be broadly categorised as under the non-clinical or underpinning sciences was named as problematic:

'I don’t think we teach the judgement skills well … that teaching of the grey of medicine. I don’t think we talk about culture well, I don’t think we talk about the sociology of what we are. I don’t think we prepare the paramedic in any way other than just to do the technical. I think that is a bad thing and I think it lets the technician think they are coming out perfectly prepared to embrace a professional approach to life …' (Paramedic).

Judgement and professionalism were words often used but rarely defined. In the following extract there is a clear articulation of the challenges of becoming a paramedic and developing professional judgement, and the need for a collaborative approach. This participant felt professional judgement was the key skill needed by young graduates, and transitional support was the only way of helping them develop these skills:

'A professional is someone who is, has the ability to make judgements under uncertainty and I thought that that was really in many ways, summed up the kind of work that ambulance paramedics, or kinds of situations that paramedics are faced with almost every day in the course of their work, having to make judgements in uncertain, unknown, uncontrolled environments' (Paramedic).

'How we can better support, I suppose, the relationship between industry and the educational institutions, such as we are seeking to ensure that this, these signature pedagogies if you like, or the learning environment in which we’re using are supportive of each other and not contradictory to each other, such that the type of teaching, if that is indeed what is shaping the professional practice, that the universities are using, is complemented by what we are doing in field and vice versa, so, are we both aiming to achieve the same type of creature at the end, or are we conflicting, doing conflicting things?’ (Paramedic).

In some focus groups the skills shortfall was seen as the failure of an education process that needed to be addressed by both the university and those involved in helping graduates transition into the workplace. Those states that have mentoring or transition programs, raised questions on the preparedness and training of mentors, and did not see the skills shortfall as either an indictment of an individual or the university. There was some interest in understanding how attrition could be circumvented. If psychometric testing weeds out students with poor soft skills, who may be redeemable, it is an area of concern for future discussion between universities and ambulance services. An entire arena of research could open up around non-clinical underpinning science skill acquisition, psychometric testing and alternative learning sites for students who have not had the life opportunities to develop relational skills.
among the elderly, disabled, and socially disadvantaged. Personality problems, however, are a separate category.

- **Interpersonal issues as factors in attrition rates**

Despite psychometric testing, unsuitable candidates were recruited and quickly left, or lost their jobs due to the kinds of poor interpersonal skills that psychometric testing is said to target. Some attrition or non recruitment of graduates related to more subtle interpersonal issues that perhaps could not be addressed educationally. While poor soft skills were reportedly found among clinically competent students, and were named as a primary cause of failure in three states and Canada, it seems that the problem of attrition are much more nuanced, and intrinsic interpersonal dysfunction is not evident in some good graduates until they go on-road.

‘We handle 300 new recruits a year … when people don’t succeed it’s … rarely academically or clinically … it’s the interpersonal areas that lets them down and for some, it leads to termination’ (Paramedic).

Some participants saw the poor adaptation of graduates to work as a clash of cultures between the questioning Y-generation graduate and the protocol driven command-control generation. Valuable evaluation on the qualities of Generation Y has been done by the Victorian Ambulance Service (MacPherson 2008). MacPherson argues that Generation Y requires explanations for all actions before they engage. Focus group participants saw the lack of readiness for the culture tied to the fact that Universities have too few paramedic academics on staff and rely heavily on nursing, science and health service administration academics. Moreover, each ambulance service lacked adequately trained mentors with the disposition to work with graduates in clinical placement. It was also suggested that suitability to the job was not always evident until graduates went on-road:

‘There’s an awful lot of government money wasted, and personal money wasted, because people end up coming out at the end with a qualification and they move into the industry and think my god, what have I done, and just bolt’ (Paramedic).

A university education may not be able to address suitability, which can only be finally known experientially. It also seemed that some interpersonal skills competence could not be regarded as an element of work-readiness, and a university education may not be able to address deeply entrenched personality or character issues. However, the presence of intractable issues of this type expressed in the workplace was a source of alarm in most groups, and it was seen as a waste of training and human resources. It also seemed imperative that educational means be utilised to address those aspects of interpersonal dysfunction that might yield to change.

High attrition and culling of graduate applicants was reported in Victoria, New South Wales and Tasmania, based largely on psychometric testing. Many focus group participants were alarmed that students might take a three year paramedic degree and then fail to be recruited into the one area where their
education was applicable, and they considered whether educational models other than the one used in their state, might alleviate the problem. Without portable qualifications, double degrees provide more options to students who fear the high-bar of recruitment into paramedic services. Double degrees do not appeal to ambulance services, because they carry the threat of future staff losses. For universities, the double degree overcomes the disincentives of industry, such as the high-bar of academic performance required for recruitment.

Neither the pre-employment nor the contemporaneous model provides a safe option for students. The contemporaneous employment model multiplies stressors for students, who have the double jeopardy of trying to perform well in two intensive arenas. The pre-employment model, like all degrees, carries the potential for early attrition through academic failure. The possibility that some graduates will not be suited to a specific profession when the qualification is not portable or transferable, is a problem in most disciplines, and it is not one that can be resolved by any particular educational model. It is probably more important for universities and service providers to examine the support systems used in transition to work, to better ensure the perseverance of graduate through this difficult phase. MacPherson’s (2008) research with the Victorian Ambulance Service goes some way towards this.

- **Transition to practice and concepts of work readiness**

Transition to practice, which was discussed in terms of knowledge application, mentoring, apprenticeship, and in Victoria by its program acronym (GAPP) affects all educational models. There is no single scheme throughout Australia for supporting students as they move out of the theoretical realm and into the pressures of on-road practice. It is at this point that ambulance service expectations of competency are diverse and conflicted. The transition was reported as conflicted in those states where few of the mentors are graduates or formally trained, but it seemed slightly more cohesive in Victoria where mentors were minimally trained for a structured role for which students were also prepared. The clear structure of the mentoring relationship in Victoria gave students a support system for which they expressed appreciation in the focus groups. The presence of the transitional structures also clarified the work-readiness expectations. The students were still clearly in a learning role, but they knew who to go to for help, and there was a communication line for instruction and discipline that was obvious to other officers. Clinical Instructors are assigned to specific recruits, and the expectation is that graduates are ready to work under supervision, and will take up to three years to feel completely competent in their new profession.

Transition to work is the pressure point for all stakeholders, and will require close collaboration between educators and practitioners in the future, clearly defining work-readiness expectations. The effective training and evaluation of mentors to ensure a cohesive transition is a suggested area for future research.

In Western Australia, after one year at university, students are employed by St John Ambulance while continuing studies. A St John Ambulance Officer
oversees the program. The focus group in WA regarded the program as superior to other states because it weeded out unsuitable candidates early:

‘One of the reasons why the ambulance service here didn’t go with an open degree as has occurred in the Eastern states … to not have a big group of people walking around with paramedical science degrees who are not going to be employed’ (Academic).

Although the employment models of education such as those in Western Australia and Tasmania claim to have an edge in producing work ready paramedics, both states reported that they still recruit and educate candidates who later fail to meet expectations. Neither the universities nor the services have clearly defined what they mean by work readiness. It cannot be regarded as the same thing as vocational suitability, or academic or clinical competence. As a result of diverse expectations, unrealistic demands on students and graduates has led to blame-games between individuals, such as mentors and students, and the organisations. In NSW the focus group recognised the gap in mentoring of new paramedics:

‘We have hired these people, we expect them to be at this point coming out of university, they should be ready to be an ambulance paramedic, and they’re not, why not, but the point is, they’re not. They’re ready to start to be an ambulance paramedic and the internship is lacking, we have not set a third or fourth year internship’ (Paramedic).

In Queensland where the transition from VET sector to university education is relatively new, the expectations are higher:

‘The expectation I think, certainly now, is that when students finish their degree program they are ready to practice day one’ (Academic).

Table one below provides a summary of clinical exposure of students in the various programs.
<table>
<thead>
<tr>
<th>State</th>
<th>Model Type</th>
<th>Hours of Clinical Placement</th>
<th>Degree</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>Pre Employment</td>
<td>Full-time students spend up to four hours each week practicing their clinical skills in a simulated paramedic environment. Students are placed with an ambulance service for 3 weeks in years 2 and 3. The Ambulance Service NSW has a one-year internship.</td>
<td>Charles Sturt University - Bachelor of Clinical Practice (Paramedic)</td>
<td>Three year degree</td>
</tr>
<tr>
<td>Queensland</td>
<td>Pre-employment</td>
<td>18 weeks clinical practice; 12 weeks paid internship in 3rd year, three six weeks blocks as unpaid third officer. Casual work.</td>
<td>Queensland University of Technology - Bachelor of Health Science (Paramedic)</td>
<td></td>
</tr>
<tr>
<td>South Australia</td>
<td>Pre Employment</td>
<td>Work experience – 360 hours with SAAS and 40 hours in other health venues</td>
<td>Flinders University - Bachelor of Health Sciences (Paramedic)</td>
<td></td>
</tr>
<tr>
<td>Tasmania</td>
<td>Employment</td>
<td>Concurrent full-time employment in the ambulance service, 468 hours clinically assessed.</td>
<td>University of Tasmania - Associate Degree in Paramedic Studies</td>
<td></td>
</tr>
<tr>
<td>Victoria</td>
<td>Pre Employment</td>
<td>Monash University students receive 22 weeks of clinical placements (emergency ambulance rotations, hospital-based placements e.g. A&amp;E, CCU, Mental Health)</td>
<td>Victoria University - Bachelor of Health Science (Paramedic)</td>
<td>GAPP program of mentored internship after three year degree</td>
</tr>
<tr>
<td>Western Australia</td>
<td>Mixed Contemporaneous Employment</td>
<td>Work experience 440 hours</td>
<td>Edith Cowan University</td>
<td>1 year University, 2 years employment, fourth year paid internship</td>
</tr>
</tbody>
</table>
• Developing the capacity to mentor graduates to work readiness

‘The looming issue I see in terms of transition from the VET sector to tertiary education [is] we run the risk of losing mentoring capacity for students. That’s a massive risk that university education will wipe out … the bedside tutorial, the station discussions, arguments about what works, what drug, what procedure … ’ (Paramedic).

The theme of transition to practice was raised spontaneously in the focus groups in Victoria and New South Wales, and it was a significant discussion in other states under the guise of concerns with work readiness, mentoring, and graduate suitability for the work. All states have different ways of supporting graduates through the transition, yet both NSW and Victoria were experiencing difficulties in recruiting and training paramedic mentors, and in working with students who had been taught to question and wanted greater autonomy.

In Victoria graduates are assigned to a Clinical Instructor (CI) and work through shifts with that person. The CI debriefs the student and supports further learning. The CI’s receive two days training for the mentoring role, followed by written work which many do not complete, and this was considered inadequate:

‘So they don’t feel there is a proper standard out there for clinical instructors. So people are operating at all different levels of competency and ability in the role … I shouldn’t say it’s just a training role, it’s introducing people to the culture of ambulance and teaching people about different way of communicating, vast array of people that they meet, the different cultural backgrounds, ages … ‘ (Academic).

Although Victoria’s GAPP mentoring program was regarded as a good theoretical model there were specific difficulties in maintaining the CI relationship, so that students sometimes experienced different partnerships within a short period of time, and these were variable in quality. In the focus group graduate students in Victoria expressed appreciation for the CI’s support and instruction. The students, particularly females, did not regard themselves as work ready, and they suffered stress and anxiety at the start of shifts or after breaks or when changing stations. There were some students who came into conflict with a mentor and resented further training under the guidance of non graduates. Generally, however, the mentoring relationship was regarded as valuable to the student, as one student noted:

‘I had my first clinical instructor for the first two months and I still, like, I mean I’ve had a different one now for the second two months, and I email him and tell him about the jobs I’ve been having and how I’m improving and what my weaknesses are and how I can work with that. I haven’t had much down time with my second CI’ (Student).
The CI’s were equally frustrated with disrupted relationships and time pressures:

‘Yes I think there is a great deal of frustration amongst clinical instructors … the key ones are lack of appropriate training that they have themselves to be clinical instructors, the lack of time to spend with their students, and that is down time, not engaged in on-road work, to talk to their students about their performance and particular jobs that they may have done …. they feel they need a lot more time for ongoing professional development, not so much clinical, they don’t necessarily have the tools to be good teachers’ (Paramedic).

The focus groups tended to conflate issues and some regarded the need for mentoring as evidence of a skills shortfall in graduates. Mentoring into the culture was confused with the development of all other non-clinical skills.

‘One of the paramedics who works with us said 95 per cent of his job was reassurance … if that’s the case then my only question would be what part of the course content is devoted to that area, the interpersonal skills, the communication and that sort of thing’ (Paramedic).

In the UK there is a defined relationship between mentors and students governed by the British Paramedic Association. This is made possible in a program where students divide their time (four days a week) between clinical placement and university, gaining a minimum of 750 hours on road experience each year. Written reports about a student’s progress keep mentors in touch with their learning and experiential needs, through a theory-to-practice program. Finding the right mentor is a problem in the UK model, as each student has a primary and two secondary mentors, with the understanding that a strong relationship is generally formed with one.

‘It’s finding the right person that is good clinically, but is good enough to actually sort of share their skills to actually develop the student, and move the student along. We are trying to set up programs to develop good paramedics into good mentors’ (Paramedic).

The tension between the university’s expectations that the graduate be an autonomous practitioners, and the services’ expectation that graduates be responsive to direction, seems to be reduced in those states where transition to work is facilitated through a structured mentoring relationship (Victoria, Queensland) and exacerbated in those states where only small numbers of graduates are entering a service that is still wedded to a VET model (NSW, Tasmania). The presence of a mentoring program usually makes it clear to both graduates and their colleagues, that graduates are ready to work, but not yet fully competent to work unsupported.
Educational models and work readiness

Although the Western Australian and Tasmanian models are regarded by their focus groups as better than the pre-employment models, it did seem that the problems of suitability, attrition and readiness, had merely been moved to another point in the program. There seems to be no certainty that the programs are more effective in producing work ready graduates. The difficulty in finding good candidates for the university course itself was discussed. In Tasmania paramedics felt they should screen students for the proposed degree program. In Western Australia participants argued that the program was effective in producing work ready graduates although some others felt the hybrid program took a long time to produce independent practitioners.

