



Graduate Employability Skills

Prepared for the
Business, Industry and
Higher Education
Collaboration Council

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Contact Details

Precision Consultancy

Suite 2/Level 5
167–69 Queen Street
Melbourne VIC 3000

Telephone: 03 9606 0118
Fax: 03 9606 0119
Email: info@precisionconsultancy.com.au
Website: www.precisionconsultancy.com.au

ABN: 30 056 617 728

Acknowledgements

Project Management

The Australian Industry Group (Ai Group)

Precision Consultancy Project Team

Mitch Cleary

Rosalie Flynn

Seth Thomasson

Robyn Alexander

Ben McDonald

Preface

The Minister for Education, Science and Training requested that the Business, Industry and Higher Education Collaboration Council examine the development, teaching, assessment and reporting of graduate employability skills. The project was commissioned by the Business, Industry and Higher Education Collaboration Council with funding provided by the Commonwealth Government. The project was managed by the Australian Industry Group who contracted Precision Consultancy to conduct the research and report on findings.

This report presents the findings of a research consultancy that has been undertaken in order to investigate:

- a) how universities currently develop and integrate employability skills into their programs of study
- b) how universities teach employability skills
- c) how universities currently assess students' employability skills
- d) how graduate employability skills might be assessed and reported upon.

The views expressed in this report are not necessarily the views of the members of the Business, Industry and Higher Education Collaboration Council, the Australian Industry Group, the Project Management Committees or the Commonwealth of Australia.

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Executive Summary

Introduction

Employers, universities and professional bodies agree that Australia needs to develop professionals who are highly skilled and ready to face the challenges of increased competition. More than ever we need professionals who are responsive to economic, social, cultural, technical and environmental change and can work flexibly and intelligently across business contexts. Australian industry requires new graduates who understand the part they play in building their organisations, and have the practical skills to work effectively in their roles.

However, really contributing in the workplace means more than having the necessary technical skills. It means engaging with the organisation and its goals, understanding the dynamics of the workplace, and taking up a job role with an informed knowledge of all of its requirements. It also means applying a broad range of employability skills learned in many contexts and through a range of experiences.

Australian businesses aspire to be more competitive, more effective and more innovative. The graduate workforce is a key part of the talent pool businesses draw from to further these objectives. Universities clearly want to produce graduates with the skills that are highly regarded by employers and are seen to contribute to the country's prosperity and social capital. Emerging professionals want to attain interesting employment, and build their professional careers.

This project was initiated by the Business, Industry and Higher Education Collaboration Council (BIHECC) to review:

- a) how universities currently develop and integrate employability skills into their programs of study
- b) how universities teach employability skills
- c) how universities currently assess students' employability skills
- d) how graduate employability skills might be assessed and reported upon.

The project, undertaken between March and June 2007, has consulted a range of stakeholders including representatives of universities, business and industry to review current activities and to identify best practice for integrating, developing, assessing and reporting on employability skills nationally and internationally. Consultations with these stakeholders have focused on graduates from degree programs across all disciplines of undergraduate higher education.

The methodological approach has been essentially qualitative. It began with desktop research and interviews, which led to the development of a discussion paper. The discussion paper was circulated and further interviews held based on the paper. Written responses to the paper were also sought and received. While no quantitative data has been generated through this research, data available from a range of reports and articles has been reviewed and used to scope and support the direction of the research. The thematic analysis of data from all these sources is drawn together in this report.

A note on Best Practice

Throughout this report examples and case studies are provided of institutional approaches to developing employability skills. These have been presented to the researchers as examples of good practice. In many cases these approaches have been initiated or supported by industry, by professional associations and by groups of employers. The research demonstrated many individual beliefs about what approaches are most effective in developing employability skills.

However, there is very little if any evidence-based research that isolates each variable and judges the comparative effectiveness of different strategies. Criteria for success would need to include increased employer satisfaction with the initial work-readiness of graduates following the implementation of the strategies. Before and after data is available for any of the case studies listed in this report. An analysis of the common themes of the strategies and a review of literature in the area shows that widely supported employability skill development approaches centre on one

or more of the following: structural support, through careers services or similar service providers; curriculum intervention in embedding employability skills either in course content, delivery strategy or both; work experiences as a structured part of the curriculum; and, the individual student taking responsibility for reflecting on and recording their learning in a portfolio or enhanced curriculum vitae document.

The Employability Skills Framework and Graduate Attributes

The Employability Skills Framework, developed by the Australian Chamber of Commerce and Industry and the Business Council of Australia and published in *Employability skills for the future* (DEST 2002a), provides an excellent starting point for any discussion of employability skills in higher education. The eight employability skills – communication, teamwork, problem solving, self-management, planning and organising, technology, life-long learning, and initiative and enterprise – and associated attributes were first published in that report. The report contains a discussion of different terms being used in different environments to describe generic skills for all employees. It refers to the higher education sector and notes the work on generic skills and graduate attributes being undertaken at that time. Other publications (Allen Consulting Group 2006, DEST 2006) link the term employability skills with other terms such as key skills, core skills, life skills, generic skills, essential skills, key competencies, necessary skills and transferable skills. Subsequent to the development of the Employability Skills Framework the vocational education and training sector (VET) has taken a system-wide approach and applied these eight employability skills to all nationally recognised qualifications.

Universities in Australia have nearly ten years of experience working with the concept of graduate attributes, arising from the West Review in 1998 (DEETYA 1998) which provided a framework of generic attributes that ideally every graduate should have. Graduate attributes are defined by the Australian Technology Network (ATN 2000) as “the qualities, skills and understandings a university community expects its students to develop during their time at the institution and, consequently, shape the contribution they are able to make to their profession and as a citizen”. Since 1998 there has been much work done by universities to define these attributes and to integrate them in a variety of ways. An analysis of graduate attributes from a significant number of universities shows that employability skills, as outlined in the Employability Skills Framework, may reasonably be seen as a subset of graduate attributes. Therefore graduate attributes provide an appropriate starting point from which to further explore any future work on employability skills.

Report Findings

Consultations with industry reinforced that the skills defined in 2001 in the Employability Skills Framework are still seen as highly relevant to their needs. Broadly speaking industry representatives are satisfied with the technical or discipline-specific skills of graduates, but for some there is a perception that employability skills are under-developed. Some employers believe that universities are providing students with a strong knowledge base but without the ability to intelligently apply that knowledge in the work setting. This is backed up by international research. Employers interviewed expressed a willingness to more deeply engage with universities, particularly in the provision of work-related experiences for undergraduates. Those interviewed in universities also saw it as important to build strong links with industry and employers. There was greatest support for this in more ‘vocational’ discipline areas but also from those working in career advisory roles and centres within universities.

It should be recognised that whilst universities see it as part of their role to develop professionals who have the required discipline-specific knowledge and are work ready on graduation, it is acknowledged by universities and employers alike that employability skills are acquired and developed through many experiences.

Identifying employability skills

This report provides examples of approaches taken to identify employability skills. These primarily sit within the context of graduate attributes – determined at a university level and then identified at a faculty, discipline, qualification and subject level through a range of approaches including consultations with employers, students and professional bodies. Some universities have taken highly structured approaches to mapping graduate attributes across curriculum to ensure that these attributes can be readily seen across an entire program or qualification. This enables the

identification of gaps and alignment of graduate attributes with discipline-specific content. However many universities have not yet undertaken detailed curriculum mapping for employability skills or graduate attributes, in qualifications; it is therefore not possible to readily see how a given qualification addresses the development and assessment of employability skills.

Developing employability skills

The higher education sector is characterised by diversity; course and student profiles are different and universities aim to develop students with distinct characteristics or attributes. Universities have taken different approaches in the manner in which they develop graduate employability skills.

Universities work to develop employability skills in their students by providing academic staff with relevant support and resources, integrating these skills into curriculum and course design, providing students with work placements and exposure to professional settings and providing advice and guidance through career services. Furthermore, universities offer students opportunities for developing themselves through participation in clubs and societies and university life.

In addition to the part that universities play in developing students' employability skills, it should be recognised that most students are concurrently developing these skills through part-time employment, volunteer work and community participation.

Fieldwork, industry-based learning, sandwich years, cooperative education, work placements and internships, commonly called Work Integrated Learning (WIL) programs, are all methods universities have used to equip students with knowledge of current workplace practices.

These programs are resource intensive for business and academic staff. There is little objective evidence available on the relative effectiveness of each of these approaches. British research shows that relevant work experience during the degree program has a highly positive influence on employability as does employer involvement in course design and delivery.

Assessment and reporting of employability skills

Assessing employability skills

Employability skills can be effectively assessed where the specific skill and its application is described in course materials and learning objectives, and where it is clearly located within the context of a given discipline. Good assessment practice is underpinned by curriculum and course design which makes explicit the requirements for employability skills and describes how and at what point in the course they will be addressed.

Workplace supervisors for WIL programs are in a unique position to assess and provide feedback on a student's employability skills. Assessment reports by workplace supervisors should specifically address employability skills and be used to provide feedback to (1) the university on the efficacy of teaching practice and (2) the students on their performance.

Existing generic tools, such as the Graduate Skills Assessment (GSA) and the Employability Skills Profiler (ESP) are not favoured by universities in their current form. The GSA is seen as costly to the university and too generic to be of value; academic staff queried the appropriateness of written or online instruments to assess practical and interpersonal skills. International literature shows support for generic skills testing instruments, particularly those that allow for contextualisation of the generic skill to the discipline or professional area. The ESP was largely unknown in higher education and broad perceptions were that it was more suited to non-professional job seekers. There was however support for students being offered some form of self-assessment, so that they could better manage their own learning and development.