‘All those [states] that are doing pre-employment degrees, they’re totally pre-employment degrees. I mean one of the reasons St John was so keen to start a program here that actually was employment based, was work readiness’ (Academic).

‘Look the bottom line is you get the piece of paper. They’re not work ready. It takes them 18 months to 2 years to get anywhere near being paramedic, so that a five year program to create a paramedic, a life support paramedic’ (Paramedic).

In Western Australia transition to work problems are still reported. The university’s lack of paramedic academics was also named as a problem. It was suggested that students needed to be exposed to the Service earlier in their program, although there would be difficulty in finding opportunities for students to even observe. One student noted that there appeared to be a poor mismatch between the university and ambulance service in terms of a working relationship. This was an interesting comment given that these hybrid programs are seen by some to be current best practice:

In other states students saw their work readiness bound up in limited opportunities to apply certain skills. Availability of clinical placements, costs of placements and variability of placements, as well as the university’s lack of knowledge about mentors’ skills and effectiveness, were problems named in pre employment programs. There was also limited scope on-road because of the unpredictable nature of paramedic work. While this was problematic for students, many seasoned officers saw it as characteristic of ambulance work, and indicative of an industry that cannot prepare for the next unique critical event.

‘Students are reporting that we’re getting exposed to less than 50% of what we actually learn at uni, so there’s this whole lot of information that we are getting … a big gap between what we’re learning and actually able to do’ (Paramedic).

‘In more than 20 years I’ve done one child birth’ (Academic).
Participants in the South Australian focus group usefully suggested there was an additional stage of transition to work, which was the movement from intensively supervised internship to the ‘real world’ of ambulance, where students could finally exercise some autonomy. Although work readiness was a term used in all the focus groups, only in Victoria was it defined and clarified within specific parameters by working paramedics, although there remained a question of whether the universities shared the perspective.

'It would be interesting to ask the universities what [kind of readiness in a] graduate they are churning out’ (Paramedic).

'Is it readiness to practice under supervision? Is it readiness to practice as an independent practitioner, is it readiness to qualify from university… what exactly does this work readiness mean and I don’t know that there is a clear definition because people are using different meanings’ (Academic).

'We never had any really, really high expectations that they would be anything except ready to work under supervision, and that it would take a year for them to settle in, and three years to really settle into the job where they think, you know, oh, I could turn up to anything and I wouldn’t be worried, I know what I’m doing’ (Paramedic).

- The development of paramedic academics
‘And it’s an important component for those educators and academics that they have current clinical experience’ (Academic).

For most focus groups the problems of mentoring, work readiness, teaching the underpinning sciences/non-clinical content (soft skills), and the transition to work culture, are seen as a problem that could be solved with the recruitment of paramedic academics who would transmit the nuances of the ambulance culture. However, no states have clear models for progressing paramedics into teaching, mentoring or academic roles, unlike the British system which creates a career path to paramedic education through graduate studies.

In the Tasmanian focus group the academics were biomedical scientists and none had a paramedic background. The university is heavily dependent on paramedics to teach key dimensions of the course. Although NSW has highly qualified academics who have been paramedics in the past, the most recently serving paramedics were secondees who lacked the academic qualifications and education for tertiary teaching. In South Australia six months secondments of operational staff to university teaching roles are opening up. Nursing and science academics played a large role in courses in some of the other programs in other states, but not all. In some states the non-paramedic academics were apologetic about their lack of paramedic skills.
‘To me it’s all about outcomes, and we might have a pretty good educational outcome, but I think we could do better just by tweaking it a bit. But then we’ve got to talk about operational ability, and I’ve got no idea about that ... ’ (Academic).

The difficulties in recruiting academics are related to poor pay in universities, and the stressful and extensive additional education required. Moreover, there is a strategic difficulty in gaining academic qualifications while maintaining clinical practice.

‘We don’t have time to practice, which is one of the problems ... we have [the need for] a paramedic who does have a foot fairly in both camps’ (Academic).

There was also wide recognition that good paramedics do not necessarily make good teachers, mentors or instructors.

‘That is a universal problem because everybody is an authority on education because everybody has been to school. There are lots of things that people need to understand before they step into the role of instructor’ (Paramedic).

At Sheffield Hallam in the UK where there are four paramedic academics, they are required to maintain registration with the Health Professional Council, which governs 12 allied health professions. Although registration does not necessarily require on-road shifts, paramedic academics make an effort to 'keep a hand in'. The university allows 150 hours of time for this and other kinds of personally managed professional development. A similar program exists at Flinders University, but the reality is that, with the demand to develop research careers, time for on-road clinical practice is compromised.

Some educational models are emerging that encourage a greater integration of the teaching and clinical role. A lecturer practitioner role is being developed in the University in the Workplace program at St Georges University of London. Unlike Australian Universities which generally deal with only one ambulance service in each state, the St Georges program tests its students against the skills bases provided by 12 different Ambulance Authorities that serve the London region, and clinical placements including part-time work in the second and third years of the degree, are organised by the services. A university based clinical coordinator works with the various authorities.

**Conclusion**

The focus group participants were made up primarily of paramedic academics, some supporting social science academics, union representatives, a small number of students and key personnel from ambulance services in that state. The discussions reflect the concerns of these professionals. As noted above an analysis of the discussions raises the need for further clarification on what is meant by road-readiness and the supposed advantages of a university education with its claims to a strong focus on theory. While participants, including students, saw themselves as
lacking clinical skills, service providers saw the problem as one of maturity, defined as a deficit in soft skills (underpinning sciences/non-clinical content). But service providers also saw students as lacking clinical competency, and did not speak of student’s higher level theoretical knowledge. There appears to be as yet, no evidence or experience to suggest that these graduates develop both a high level of knowledge in the underpinning sciences/soft skills and advanced clinical excellence/competence within 12 months of graduation that would make them more effective than VET trained paramedics and better placed to take the profession into future roles. It may well be that the profession is too new to tertiary education for this to be evident. It may also be that the question has not been asked, or the competency has not been achieved. Research by Dawson (2008) in Victoria does suggest that clinical competence is achieved within twelve months. Dawson does suggest that graduates are very theoretically competent, but it is not clear if this transfers to a higher level of performance once skills have been integrated with theory. What evidence is available, although it is uncertain, is the existence of tensions between questioning generation Y graduates and more mature paramedics. While it might be assumed that this questioning comes from a more sophisticated theoretical base and pedagogical theories used in higher education, this has yet to be thoroughly researched.

Conversely it could be said that Australian universities are producing paramedic graduates with well developed clinical skills, who are recruited to ambulance services throughout the nation. Whether these students can be regarded as ‘work ready’ depends on the expectations of each ambulance service, and there is no consensus between them. In those states where there is a transition to industry plan, graduates have a more defined, supported and secure role as they grow in confidence to increasingly practice autonomously. Mentoring also allows the service to shape graduates to their own work culture, to teamwork, and it gives young people time to develop their interpersonal skills in a genuine environment of stress, demand and human conflict. Whether students who fail to be recruited can be regarded as irredeemable, also depends on the willingness of the services to define their expectations, and make transparent their recruitment processes, most particularly the psychometric testing which implies the presence of characteristics beyond the scope of education.
CHAPTER FOUR: BEST PRACTICE MODELS OF COLLABORATION BETWEEN THE UNIVERSITY AND SERVICE PROVIDERS

Introduction to the literature
Partnering arrangements have become an essential element of providing paramedic education at the tertiary level with universities, ambulance services and to a lesser extent, professional associations, working collaboratively to provide education for paramedics. Somerville et al. (2000) suggests that collaborative partnerships between education and health care service sectors are likely to help bridge the gap between each partner’s expectations and needs. Nevertheless, working collaboratively presents significant challenge. As Gassner et al. (1999: 21) point out:

‘Collaboration is a much used but often poorly understood concept. Clearly, effective working relationships between industry and academia are dependent upon a two way liaison based upon attributes of cooperation, shared planning and decision making, shared power and non-hierarchical relationships’.

The challenge for academics involved in paramedic education is to develop undergraduate programs which are both academically sound and appropriately serve the ambulance industry. It is clear that without effective working relationships it will prove difficult to facilitate paramedic education which fulfils both these criteria. Despite recognition of the importance of the working relationship a search of the literature revealed that there is no body of work investigating collaborative processes or working relationships associated with paramedic education. A few papers present the history of development of paramedic programs in various universities (for example, Lord, 2003; Pointon, 2004; Fawcett & McCall, 2008) and refer to ‘partnering arrangements’, ‘collaborative arrangements’, ‘collaborative agreement’s’ and ‘working in close cooperation’ but there is no explanation of these concepts or how they are operationalised. In light of this, this review uses literature from nursing education, business and management to examine what paramedic education can learn from these disciplines about developing and maintaining collaborative partnerships which will effectively facilitate paramedic education into the future.

The literature review begins with discussion of some definitions of collaboration and types of partnerships before moving on to review best practice principles for effective collaborative partnerships. Following this, some models of collaboration implemented in nursing education are presented. Finally, the development of collaborative partnerships in paramedic education is considered.

Definitions of collaboration
The concept of collaboration conveys the idea of sharing and collective action toward a common goal in a spirit of harmony and trust (D’Amour et al., 2005). Cropper (1996: 82) describes collaboration as ‘a positive, purposive relationship between organizations that retain autonomy, integrity and distinct
identity’. Linden (2002: 4) suggests that ‘collaboration occurs when people from different organizations … produce something together through joint effort, resources, and decision making, and share ownership of the final product or service.’ Downie et al. (2001) propose that a collaborative partnership is an association that provides mutual benefits to all partners and is premised on trust and commitment. Forbes and Strother (2004) suggest that collaboration is more than just a partnership but rather a cooperative venture characterised by mutual goals and commitments which involves shared power and authority. All of these definitions emphasise the central role of concepts such as partnership, sharing, trust and power which interplay to produce a collaborative relationship. Indeed much of the literature uses the terms ‘partnership’ and ‘collaboration’ interchangeably.

Some authors (for example, Huxham & Vangen, 2000a) prefer a definition of collaboration that does not distinguish between the different patterns of interaction which exist in inter-organisational relationships. They find the use of terms such as strategic alliance, networks and joint ventures confusing and prefer to call all such relationships collaborations. Other authors, however, see value in defining a spectrum of relationships with collaboration being the ideal. Himmelman (1996), for example, defines collaboration as including a continuum of definitions and strategies beginning with networking and moving through the stages of coordination and cooperation to reach collaboration at the other end of the continuum. Himmelman (1996: 27) defines networking as ‘the exchange of information for mutual benefit’ and suggests that this stage reflects an initial level of trust and commitment between organisations. Stage two involves coordination: ‘the exchange of information and the altering of activities for mutual benefit and to achieve a common purpose’ (Himmelman, 1996: 27). The third stage is cooperation: ‘the exchange of information, the alteration of activities and the sharing of resources for mutual benefit and to achieve a common purpose’ (Himmelman, 1996: 28). As such, cooperation requires a higher level of organisational commitment than previous stages and may involved legal arrangements and shared resources. At the end of the continuum is collaboration: ‘the exchange of information, the altering of activities, sharing of resources and the enhancement of the capacity of another for mutual benefit and to achieve a common purpose’ (Himmelman, 1996: 28). Collaboration therefore emphasises the sharing of risks, responsibilities, resources and rewards and is seen as ‘a relationship in which each partner wants to help the other partners become better at what they do’ (Himmelman, 1996: 28). Building on the notion of collaboration involving different levels of interaction, Guenther et al., (2008) point to a continuum of effort which tends to come into play when organisations work together: one end of the continuum comprises informal processes of cooperation and coordination while more formal processes of collaboration are found at the other end.

Types of partnerships
Partnerships have been classified according to a range of concepts in the literature. Kernaghan’s (1993 cited in Casey, 2008: 74) classification is based on the concept of power and five types of partnership are proposed: collaborative, operational, contributory, consultative and phoney. According to
Kernaghan, a collaborative partnership involves the pooling of resources such as money and information with each partner exercising power in decision making. Operational partnerships, in contrast, are typified by work-sharing rather than decision-making power since power is retained by one partner. Although seen as less empowering, this type of partnership can lead to efficient and more responsive operations. Contributory partnerships do not require active participation of all partners in decision making and the main task of consultative partnerships is to advise on particular policy issues. Finally, Kernaghan describes phoney partnerships as those usually established by public organisations for co-opting various stakeholders. Gaster and Deakin (1998 cited in Casey, 2008: 74) suggest four types of partnership (information exchange, action planning, coordination, collaboration and full partnership) based on the essential activities undertaken by each one. Table 2 offers more detail.

**Table 2. Types of partnerships (Gaster & Deakin 1996)**

<table>
<thead>
<tr>
<th>Type of partnership</th>
<th>Characteristics</th>
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</thead>
<tbody>
<tr>
<td>Information exchange</td>
<td>Involves cross boundary working</td>
</tr>
<tr>
<td>Action planning</td>
<td>Involves mutual learning, joint problem solving and identifying the need for new partners</td>
</tr>
<tr>
<td>Coordination</td>
<td>Involves active coordination process where a coordinator know what is going on and draws on each partner as appropriate to develop and involve new partners</td>
</tr>
<tr>
<td>Collaboration and full partnership</td>
<td>Involves shared values, pooled resources, blurred boundaries, constant change and providing support</td>
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</table>

Other types of inter-organisational partnership include ‘joint partnership’ and ‘strategic alliance’ (Casey, 2008). A joint partnership is seen as a symbiotic business relationship which seeks to generate a mutually beneficial outcome for all parties involved. It is formally managed with contracts of agreement set in place to govern partnership activities. Spekman et al. (1998: 748) define a strategic alliance as:

‘… a close, long-term, mutually beneficial agreement between two or more partners in which resources, knowledge, and capabilities are shared with the objective of enhancing the competitive position of each partner’.