Ultimately though, it is employers who assess a graduate's employability skills. Assessment centres are favoured by larger employers and typically they use a range of techniques to assess a candidate's suitability for the workplace and job role. Candidates may be assessed through observation in various settings, group work, conducting presentations, providing written responses to scenarios, and behaviour in interviews.

Small and medium enterprises are particularly disadvantaged in selection processes. They are less likely to use assessment centres, and do not have dedicated selection and recruitment personnel. Generally small and medium enterprises were keener to receive reports of graduates' employability skills.

Reporting on employability skills

Whilst universities can meaningfully assess employability skills, the issue of reporting is complex. Employers interviewed did not favour simple generic statements about each of the eight employability skills identified in the Employability Skills Framework being provided. The provisions of information about the course and its design, together with descriptions of the discipline- or qualification-related employability skills, had more support.

Students need to take responsibility for reviewing or assessing their own employability skills, addressing gaps and then pursuing appropriate ways to report or present relevant information about their skills to employers.

E-portfolios were seen by business and universities to be a practical method for graduates to explain and provide examples of their employability skills. E-portfolios need to be managed by the students themselves. Some universities offer web-based portfolios to students, but to be effective students need guidance from careers services and/or academic staff to complete these.

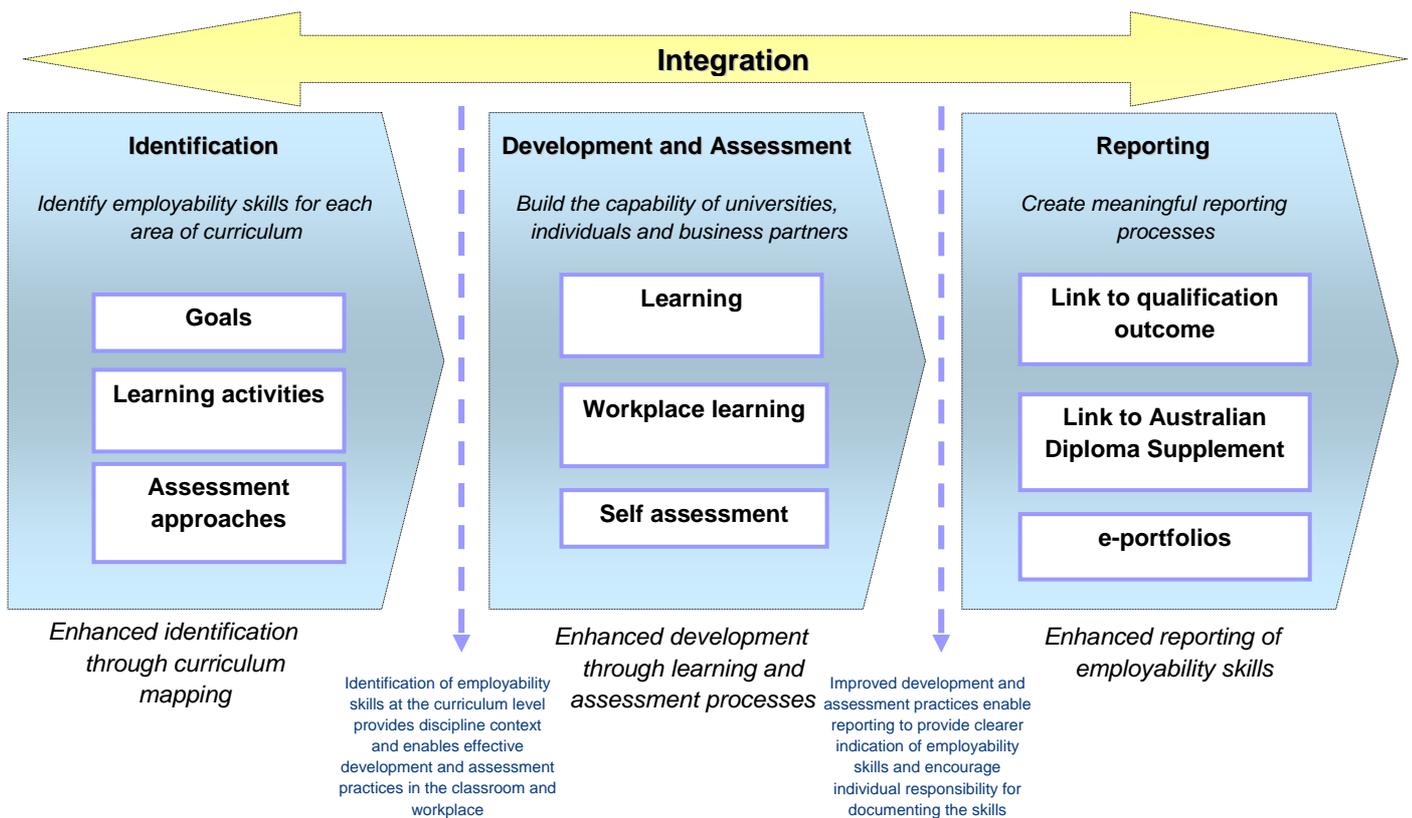
Under the Lisbon Recognition Convention which was ratified by Australia in 2002, Australia has an international obligation to promote the widespread use of the Diploma Supplement by Australian tertiary institutions. The Diploma Supplement is a European initiative which aims to describe a higher education qualification in an accessible way and relate it to the higher education system within which it was issued. The Diploma Supplement is a valuable tool for achieving transparency, recognition and mobility of qualifications. There is widespread and increasing use of the Diploma Supplement across Europe, much of which is driven by students and other stakeholders who recognise its value in describing qualifications in a way that is clear to potential employers and other higher education institutions.

A consortium of universities is currently engaged on a project to develop a single agreed template for an Australian Diploma Supplement and to make recommendations on detailed implementation and management strategies. It is envisaged that the Diploma Supplement will take the form of documentation issued to graduates by awarding institutions in addition to the testamur associated with a degree or diploma and will describe the nature, context, content and status of a graduate's qualification. Although most of the information required to be on the Diploma Supplement is standard there is a section where details of employability skills associated with the given qualification could be readily and meaningfully included. In terms of a reporting format that could be almost universal across Australian universities, the Australian Diploma Supplement presents a new opportunity to articulate the employability skills of the graduates of a program.

An Integrated Approach

This project report presents recommendations based on an integrated approach that emphasises improved processes for identifying, developing, assessing and reporting on graduate employability skills. Examples and descriptions of similar work already being carried out across the higher education sector are provided in the main body of the report. This proposed approach is shown in the diagram overleaf.

Figure 1: An integrated approach



The higher education and business interface

The stronger the link between universities and businesses, the greater the opportunities will be to integrate and develop employability skills in undergraduates. Many universities are running focus groups with employers, surveying employers to measure satisfaction with graduates, or involving employers and industry leaders on coordinating committees or course advisory committees. WIL programs also establish a dialogue between universities and employers.

Some professional bodies accredit university programs, using their own established frameworks to do this. Professional bodies have established links with the workforce through their membership; generally they also have credibility with relevant faculties or schools within universities. There was widespread recognition throughout this project by those interviewed that increasing opportunities for business and higher education to work together to identify, promote, teach, assess and report employability skills would produce better outcomes for all.

Recommendations

Detailed recommendations are provided in section 5 of this report. In summary the recommendations are:

1. To establish an Employability Strategy Fund
2. To explicitly identify employability skills in all university curriculum
3. To improve and increase access to Work Integrated Learning (WIL)
4. To enhance teaching and assessment of employability skills

5. To offer students self assessment options for employability skills
6. To explicitly report on employability skills demonstrated through Work Integrated Learning
7. To encourage more effective integration of employability skills in student e-portfolios
8. To explicitly include employability skills in the forthcoming Australian Diploma Supplement (ADS)
9. To encourage businesses to provide structured cadetships.

1 Introduction

1.1 Overview

In this project the Business, Industry and Higher Education Collaboration Council examined the development, teaching, assessment and reporting of graduate employability skills in Australian universities.

1.2 The Business, Industry and Higher Education Collaboration Council

The Business, Industry and Higher Education Collaboration Council (BIHECC) fosters greater collaboration between Australian higher education providers, business, industry, and communities. The Council is chaired by Mr David Murray, Chairman of the Future Fund Board of Guardians and former Chief Executive Officer of the Commonwealth Bank.

Members of the Business, Industry and Higher Education Collaboration Council have been drawn from across the business and academic sectors and bring with them extensive experience and expertise in their respective fields. Appointments to the Council are made by the Minister for Education, Science and Training.

The Council, which was established in 2004, advises the Australian Government on ways to increase collaboration between the higher education sector, the business and industry sector, and the wider community. One of its priorities for 2006–2008 is:

‘Engaging the higher education and business sectors in the development of a best practice framework for the development, teaching, assessment and reporting of generic and employability skills of graduates.’

As part of its scope, the Council is to advise the Minister on ‘how universities currently integrate, develop, and teach employability skills to undergraduates and how graduate employability skills might be assessed and reported upon’.

1.3 Context

There has been a recent Australian focus on employability skills across all education sectors. In 2001, the Australian Chamber of Commerce and Industry (ACCI) and the Business Council of Australia (BCA) undertook research to clarify the generic and employability skills required by industry. This project culminated in a report titled *Employability skills for the future* (DEST 2002a), providing the Department of Education, Science and Training with consolidated industry views on the range of key skills that applied across the range of business contexts including small, medium and large enterprises. The report identified personal attributes as well as eight employability skills (see Appendix I) that are broadly consistent across all industry sectors and seen to apply to entry level and established employees working at all levels in the organisation, with recognition that there will be different priorities for different roles and that there will be different levels of complexity required for skills, again depending on the job role.

In terms of the development of these employability skills, the vocational education and training sector (VET) has taken a system-wide approach and linked these eight employability skills in a framework which has been applied to all nationally recognised qualifications. This strategy aims to influence the work of Registered Training Organisations as well as schools; in 2004 about half of all Australian secondary students in Years 11 and 12 were enrolled in VET in school qualifications.

By contrast, higher education has essentially focused on employability skills at an institutional level, through graduate attributes, or through consideration across specific disciplines. As such, higher education does not have a single commonly agreed framework for employability skills. Because the higher education system has a diversity and history of independence in its institutions, this project sought to identify a range of approaches that will assist in the development and assessment of graduate employability skills, recognising that specific disciplines and institutions will have different requirements.

1.4 Project Scope

The scope of this project involved:

- identifying how universities currently integrate, develop and teach employability skills to undergraduates
- consulting with higher education stakeholders including universities, business and industry to review and identify best practice for integrating, developing, teaching, assessing and reporting on employability skills nationally and internationally
- identifying practical, cost-effective options that enable employability skills that are embedded in higher education qualifications to be explicitly identified as part of the higher education assessment and reporting process
- recommending assessment and reporting approaches for the recognition of graduate employability skills, and identifying the benefits of additional practical, cost-effective and educationally sound processes to assess and report employability skills beyond current arrangements
- identifying the impact of recommended approaches on the higher education sector, and the possible interactions with the vocational education and training and secondary education sectors
- providing a cost/benefit analysis of the integration, development, teaching, assessment and reporting options identified.

It should be noted that the project focus is specifically on graduate employability skills in relation to those graduating with Bachelor degrees in any discipline area.

1.5 Methodology

The project commenced in March 2007 with a review of the literature on graduate employability skills. An extensive range of Australian and overseas literature exists on the subject. In addition, most universities have established policies and procedures addressing related topics, such as how graduate attributes will be developed through curriculum, how work-integrated learning will be conducted and assessed, and how and when careers services will assist students to prepare for work. Many of these policies were reviewed in the initial project stages.

Following this, a discussion paper was prepared and widely circulated to universities, peak bodies and networks, professional bodies and businesses during April 2007. The discussion paper invited written comment and interviews with the project team. A list of those who participated in consultations is provided in Appendix II. Most interviews were face-to-face and most were one-on-one. Interviews conducted with higher education representatives included staff from specific academic disciplines or faculties, careers services and cooperative education or work-integrated learning areas. Interviews with business representatives from larger organisations were usually from graduate recruitment programs, or the human resources area. In small and medium enterprises (SME), interviewees were often business owners or managers.

The methodological approach has been essentially qualitative. Interviews were semi-structured and used a standard set of questions included in the discussion paper; however interviewees were encouraged to share stories and explain how and why they had arrived at their conclusions and to describe any relevant experiences. Interviewees were invited to contribute products and examples of best practice that could be used for case studies.

The thematic analysis of data from the literature, interviews and responses to the discussion paper is drawn together in this report and used to develop a set of recommendations.

1.5.1 Limitations of the research

This was a relatively short project which did not set out to review every Australian university's policies, procedures and practices in relation to employability skills. It does not claim to be an exhaustive review. This report provides an overview of activity with some examples of best practice; it is not a detailed comparative analysis or an evaluation of each university's work in this area.

It should be noted that the project has focused on Bachelor degree programs. Whilst some of the findings of this project will have application to higher level qualifications, there may well be other issues in relation to employability skills for Masters and Doctoral students. In terms of employers and businesses, the consultants only interviewed representatives of Australian-based firms. It should be noted that many graduates of Australian universities seek employment outside Australia, either because they are international students returning to their home countries or Australian graduates moving overseas.

The project did not consult with, or seek the opinions of, students or new graduates. Some brief data from the Longitudinal Study of Australian Youth is provided which included the perspectives of recently employed graduates. Further engagement with students about the ways in which employability skills are developed, assessed and reported on would provide a more comprehensive picture of the issues identified in the project.

2 Employability Skills, Graduate Attributes and Other Frameworks

2.1 Introduction

Higher education institutions in Australia play an important role in contributing to the economic, social and cultural development of the nation. By its very nature, a project investigating employability emphasises the role which universities play in developing human capital, as part of local, national and international economies.

The Employability Skills Framework, outlined in *Employability skills for the future*, (DEST 2002a), provides the starting point for any discussion of employability skills in higher education in Australia. However, the Employability Skills Framework should be seen in relation to other skills frameworks that apply in the higher education context, notably graduate attributes and competency frameworks developed for application to specific professions.

Universities in Australia have nearly 10 years of experience in working with graduate attributes. In that time each university has defined its unique attributes and found ways to integrate or inculcate them.

This section looks at the link between employability skills and graduate attributes. Employability skills are paradoxically best learned and applied within the context of specific disciplines. This discipline-specific approach emphasises the importance of mapping these skills within curriculum and stresses the importance of universities and employers working together to appropriately define these skills.

As well as looking at employability skills in the higher education context, this section looks at recent international developments and the adoption of the Employability Skills Framework in the Australian vocational training and education and schools sectors.

2.2 The Employability Skills Framework

Employability skills for the future (DEST 2002a) presents the findings of extensive research undertaken by the Business Council of Australia (BCA) and the Australian Chamber of Commerce and Industry (ACCI) in 2001. The report identified personal attributes required for today's employees, as well as eight employability skills.

'Employability skills are defined as skills required not only to gain employment, but also to progress within an enterprise so as to achieve one's potential and contribute successfully to enterprise strategic directions.'
(DEST 2002a)

These skills were seen to have relevance to both entry-level and established employees. It was also recognised that the skills would be prioritised and adapted to suit various job-roles. The eight identified skills are:

- Communication skills that contribute to productive and harmonious relations between employees and customers
- Teamwork skills that contribute to productive working relationships and outcomes
- Problem solving skills that contribute to productive outcomes
- Self-management skills that contribute to employee satisfaction and growth
- Planning and organising skills that contribute to long-term and short-term strategic planning
- Technology skills that contribute to effective execution of tasks
- Life-long learning skills that contribute to ongoing improvement and expansion in employee and company operations and outcomes
- Initiative and enterprise skills that contribute to innovative outcomes.

For each of the eight skills, a number of elements or facets were identified. These provide an indication of the ways in which the employability skills may be further adapted for specific industries and job roles.

The Employability Skills Framework is widely acknowledged as evidencing what employers need in the workforce. Consultation on this project reinforced the framework as articulating what is important to employers from organisations of all sizes, industries and locations. Although it describes clearly what skills employers want, the Employability Skills Framework is also consistent with university educational objectives. In the time since *Employability skills for the future* was released, and the Employability Skills Framework implemented in the VET sector, employers have continued to emphasise both the importance of and need for employees and graduates who possess the required mix of these skills (Ai Group 2006 in ACCI 2007).

In their report, *Employability skills for the future*, ACCI and BCA identified the confusion that exists in regard to the terminology used across sectors, industries and countries in referring to the sets of skills and attributes that have come to be known in Australia as employability skills. 'Many terms are used in different environments to describe general skills that all employees may have. Similarly, education and training providers use a range of terms to represent concepts relating to learning and learning outcomes' (DEST 2002a: 1). This confusion is further exacerbated within higher education and policy sectors where, 'the terms used in this policy area have been varied, overlapping and at times confusing' (DEST 2002a: 21).

The final decision to use the word employability is based in part on an ACER definition which states that, 'employability has more potential as a term to signal the qualities needed for success not only in paid employment but also in other domains of life' (ACER 2001 in DEST 2002a).

Employability skills for the future also includes a discussion of implementation in higher education notes the work that some universities (at that point) had undertaken in relation to emphasising the development of generic skills as an overt outcome, noting that 'More than ever before universities are being relied upon as a vehicle for the advancement of both the national economy and wider society. They do this through the creation of new knowledge and by preparing graduates with appropriate skills and attributes. It makes sense, then, for them to maintain a focus on keeping graduate capabilities in line with the needs of the economy and society' (DEST 2002a: 25).

The Allen Consulting Group report (2006: 11), *Assessment and reporting of employability skills in training packages* refers to the naming of employability skills in the following way:

'They are also known by several other names, including key skills, core skills, life skills, essential skills, key competencies, necessary skills, and transferable skills. However industry's preferred term is employability skills'.

Employability skills are therefore a significant subset of a broader set of generic skills. The OECD-sponsored DeSeCo (Definition and Selection of Competencies) project³ (Rychen & Salganik 2001), identified four major conceptual elements in generic competencies, namely that they:

- Are multi-functional – they meet a range of different and important demands of daily life. They are needed to achieve different goals and to solve multiple problems in different contexts
- Are relevant across many fields – they are relevant for participation in school, the labour market, political processes, social networks, and interpersonal relationships, including family life and for developing a sense of social wellbeing
- Refer to a high order of mental complexity – they assume a mental autonomy which involves an active and reflective approach to life
- Are multi-dimensional – they are composed of know-how, analytical, cultural and communication skills, and common sense.

2.3 Graduate Attributes

Graduate attributes may be defined as:

'...the qualities, skills and understandings a university community agrees its students should develop during their time with the university'. (Bowden et al. 2002)

Three major factors are seen to have an influence on the value placed on graduate attributes; the popular perspective that education is a life-long process; a greater focus on the relationship between education and employment outcomes of graduates; and the development of outcomes measures as part of the quality movement (Cummings 1998). Graduate attributes, as they are conceptualised in Australia, had their synthesis in the West Review in 1998, which provided a framework of generic attributes that ideally every graduate should have:

- The capacity for critical, conceptual and reflective thinking in all aspects of intellectual and practical activity
- Technical competence and an understanding of the broad conceptual and theoretical elements of his or her fields of specialisation
- Intellectual openness and curiosity, and an appreciation of the interconnectedness, and areas of uncertainty, in current human knowledge
- Effective communication skills in all domains (reading, writing, speaking and listening)
- Research, discovery, and information retrieval skills and a general capacity to use information
- Multifaceted problem solving skills and the capacity for team work
- High ethical standards in personal and professional life, underpinned by a capacity for self-directed activity. (DEETYA 1998, p. 47.)