Strategic alliances develop in line with an organisation’s strategic intent and are often viewed as a mechanism to deal with uncertainty, cost reduction, to facilitate learning and gain access to new technology (Casey, 2008). Successful alliance management presents considerable challenge though and Casey (2008) points to the cultural compatibility of organisations as a major issue confronting alliances.
Best practice principles for successful collaborative partnerships

A key theme highlighted in the literature is that collaboration is challenging, time consuming, resource intensive and difficult work (Weiss et al., 2002; Linden, 2002; Clare et al., 2003). As Sandholtz and Finan (1998: 8) note:

‘Time and again over the years, I have been reminded that true collaboration is hard work. It takes years to build trust and establish personal relationships, and there are inevitable problems that surface. Even the simple task of setting times and places for meetings often becomes complex. Moreover, the amount of time needed for collaborative activities is invariably underestimated’.

Indeed, some authors propose that collaboration is a problematic concept which often tends to be a theoretical ideal rather than a reality (Gassner et al., 1999; Clare et al., 2003). Despite this, collaborative partnerships have become a common feature in diverse sectors largely because they have the potential to deliver significant advantage which organisations and groups working alone are unable to achieve (Huxham & Vangen, 2000b).

Huxham (1996) cautions that it would be naïve to suppose that a precise recipe exists in regard to achieving a successful collaborative partnership, particularly given the variety of collaborative settings and the complexity of the difficulties inherent in each of them. Nevertheless, a number of factors are consistently cited in the literature as improving the chances of a partnership being successful and discussion of these follows.

- **Good reasons**

A vital element in taking joint action is an agreed vision of what the collaboration is trying to achieve. Linden (2002) describes this shared purpose or goal as one of the ‘basics’ while Spekman et al. (1998) proposes that, without a strong business proposition, success is doubtful. Much of the literature emphasises that it is important that this ‘vision and mission’, or the ‘joint purpose’ or objectives and goals be clearly stated, understood and shared by all partners (for example, Himmelman, 1996; Brown, White & Leibbrandt, 2006). However, Huxham & Vangen (2000a) suggest that this is frequently not achieved in practice. They attribute this to difficulties in understanding and negotiating around different, and often conflicting, overt and hidden agendas that both individuals and organisations have about the collaboration. In situations where clear goals for the collaboration have not been established Huxham (2000) suggests that some sense of common purpose is a basic prerequisite to set the collaborative process in motion in the hope that goals become clearer once the process has commenced. Similarly, Kanter (1994: 99) proposes that in the early stages ‘collaborative relationships draw energy largely from the optimistic ambition of their creators’. At the same time, an inability to negotiate clear goals for the collaboration should remain a priority as partnerships risk falling apart or becoming ineffective without them.

It is essential that partner organisations and individuals involved in the collaboration have compelling reasons to make it work (Brown, White &
Leibbrandt, 2006) and that the consequences of failure are unacceptable (Linden 2002). Kanter (1994) suggests that the success of the partnership needs to be fundamental to the achievement of each partners’ long term goals. In other words, when the partnership fits the major strategic objectives of partners and enables achievement of these objectives, it provides a strong incentive to make the relationship work. In addition, partners need to demonstrate ‘buy-in’ and commitment to the collaborative relationship through the provision of finance and other resources.

- **Right people**

Huxham and Vangen (2000a) note the importance of having the ‘right’ people involved in collaborative partnerships. Achieving the ‘right’ mix though is a difficult task which involves grappling with issues such as identifying the most suitable individuals and representatives from appropriate organisations and interest groups to include; involving members in different capacities and with different statuses without alienating them; and maintaining a stability of membership.

There is some discussion in the literature about the value of recruiting similar partners as opposed to diverse partners. Although acknowledging the value of bringing together similar partners, Lasker, Weiss and Miller (2001) argue that the capacity of partnerships to respond to problems, to create synergy, may be even stronger when membership comprises diverse partners who bring a range of different perspectives, resources and skills to the group. The challenge in this arrangement is to establish a process which optimises the strengths of diversity and allows the group as a whole to develop better ways of thinking about problems and issues and dealing with them. Thus diversity places significant demands on the leadership, coordination, and management skills of a partnership because if poorly managed, diversity can lead to tension and conflict.

In terms of individual participants in the partnership, Linden (2002) indicates the importance of engaging those with authority who are in a position to speak for their organisations, while Huxham (1996) states that individual participants need to be able to operate with a degree of autonomy to prevent any loss of impetus and energy which would occur if there is a constant requirement to check back with the parent organisation. This view is supported by Lasker, Weiss and Miller (2001) who propose that individuals need to be allocated sufficient authority and resources, including time, to fulfil their obligations to the partnership. Other factors which have been found to increase participant involvement include: enhanced ability to address issues considered important; acquisition of new competencies and useful knowledge to support their own activities; increased capacity to meet performance goals and client needs; the development of new, valuable relationships; increased utilisation of their services and expertise. In contrast, factors which diminish participant involvement include: diversion of time and resources from other priorities and obligations; insufficient influence on the activities of the partnership; frustration and aggravation with the collaborative process; and lack of credit for their contribution to the partnership. Partners determine their level of activity based on a weighing up of costs versus benefits. Those who are most active
perceive that they derive more benefits and ‘these benefits relate as much to their own mission and economic viability as to the partners’ joint goals’ (Lasker, Weiss & Miller, 2001: 191). Studies suggest that minimising the drawbacks arising from a partner’s participation may be as effective as providing extra benefits (Lasker, Weiss & Miller, 2001).

• **Right leadership**

Linden (2002) noted the following characteristics in leaders of a range of successful government and non-government agency partnerships: persuasive and able to ‘pull’ others into a coalition; strongly committed to the partnership and its goals; systemic thinkers who can see how pieces fit together and contribute to the partnership’s goals; able to identify useful roles for partners; able to anticipate the consequences of a given action and help others to see the potential contribution of their actions.

Several authors suggest that, particularly in the early stages of establishing a new partnership, there is great value in having a person ‘with credibility and clout’ who makes the collaborative effort a high priority. Linden (2002: 5) describes this person as a ‘champion for the initiative’, one who is willing to bring together potential partners and call meetings to begin to establish a collaborative partnership.

Much of the literature emphasises the need for a different type of leadership in a collaborative setting, one which varies from that traditionally seen in organisations, due to the fact that no one has any formal authority over another in the partnership. In a discussion about nursing education partnerships, Casey (2008: 77) notes that ‘nursing leaders must learn to expand current leadership styles and roles to effectively manage interorganizational partnerships’. Similarly, Huxham and Vangen (2000b) argue that new forms of leadership are required in collaborative settings in order to achieve specific partnerships goals. The leader-follower presumption where you have a formally acknowledged leader who is able to either influence or transform group members does not apply in a collaborative arrangement because individuals come from different organisations or groups. Instead, concepts such as shared responsibilities, getting the most out of the diversity of perceptions, competencies and resources, and sharing leadership are suggested.

In light of this, there has been a call for partnership leaders to be equipped with new kinds of competencies. For example, Spekman et al. (1998: 765) note that ‘one cannot dictate’ in a collaborative setting and argue that those involved in managing alliances are ‘masters of the informal network’ and require unique skills and competencies which transcend the capabilities needed by a line manager. Key competencies identified by Lasker, Weiss and Miller (2001: 194) include:

‘the ability to help partners develop a common jargon-free language that allows them to communicate meaningfully with one another, the capacity to relate and synthesize partners’ different ideas, the ability to stimulate partners to be creative and look at things
differently, and the capacity to identify effective ways to combine the partners’ diverse resources’.

Individuals who possess these competencies have been described as ‘boundary-spanning leaders’ (Lasker, Weiss & Miller, 2001): individuals who understand and appreciate the different perspectives held by partners, are able to bridge diverse cultures and are comfortable sharing ideas, resources and power. Sandholtz and Finan (1998: 23) discuss the vital role of ‘boundary spanners’ in school-university partnerships, indicating that these are people who are seen as legitimate in both institutions and move freely between them; are comfortable with and understand the culture of partner organisations; are able to interpret the language and reward systems which operate; can translate the ideas of those in one culture to those in another.

• **Strong, balanced relationships**

A dominant theme in the literature on partnerships is the importance of relationship building and managing the relationship. At the same time, the process of building and nurturing relationships is widely acknowledged as the most daunting and time-consuming challenge faced by partnerships (Lasker, Weiss & Miller, 2001; Brown, White & Leibbrandt, 2006; Casey, 2008). It remains a vital element of successful collaborations because the quality of personal and professional relationships among partners has a significant impact on the functioning and effectiveness of the partnership.

Collaboration is enhanced when structures, processes and skills are developed to bridge organisational and interpersonal differences (Brown, White & Leibbrandt, 2006). This enables broad linkages to evolve which in turn facilitates the development of shared ways of operating so that partners can work together smoothly. Productive relationships are multi-dimensional and achieve integration at five levels: strategic, tactical, operational, interpersonal and cultural (Kanter, 1994). In addition, strong interpersonal relationships are crucial to effective working relationships generally but are even more important in inter-organisational partnerships (Spekman et al., 1998). They play a key role in conflict resolution, often enabling partners to find satisfactory solutions to small conflicts before they escalate into major problems (Kanter, 1994).

Power differentials at either the organisational or individual level present a significant challenge for effective collaboration. While in theory there are no formal authority hierarchies within collaborations, and action must be achieved through persuasion and negotiation (Huxham, 2000), in practice power is often an issue. Israel et al. (1998) note that power differentials may seriously undermine partnerships, limiting who participates, whose opinions are considered valid, and who exerts influence over decisions made. Similarly, perceptions of power differences may lead to parties taking an aggressive stance towards each other to avoid being overpowered (Huxham, 2000) rather than operating on the basis of cooperation and consensus building.
Trust and respect

Trust and respect are highlighted in the literature as being essential in efforts to develop and maintain effective collaborative partnerships (Kanter, 1994; Clare et al., 2003). According to Linden (2002: 5), ‘Trusting relationships help to overcome some of the biggest hurdles like turf, differences in size, history of failed efforts, and egos.’ Trust takes time to develop and is not likely to be sustained unless partners believe that their views are heard and acknowledged as legitimate by others (Gray 1996). Similarly, the need to respect and value the contributions and perspectives of others is paramount to effective working relationships (Lasker, Weiss & Miller, 2001). Kanter (1994: 105) warns against using stereotypes to explain the behaviour of individuals in the partnership, indicating that this only serves to polarise partners and promotes an us-versus-them dynamic that undermines collaborative efforts: ‘People will take the time to understand and work through partnership differences to the extent that they feel valued and respected for what they bring to the relationship’.

In circumstances where it is not necessary for a partnership to attain a major objective immediately, there is some suggestion that an incremental approach to trust-building may be worthwhile. According to Huxham and Vangen (2004), in practice it is suspicion, rather than trust, that is the starting point for many collaborations. Hence, they advocate that it may be beneficial to focus on developing some modest but realistic aims that are likely to be successfully realised by the collaboration in the first instance and using this as a basis for then moving on to more ambitious collaborative projects. At the same time, Huxham and Vangen (2004) highlight that effort put into building mutual understanding and developing trust can be undermined by factors such as the restructure of organisations, job changes of key individuals in the partnership and internal policy changes within organisations. As such, Huxham and Vangen (2004: 198) propose that ‘the nurturing process must be continuous and permanent’.

Good communication

Good communication is an essential element to successful partnerships (Linden 2002; Brown, White & Leibbrandt, 2006; Casey, 2008). Important aspects of communication include open information sharing around key issues such as technical data, information on goals, knowledge about conflicts, trouble spots and changing situations (Kanter 1994). Ineffective communication mechanisms negatively impact on interorganisational relationships because they limit opportunities for meaningful interaction. In some cases, difficulties in communication arise due to differences in professional languages and organisational cultures (Huxham & Vangen 2000a). Collaborative groups need to give careful consideration to devising structures and processes that will ‘facilitate information exchange, decision-making and resource allocation’ (Kerka, 1997 cited in Brown, White & Leibbrandt, 2006: 176).

Formalisation of partnerships

The importance of giving formal status to the partnership is emphasised throughout the literature. Huxham (2000) notes the complex workings of many
collaborative arrangements characterised by layers of committees, working
groups and steering groups and proposes that governance structures that
support shared decision-making are necessary to ensure effective operation
of such arrangements. Supporting this view, Casey (2006 cited in Casey,
2008: 78) argues that ‘partnerships become stunted by lack of trust, poor
communication, conflict and lack of shared goals if no framework has been
established to guide collaborative efforts’. Kernaghan (1993 cited in Casey,
2008: 78) suggests that a ‘formalised partnership is more likely to be
maintained because formal arrangements tend to signal commitment and
accountability’. In contrast, ‘excessive formalisation has been linked with
conflict and distrust as partners strive to maintain their identities and

It is recommended that all partners be involved in developing governance
structures and that legal agreements (contracts) and memoranda of
understanding between organisations be negotiated and drawn up (Brown,
White & Leibbrandt, 2006). These documents should outline the
responsibilities of all partners, clarify decision-making processes and address
issues such as authority, accountability, confidentiality and staffing. Further, it
is important that the partnership is structured in such a manner that work can
continue beyond the tenure of individuals (Kanter, 1994).

It is important to note that formalisation of a partnership does not
automatically guarantee that a partnership will go on to be effective in
achieving its goals. Spekman et al., (1998) refer to the formal and informal
interfaces which operate in interorganisational partnerships and suggest that
there is a significant interplay between the two. Formal interfaces include the
control and reporting mechanisms which provide the structure for interactions
between organisations. In essence, formal agreements provide a frame of
reference in which a partnership operates. Informal interfaces, on the other
hand, provide the glue that holds partnerships together. These interfaces
reinforce personal commitment and trust, provide access to personal
information and contacts, and encourage the development of informal
networks that allow partners to accomplish various tasks linked with the
partnership’s goals.