Since that time, all Australian universities have been required to develop policy statements which specify their generic graduate attributes as part of funding and reporting arrangements with the Department of Education, Science and Training. These policies specify the generic attributes of their graduates irrespective of the discipline which forms the basis of their qualification. Graduate attributes are not discipline-specific, but are intended to reflect broader aspirational, social, ethical or humanitarian characteristics that a society desires of its university graduates. In most cases, these attributes address some or all of the attributes identified in the West Review. Work in this project indicated that although there is a great variance amongst the graduate attributes described by individual universities, most of the eight employability skills are implicitly or explicitly addressed by each university's graduate attributes. However, it should be acknowledged that many universities' graduate attributes will include additional skills with broader social or other commitments, such as:

- social justice (Murdoch University)
- global perspective (University of New England)
- respect for ethical practice and social responsibility (Monash University)
- an appreciation and valuing of cultural and intellectual diversity and the ability to function in a multicultural or global environment (University of Wollongong)
- academic excellence (University of Melbourne).

Most universities have addressed the importance of employability skills through their graduates' attributes. Appendix IV provides a listing of graduate attributes from 29 Australian universities which show considerable overlap with the Employability Skills Framework. A detailed mapping of graduate attributes against the Employability Skills Framework was not part of the scope of this project, but the elementary work done to look at the links between employability skills and graduate attributes indicates that universities' graduate attributes also address employability skills.

2.4 Discipline Perspectives

This project looked at the suitability of the Employability Skills Framework in the higher education sector. Interviewees strongly confirmed the appropriateness of these skills. Communication, teamwork and innovation, for example, are skills widely recognised as important to the new economy and all job roles. It is also understood that the Employability Skills Framework is only applicable in the broadest sense, as professions require their members to enact these skills in quite different ways and with different levels of sophistication. For example, the requirements for oral communication skills for a barrister, a nurse and marketing manager, a computer programmer and an artist are all quite different, and need to be understood and developed in quite different ways. The framework simply presents a generic suite of skills and attributes that are common across industries and are applicable to businesses of all sizes and types. It also applies to people at all levels in any given business enterprise, from the most junior to the most senior of employees. Although this project has identified support for the appropriateness of the Employability Skills Framework, this support is only for its usefulness as a broad tool. More customised versions can be created to apply to specific businesses, industries and job roles.

Similar to the views of employers, universities favour a discipline-embedded approach to developing employability skills or graduate attributes, rather than using broad national frameworks. Although employability skills are highly transferable, they are best developed or learned in a specific context. Discipline-centred approaches are also widely held to be more engaging for students and ultimately viewed as leading to better graduate employability outcomes. (Bowden et al. 2002) reviewed the generic capabilities of Australian Technology Network (ATN) university graduates and developed the principle that:

‘The development, practice and assessment of attributes is most effectively achieved within the context of discipline knowledge.’

The University of New South Wales also reinforces this approach.

‘A statement of broad graduate attributes has meaning when expressed to students and staff in the context of the discipline. Thus, the Faculties are responsible for expressing these University Graduate Attributes in the context of the professional area, discipline and program level, and for their explicit development and assessment within the curricula.’ (UNSW Academic Board AB03/67)

Research from this project concurs with this principle and expands it to also allow for greater flexibility in order to address the differences that are as marked across disciplines or faculties within one university as they are across universities. Within any given higher education institution, pedagogical differences and teaching cultures vary between disciplines. These differences allow for greater flexibility as individual institutions, businesses, faculties and professional bodies work together to build relationships and develop graduates with the skills to succeed in many different environments and to cope with the new and ever expanding knowledge and practices of their fields.

Flexibility is also an important quality to emphasise in relation to broader degrees, such as Arts and Science that often act as springboards to a range of careers. It is even more difficult to provide a context in which to apply employability skills for these types of qualifications that do not address the requirements of specific professions. Many of those interviewed stressed that these degrees, because of their breadth or holistic nature, intrinsically develop generic or transferable skills. They are qualifications which can not only lead to valuable employability outcomes, but which also represent a core value of universities: to develop educated graduates with a broad knowledge base and sense of social responsibility.

2.5 Curriculum Mapping

Australian universities have already begun to address employability skills through the formal articulation of graduate attributes and the integration of those attributes into curriculum. Curriculum mapping is one means to ensure that graduate attributes, and therefore employability skills, are given an appropriate focus, are discipline-nuanced and aligned with course content.

Some universities have put institution-wide initiatives in place to undertake curriculum mapping, with a range of support systems. Where no university-wide initiatives exist, there are also many examples of individual faculties that have undertaken curriculum mapping in their own right. The College of Fine Arts at the University of New South Wales explains curriculum mapping in this way:

‘Curriculum Mapping, thus, has two interrelated components:

(1) One is to map the articulation of the course curricula: teaching approaches, topics, and assessments, along with course aims, teaching philosophy and stated outcomes. This will allow staff and students to understand the articulation of these elements, and for staff to strengthen this articulation. Increasingly, Course Outlines are also requiring an articulation of these elements, and the mapping process will assist the development of informative Outlines.

(2) The other is to map an entire program in terms of how individual courses contribute to the overall goals of the degree. This involves looking at Graduate Attributes: those generic qualities, skills and understandings that we expect our students to develop over their period at COFA. These are more than specific disciplinary expertise or technical knowledge, but include broader capacities that contribute to the student’s life-long capacity to act as a professional, citizen and learner. The process maps the introduction and development of these attributes in the courses that a student completes. A whole program map allows a clearer sense of where gaps or overlaps exist in terms of developing, practising and assessing these broader capabilities or attributes.’

Both of these components are relevant to the objectives of this project.

Curriculum mapping analyses existing curriculum to identify where particular skills are covered in the curriculum. Some universities are mapping graduate attributes, or generic skills, against existing curriculum to identify where specific skills are addressed and where there are gaps in the curriculum and to further identify and develop skills (Sumsion and Goodfellow 2004). Some universities have taken highly structured approaches to mapping graduate attributes across curriculum, to ensure that these attributes can be readily seen across an entire program or qualification. This enables the identification of gaps and alignment of graduate attributes with discipline-specific content.

The following case study presents an example of a university-wide initiative undertaken at Curtin University. Curtin has committed considerable human and financial resources to an extensive three year curriculum mapping project which will cover all of the university’s courses. It is a comprehensive project which will result in graduate attributes being embedded in learning outcomes for all courses.

Curtin University – Curriculum 2010

Curtin University has developed nine graduate attributes that it firmly demands of all its students. To ensure that the skills employers and others will expect from graduates are in place, Curtin is mapping every course for its learning outcomes and integrating graduate attributes. By 2010 every course must have addressed every graduate attribute.

'Communicate effectively' is covered in each year, at different levels that are appropriate to the students' academic development. Curtin has eschewed the trend to teach graduate attributes in first year and then follow with discipline-specific content in later years – its emphasis is on integrating graduate attributes and content knowledge and ensuring that graduate attributes are given priority and clearly expressed in learning outcomes.

Curriculum 2010 is a stepped process, which includes five phases relating to curriculum mapping:

1. Initial mapping and needs analysis
2. Map the existing course
3. Course team considers the map of existing course and revises unit information
4. Consensus on the renewed course
5. Course changes approved.

Following this, there is a process to implement the reviewed curriculum. Staff with curriculum expertise work with teaching staff with discipline-specific knowledge and the teaching at the Curtin program explains and supports the process.

Curtin is in the process of developing a web-based map of their curriculum and e-portfolios for students which will be structured around the graduate attributes.

Benefits

The Curriculum 2010s project requires academic staff to describe how each graduate attribute will be addressed in a course, at what point it will be developed and how it will be assessed. This approach represents a model which provides evidence of how employability skills have been addressed in curriculum.

Additionally, Curtin believes that Curriculum 2010 will lead to a reduced number of courses, and that some courses will be completely restructured. Curtin expects that all courses will benefit from a more strategic focus, and that all learning outcomes will be achieved developmentally by students in sustainable coherent units. It also believes that this process will lead to better teaching and assessment practice.

Limitations of the approach

Because the approach outlined here is detailed and thorough, it is hard to do it justice in this short case study, but even this brief discussion shows how the challenge is being seriously considered and incorporated into the life of the university. Perhaps the only drawback of this approach is that it takes time and it will be some years before Curtin can see the results of the work. Staff say they will know about the success of this intensive process from student evaluations, employer feedback and a growing reputation for excellence in teaching and learning practice.

Broader applications

Curtin University's documentation for staff about the process is clear and practical, and may be of use elsewhere.

In addition to whole-of-university approaches, there are many more examples of faculties taking on the task of curriculum mapping in their own unique ways.

Monash University – Faculty of Medicine, Nursing and Health Sciences

Whilst some universities have taken an institution-wide approach to integrating employability skills, there are many examples where faculties have undertaken the task in their own right. In 2004 Monash University's Faculty of Medicine, Nursing and Health Sciences completed a project focusing on the mapping of graduate attributes into the postgraduate coursework degree curriculum of the faculty.

Overall the project has had positive results and reaped benefits for both the faculty and university. Benefits for the faculty include the development and implementation of an integrated coursework curriculum map, which can also be used for the future mapping of other courses within the faculty. The faculty can now confirm exactly which Monash University Graduate Attributes a graduate will obtain by completing a coursework degree through the faculty. The project also identified gaps in the current curriculum which will require further review in the near future.