Models of collaboration in operation
The following section outlines a few examples of collaborative models which
have developed between academia and industry in the provision of
undergraduate education in the disciplines of nursing. This discussion seeks
to provide an insight into how partnerships operate in the real world, showing
the value of university-industry collaboration and how it can be used as a
strategy for addressing issues pertinent to the education of undergraduate
students. In addition, the collaborative models outlined below highlight that
collaboration between organisations occurs on a continuum spanning all-
encompassing models to those with a more limited focus designed to address
specific issues.
Nursing models of collaborative teaching

Tertiary education needs to be relevant to practice, and have both a professional and an academic focus. It is vital that the theory be linked to practice and that any gap in this area be minimised. There is consensus that increased discourse between higher education institutions and health care providers through academics and clinicians working together in collaborative arrangements will go some way to addressing this issue (Chalmers, Swallow & Miller, 2001; Cook & Spouse, 2002; Clare et al., 2003; Brown, White & Leibbrandt, 2006). The collaborative teaching model described by Gassner et al. (1999) arose from this perspective and a brief outline of the model follows.

Gassner et al. (1999) describe the activities of a six month partnership between four academics and six clinicians who collaboratively developed and implemented an acute care topic in the third year of a pre-registration nursing course at the School of Nursing, Flinders University. Nursing students reported significant difficulty in making the transition from university to the clinical setting and this was attributed to the gap between theory and practice, and the different cultures of education and service. Collaboration between academics and clinicians was seen as a strategy for overcoming these problems. The model which emerged was informed by Styles’ (1984 cited in Gassner et al., 1999) ‘unity continuum’, a framework for analysing stages or degrees of unity between institutions in a collaborative relationship: one end of the continuum comprises virtually no ‘together activity’ while, at the other extreme, is a merger or single entity status. In this instance, a mid-continuum collaborative effort was sought with the focus being on communication, consultation and consent. This led to the development of a partnership which worked together to select the teaching methodology, prepare teaching resources, teach using a variety of formats and evaluate the program.

Key features of the collaborative partnership were that:

- It was considered vital that the group ‘develop a culture of its own that would achieve consensus but value debate and nurture the feeling of competence in one’s area of expertise’ (Gassner et al., 1999: 18). In response to this, clinicians were given a dual role, being employed by the hospital for three days and seconded to the university to undertake teaching responsibilities (tutorials, clinical laboratory classes) for the remainder of the week. Each clinician was allocated an academic teaching partner and given access to computer and other office facilities along with general information pertaining to the university to facilitate their transition into the university setting. University academics were primarily responsible for classroom teaching but were also given clinical associate status within the hospital setting.
- The sharing of knowledge was seen as another aspect of developing a collaborative culture. This was assisted by regular meetings in both university and practice settings.

According to Gassner et al. (1999), joint appointments, joint advisory committees and contractual appointments for specific functions could be classified as mid-continuum collaborative efforts.
Informal social activities were scheduled to foster and promote team building; staff development sessions were held to promote shared understanding of curriculum content and proposed teaching and learning strategies; reflective journals were used as a basis for discussion to promote a shared understanding of practice.

The initial impetus for the collaboration came from the university so that the project was seen to be ‘owned’ by the academics. It was important to encourage the clinicians to share ownership and this was achieved by working together on various aspects of the project.

The partnerships in clinical practice project
A key area of concern for those involved in the education of health care professionals is the provision of clinical education. Clinical education is recognised as an essential learning experience, an opportunity to develop clinical reasoning and management skills along with mastery of techniques that demonstrate competence at the level of a beginner practitioner (Hobbs et al., 2000). In addition, clinical education contributes to the professional socialisation of individuals and assists in developing an understanding of the workplace.

The quality of the relationship between health services and education providers is acknowledged as a key factor impacting the clinical practice experience for students (Clare et al., 2003, Brown, White & Leibbrandt, 2006). With this in mind, the aims of the 1995 Partnerships in Clinical Practice Project (Davies, Turner & Osborne, 1999) were two fold. It sought to enhance the quality of learning experiences for undergraduate nursing students at Australian Catholic University and to foster collaboration between the university and selected agencies.

Key features of the partnership model included:
- Provision of appropriate professional recognition for registered nurses engaged in clinical teaching;
- Long term planning for clinical placements - a three year rotating placement plan was developed;
- Streamlining of liaison and administration between the university and health services;
- Remuneration to clinical agencies for the personnel resources utilised;
- Formal arrangements between the university and clinical agencies were put in place; and
- Clinicians were selected to undertake the role of Clinical Affiliate and given orientation and ongoing support.

The practice-research model
The Practice-Research Model (PRM) of collaboration was proposed by Downie et al. (2001) and sought to enhance nursing research activity and the implementation of evidence-based nursing practice within the community health service sector. A strategic collaborative partnership was established between a West Australian University and a community health service which resulted in the integration of a senior academic into the community health sector.
service to work as a Nurse Research Consultant (NRC) whose role ‘was articulated as that of mentor and consultant on issues related to research, methodology and publications’ (Downie et al., 2001: 29).

• **Practice education models**

Joint appointments, secondments and affiliate positions are among practice education models currently used for entry-level preparation of nursing students (Budgen & Gamroth 2008). Joint appointments combine appointment in a tertiary institution with an appointment in the health service. Benefits seen to arise from this arrangement include increased credibility for clinicians in universities and for academics in health services. Work overload resulting from two sets of expectations is not uncommon however. Secondments involve a clinician being relieved of regular responsibilities in the health service and undertaking temporary employment in a university to teach students. As such students are given the opportunity to learn from expert clinicians with extensive knowledge of the practice environment. Finally, an affiliate position is an arrangement where clinicians or academics assume some of the responsibilities and privileges associated with the alternate organisations. Key benefits of affiliate positions are increased academic and clinical credibility along with opportunities to expand knowledge and skills and collaborate in new ways.

Collaboration requires relationships, procedures and structures that are quite different from the ways that many people and organisations have worked previously. This literature review provides an indication of what collaboration entails and highlights the complexity of the phenomenon. It is evident that the same values and principles that underpin successful collaborations in the business world are required to build successful collaborative partnerships between universities and ambulance services. Further, those involved in paramedic education will need significant skills, time and resources to develop and maintain effective collaborative partnerships.

**Focus group discussion on the development of effective collaborations in paramedic education**

The previous section examined the use of collaborative partnerships in areas relevant to nursing education including addressing the theory-practice gap, improving clinical placement experiences and facilitating the smooth transition of graduates to the workplace. It highlighted the idea that collaboration can be used as a strategy with direct benefits to students, academics and clinicians along with improved patient care. There are likely to be similar applications in the emerging paramedic discipline.

The challenge for universities is to find contemporary and effective models of collaboration which can be utilised in paramedic education that maintain the quality standards and integrity of both the university and the ambulance service. The best practice principles outlined earlier in this review provide an indication of the range of factors which need to be taken into consideration in order to achieve an effective and sustainable collaboration. As noted earlier, a key aspect of developing effective collaborations is utilising the strengths of all
partners. The British Paramedic Association (2006: 4) offers the following advice in this regard:

‘The wealth of experience and good practice that has been developed throughout the current training based model will need to be moulded into the Higher Education Institution (HEI) model through establishing partnerships between HEIs and ambulance services for the effective delivery of high standards of appropriate education’.

One of the industry participants summed up the challenge facing all those involved in developing the field of tertiary paramedic education:

‘It's about both groups understanding what it's like to walk in each others shoes … there's a whole range of industrial organisational logistic issues that have to be appreciated from an academic perspective, and then we, on our side need to appreciate there are frameworks and responsibilities and requirements in an academic framework that need to be addressed, and I think it's that, coming to a clear understanding of the needs, the frameworks that both have to accommodate, which, it's still pretty new, as much as it's been going for 10 or more years, it's still pretty new’ (Paramedic).

Key issues raised in the focus groups in relation to collaborative partnerships and working relationships were that:

- Relationships between universities and industry are a major preoccupation for university staff;
- The program structure impacts on the industry/university relationship;
- Staff need to be supported in their relationship building efforts;
- Lack of career structure around clinical education creates alienation between the services and universities;
- Ambulance services and universities need to collaborate to develop a career structure around clinical education; and
- Shared teaching arrangements as a strategy to enhance student learning and academic credibility.

**Relationships between universities and industry are a major preoccupation for university staff**

University staff involved in undergraduate paramedic programs across Australia indicated that they consider the working relationship between the university and industry to be a major component of their role because graduate employment is dependent on acceptance of tertiary-based paramedic education by a monopoly employer. Without buy in and support from industry it is difficult to design and deliver a program which addresses the needs of industry and produces graduates who are employable. Indeed, there was widespread agreement among focus group participants that university courses must be developed to meet industry needs as the following comments highlight:

‘And if industry are looking at employing our students, we have to make sure that we're shaping these students in the most correct way, and
that what's in the curriculum is what industry would like to see, otherwise you're essentially shooting yourself in the foot' (Academic).

Without those operational people telling you what they need, you could be designing something that's not going to fit the market' (Academic).

However, university participants indicated that they are experiencing some difficulty in determining industry needs and as a result, are not clear that their programs produce graduates which align with service needs. Academics used terms like 'muddy' and 'murky' to describe their understandings of service needs. Programs are developed on the basis of national competencies but there is a sense that the services require more:

'We're producing a product based on overarching national competencies that we well and truly go beyond, that meet the basic needs of the ambulance services, but it's above and beyond in that grey area that is the murkiness is, like the national competencies are very straight forward and all of us clean them up in our first sort of 12 months in the course, but it's the other stuff beyond that, that makes things quite murky … ’ (Academic).

Interestingly, it seems that the sense of a lack of clarity surrounding the future needs and direction of the ambulance industry is not only being experienced by those outside the services. Ambulance service participants identified a range of issues that services across Australia need to grapple with including the future role of the paramedic, service demand and workforce composition and the place of ambulance in the broader health care system. According to an industry participant, a core issue for them relates to the definition of paramedic:

‘The industry itself is having trouble defining what a paramedic is and having spent a few years now going to national clinical meetings and the question that's always raised, you know, developing a standard on what defines an ambulance officer. And that standard has gone around and around and around for the last four years and umpteen dozen years before that. So the industry itself can't define what it is' (Paramedic).

Other participants noted that services were yet to settle debates which positioned the industry as either emergency services or health care services:

'I think nationally, we've got ambulance services and various other bodies, who are running around trying to set up paramedic practitioner models and all of that, and we haven't even really defined what we are as an ambulance service. We've got ambulance services who view themselves as health care services, we've got ambulance services that view themselves purely as emergency services, there's too much difference around … ’ (Paramedic).
Overall participants from industry acknowledged that it is likely that the process of working collaboratively with universities to design paramedic programs will tend to be problematic until there is clear resolution of issues pertinent to the future needs and direction of the industry. Discussion in the focus groups highlighted that it is in the best interests of paramedic education that these issues be addressed immediately as the lack of clarity around future needs and directions is undermining some aspects of university/industry partnerships at present. For example, it is likely that perceptions of non-acceptance of the tertiary education model among some academics could be related to unclear strategic direction in the industry.

Academic participants from various states suggested that there are instances where it seems that industry is not currently demonstrating full acceptance of the tertiary model and there is sense of resistance to change by some services. There is concern among some academics that working relationships are being significantly undermined when services do not follow through on training commitments which have been previously agreed upon. Unexpected developments in the operational setting were seen to be given priority over any education/training commitments that ambulance personnel may have with the university and this is a source of frustration for staff charged with the responsibility of running a fee-paying academic course. Inconsistent responses by the services to requests for support for the university program were also reported by some academics. Participants mentioned ‘parochialism’ and ‘perceptions of loss of control’ as factors that inhibited the development of sound partnerships. This situation is further complicated by an apparent lack of understanding within industry about tertiary paramedic programs reported by both academics and industry personnel.

From the perspective of university staff in the focus groups, an important starting point is for industry to demonstrate its acceptance of the tertiary program by fulfilling its responsibilities and contributing resources, particularly in terms of personnel, to the collaborative partnership.

‘We need 100% acceptance of the course, and also perhaps a commitment to, for further collaboration and … a willingness to show … acceptance by industry that this is the way that it's going, and, it should be supported’ (Academic).

Collaborations between universities and industry for the provision of paramedic education are relatively recent developments and each partner has much to learn from the other. Some services have appointed a specific person to oversee the tertiary paramedic program from the service perspective and develop the relationship with the university. This strategy means that university staff have a direct point of contact to liaise with and to keep them informed of developments in the service. Further development of such roles is likely to improve communication between industry and universities which can only be beneficial for working relationships. This is not to say tensions will dissipate. Universities have always prided themselves on their autonomy. The challenge is to maintain the integrity of the curriculum, and university autonomy in an era of closer working relationships with industry.
The program structure impacts on the industry/university relationship

The paramedic programs currently on offer in Australian universities are based either on a pre-employment or post-employment model. Reflecting the early stage of development of the discipline of paramedic, teaching teams in most universities are generally small in size and the programs are domiciled in various schools (for example, Nursing, Public Health) because the discipline has not yet developed sufficient momentum to be a school in its own right. However, the establishment of organisational structures such as Paramedic Centres is a positive sign as the profession continues to mature. The type of program that has been selected for implementation by the various universities engaged in paramedic education in Australia has been driven largely by ambulance service requirements in the respective states. For example, one service opted for a post employment model to ensure that the ‘right type of people’ are recruited into the program. Thus all students must meet academic requirements along with the service’s selection criteria for employment before being accepted into the program. At the same time, some participants expressed concern with this model suggesting that students may be placed in a position where educational outcomes are compromised due to ongoing pressure to place work priorities ahead of study due to their employment status.

Other ambulance services have been attracted to the pre-employment model for paramedic education. A key benefit from the service perspective is that this model offers a more cost effective option for the organisation with much of the burden of educational cost being borne by the students rather than the organisation and a major shift in funding from the state government to the Commonwealth. One ambulance service participant described it this way:

'We would prefer to go to a pre-employment model and take on graduates after they've completed course work and put them through a programme of clinical experience and clinical placement' (Paramedic).