Benefits for the university relate directly to the experiences of the faculty and the tools developed, which can easily be adapted to apply to other faculties as well.

Furthermore, results from the project can be used in relevant marketing material, including course brochures and publications, as well as publishing the results on-line, increasing the understanding of individuals (and employers) of the graduate attributes obtained by completing a coursework degree.

In addressing graduate attributes through curriculum mapping, universities are making it clear to staff with teaching and assessment responsibilities that graduate attributes, and therefore employability skills, must be addressed. Curriculum mapping for graduate attributes should ultimately lead to students with an informed picture of the skills and knowledge that is expected of their profession and the capacity to demonstrate those skills in the workplace.

2.6 Connecting Higher Education and Industry

Increasingly universities, industries and businesses are working more closely together to accomplish mutual goals:

- Universities are seeking to establish stronger ties to professional bodies and businesses in their locale
- Industries are working through professional bodies to help shape and inform up-to-date curriculum and course design
- Graduate Careers and Employment services are linking students with employers and facilitating events which bring employers on campus
- Universities are inviting business representatives to actively participate through formal structures and committees.

2.6.1 Universities engaging industry

Most universities have well established links with industry representatives, businesses and a range of social and cultural institutions that fit with their culture and focus. Victoria University is one of the five dual sector universities offering both Higher Education and Technical and Further Education (TAFE). Victoria University has introduced personalised access and pathways for all adults who wish to enter tertiary education. As a dual sector university, Victoria University has experience in working with the Employability Skills Framework; the Framework has been applied to all nationally recognised qualifications in the VET sector and Victoria University delivers many of these qualifications.

Victoria University – A New School of Thought

Victoria University (VU) has begun a program, referred to as *A New School of Thought*, which is reshaping the work of the University to offer better choices to its students, and to ensure its courses better serve the needs of industry and the community.

To support the implementation of this program, Victoria University has developed *The Five Commitments*, which describe and support their dedication to providing students with good employment outcomes, including being responsive to the demands of globalisation and the new economy, as well as providing benefits to the western region of Melbourne.

Two of the university's five commitments specifically address linkages both with higher education and industry.

1. All VU courses will focus around twelve industry community clusters. Prominent leaders from industry and the community will chair high level Roundtables that will have a direct say in the redesign of all courses. This commitment is being undertaken in order to shift VU's traditional focus from academic disciplines to a focus on specific industries and community groups, and their education, training and research needs, in areas for which VU has the capacity to be a major provider of graduates. According to further documentation available from VU, key elements of this commitment will include:

- pulling back from courses and awards that do not add value to the range of courses that target particular industry or professional clusters
- establishing an Industry Roundtable for each cluster and developing explicit links with Premier Partners within each cluster.

2. Victoria University will create job-ready and community-aware graduates whose courses contain at least 25% learning in the workplace, including opportunities for learning in the community. This second commitment is being driven by a realisation that VU must shift from 'models of work experience that emphasise learning about and for work, to using the workplace as a place where students learn in and through work'. By 2010, Victoria University hopes to achieve the following two elements among others:

- all courses will include a minimum of 25% assessable learning in the workplace
- provide for learning in the workplace to be undertaken while participating in the community on community-identified and led projects and activities, which recognise the importance of non-profit and other sectors.

2.6.2 Industries engaging universities

Industry engages with higher education in Australia and overseas through umbrella groups and peak bodies. In this country, many professional bodies have developed their own professional competency frameworks which can be used as tools to determine eligibility for membership and to assess for areas requiring professional development. Increasingly, these competency frameworks are being used, or expanded upon as part of accreditation processes in higher education.

Professional bodies provide an important link between universities and the profession. One industry interviewee saw the role of the professional body in this way: *'professional bodies should be the governors and protectors of curriculum. They should advocate for the profession as a whole'*.

Many professional bodies are actively engaged in accrediting university courses or in making graduation from certain courses a requirement for membership. Some professional bodies who take on these roles are Engineers Australia, the Australian Psychological Society, the Australian Human Resources Institute, Australian Society of Archivists, Speech Pathology Australia, the Australian Association of Social Workers, the Australian Dental Council, Royal Australian College of General Practitioners; Royal Australian College of Physicians; and the Australian & NZ College of Anaesthetists. Thus, there seems to be an enthusiastic and growing willingness to share expertise in the hopes of grooming a more satisfactory workforce.

One example of this approach is provided in the case study below in which Engineers Australia has defined professional attributes required by graduate engineers.

Engineers Australia

Engineers Australia (EA) is a professional body, which also acts as an accrediting body. Through its accrediting role it places particular emphasis on the development of generic or employability skills. A review of engineering education was undertaken ten years ago and the review indicated that there were some significant gaps in the development of employability skills in undergraduate engineering students.

Engineering Australia has responded to the findings of the review by developing a suite of professional attributes in their competencies, which are used as the basis for accrediting courses in higher education. These attributes for engineers show many overlaps with the Employability Skills Framework. The Engineers Australia attributes have now been in place for ten years and are currently being reviewed as part of a joint ACED/Carrick project which will review attributes and accreditation processes. The professional attributes included in the Engineers Australia competency standards are:

- Ability to communicate effectively, with the engineering team and with the community at large
- Ability to manage information and documentation
- Capacity for creativity and innovation
- Understanding of professional and ethical responsibilities, and commitment to them
- Ability to function effectively as an individual and in multidisciplinary and multicultural teams, as a team leader or manager as well as an effective team member
- Capacity for life-long learning and professional development
- Professional attitudes.

Benefits

The Engineers Australia attributes represent an up-to-date description of what industry expects of its graduates, while the accreditation process itself addresses the inclusion of these competencies in curriculum and ensures that individual faculties provide as much industry contact and work experience as possible. Engineers Australia visits universities to review documentation and speak with staff directly about their teaching and assessment practices. Because of a lack of resources, many professional bodies' accreditation processes do not include on-site visits, which can be a limitation in the quality of their judgments.

Limitations

EA indicated that one of the challenges for them in offering an accreditation function, in addition to funding, is managing the boundary between being an 'accreditor' and 'assessor.' In their accrediting role, Engineers Australia is investigating how these attributes or competencies are being developed and assessed by academic staff, but not reviewing actual performance by students. It should also be emphasised that EA is also active internationally and is signatory to several international accords which shape engineering education globally.

Broader application

EA is certainly not the only professional body that has a competency structure or performs an accreditation function, but its model is one that is very well structured and respected by a range of stakeholders in higher education.

2.6.3 University careers and employment services

University careers and employment services are staffed by professionals responsible for providing career development and employment services to students. Currently many careers and employment services are working to assist in the development of students' employability skills, while maintaining an awareness of the diversity in the higher education system and the learning needs of students. Careers and employment services typically:

- are the main source of employment advertising for students
- maintain strong working relationships with employers by providing them with appropriate channels for accessing students and graduates
- work with teaching and learning staff to assist in the integration of employability skills through curriculum and development
- assist students to develop skills to obtain jobs
- inform students about employer expectations.

Careers services have a primary focus on service delivery to students. In this role they raise the profile of graduate attributes or employability skills amongst students. One of the ways they are able to do this is in bringing students and employers together through careers nights and careers expos and themed events.

Like most universities, RMIT offers a course to assist students to:

- identify future trends in employment and to understand the implications for their career development
- recognise their values, interests, skills and own complex personalities
- develop a personal career plan to enhance their employability
- practice 'employability skills' including group work and presentation skills
- develop job search techniques
- write a resume
- write application letters
- develop interview skills.

This three-day intensive course helps students to prepare themselves for employment and makes explicit to students the skills that employers will be looking for.

Because of their resources, it is easier for careers services to establish links with recruiters from large companies, but smaller businesses can be included as well. The University of Sydney holds a separate careers fair for small to medium enterprises (SMEs) as these companies typically do not have the same opportunity to access new graduates. Careers services are one of the key links between the university, the students and employers. Staff in careers services have an opportunity to reinforce student awareness of employability skills which have been developed through study, and to help students to articulate these skills to obtain employment. In their response to the discussion paper produced as part of this project the National Association of Graduate Careers Advisory Services (NAGCAS) argued that careers services in universities were well placed to work as the link between faculties and businesses and that their developed relationships with businesses could be better utilised by faculties to ensure a strong engagement between business and university teaching staff.

2.7 Other Frameworks

2.7.1 Australian vocational education and training

The Vocational Education and Training sector differs from higher education in that it has nationally recognised qualifications which are developed through DEST funded Industry Skills Councils (ISCs). The ISCs develop these qualifications through consultations with industry and training providers; all these qualifications are built from nationally endorsed units of competency. The units, the packaging rules for the qualifications and the assessment guidelines are brought together in the form of training packages which cover a diverse range of industries, with each package covering an entire industry or a substantial sector of an industry. For example there is a Financial Services Training Package, a Health Industry Training Package, and an Aviation Training Package and so on. A full list of training packages can be found at www.ntis.gov.au.

Guidelines were developed for how to incorporate and embed employability skills in units of competency and qualifications; the guidelines can be located in the *Training Package Developers Handbook* a DEST publication which sets out mandatory requirements for the development and publication of all aspects of training packages. The handbook is available on the DEST website.

A structured process, funded by DEST, was used to recruit and train a group of training package developers in the employability skills framework and its potential application. These individuals formed a pool of people that ISCs could contract to undertake mapping and gap analysis for employability skills in training packages. Their work was then evaluated by another group of Employability Skills Quality Assurance consultants, also selected and trained in a similar process.

The ISCs are the custodians of the training packages and hold responsibility for seeing that qualifications address employer and industry needs. Registered Training Organisations deliver the qualifications and they are regulated through State Training Authorities, and audited against the Australian Quality Training Framework. There are over 4000 Registered Training Organisations, varying enormously in their size from some with 1 or 2 trainers to organisations with thousands of employees.

In the Australian VET sector, the ACCI/BCA Employability Skills Framework has been applied to each training package and each qualification. Every qualification has, or will soon have, an Employability Skills Summary which describes how each of the employability skills is addressed in that qualification; all qualifications must address the entire suite of employability skills. Examples of how facets of each employability skill are evidenced in that qualification are provided as part of the Employability Skills Summary. The Employability Skills Summary is drawn from the employability skills that are embedded in the outcomes of the individual units of competence.

There have been several projects looking at the integration of employability skills in the sector, most recently the issue of assessment and reporting on employability skills (Allen Consulting Group 2006). Two professional development resources have been produced: (1) a resource to assist trainers and assessors to integrate employability skills in their teaching and assessment practice and (2) a training program that can be used to explain the Employability Skills Framework and how it can be meaningfully included in training and assessment processes.

The development of Employability Skills Summaries for each qualification began in 2005 and is yet to be completed. Changes to training packages need time to flow through to training and assessment; for example the Business Services Training Package (the most commonly used training package in the national system) went through a process to identify the employability skills summaries for each qualification – this version of the training package has not yet been finally endorsed and students will not begin to enrol in those qualifications until late 2007 or probably 2008. It is therefore not expected that individuals will complete qualifications in which the employability skills have been embedded until 2009 or later. It is not until that point that issues in relation to transition from the VET sector to the higher education sector will become apparent. It is not known at this time how, if at all, universities will change their approach to students with these qualifications as a result of the employability skills embedding process. However, some dual sector universities, such as Swinburne and Victoria Universities, have already mapped graduate attributes against the Employability Skills framework.

The approach to employability skills in VET has been to:

- identify the employability skills in units of competency and qualifications in training packages and to document the outcomes
- encourage teaching and assessment practices which enhance a student's employability skills
- investigate and develop approaches to the reporting of an individual's employability skills
- investigate the best way in which these reports can be made available to potential employers.

2.7.2 Schools, vocational education and training and higher education

State and Australian Government Education Ministers agreed in 2004 that the eight skills identified in the Employability Skills Framework covered the skills required by young people for successful transition from school to other areas, including work. These skills have not been systematically documented within schools curriculum, unlike the process underway in the VET sector, although it should be kept in mind that there is a large amount of VET in schools delivery. Different approaches have been taken in different states and territories in relation to employability skills in schools. The approaches taken to develop employability skills in the higher education sector are extremely diverse, in keeping with the diversity of the sector. Because of the higher level of skill and knowledge required of university graduates, the identification, development, assessment and reporting of employability skills will need to take diverse and more sophisticated approaches in the higher education sector.

2.7.3 International experiences

Employability skills are not unique to Australia and are of growing importance in the international context. Canada and Singapore have their own systems, referred to as employability skills, while the US (SCANS Competencies) and the UK (Key Skills) address a similar set of generic or soft skills. Each of these systems is similar in that they are not specifically designed for the higher education sector. With the exception of Key Skills in the UK, which is primarily directed at secondary students, all of these systems were developed for vocational education systems.

A scan of international literature in this area shows that there is no agreed definition of the term 'employability'. Some argue that employment rates following graduation, is a sufficient measure of employability, similar to the Australian Graduate Destination Survey. Others go beyond this and emphasise the importance of performance in those job roles. (Little 2003) describes employability as:

a set of achievements, understanding and personal attributes that make individuals more likely to gain employment and be successful in their chosen occupations

(Sirca et al. 2006) define employability as:

a set of achievements – skills, understanding and personal characteristics – which help graduates to become employable and successful in a chosen career

In Canada and the US, work based learning, either as voluntary experience or paid work, and individual student portfolios are the preferred methods for developing and recording employability skills (Little, 2003). In Hong Kong, the University Grants Committee surveys approximately 2000 employers each year to determine their satisfaction with graduates from the local universities, and results are fed back to the universities.

The higher education sector, throughout Europe in particular, has increasingly focused on the importance of the concept of employability. In Europe the changes to higher education brought about by the Bologna Process have given it a particular emphasis, as seen in the introduction of separate study cycles; firstly an undergraduate level, which is linked to the labour market, and a postgraduate level, which leads to Master's or PhD level qualifications (Sirca et al. 2006). A number of supporting European projects have occurred which address employability outcomes and have also begun the work of articulating the differences that exist across disciplines and national boundaries. A significant piece of work is the Dublin Descriptors, which has been of great assistance in supporting the work of national agencies in quality assurance. These descriptors provide generic descriptors of expected results and abilities, connected to qualifications gained as part of each of the Bologna cycles. They are not specific to any discipline, and include the following:

- ability to demonstrate knowledge and understanding in a field of study
- ability to apply their knowledge and understanding in professional manner, through devising and sustaining arguments and solving problems within their field of study
- ability to collect and interpret data in order to formulate judgments, including reflection of relevant social, scientific and ethical issues
- ability to communicate information, ideas, problems and solutions to specialist and non-specialist audiences
- ability to develop learning skills needed for further studies with a high degree of autonomy (Sirca et al. 2006).

As with graduate attributes, there is a very strong correlation between the Dublin Descriptors and broader descriptions of employability skills.

There is a wide variety of approaches taken in different countries. England, Scotland and Wales appear to be the only countries that have national approaches to employability skills in the higher education sector (as distinct from institutional practices, or practices that are designed primarily for school students, or adults with little or no formal qualifications).

United Kingdom

A recent study for the Higher Education Funding Council for England focussed on the graduates of 2000 and set out to identify the relative significance of different interventions by universities in the employability of graduates (Mason et al, 2003). The research methodology included visits to 34 departments in eight universities in England to investigate the extent to which employability skills had been integrated into teaching and learning, an analysis of graduate destination survey data for all graduates from those departments, and a telephone survey of graduates in five subject areas and their line managers. The researchers concluded that relevant work experience during the degree program had a highly positive influence on employability and that employer involvement in course design and delivery also had a positive effect on initial employment (although they warn that because they looked only at the five subject areas of history, biology, business studies, computing and design studies these findings need to be checked by other research looking at other discipline areas).

Universities Scotland, in its report 'Getting ready for work, employability and higher education' (2002) lists four broad categories which cover the range of activities within Scottish higher education institutions. These include:

- central support through a careers agency or similar function
- modifications to curriculum to enhance or make explicit employer requirements
- work experience as an integrated part of the program of study, and
- the provision of opportunities for students to reflect on and document their own achievements, through some sort of progress file.

In 2004 the Scottish Higher Education Funding Council and the Scottish Further Education Funding Council published Learning to Work, a paper setting out a range of suggestions for universities and further education colleges to implement in order to develop student employability skills. Following further discussion and debate about the issues raised in the paper, and the development of an action plan, the Scottish Funding Council (SFC) announced a four year program of strategic funding for higher education institutions to develop graduate employability in December 2006.

Recognising the diversity of the sector, and the different types of activities that had already been undertaken to develop employability skills, the Council determined that it would offer development funding over a four year period beginning in 2007. It intended to distribute £900,000 per calendar year to institutions, using an allocation formula based, at least for 2007, on their overall share of the main funding grant and also allocated £100,000 per year for evaluation. To take up the funding offered, institutions are required to submit a brief plan setting out the current situation with employability activities in the university, an analysis of gaps, opportunities and challenges, key priorities for development, how it intends to use the resources to implement its priorities, how the plan will utilise materials already available and how the institution intends to collaborate with others. The criteria for determining that the program of strategic funding has been a success include:

...if after four years, there is evidence that every institution has looked systematically at all of its provision; developed its curriculum, teaching and learning approaches and support services accordingly (in ways appropriate to each function and discipline); and made continuing development of their provision contribution to learners' employability a systemic part of how the institution operates; and

...if in time, we see this reflected through increasingly positive feedback from the graduates who take part in longitudinal surveys, and evidence of greater satisfaction among employers in terms of graduates generic skills and attributes and readiness for work.

In addition to the SFC grants, the Higher Education Academy has set up the new Scottish HE Employability Network (SHEEN) to act as a forum for institutions to share ideas, discuss collaborative approaches and engage in the review and evaluation aspects of the funding program. The Higher Education Academy also provides numerous employability resources specific to a range of subject areas, and includes guidelines for academic staff in higher education to enhance the employability skills of their students. The Academy also provides audit tools to assist them in auditing the design of their courses for the ways in which employability skills are currently addressed and to create action plans to address future ways in which they may be better addressed.

Something similar has been operating in Wales since 2000. The Higher Education Funding Council of Wales required higher education institutions in Wales to produce an annual Work Experience and Employability Plan (WEEP) between 2000 and 2003. The plans set out the institution's strategy for the promotion and provision of work experience opportunities, programs and projects aimed at improving graduate employability. It was designed to set out a medium term (3year) strategy with annual reviews and updates.

The requirements of the plan encouraged universities to take into account and to document the views and wishes of 'business, commerce, the public sector and the professions' as well as those of its own undergraduates and graduates in developing, and implementing policies and monitoring their effectiveness.

An evaluation of the programme in 2003 found positive trends in that there was a clearer understanding of the need to embed employability skills in the curriculum, a general shift away from stand alone employability modules and a clear shift towards facilitating learning from vacation and part time jobs. The WEEPs were publicly accessible documents which would make it clear to a range of stakeholders what approaches were being promoted in different institutions. The model was at the level of the individual institution and its relative success may depend on the level of resources applied. The Higher Education Funding council of Wales decided in 2003 to no longer require individual WEEPs from institutions but rather that they report on employability within teaching and learning strategy documentation.

These approaches, and particularly the Scottish approach to providing resources to universities linked to clear plans about how they intend to develop employability skills in their graduates, are worthy of consideration within the Australian context.