Academics agreed that tertiary paramedic programs, both post employment and pre-employment, were offered in collaboration with ambulance services and indicated that formal agreements (memoranda of understanding) had been executed in all cases to formalise the partnership arrangement. MOU agreements seemed to address similar issues, identifying the roles and responsibilities of each partner, locking the service into the provision of clinical placements for students who undertake the program and addressing some aspects of funding arrangements. Nevertheless, focus group discussions and interviews revealed that there is some variability in the working relationship that has evolved between industry and the university for each of the programs. Participants described all programs as university/industry partnerships but the extent or degree of collaboration ranges from minimal integrated activity and consequent distant working relationship to quite extensive integration of activities and processes between the partner organisations resulting in the development of close working relationships. It seems that programs that are structured to allow students to enter into an employment relationship with industry prior to graduation or as part of the
initial processes have a closer working relationship than those that follow traditional pre-employment models of education.

In programs where close working relationships exist, and curriculum has been developed collaboratively, there is ongoing liaison and feedback between the service and university during student’s clinical placements, and each member of the collaboration has been given the opportunity to provide input based on their area of strength. In other words, there is evidence of true collaboration. In contrast, programs which are structured along the lines of traditional pre-employment models seem to operate with a more distinct division of labour or flavour of territorialism. The services assume responsibility for clinical placements while universities focus on the academic aspects of paramedic education. Each organisation tends to operate independently of the other, attending to their responsibilities without involving the other partner to any great extent. It is important to note that individual partnership members may develop strategies to work around these relationship limitations. For example, an ambulance service participant indicated that it was necessary to seek out individuals in the university who are interested in working collaboratively and ‘self generate’ outcomes for the overall benefit of the paramedic program.

Informal relationships have often developed alongside the formal relationship that is underpinned by a MOU. These are quite extensive in cases where there is a close working relationship between industry and the university. For example, participants indicated that informal relationships exist in diverse areas including helping with the promotion and marketing of the university program, undertaking to employ service staff as tutors, providing assistance with research and grant applications, providing opportunities for ambulance staff to undertake continuing professional development by assisting with teaching, services offering additional tutorials for students prior to exams, providing business referrals where possible (for example, when students are required to obtain first aid qualifications, or encouraging them to complete their training through the ambulance service).

Informal relationships add another dimension to collaborative partnerships, further strengthening and reinforcing the linkages between organisations as connections are made with staff at different levels throughout the organisation. They seem to be founded on the goodwill and interpersonal relationships that exists in partnerships and have links with a sense of reciprocity:

“They might ask for our assistance and we willingly give it. Because they’ve been very good to us and so it’s a bit quid pro quo if we can’’

(Academic)

- **Staff need to be supported in their relationship building efforts**

Industry and university participants alike consistently pointed to the challenge associated with developing and maintaining effective university/industry partnerships, indicating that the relationship requires ongoing nurturing to remain viable and individuals need to be supported in this work by their respective organisations.
Highlighting the challenge confronting academics, university participants emphasised that relationship building takes time and required engagement with the service in a variety of ways often beyond the stated roles and responsibilities outlined in any MOU. Examples of such activities included participating in interview panels and attending ambulance service scenario exercises. Although such activities may not be directly linked to the goals and objectives of the partnership, involvement in them provides an ideal opportunity for partners to get to know each other and assists in building the trust and respect which is vital for productive working relationships. At present, minimal provision is made in the academic role for the significant time investment which this necessitates and academics are faced with difficult choices about the best way to proceed with minimal support from their university. As one academic noted:

‘Doing all the other things that have assisted with building the relationship … that’s not something we can count as part of my normal academic job’ (Paramedic).

This situation indicates that there is a clear need for universities to be more flexible and provide ongoing support for academics to undertake the level of engagement necessary to develop strong and balanced relationships with industry. This may include strategies such as reducing teaching loads for academics with leadership roles in university/industry partnerships. As an experienced academic pointed out, the payoff derived from engaging with industry on their turf is significant, both for the paramedic program and the individual academic, as it helps to develop a better understanding of the paramedic world. This is invaluable for relationship building and program development.

‘It’s not easy. You put in a lot of hours outside of what you would normally do. But I’ve learnt too. I’d be lying if I didn’t say that I had enjoyed that and learnt hugely from it. So I’m [a] different, I look at things differently too’ (Academic).

- **The need to collaborate to develop a career structure around clinical education**

The provision of integrated clinical practice in association with the academic program is acknowledged by ambulance services and universities to be an essential feature of the education of paramedics. Clinical placements in the ambulance workplace provide students with an opportunity to experience the reality of life as a paramedic and practice clinical skills in a supervised setting with the support of a mentor. Focus group participants emphasised that this is an invaluable learning experience:

‘It’s irrefutable that the experience that clinical instructors provide to students when we all first start out, is one of the biggest mechanisms for learning that we have … ’ (Paramedic).
‘Students can learn at university, but it's the organisational environment that actually influences how well that information is transferred to the practice setting, both in short term, as soon as they come out, and in the long term, and I think that's really important’ (Academic).

Under current models of collaboration that operate between universities and ambulance services for the purpose of paramedic education, the university provides the theoretical component while responsibility for clinical placements is held by the ambulance services. Clinical placement agreements are generally a significant component of the formalised MOU drawn up to guide the collaborative partnerships as it is paramount that ambulance services guarantee that they will provide placements for university students who would not be able to graduate if access was withdrawn at any stage. At the same time, there has been increased demand for clinical placements in ambulance services from other professions such as nursing and Australian Defence Force personnel and it is becoming increasingly difficult to meet these demands as this ambulance service participant pointed out:

‘Burden on ambulance, and you know, a lot of these places, you've only got one vehicle a day, and you know, you've got to be careful, be realistic too, where you send these people for their placement, because, it needs to be meaningful’ (Paramedic).

A number of issues associated with mentors were raised in the focus groups indicating a level of dissatisfaction with current arrangements. A key concern expressed by industry participants related to the lack of training and support currently provided for service staff who are expected to mentor paramedic students:

‘To have some formal training as to their role as a trainer and an educator and a mentor, and we don’t, very often we expect our officers just to, well here's your trainee, away you go’ (Paramedic).

‘It's a training need that exists in the industry’ (Paramedic).

Lack of formal recognition of the mentor role is also an area of concern and acts as a disincentive for staff to undertake the job:

‘This is where the industry can get their act together and start formally recognising the worth of their people and this process’ (Paramedic).

Focus group discussion indicated that clinical placements are a major concern for university staff as well. An academic involved in a pre-employment program noted that the relationship between core academic teaching staff and on-road clinical educators was currently underdeveloped. Other academics in similar programs indicated that they had little control in regard to clinical placements and were concerned about the quality of on-road mentoring and its impact on student learning. From the perspective of one academic, the current arrangement is a ‘learning lottery’ for students given that they are mentored by service personnel who are not sufficiently supported to
undertake the role and who may lack an understanding of tertiary paramedic education. In such situations, there have been reports of division, cultural clash and resentment rather than positive learning experiences:

‘A lot of the people are given the responsibility to mentor these people in one way or another, don’t feel prepared and don’t feel confident, therefore they back off, and that's not good for the students … And to take it one step further, the mentors if they're not prepared properly actually feel threatened by graduates, if they're not a graduate themselves and can actually then turn that into a negative’ (Paramedic).

Students believed that they were missing out on learning opportunities due to the lack of awareness about tertiary paramedic education:

‘They don’t know where we come from, as you guys explained earlier, they have no idea what we do at uni, so you rock up and they go, oh, I don’t know what you've been doing, so I'm not going to let you touch a patient, sort of thing’ (Student).

‘Whole lot of information that we're getting, and we do get, you know, placements out on road, but we're not being exposed to what we're learning … big gap between what we're learning and actually being able to do’ (Student).

Service personnel acknowledged that there is a gap in this regard:

‘Tightening up the way that we use clinical placements for you guys while you're in the university and having those support structures there, so when you do turn up for people, that, they are able to, you know, they're not pushing you into a corner and saying, you're an observer sit over there, but you are encompassed into what we do, would help’ (Paramedic).

Participants in various focus groups suggested that paramedic education would be better served if ambulance services and universities developed a more integrated approach to clinical placements with more feedback and information exchange between the two organisations. There were strong calls for formal recognition of the mentor role with suggestions ranging from financial rewards and certificates of achievement to providing specific education and training opportunities to better equip staff in mentor roles. Others proposed that the profession has a role to play in educating the next generation and as such, mentoring should be viewed as an integral part of the paramedic profession:

‘That's part of the emergence of the paramedic profession, as a professional you've got to own, you have a teaching role, that may or may not be recognised, that's part of passing on the profession and encouraging the profession and we have to own that’ (Paramedic).
It is clear that there are a range of issues around clinical placements and mentoring that need resolution if the paramedic profession is to mature. Development of a career structure for paramedics which embeds mentoring into job descriptions and offers educational qualifications may go some way to addressing issues such as lack of recognition. It may be worthwhile considering the approach adopted in the United Kingdom where universities provide mentor training through formal education courses (for example, a post graduate certificate in education) which are in turn built into the paramedic career structure. The UK courses are designed to support the mentor in their role as this UK academic pointed out:

‘What we do is we provide mentor training and that sort of supports the mentor and let them know what their role is, our current documentation, what we expect of our students, how we sort of are looking to develop them … ’ (Paramedic).

This sort of approach has the potential to deliver benefits for ambulance services, universities, students and the paramedic profession as it contributes to the professional development of ambulance staff, demystifies tertiary paramedic education for them and assists with optimising student learning opportunities.

- **Shared teaching arrangements as a strategy to enhance student learning and academic credibility**

  The notion of ‘working in both camps’ and ‘intermingling’ of staff were seen by some focus group participants as key elements in the ideal working relationship between universities and industry. Furthermore, participants from universities and industry consistently identified a range of benefits likely to arise from drawing operational staff from industry into the university environment and indicated that it would be worthwhile to further develop shared teaching roles such as secondments, lecturer paramedic roles and joint appointments using a clinical school model.

  Paramedic programs in universities across Australia are staffed by academics from a range of backgrounds. Some academics bring expertise from various health and science disciplines while a growing number have extensive backgrounds as paramedic practitioners and bring clinical knowledge and experience to tertiary programs. However, time constraints mean that these academics are finding it increasingly difficult to maintain their clinical skills and competence. This in turn has implications for academic credibility. Shared teaching arrangements were seen as a strategy for dealing with this issue:

  ‘We don’t have time to practice, which is a, one of the challenges and problems we have, I guess that brings me onto a point is, possibly there is an indication for a paramedic educator, or a paramedic academic who does have a foot fairly firmly in both camps … ’ (Academic).

  In addition, bringing operational staff into the university environment would provide students with the opportunity to learn from expert practitioners with
extensive knowledge of the practice environment. As such, this strategy was seen as a means of reducing the theory/practice gap and assisting students in making the transition from the university to the workplace:

‘There’s the other option of getting actual, if you like, operational paramedics to come to them, and, give that shared learning experience… we’re talking about people coming straight off the road, hot off the road “Yesterday I was doing this” and actually talk to them, and talk to them not in terms of selling it as “Yesterday I was hanging off a mountain doing a scat rescue” [but] “yesterday this is my day, this is what I did”, and make it a proper … interchange of information and this is the reality of it, you're going to do this’ (Academic).

Shared teaching arrangements have already been implemented in Australian universities to some extent. For example, one university has sought to attract paramedic academics to its program by negotiating an employment package that enables paramedics from industry to teach in the university program and have access to university facilities while continuing to be employed by the ambulance service and retaining superannuation and other entitlements which have accrued over their years of employment with the ambulance service. The university provides funds to the ambulance service to finance these positions.

Many other universities rely on informal arrangements negotiated with individual service staff who agree to undertake teaching and tutoring roles for the university. However, several participants expressed dissatisfaction with these informal arrangements and indicated that difficulties often arose when paramedic practitioners were not released to meet university commitments due to operational issues in the workplace. Consequently, participants suggested that there is value in formalising shared teaching arrangements and incorporating them as part of a MOU between the university and the ambulance service. Experience in the United Kingdom supports the value of this approach as one academic indicated:

‘One thing that we are currently doing, and with two of the staff that are now working here, is that they're on a part time contract here, and part time contract with the service, so they're sort of spending time in both environments, and it's slowly beginning to work and iron out problems. We've still got ongoing problems with them being released to come in here, but now it's been more formalised, the university have to pay half their wages, and they're actually coming here a lot more, so the working relationship has sort of improved’ (Paramedic).

Concluding comments
In summary focus group participants had clear ideas about what was necessary to sustain and maintain collaborative arrangements, but were not always in a position to do so. All were clear that the ambulance industry was unique in its needs and that the quality of graduate outcomes was at stake when relationships broke down.
CHAPTER FIVE: PARAMEDIC ACADEMIC NETWORK

Introduction
The formation of the Australasian Paramedic Academic Network (APAN) can be viewed as an essential step in the defining of a newly emerging professional discipline. Such collaborative networks have proved invaluable for other academic groups, and this group can be expected to shape paramedic education for the future. These networks or associations lobby government, progress educational research and enable academics and researchers to maintain a close working relationship with the profession.

The aim of APAN is to form a collaborative network of paramedic academics from Australia & New Zealand, for the enrichment of education and research within the profession. It seeks to collaborate closely with professional bodies and ambulance services to determine future needs in paramedic education. The group will be an alliance of paramedic academics which will share ideas, encourage collaborative research and allow mentorship of novice academics. The group will also seek to have representation to the CAA and the ACAP.

As a newly emerging professional group, APAN see a vital need to support the development of paramedic academics and provide these academics with a professional identity. Academics tread a difficult pathway with challenges arising from developing successful collaborative partnerships with ambulance services, developing their own research career and maintaining credibility as a clinician. This seemingly impossible task has not been well supported in many cases by either the ambulance services or the universities, leaving the academic in the wilderness somewhere between the two organisations. Paramedic academics will benefit from the collective knowledge and mutual support this network will provide. Research collaboration will be more easily achieved, with the resulting publications beginning to address the dearth in literature. These activities will enable strong professional growth of the group and assist the development of the paramedic profession as a whole.

The inaugural meeting of APAN was held in Melbourne, on September 4, 2008 immediately preceding the annual ACAP conference. The timing ensured the largest possible attendance. Participation was encouraged with a grant to cover airfares and accommodation. Paramedic academics and educators responded enthusiastically with 62 educators, service providers and professional association representatives providing a gathering of highly motivated participants. This meeting was designed to gauge the response from paramedic academics and determine if the network was worthy of pursuing, which was certainly achieved. The second aim was to ask members what they thought were the major contemporary question they see in paramedic education. Stemming from this discussion, research opportunities related to the questions were discussed.

Not surprisingly, issues raised were consistent with the findings of this project.
Issues raised at the Network meeting

1. **Job readiness** – are universities listening to the ambulance services and does the curriculum adequately prepare the graduate. Conversely, are the industry expectations realistic and conversant with the changing nature of the health workforce? While this has already attracted some research attention, it was identified that the graduate attributes and their job readiness is variable and not well defined. Research in this area could have some implication on the accreditation of paramedic courses.

2. **Clinical placements** – how much is enough? There is clearly a wide discrepancy in the amount of clinical experience available for the student paramedic. There is also little evidence that determines how many hours are required to adequately prepare students. This begs the question; should there be a consistent approach to clinical placements across all paramedic courses? Following on from this question would be a commitment from ambulance services to meet the placement needs of the students. There were differences in opinion about the purpose of the clinical placement, with the view expressed that the placement was a means of socialising the student into the profession, with real clinical development taking place in an internship. The converse view was that clinical placements were an essential part of the university learning and more, rather than fewer placements should be available. Clearly this is a most contentious area, which urgently needs further research.

3. **Clinical simulation** – its role in education and a replacement for clinical placements. Many participants are interested in researching the effectiveness of clinical simulation in paramedic education. With the pressure on clinical placements and the serendipitous nature of ambulance work, clinical simulation is seen as a means to provide students with experiences of those rarely seen case types.

4. **Multidisciplinary education** – not as a cost saving measure but rather as a means for students to gain greater appreciation of the roles of other health care professionals. Exciting research opportunities examining the educational experience of students in multidisciplinary setting were identified.

5. **Development of academics** – there is a clear need for greater attention to and support for academics who are struggling to establish a research career while they cope with large workloads. Development of new academics was also identified as an important issue. Good clinicians do not necessarily make good academics, and many academics find themselves teaching without adequate time invested in their own preparation. Added to this burden is the expectation in many areas that academics maintain clinical competence. Through the encouragement of novice academics it is hoped that the network will be instrumental in developing academics to meet the growing demands and ensure their professional engagement.
6. **The ambulance service – university interface** – how healthy is the relationship? This appeared to be variable across the states and New Zealand. Many boasted a very favourable relationship, with few problems. However, this would seem to contrast with the finding of the project focus groups which reported a less favourable relationship.

7. **Adequacy and quality of supporting sciences within curriculum** – while accreditation has attempted to provide some consistency in graduate attributes, there appears to be significant variation on the depth and content of supporting sciences within paramedic courses. Opportunities exist for a clear mapping of the curriculum requirements to ensure a well rounded health care professional.

The meeting finished with a commitment to develop aims, objectives, membership, leadership, nomination and election of officer bearers. This will be achieved by a steering committee which will meet mostly through on-line communication and telephone conferencing. The steering committee will survey membership, refine the aims and objectives and organise the next meeting of the network in Auckland in 2009. Affiliation with ACAP will be sought and formal meetings will be scheduled, at least initially, to coordinate with annual ACAP conferences.

As a part of this work a robust communication strategy will be develop, which will allow members to easily share and discuss ideas. ⁵ This will be utilised to seek membership of the steering committee, canvas the membership about the structure and function of the network and kick start the collaborative sharing. This is envisaged to develop into a powerful web site which efficiently makes use of the latest internet communication information sharing strategies.

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⁵ Richard Brightwell has begun this process by establishing a web based discussion board with registration for all members.
CHAPTER SIX: DISCUSSION AND THE WAY FORWARD

Introduction
It would be easy to suggest that any problems within the discipline of paramedicine are reflective of the fact that the profession is an emerging one that is new to the tertiary sector. While this may be part of the explanation, a number of the issues raised by focus group participants, students and practitioners, are evident in other professions such as medicine, nursing, teaching and the law. For example, the theory-practice gap is still debated in medical education and for nurses in the popular press. The most recent decision by the Federal Government to experiment with VET sector registered nursing programs in Victoria is a concrete example of one way in which this debate is played out. However, the paramedic profession and discipline does present some unique responses that require commentary.

- The impact of industry monopoly

The first defining characteristic of the paramedic profession that impacts on education is the fact that the employer operates as a monopoly, although a few non-emergency providers are now in the market place. In other countries, most notably in the United States, this situation does not exist. This shapes the unique relationship between the universities and industry (service providers). Industry is currently shaping what the paramedic practitioner of the future will be. For the universities the tension lies between meeting the needs of the local service, the directives set out by the accreditation body, the CAA, and aspirations of academic educators to produce a graduate able to operate independently of any particular service. There is not always a good fit. The CAA is made up of industry senior managers and employers, rather than primarily practitioners, as is the case with other professional accrediting bodies. It might be thought that this arrangement puts the paramedic profession in a unique position to respond to the COAG reforms, however, the CAA is a federation of state services including New Zealand, not an arm of the Federal Government. Like many aspects of the Australian health care system, services are provided by state governments, but partly funded by the Commonwealth. Creating standardisation or permeable boundaries across nine jurisdictions is one of the major hurdles for the COAG reforms. Finding a common ground between universities and industry is likewise not always easy. The solution is a partnership the difficulty is to achieve this.

An additional frustration for the states is the slowness of the COAG process. In many cases state governments are not waiting for the Commonwealth to deal with the roll out of innovations, or regulatory issues, but are forging ahead with their own reforms in the face of looming skills shortages that to date have only been partly solved through significant salary incentives or overseas recruitment. State initiatives are likely to result in a variety of solutions across the country and limited across border acceptance of qualifications than was envisaged in the COAG proposals. One example of this is the introduction of physician assistants in Queensland and South Australia, but not in others states. Advances in the paramedic discipline may well fall victim to the same difficulties. What the CAA offers through the
curriculum accreditation process is the possibilities for significant standardisation across the nine jurisdictions to meet the COAG agenda. This requires universities not only to have a robust relationship with their own service provider, but also with the CAA. This could be done through the Australasian Paramedic Academic Network or a meeting of course coordinators/heads of departments of university paramedic programs on a regular basis as is done in other professions.

- **Paramedic university/industry relationships are unique**
The literature on new models of collaboration between the university sector and industry was almost non-existent. The paramedic profession is forging ahead with its own models with little to be drawn from other professions. This is because of the unique and direct engagement of the industry in education. What the focus groups discussions and British literature illustrates is that effective models are ones:
  - where both parties assign dedicated staff to building and sustaining relationships;
  - universities commit to responding with speed and flexibility to industry workforce needs;
  - industry maintains its commitment to university teaching and mentoring irrespective of the demands put on an emergency service which are by their nature unpredictable;
  - university/industry management committees are chaired and draw from high ranking decision makers in both organisations; and
  - industry acknowledges university expertise in education.
This last point is sometimes confounded by the fact that academics teaching university programs come from industry and sometimes lack credibility in the eyes of their paramedic peers. What is sometimes not recognised is the expertise they build up in education.

- **It is not clear what is transferable from other health professions**
Importantly, we found no health profession in the tertiary sector working with a monopoly employer. The examples from the literature described in Chapter Four that draw on nursing are limited in their application. In two cases the relationships were not sustained once key individuals moved on, or there were changes in management in either institution. Anecdotal information indicates that in some schools of nursing academics are being pulled out of clinical supervision because of the high costs involved, the difficulties for nurse academics to maintain up-to-date skills, and the pressure on universities to respond to the intensified research agenda being pushed by the Federal Government. In any case paramedics already has similar programs in place. For the paramedic profession the issue is not simply one of maintaining clinical credibility, or having a symbiotic relationship between theoretically driven staff and clinicians. The challenge is to forge innovative relationships with their monopoly employer service provider. These relationships need to enhance quality education for graduates that prepare them for employment with a specific service, while at the same time providing students with an education that allows them to work anywhere in Australia.
This is an essential requirement given the COAG agenda and key requirement of the universities.

The industry/university relationship needs to be one that promotes the further development of a theoretical and clinical body of knowledge that pinpoints domains of practice shared with other emergency services and health professions, as well as knowledge that defines the uniqueness of the profession. This will be partly achieved through research, some of which will be done by paramedic academics. A key educational question arising from this project must deal with separating out transferable curriculum and industry relationship knowledge from other professions, and identifying what is unique to the paramedic profession. This has yet to be achieved, but could form the basis for a future educational projects.

• **The diversity of paramedic curriculum and the COAG agenda**

An additional defining feature of paramedic university programs is that they operate as a hybrid between providing state tailored courses of study and nationally accredited ones. Some university programs operate more closely with industry than others, with industry having more input into selection, education, curriculum and clinical experiences. Some programs include an internship run by the services, while in other states this is organised differently. This should not be seen as a negative as it is one of the positive features associated with road readiness and from a university perspective it allows for differences in curriculum, style and approach across the country and provides the framework for a variety of innovations. However, from an industry perspective it throws up comparisons between programs, and may assume minimum standardisation across the nation is not possible despite national accreditation. While this situation prevails the COAG agenda to simplify across border transfers for health professionals will not be achieved and this will put the profession outside some of the current reform processes.

• **Debate over the road-ready graduate?**

The fifth defining feature of the paramedic curriculum is captured in the term road-ready. Graduates are said to lack road-readiness. The push for graduate readiness is not unique to the paramedic profession, it is a universal criticism of theory driven education exacerbated in the 21st century by skill shortages in human service work. What does distinguish this debate is the lack of clarity in defining the problem. The focus group discussants clearly named this as a lack of clinical technical skills, but when pushed to elaborate on the graduate deficiencies the problem was defined as a lack of life experiences or of competency in the non-clinical underpinning sciences/soft skills. There may well be deficiencies in all three areas, but they are not the same. The research on clinical excellence clearly demonstrates that the novice professional moves from an initial focus on clinical expertise through to interpersonal expertise (Benner 2001). Mature adults may obtain a facility in these non-clinical skills before younger adults, but in both cases the process will be one where the novice clinician must develop both skills before they are able to integrate them with ease. It is readily recognised that this does not happen without considerable practice and that effective use of simulation should also include practice in the soft skills. This issue has arisen partly from
the shift from VET in-house programs that recruited from mature aged populations to university programs that tend to recruit from school leavers. One solution is for universities to work collaboratively with industry in the design of programs for more mature applicants. An example of this is the program introduced by SAAS and more recently Ambulance Victoria where volunteer ambulance officers have been offered paid employment and the opportunity to complete the degree on a part-time basis through a variety of flexible education programs.

A hiatus does exist in current research in this area of graduate competency. Dawson’s (2008) study of graduates and their supervisors indicates that graduates become clinically competent within one year. What he has yet to report on is whether their supervisors find them theoretically, and therefore diagnostically and clinically, superior to VET trained paramedics. Until this is the case the argument for the transfer to tertiary education is not effectively made. A clear direction here is the need to assess the non-clinical skills during the teaching of clinical aspects of education programs for evidence of beginning integration. An additional area for study is a determination of what is taught in university programs that takes the graduate beyond the VET curriculum. Few focus group members commented on this, yet anecdotal evidence suggests some paramedic academics believe their graduates are prepared to the level of Intensive Care Paramedic (ICP). This claim is contested by industry and is behind some of the content they offer in their internship programs. Industry also sees Intensive Care Paramedic education as being at a post graduate level as is the case with similar programs within nursing. A further area for investigation is the relationship between university and internship programs particularly overlap of content and possible contradictions in principles and values. Finally there is need to evaluate how much and what kind of clinical exposure best prepares students for the paramedic profession. The literature focus groups and the Network meeting all reported difficulties in this area.

- **Paramedic curriculum and the underpinning sciences**

  The non-clinical underpinning sciences were highlighted in both the literature and focus groups and the report has spent considerable time on discussing them. They are usually understood to be the ability to communicate with patients and colleagues, skill in team work, and the capacity to empathise across class, gender, age, racial, ethnic and able-bodied boundaries. As a set of skills it is the capacity to attend to a patient whose demeanour may be distasteful without displaying revulsion; as an orientation, it is the facility in delivering care without prejudicial judgements. It is hence deep work that requires internalisation achieved primarily through evidenced-based research, reflection (discussion) and the development of a personal philosophy of service/care. Much of the foundations for soft skills come from the non-clinical underpinning disciplines of sociology, law, ethics, psychology and communication. These disciplines provide a secular and scientific foundation for human rights through their analysis of the experiences of population groups with high rates of morbidity and mortality. They also provide a theoretical framework for transferring this knowledge to other contexts. However, the practice of soft skills has to occur in context. This means they
need to also be integrated into the assessment of technical skills. As already noted, it needs to be said that the values and attitudes displayed in the teaching of paramedic clinical skills also contributes to the development of a mature expert paramedic.

- **The place of underpinning sciences is not clearly articulated in paramedic curriculum**

We know that soft skills are also embedded in clinical topics, although this did not emerge from the literature or the focus group discussions. Clinical and theoretical topics are not taught in a value neutral environment and it may well be that the implicit need for soft skills needs more clear articulation. For other health professions such as nursing and occupational therapy this was partly achieved when a number of academics did research higher degrees drawing heavily on the social sciences. This enabled these academics to integrate the theory of technical and soft skills and to create a theory of practice. However, we would argue, that in nursing, this was achieved at the expense of clinical research. Paramedic academics have a clear agenda and wish to pursue educational and clinical research. In doing so they may need to think through how soft skills are embedded in the teaching of technological and clinical practices and what theory development is needed to expedite this.