2.8 Conclusion

The Employability Skills Framework has many overlaps with universities' graduate attributes. Many universities have developed methods to see that graduate attributes are addressed at the subject or unit level, whilst some have developed more detailed processes to look at how graduate attributes are addressed across a whole course or program.

Curriculum mapping is a means to make explicit how employability skills and graduate attributes are addressed in the content of a given course or program. Curriculum mapping is a foundation stone for employability skills which needs to be supported by quality delivery and assessment strategies to ensure that students develop an understanding of employer expectations and the skills to meet those expectations.

The Vocational Education and Training sector has been working to integrate employability skills into national qualifications for several years. Through the introduction of Employability Skills Summaries, the sector will have a record of how the employability skills are covered in every nationally endorsed qualification. The effectiveness of this approach in terms of actually increasing a learner's employability skills will be seen in future years.

3 Developing Employability Skills

3.1 Introduction

Australian universities are taking many different approaches to ensure that their graduates are prepared to meet their professional responsibilities, and that they will start their careers with the skills that workplaces need.

The higher education sector is characterised by diversity; course and student profiles are different and universities aim to develop students with distinct characteristics or attributes. Because Australian universities can and do offer clear choices to prospective students, they have taken different approaches in the manner in which they develop graduate employability skills.

Universities work to develop employability skills in their students by providing academic staff with relevant support and resources, integrating these skills into curriculum and course design, providing students with work placements and exposure to professional settings and providing advice and guidance through career services. Furthermore, universities offer students opportunities to develop themselves through participation in clubs and societies and university life.

In addition to the part that universities play in developing students' employability skills, it should be recognised that most students are concurrently developing these skills through part-time employment, volunteer work and community participation.

3.2 Teaching Methods

'The changing nature of higher education in Australia has shifted our focus as teaching and learning professionals, in that the teaching of skills has become as important as the teaching of content.' (Cooper 2005).

The development of employability skills in higher education students requires academic staff to have informed knowledge of current industry practice and an awareness of how different workplaces are structured and function. Teaching skills, as well as knowledge, means that academic staff are required to move beyond traditional lecturing and use a range of teaching methods. As well as teaching 'about' particular skills, academic staff can model those skills and develop them through the teaching methodologies they use. Certain courses, such as science or information technology, have always had a strong practical component, in both teaching and assessment, yet increasingly universities are encouraging the use of different teaching methodologies to develop graduate attributes in their students. The nexus between learning graduate attributes and teaching processes is described by the Business / Higher Education Roundtable (B-HERT) in the B-HERT Position Paper No. 9 2002 in this way:

'(there is a) strong and recurrent link between the development of generic skills by learners and teaching and learning methods that exhibit such features as:

- *adult learning principles*
- *holistic approaches to learning*
- *problem-based learning*
- *lifelong learning skills*
- *learning how, why and exploring what if ... , not just learning received facts*
- *learner reflection, evaluation and articulation on learning experiences as a critical aspect of the learning process*
- *active, learner-centred approaches in which integrated thinking and action occurs on tasks that are relevant and meaningful to learners*

- *the teacher assuming multiple roles, such as mentor, coach, facilitator, evaluator, that include demonstrating/modelling the generic skills to learners.*' (B-HERT 2002)

In a response to that B-HERT paper, Queensland University stated:

'The university considers that graduate attribute support can be found in both the planning curriculum (the goals, learning outcomes, assessment program and learning activities planned for students) and the enacted curriculum (the process and content of the learning experienced by students).' (B-HERT News 2003).

Certain teaching strategies lend themselves to the development of particular employability skills, as illustrated in the Table 1 below.

Table 1: Teaching strategies suited to development of employability skills

Employability Skill	Teaching Strategies
Communication	Writing and presenting written and verbal reports Role plays Demonstrations Working in groups
Teamwork	Team or group projects Learning sets Group discussion Syndicates Communities of practice
Problem solving	Case studies Simulations Investigative projects and research Using various problem solving tools and techniques Developing or designing models Problem solving in teams and networks Decision making activities
Initiative and enterprise	Brainstorming activities Designing innovative and creative practices and solutions Initiating change / designing change processes Simulation activities
Planning and organising	Research and data collection Developing action plans Planning and organising events Time management activities Goal setting activities and scheduling tasks Collecting and analysing information
Self-management	Development of portfolios Work plans Using log books to record time management skills and monitor own performance Career planning exercises
Learning	Reflective journals log books, diaries Mentoring and coaching activities Self-evaluation tools

Technology	Using the Internet, Intranets Using ICT skills to complete activities Industry relevant software, technology and equipment
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Source: adapted from *Employability Skills from framework to practice*: (DEST 2006)

Although teaching and learning are core functions in all educational sectors, there is conjecture that the actual skills associated with teaching are not given the priority they deserve. In 2002 the report *Striving for quality: learning, teaching and scholarship* (DEST 2002b) asserted that:

'...teaching needs to be accorded a much higher status in universities. It is necessary to take a broader conception of academic work and the validation of alternative career paths to improve the status of teaching. The quality of teaching is absolutely central to the learning experience. There needs to be a renewed focus on scholarship in teaching and a professionalization of teaching practice.'

The development of teaching skills is usually undertaken by centralised teaching and learning support units and typically there is a policy framework for teaching. The University of Adelaide, for example, has a policy that newly appointed staff will be provided with induction followed by a teaching development program for the first three years of appointment. Victoria University provides new staff with induction through its central professional development agency – the induction program then articulates into a graduate certificate in tertiary education.

In some universities, staff development activities are geared towards effectively teaching staff how to teach and assess employability skills, in the context of different disciplines. This approach relies on a culture of reflective teaching practice and support from Heads of Departments for strengthening teaching skills and rewarding staff with a commitment to teaching practice.

3.3 Resources to Support Academic Staff

Some universities are asking their staff to incorporate graduate attributes into course outlines, learning objectives and content for each subject or unit, and this is a significant shift for some staff. Some universities, such as Griffith University, are providing specific resources to support teaching staff in this change process.

Griffith University – Graduate Skills Toolkit

All course outlines at Griffith are required to show evidence of which of the university's eight graduate skills they develop, and how. The graduate skills and attributes are taught, practised and assessed across all program areas. To support this process, Griffith has developed a comprehensive suite of resources or Toolkit which is available on CD-ROM or the Griffith website.

The Toolkit has ten resources addressing topics such as teamwork, problem solving, written communication, oral communication and so on. The resources are aimed at staff to assist the integration of these skills in their teaching practice. Each of the ten resources covers:

- Why students need the skill
- What employers, graduates and students say about the need for this skill
- How to develop students' skills in the classroom
- How to assess the skill
- Principles of effective skill application
- Where to go for help
- Handouts (that can be printed out and passed on to students)
- Additional resources.

The resources are user friendly, succinct and very practical.

Benefits

The real advantage of the Griffith approach is that as well as requiring academic staff to document what employability skills will be taught and how, staff are provided with resources that they can pick up and use to generate ideas for teaching and assessing.

The Graduate Skills Toolkit developed by Griffith has many features to recommend it, but perhaps its greatest strength is the detailed attention it places on assessment of employability skills. Each resource for each skill has a section on assessment, with a range of sub-sections appropriate to the assessment of that particular skill. The Teamwork assessment section has the following sub-sections:

- Just because you use teamwork, you don't have to assess it!
- Assessment – points to consider
- Some suggestions for assessing teamwork
- Assessment options for lecturers and tutors – assessing team products
- Assessment options for lecturers and tutors – assessing team processes
- Assessment options for students – assessing team products
- Assessment options for students – assessing team process
- Peer and self assessment.

The involvement of students in assessment is consistent with best practice.

Limitations of the approach

Perhaps the one drawback with this suite of resources is that they are focused at the unit or subject level. Not every unit or subject will address each of the skills and without a whole of program or course review; it is possible that students could continue to learn the same few skills in every subject. Griffith acknowledges that the next level, a whole course mapping of which skills are addressed in which course, is desirable.

Broader applications

Griffith's resources have been well received within the university and several other universities have approached them and asked if they can use them for their own purposes. Griffith has made them available to at least two other universities which are presently using them.

The Griffith Toolkit represents best practice in resources to support teaching and assessment practice for the following reasons:

Value to academic staff	It presents a practical resource for teachers to effectively integrate employability skills across their content, teaching methods and assessment practices. It lends itself to different disciplines and learning contexts, and it is available in a range of formats.
Value to learners	Although developed for academic staff, implementation of the Toolkit leads to students who are clear about the importance of employability skills, and are taught these skills, provided with opportunities to practise these skills and are given assessment results for these skills. The value of this learning will assist graduates to be articulate about their skills and actively address skill gaps. Graduates have a clearer idea of employability skills required for the workplace.
Value to employers	The Toolkit includes comments from employers about each skill and their expectations of graduates in relation to those skills. Employers can review results from assessment activities of graduate attributes in portfolios of evidence.

The Toolkit brings the development and assessment of employability skills together very neatly, reinforcing good assessment practice which in itself motivates student learning and skill development.

3.4 Other Institutional Approaches

Another way to look at the area of generic skill development in undergraduates is through the lens of course structure. Some courses, such as Arts or Science, may not have a single or distinct vocational focus, yet there is a consensus that these less applied degrees produce graduates with highly transferable and well-developed employability skills. Some employers, government for example, hire many graduates with Arts degrees; they look for graduates with good academic results, together with evidence of community and other involvements and strong generic skills.

The widely publicised Melbourne Model can be seen to contribute to employability skills development by providing undergraduates with a broad academic grounding that is followed with professional specialisations through a Masters.