Despite the importance of soft skills there appears to be a limited understanding of the role of the underpinning sciences in professional paramedic education by some industry paramedics and students. It is also not evident how these sciences are dealt with in the various universities curricula and it is interesting to note that focus group members from these disciplines were apologetic about their lack of knowledge of the paramedic profession and how their knowledge related to practice. What is also suggested from the literature and focus group discussion is that those academics teaching these topics could position content more readily in practice. This does not necessarily mean in paramedic practice; but it does mean providing some experiential component whereby students come into contact with disadvantaged population groups and come to some respectful appreciation of difference.

- **A theory for practice and signature pedagogy**

The sixth defining feature of the paramedic curriculum emerges from the strong focus on soft skills, evidence-based knowledge and technical clinical competence which provides a theory for practice/signature pedagogy that enables the profession to separate itself from medicine and nursing. Medicine defines itself as a profession that draws on evidence-based scientific knowledge in order to heal the patient. Qualities important in the healing process demand that doctors use the best available resources at their disposal, and treat all patients equally and without favouritism (Parson 1951). An approach to theory development taken up by nurses in the 1980s positioned ‘care’ as the central and defining feature of the profession. Nurse theorists such as Watson (1985) argued that the delivery of effective evidence-based and technologically driven cure required professional caring. A professionally caring nurse is one who uses evidence-based knowledge,
has a high level of technical and interpersonal skills, and an orientation to service.

Paramedics draw on similar concepts: it is the context that differs and in turn the context exacerbates the skill set. This context can be defined as primary care/retrieval work. Paramedics ventures out from the controlled environment of hospitals and doctor’s surgeries into streets, homes, shopping centres or remote regions in order to retrieve patients. It is this venturing out from the controlled environment that gives the paramedic profession its defining features and gives some shape to how both the technical and non-clinical skills need to be taught. It enables the profession to make a claim to primary care - defined as the first health care professional responder. Here responder equals diagnosis, assessment and treatment. It also throws up the unique dilemmas facing paramedics as the first health professional delivering medical technology in uncontrolled environments. As Strauss et al. (1982) note, no evidence-based clinical care or medical technology is administered effectively and efficiently without recourse to careful consideration of the patient’s distress. This is more pertinent for paramedics, in uncontrolled environments where patient distress can be heightened, than it was for the nurses and doctors Strauss and his colleagues first observed in the wards of large acute-care hospitals. They argued that doctors and nurses were better able to perform difficult and painful procedures on patients when they did so using all their soft skills. This combination made for efficiency and effectiveness as it ensured patient compliance in the face of pain. They referred to this as ‘sentimental work’, but in more recent years it has been referred to as emotional labour or caring work (Stack 2005) and by focus group participants in this study as ‘soft skills’. As we note throughout we refer to these skills as ‘non-clinical’ or the ‘underpinning sciences’. These skills may be soft in terms of their humanness, but they are hard core to the profession. For paramedics, primary care/retrieval work in an uncontrolled environment requires all these skills, along with a service orientation, in abundance.

Primary care/retrieval work includes the mundane, but human interactions of the paramedic who rides in the back of an ambulance with an elderly man moving from his home and hospital bed to a residential nursing home or the skilful clinical procedures performed by an intensive care paramedic attending a vehicle accident. It includes single responders attending non-emergencies in people’s homes, or the enhanced paramedic dealing with a depressed young person in need of assessment, access to a rehabilitation centres, shelter, or hospital. These small and large acts of rescue have a quality of stabilisation that draws on evidence-based medicine allowing the patient to begin the process of recovery and cure. Primary care/retrieval work also includes the more complex tasks associated with disaster management associated with natural or terrorist events. If these concepts are integral to the paramedic profession they will provide the beginnings of the development of a signature pedagogy.

• **Curriculum and the practice reality**

The unique context of paramedic work suggests a number of areas for further study. One area for investigation is the relationship between psychometric
testing used by many ambulance services to weed out graduates who are deemed to be unsuitable for the profession. An entire arena of research could open up around non-clinical skills acquisition, psychometric testing and alternative learning sites for students who have not had the life opportunities to develop relational skills among the elderly, disabled, and socially disadvantaged, or are not prepared for the some of the brutal aspects of paramedic work. Personality problems, however, are a separate category and currently universities are not in a position to prevent students from entering programs, who would perhaps be better placed in professions that are not as stressful as the paramedic profession. Closely related to this is the need to have the evidence on drop-out rates for paramedic graduates within the first five years of graduation. Focus group participants had the impression that a lack of soft skills led a significant number of graduates leaving within a few years of graduation and thus wasting their degree and the government resources spent on them. It is not clear what the retention rate is for graduates in the first 2 to 5 years, if it differs from the previous VET system, or other professions, or if the culture of the service or the quality of type of the university program makes a difference. It is an area requiring study as results could impact on curriculum.

- **The challenge of multidisciplinary care**

A seventh challenge to paramedic curriculum is the tension between developing the profession, with its unique body of knowledge, and operating in a multidisciplinary framework. This tension presents itself on several fronts. In universities it is evident in discussion over the presence of non-paramedic staff, and in graduate outcomes where students do double degree programs with nursing. It is also evident in the fact that most paramedic academic units are housed in schools of medicine, biomedical sciences, nursing or public health which further influences identity development. For students doing double degrees in paramedic and nursing the evidence to date suggests they drift towards nursing and cannot move freely between the two professions because of constraints put up by both groups that prevent dual registration and authority to practice (O'Meara 2008b). The COAG reforms appear to assume that role substitution and enhanced roles for paramedics, nurses and allied health professionals will occur with little need for clarification or regulation. The process of change appears to be occurring at a political and economic level, rather than in any systematic fashion. For example, public discussion in the press on expanding practice rights such as prescribing, rarely mention paramedics. The tussle is usually between nurse practitioners (NPs) and GPs. Currently the Federal Government is proposing to reimburse GPs at a lower rate for those skills that can be more readily done by a NP (The Advertiser 2008). There are significant similarities in the skills base of nurses and paramedics, yet a desire by both groups to remain professionally distinct. The boundaries between nurse practitioners and enhanced paramedic practitioners remains unclear. As noted above universities can be the leaders in determining the outcome of these tensions, but they do need to provide curriculum that allows graduates to respond to future developments in role substitution particularly in rural areas (O'Meara et al., 2006) while maintaining their professional identity.
• **Education for clinical mentors**

Whatever program model is in place, all university programs rely heavily on the generous clinical mentorship provided by senior paramedics supervising student placements. The literature and focus group discussions made much of this point with focus group members suggesting that it is difficult to ensure students receive quality clinical education. This includes the graduate transition to work programs where mentors or team leaders play a vital role in the kind of experiences novice paramedics receive and how they make sense of these events. We believe the onus is on universities to negotiate with industry over appropriate education programs for industry mentors. If universities shirk away from this responsibility a disjunction of values may occur. To expect paramedic clinicians and mentors to function as effective teachers to students without education, practice and reflection is to name the problem without offering a planned solution.

• **The role and responsibility of paramedic academics is highly complex**

A major stressor identified in this study was the pressure on paramedic academics to respond to industry curriculum requirements, maintain effective relationships with industry, teach, develop their own research careers and maintain clinical competence. A further looming problem is the capacity of universities to attract paramedics into teaching given the discrepancies in salaries and working conditions. Short term secondments are one solution, as are teaching only university appointments.

**Impact on the sector**

The major impact of this project is that it provides the first formal, long term collaboration by nine University undergraduate programs. This has resulted in the establishment of an Australasian Paramedic Academic Network (APAN) that will continue to meet on an annual basis to share ideas and collaborate on future educational research and practice. For example the 2008 ACAP conference had a significant increase in research-based education papers on previous years and the Network meeting generated a shared agenda on educational research.

The scoping study literature search and focus group discussions provide the APAN, industry and the two professional associations with a report on major international and national developments in paramedic undergraduate education with a focus on dilemmas and issues; it also provides a report on models of collaboration between the profession, the services and the universities that shows clearly that the profession is leading the field in new ways for industry and universities to collaborate.

**Value to the sector**

This project has identified a program of educational collaboration to be facilitated through the APAN. Projects will seek to engage all three parties; universities, the profession and the services in determining the educational
needs of the paramedic of the future. The initial projects will build on the areas identified in this report.
REFERENCES


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APPENDIX A: UNIVERSITY PROGRAMS
Charles Sturt University: The Bachelor of Clinical Practice (Paramedic)

Course Structure

Australia’s first university based degree qualification for paramedics, the Bachelor of Health Science (Pre-Hospital Care) was established at Charles Sturt University in NSW in 1994 as the result of collaboration with the ambulance service of NSW. Paramedics were given significant Recognition of Prior Learning (RPL). The pre-employment course was established fulltime at Bathurst Campus in 1998. In 2001 the NSW Nurses Registration Board approved CSU’s new four-year integrated Bachelor of Nursing/Bachelor of Clinical Practice (Paramedic). The pre employment courses currently offered at Charles Sturt University are Bachelor of Clinical Practice (Paramedic) degree, and Post Graduate Certificate in Intensive Care Paramedical Studies. Although only 10 per cent of recruitment to NSW Ambulance is provided by CSU graduates, the ambulance service’s decision to move to an entirely graduate model for recruits will lead to rapid expansion of the program in the near future. Students receive 6 weeks (240 hours) of undergraduate clinical placement.

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<tr>
<td>EMG100 Introduction to Emergency Management</td>
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<tr>
<td>FPS101 Foundations of Paramedical Science 1</td>
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<td>PHC100 Professional Studies 1</td>
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<tr>
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<td>PHC170 Paramedical Issues</td>
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<td>FPS201 Foundations of Paramedical Science 3 (16 points)</td>
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<td>NRS246 Emergency Care in Mental Health</td>
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<tr>
<td>EMG102 Emergency Management Planning 2</td>
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<tr>
<td>FPS202 Foundations of Paramedical Science 4</td>
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<td>PHC200 Professional Studies 2</td>
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<td>CLS300 Clinical Studies 4</td>
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<td>HSM161 Health Services Organisation</td>
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<td>PHC304 Paramedical Research</td>
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Session 6
CLS302 Internship 3
CLS310 Major Incident Management
HSM202 Managing Health Services
PHC303 Evidence Based Practice

Distance education study
Session 1
FPS101 Foundations of Paramedical Science 1
CLS101 Clinical Studies 1

Session 2
PHC100 Professional Studies 1
EMG100 Introduction to Emergency Management

Session 3
FPS102 Foundations of Paramedical Science 2
CLS102 Clinical Studies 2

Session 4
PHC170 Paramedical Issues
CLS201 Internship 1

Session 5
FPS201 Foundations of Paramedical Science 3 (16 points)

Session 6
CLS202 Clinical Studies 3
NRS246 Emergency Care in Mental Health

Session 7
FPS202 Foundations of Paramedical Science 4
CLS203 Internship 2

Session 8
EMG102 Emergency Management Planning 2
PHC200 Professional Studies 2

Session 9
APS301 Advanced Paramedical Science 1
CLS300 Clinical Studies 4

Session 10
HSM161 Health Services Organisation
PHC304 Paramedical Research

Session 11
PHC303 Evidence Based Practice
CLS310 Major Incident Management
Session 12
CLS302 Internship 3
HSM202 Managing Health Services

Work experience - Full-time students spend up to four hours each week practicing their clinical skills in a simulated paramedic environment. Clinical placements in appropriate healthcare settings are undertaken as students are placed with an ambulance service for six weeks each year in order to practice their clinical skills.
Work ready - Pre employment full-time students may be eligible for employment with an ambulance service after two years' full-time study and may then continue to study externally to receive their Bachelor degree.
Partnerships - This course is being taught in conjunction with the ambulance service of NSW and the Tasmanian ambulance service.

Edith Cowan University

Course structure

Edith Cowan University offers the BSC Paramedical Science in Western Australia. This is a 3 year undergraduate program in which students qualify as Ambulance Officers and after a fourth (intern) year become paramedics. Graduate programs are also offered in the form of graduate certificate and Diploma in Critical Care (paramedicine) as well as post-graduate degrees. During their program the students are employed as student ambulance officers by St John Ambulance with whom the University has a service agreement in which the students do 4160 hours clinical on road.

NSP1103 Communication in Nursing 15
NNT1103 Cultural Perspective within Nursing and Health 15
SCH1134 Human Structure and Function 15
NST2105 Dimensions of Mental Health 15
Semester 2
SCH1143 Systems Physiology 15
SCH1104 Introduction to Pathophysiology 15
SCH1105 Introduction to Pharmacology 15
SCH2111 Applied Physiology 15

YEAR 2
Semester 1
HST2205 Social Environment 15
SCH1102 Introduction to Paramedical Practice 15
SCH2201 Foundations of Paramedical Practice 1 15
SCH2210 Foundations of Paramedical Practice 2 15
Semester 2
SCH2205 Clinical Practicum 1 15
SCH2206 Pre Hospital Case Studies 15
SCH2224 Clinical Practicum 2 (Hospital Practice) 15
SCH2209 Theory of Paramedical Practice 1 15
Flinders University - Bachelor of Health Sciences (Paramedic)

Course Structure

Flinders University Bachelor of Health Science (paramedic) is a three year undergraduate degree. It is a professional stream of the Bachelor of Health Science. Students who have previous qualification in nursing or health science may take an accelerated program which recognises their previous qualifications. Paramedics with a diploma or intensive care certificate may undertake a conversion program with significant levels of credit transfer.

The degree has a strong clinical skills focus, which is addressed by skills laboratories and clinical placements. During the degree, students are expected to participate in approximately 400 hours of on-road clinical placements with SAAS. In addition, students must attend a further 30 hours in hospital placements; such as ECG clinical, recovery room and intensive care unit.

The normal student pathway is a pre-employment model, with graduates entering an internship year with their employer. In 2008 Flinders commence a collaborative arrangement with SAAS to take regional sponsored employed students who have a five year contract to work in regional areas whilst continuing their studies via flexible delivery. These students have a Certificate IV, and after a bridging course run by SA Ambulance Service, are eligible for the equivalent of almost one year of credit transfer.

First Year
HLTH1201 Paramedic Practice 1
HLTH1202 Paramedic Practice 2
HLTH1203 Paramedic Practice 3
HLTH1204 Health and Welfare for Health Professionals
HLTH1004 Human Bioscience
HLTH1302 Introduction to the Health Professions
HLTH1303 Reforming Health Care: Policy, Politics and the Profession
Communication for Health Practitioners

HLTH1304

Second Year

HLTH2201 Pathophysiology of the Nervous System
HLTH2202 Pathophysiology of the Cardiovascular System
HLTH2203 Pathophysiology of the Respiratory System
NURS2108 Mental Illness
HLTH2002 Health: A Psychological Perspective
HLTH2003 Society and Health: Sociology and Epidemiology

Third Year

HLTH3201 Paramedic: Professional Issues
HLTH3202 Pathophysiology of Body Systems
HLTH3204 Applied Pharmacology
HLTH3206 Applied Paramedic Practice
HLTH3001 Health Research
HLTH3207 Emergency Law and Ethics

Work experience – 400 hours
Work ready – Graduands are eligible to apply for employment as a paramedic intern with the SAAS. Graduands of the Bachelor of Health Sciences (Paramedic) are not guarantee employment with SAAS.
Partnerships – SA Ambulance Service

Monash University - Bachelor of Emergency Health (Paramedic)

Course Structure

First year
HSC1021 Professional issues 1
HSC1031 Foundations of health
HSC1301 Human structure and function 1
HSC1042 Health issues for diverse populations
HSC1052 Health and social care systems
HSC1302 Human structure and function 2
NUR1202 Legal issues and concepts

Second year
BEH2011 Professionalism and community based emergency health systems
BEH2021 Population aspects of CBEH services
BEH2031 Foundations of paramedic clinical practice
AIS2807 Australian Indigenous health (in lieu of BEH2011 for students who complete HSC1021)
BEH2012 Paramedic management of cardio-respiratory conditions
BEH2022 Paramedic management of trauma and environmental conditions
BEH2032 Paramedic clinical practice 1

Third year
BEH3011 Paramedic management of medical conditions and mental health
BEH3021 Paramedic management of health conditions at life stages
BEH3031 Paramedic clinical practice 2
BEH3012 Development of leadership and clinical mentor  
BEH3022 Contemporary challenges in CBEH  
BEH3032 Paramedic management of critical care specialty situations  
BEH3042 Paramedic clinical practice 3

Work experience – 440 hours
Work ready – Graduands are at a beginning practitioner level.
Partnerships – There is a contract between the Department of Human Services and Monash University, ambulance officer education

Queensland University of Technology Full Time - Bachelor of Health Science (Paramedic)

Course Structure

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<td>Bioscience 1</td>
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<td>PUB104</td>
<td>Introduction to Health Services Management</td>
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<tr>
<td>PUB180</td>
<td>Foundations of Paramedic Practice 1</td>
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<tr>
<td>PUB251</td>
<td>Contemporary Public Health</td>
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</table>

| Year 1, Semester 2 |
| LSB282 | Bioscience 2                                                          |
| PUB209 | Health, Culture and Society                                          |
| PUB280 | Foundations of Paramedic Practice 2                                   |
| PUB486 | Ethics and the Law in Health Service Delivery                        |

| Year 1, Semester 3 (Summer) |
| PUB270 | Paramedic Clinical Practice 1                                        |

| Year 2, Semester 1 |
| LSB382 | Bioscience 3                                                          |
| LSB384 | Pharmacology for Health Professionals                                 |
| PUB390 | Paramedic Management of Medical and Surgical Emergencies A           |
| PUB391 | Paramedic Management of Medical and Surgical Emergencies B           |

| Year 2, Semester 2 |
| PUB416 | Research Methods                                                      |
| PUB450 | Paramedic Management of Trauma Emergencies                            |
| PUB470 | Paramedic Clinical Practice 2                                         |
| PYB111 | Paramedic Communication Skills                                        |

| Year 3, Semester 1 |
| PUB550 | Paramedic Management of Obstetric, Paediatric and Behavioural Emergencies |
| PUB555 | Paramedic Management of Infectious Diseases, Toxicological and Environmental Emergencies |
| PUB570 | Paramedic Clinical Practice 3                                         |

| Year 3, Semester 2 |
Work experience - 18 weeks clinical practice

Clinical placement of 30 weeks which consists of three blocks of six weeks working as a third officer and one block of twelve weeks (internship) working as a second officer. Also, in second and third year the students undertake hospital placements spending time in the emergency department, theatre, maternity, paediatric and mental health areas.

Partnerships - The course includes supervised clinical practice with QAS and in other clinical settings.

The Bachelor of Health Science (Paramedic) course is Queensland's first degree in paramedics.

**University of Ballarat**

Graduate Diploma of Paramedic
One year of full time study or part-time equivalent.

Course Structure

The Graduate Diploma of Paramedic is designed to provide students with the necessary knowledge and values to be competent for entry into practice as Graduate Ambulance Paramedics.

The course aims to provide students with the appropriate knowledge, skills and values to be effective in providing paramedical patient care in 'out of hospital' settings to patients who are suffering a health crisis whether traumatic, medical, surgical and/or psychological.

The course focuses on four themes for knowledge and skill development: Clinical Paramedic; Clinical Diagnostics in Paramedic; Community, Paramedic Culture and Practice; and Paramedic Internship. Each theme is initiated at the beginning of the course and subsequently developed throughout the units to progressively build student knowledge, skill and understanding of each theme. The paramedic internship units additionally provide students with the opportunity to consolidate learning across the themes and relate the learning to their future role as a paramedic.

**Professional Recognition**

Graduands of the course will be registered to practice as a Graduate Paramedic with the Victorian ambulance services.

Other providers of paramedic education in the university sector are Charles Darwin University (proposed only), (PG in rural practice has just started), and
### University of Tasmania - Associate Degree in Paramedic Studies

Three part-time years  
Post employment  

Course Structure  

#### Year 1  
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<td>CAA103</td>
<td>Foundations of Paramedic Care 1</td>
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<td>CAA105</td>
<td>Clinical Practice 1</td>
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<td>CAA102</td>
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<td>Clinical Practice 2</td>
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#### Year 2  
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<td>CAA202</td>
<td>Paramedic Practice 2</td>
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<tr>
<td>CAA203</td>
<td>Paramedic Practice - Advanced Life Support</td>
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<tr>
<td>CAA204</td>
<td>Clinical Practice 3</td>
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Work experience – concurrent full-time employment in the ambulance service - 468 hours clinically assessed.  
Work ready – Graduands will have met the professional requirements for employment as a Qualified Ambulance Paramedic  
Partnerships – Tasmanian ambulance service.

### Victoria University - Bachelor of Health Science (Paramedic)

Course Structure  

Other universities quickly followed CSU to establish degree programs, beginning with Victoria University’s conversion program in 1995, and its three year pre employment degree in 1999. Tertiary level paramedic courses are now available in all states of Australia. In each state there is an ambulance service answerable to state bodies, working in discrete collaborations with universities. At present only three states (Victoria, Western Australia and South Australia) have discontinued in-house paramedic programs and made the move to an exclusive higher education model.

Victoria University pre-employment model offers a three year Bachelor of Health Science (Paramedic) which provides 264 hours of clinical placement under an agreement (MOU) with ambulance services Victoria.
As with most courses, the Victoria University has the themes of professional knowledge (underpinning scientific knowledge background), professional practice (development of clinical and patient care skills) and professional engagement (professional development subjects like research, law, ethics, sociological context of health care). This course is unique in that it has a focus on the health of ambulance paramedics with three subjects that focus on nutrition, physical fitness and mental health. VU has integrated 3 Units of study titled "Practitioner Health" into the undergraduate degree program.
APPENDIX B: AGENDA FOR THE INAUGURAL PARAMEDIC ACADEMIC NETWORK

8th August, 2008

Paramedic Academic Network
C/- Dept Paramedic & Social Health Sciences
Flinders University
GPO box 2100
Adelaide SA 5001

Hello,

Thank you for your interest in the inaugural meeting of the Paramedic Academic Network. This is an exciting scheme which has grown from the Carrick Institute Defining Discipline Initiative. The aim of this network is to bring together professionals working in paramedic education and explore the rich opportunities for research synergies. We have a timely opportunity to develop this special interest group which could influence the maturation of paramedic education across Australia and New Zealand.

In order to encourage discussion at this inaugural meeting there will be three focus group discussion which give attention to three contemporary area of interest:-

- Curriculum and Pedagogies
- Clinical Placements and Clinical Simulation
- University – Industry Interface

It is envisaged that there will be opportunities for sharing innovative pedagogies, discussing strategies and exploring the challenges facing the paramedic educator. Interlaced within all of these areas of interest are opportunities for collaborative research. To make the discussions effective we would like you to think about contemporary issues within your own workplace. Look at your triumphs and/or your anxieties which you would like to share with the group. It is very likely that your thoughts will be especially beneficial to the whole network.

Can we also ask that you start to ‘brainstorm’ research opportunities or identify gaps in the literature now. In other words, if you had to list your top 5 research ideas, what would they be? Coming to the meeting with these already arranged (conceptually is fine!) will help with efficiencies, and clearly identify where the research synergies currently lie.

If there is sufficient enthusiasm from the attendees, we would also like to develop the group into a formal association. We will be seeking nominations for membership of the management committee, which will be responsible for establishing the rules and constitution of the network. If you would like to be part of a management committee please let any of the undersigned know.
Think about the aims and objectives of the network, its structure, its communication strategies and how you would like the group affiliated. Your ideas will be used by the management committee to form the network into an effective and positive association.

The agenda for the meeting and the aims and objective of the network are attached.

We look forward to seeing you and hearing your thoughts on the 4th September.

Sincerely,

Tim Pointon Brett Williams Phil Clarke
Flinders University Monash University Flinders University
Aim
To form a collaborative network of paramedic academics from Australia & New Zealand, for the enrichment of education and research within the discipline.

Objectives
- To share latest ideas, successes and innovations in paramedic teaching
- The development of a register of expertise for consultation and research opportunities
- To foster collaborative research, scholarship and encourage publications on the theme of paramedic education
- To represent the visions and aspirations of paramedic academics and the discipline to government, the community and ambulance authorities

Inaugural meeting – Agenda
12:30 pm – Welcome and Introduction
12:45 pm – Introductions from University representatives
1:30 pm – 4:00 pm Focus groups (45 minute for each focus group)

- Curriculum and pedagogies
- Clinical Placements and clinical simulation
- University – industry interface

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<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
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<tr>
<td>1:30 – 2:15</td>
<td>Curriculum and pedagogies</td>
<td>Clinical Placements and clinical simulation</td>
<td>University – industry interface</td>
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<td>2:15 – 3:00</td>
<td>Group 3</td>
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<td>Group 2</td>
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<tr>
<td>3:00 – 3:15</td>
<td>Afternoon Tea</td>
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<tr>
<td>3:15 – 4:00</td>
<td>Group 2</td>
<td>Group 3</td>
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4:00 pm – Report back from Focus Group Chairmen
4:30 pm – A research project – Brett Williams
4:45 pm – Business
- Constitution and structure
- Membership and committee
- Communication strategies
- Affiliations
- Fees

5:30 pm – Close
Appendix C: Focus Group Categories and Process

Conduct of focus group:

1. CI for the state introduces research associate who ran session and asked questions
2. CI outlined broad research agenda

This project was funded by the Australian Learning and Teaching Council for teaching. The focus of the project is on the discipline of paramedic. The fundamental question we wish to address today is: 'What should guide University teaching of paramedic students now in order to prepare them to work successfully in the industry in the year 2010?'
The research proposal saw two issues of importance. These were
   i) the University curriculum and
   ii) the relationship between the University and the industry.
   iii) closely linked to this was the development of a network of paramedic academics to maintain the impetus for educational research.

3. CI then introduced ethics forms and had focus group participants fill them out.

4. Project team then outlined the format for focus group discussion as follows:

   We will conduct the focus group in the following manner. I will ask each one of you to introduce yourself, say what role you play as either a clinician/practitioner an academic, paramedic academic or academic. I then want you to make two statements. The first should be an issue/problem/dilemma you see as important in 2008 to quality University paramedic education. The second statement should be what you think is a looming issue in terms of quality paramedic education for 2010. We will black/whiteboard each of these points. They will become the agenda for today’s discussion. The CI will take notes during the discussion. Make your points brief as we will come back to them for fuller discussion.
   We hope you have had time to do the reading by Shulman. We think it provides a framework for thinking about the future.
   In thinking through your two points if possible it would be useful to identify the issues using Shulman’s headings;

   What is the most effective educational apprenticeship and relationship with industry where the student learns to think like a professional?

   What is the most effective educational apprenticeship and relationship with industry where the student learns to perform with the clinical expertise of a professional?
What is the most effective educational apprenticeship and relationship with industry where the student learns to act in a responsible and caring manner?

3 Research Associate then modelled answer by introducing herself: e.g., My name is Carmel McCarthy, I am a researcher, I think the major issue for paramedic students is to develop a Service and caring ethic. I refer to this as education of the heart.

4 As each person introduced themselves and identified an issue these were put on white board. CI arranged them as the agenda.

5 The Researchers then took the major issues one by one and asked group to discuss them

Fifteen minutes before end of session all issues were reviewed and items not discussed were addressed.

Additional Issues

Relationship with Industry
  2.1.1 Current models
  2.1.2 Difficulties with models
  2.1.3 New ways forward
  2.1.4 Strategies that work
  2.1.5 Strategies that irritate either side
  2.1.6 Safe guarding academic integrity
  2.1.7 Safe guarding industry employment autonomy
  2.1.8 Financial links

Curriculum of the future
  • Knowledge
  • Practice
  • Education for the heart/ethics/moral practice
  • Education for commitment to the profession