University of Melbourne – The Melbourne Model

The Melbourne Model is to be introduced in 2008. The university explains that:

‘The quantity and complexity of the information that students must master, understand and critique and the skills that graduates will need in the workplace of the future have obliged the University to carefully re-think the way it delivers its academic programs’.

The model has six broad undergraduate degrees: Arts, Biomedicine, Commerce, Environments, Music, and Science. Newly designed subjects will cross traditional disciplinary boundaries and the model emphasises transferable skills such as critical thinking, cultural awareness, teamwork, communication and leadership. The aim is to academically broaden undergraduate education (undergraduate programs are structured to include subjects from other disciplines or degrees and students are encouraged to do volunteer work, overseas study or part-time work). It is anticipated that the new degrees will create more opportunities for students to engage in different campus networks, and make new friends. Initiatives such as case- and problem-based learning, group syndicate work and peer mentoring programs will assist in the development of employability skills.

Under the model, education for a specific profession occurs after the Bachelor degree has been completed. It is argued that this will provide students with the opportunity to make more considered and informed career choices, and develop graduates with intellectual flexibility and a cross-disciplinary knowledge base. The university summarises the benefits for students choosing to go on to graduate professional courses as:

- starting their graduate study with a mature, broader perspective of the relevant subject areas
- having a clear vocational focus
- participating in a rigorous and intense, graduate-level learning experience
- having access to sophisticated career support programs, internships and mentor programs
- benefiting from the university's strong links to industry, community and professional bodies
- achieving the status of a graduate professional qualification
- benefiting from the greater employability and higher remuneration that comes from a graduate qualification.

The University of Melbourne has a reputation for developing highly employable graduates. It will be of great interest to the higher education and wider business communities to see the results of the changes.

Benefits

The move to broader undergraduate programs is well established in the United States. Graduates who have completed a Bachelor degree followed by a professional Masters will have received both a broad academic education and technical skills to meet professional standards. This should lead to graduates with intellectual flexibility and increased career options.

Limitations of the approach

The model is essentially new in Australia, and it will be 2011 before we see the first graduates who were enrolled using this qualification model. Critics argue that students with clear vocational aspirations on leaving secondary school will be required to undertake study they will not actively use in their careers and that it will take longer to enter the professional workforce.

Broader applications

At this stage the University of Melbourne is pioneering the model in Australia. Other universities will no doubt be watching to consider the results and see what they can learn from the outcome.

The Bologna model provides a three-year undergraduate course followed by a two-year Masters and a three-year PhD. This is not dissimilar to what many universities in Australia currently offer. However, the Bologna model claims to provide graduates with enhanced geographic mobility (they can obtain employment in more countries) and more developed employability skills. The model states that first degrees should be 'no shorter than three years and relevant to the labour market' (Milbourne 2006).

In the United States, undergraduates commence with a broad four-year degree followed by a professionally focused Masters. The breadth of the undergraduate program is seen to provide students with a wide range of options. The US model of generalist undergraduate degrees followed by professionally focused Masters degrees is the basis of the new model of the University of Melbourne (Milbourne 2006).

The significant difference between the two models is that the Bologna model emphasises employability outcomes for undergraduates with a Masters providing greater depth or professional specialisation, whereas the US model undergraduate program is a gateway degree.

Two questions emerge from looking at the Melbourne model, the Bologna model and the US model. Firstly, at what point in tertiary education are employability skills and professional practice best addressed? Secondly, how does a 'broad' education contribute to the development of employability skills?

Australian universities are not a homogenous group. Their history, culture, course offerings, teaching methods and student profiles vary enormously. The Melbourne model provides yet another educational option. It will be several years before it will be possible to determine if the employability skills of future graduates of the Melbourne model differ from the existing cohort of Melbourne students.

3.5 Work Integrated Learning

Work Integrated Learning (WIL) is the generic term used to describe a range of programs which provide students with a combination of workplace experience and formal learning which are integrated as part of a course of study in higher education. Other terminology for WIL includes: industry based learning, cooperative education, student placement and work practicum. The features that WIL programs share are:

- They are based on identified industry needs and expectations of graduates and employees which are integrated into the curriculum
- There is a work component as part of the curriculum design
- There are industry partners who, in addition to providing advice on curriculum design, also provide workplaces for students to gain experience
- There is a formal system which supports the students and provides a framework for organising and assessing the students' work and experience.

WIL programs provide a range of benefits and outcomes:

- Academic benefits, including increased motivation to learn and improved performance in the classroom

- Personal benefits, including increased development of employability skills, such as communication, teamwork and initiative
- Career benefits, such as greater employment opportunities and salaries
- Work skills development, such as increased competence in technical knowledge and skills, as well awareness of the role of work values and ethics in successful workplace performance.

WIL reflects best practice collaborative education programs by:

- structuring its format to enhance student learning and reflection of experience in the workplace
- aligning with students' studies
- involving supervision by the academic institution and the workplace
- monitoring with mechanisms for feedback from students and employers built into the design of the program
- involving a partnership approach to student learning (student, employer, university).

As there can be difficulties in locating employers who are willing to take WIL students, there has been a move in some universities to establish simulated environments which mirror work settings and work situations. At RMIT the School of Economics and Finance has established a Treasury Training Facility. This facility consists of ten syndicate rooms and a control room, linked by sophisticated computer, telephone and financial information networks. The facility is used by students during the Bachelor of Business to simulate trading in the money and foreign exchange markets. Use is made of live on-line market data from Telerate, Australia, Sydney Futures Exchange (SFE) and Australian Stock Exchange (ASX).

Some universities have made firm policy decisions about the place of work integrated learning. Victoria University has established five commitments, one of which is 'To make learning in the workplace and the community a universal feature of VU courses (at least 25%)'. This will require a significant increase in Work Integrated Learning. The Co-op Program at the University of New South Wales offers a different approach.

University of New South Wales – (UNSW) Co-op Program

The UNSW Co-op Program is a scholarship program set up by industry and the University of New South Wales (UNSW) to provide financial reward and industrial training for selected undergraduate students in the disciplines of Commerce, Science and Engineering. The Co-op Program has been running for eighteen years.

The UNSW Co-op Program is open to any student who is an Australian Citizen or Permanent Resident of Australia, is entering first year of undergraduate studies and is interested in studying programs offered under the UNSW Co-op Program. UNSW Co-op Program scholarship programs are all based on existing undergraduate programs at UNSW but with special features: UNSW Co-op Program scholars receive a tax-free scholarship of \$15,000 per annum (\$60,000 for a four year degree; \$75,000 for a five year degree), as well as structured industrial training (between 9 and 18 months), gaining valuable work experience with up to four different sponsor companies.

Selection for a UNSW Co-op Program scholarship is by face-to-face interview held at the University of NSW (Sydney, Australia) with academics and sponsor representatives. Having achieved a high academic standard, students are selected for UNSW Co-op Program scholarships on the basis of their personal skills and motivation, as well as their non-academic achievements. Successful scholarship applicants need to be involved in high school and community activities, to have shown leadership and initiative and to have excellent communication skills.

UNSW Co-op Program Scholarships offered for 2007 were in the following areas:

Commerce: Accounting, Actuarial Studies, Information Systems & Management, Finance and Marketing

Science: Business Information Technology and Computer Science

Engineering: Chemical Engineering, Electrical Engineering, Industrial Chemistry, Materials Science Engineering, Mechanical & Manufacturing Engineering, Mining Engineering, Petroleum Engineering, Photovoltaics & Solar Energy, Surveying & Spatial Information Systems and Telecommunications.

The Co-op Program is highly competitive. Unlike many other cooperative programs which usually run for a year or less, the UNSW program runs for the entire duration of the students' studies. The program has been planned and designed with input from UNSW academics and senior managers from industry and

government.

As entry to the program is highly competitive, industry is able to gain access to highly skilled students whom they are able to assess in the work environment. The Co-op Program is currently undertaking analysis of Co-op student employment post-graduation; however, current anecdotal evidence indicates high employment rates for students upon graduation.

In addition to its unique structure and scholarship system, the UNSW Co-op Program also offers its students a Professional Development and Leadership Program, which assists students in developing soft skills, as well as academic and technical skills. Additional professional development activities and skills-based training are made available throughout the program and include interview skills, a 'Meet the CEO' series and Business Analytical and Negotiating Skills training.

The Co-op Program has been so popular with employers and students that the Co-op Program is developing a pilot program, in collaboration with the UNSW Careers and Employment Office, to develop a suite of industry informed and supported courses which equip UNSW graduates (with a credit average) with 'soft skill' attributes which enhance their employability, making them preferred graduates for leading employers.

Benefits

Employers make significant financial contributions to the program and provide opportunities for work experience; in turn, they have access to some of the most able students in their fields and get to see how they perform in the workplace. Students receive \$60-75K tax free whilst studying, obtain industry experience in leading companies and are provided with enriched learning opportunities. Through the program, the university builds a strong and dynamic relationship with a range of employers and uses employer feedback to improve the program.

Limitations of the approach

Because it is an enrichment program, it requires dedicated university staff and resources, although employers make substantial contributions. Perhaps the only drawback is that it is selective and has a limited number of places (of course this is a strength as well).

Broader applications

This type of co-op model could be established elsewhere, but it relies on support from larger businesses which, in all probability, will be more inclined to participate in disciplines where there are skill shortages or where there is fierce competition for the best graduates.

The UNSW Co-op Program is well established and highly regarded. Although UNSW is moving to do further evaluation of employment outcomes for graduates from the program, the continued sponsorship and support from industry would strongly suggest that employers believe in the intrinsic worth of the model. The benefits can be summarised as:

Value to academic staff	The UNSW Co-op Program engages university staff and business in developing students; university staff are very aware of employer needs and receive direct feedback about students' performance in the workplace.
Value to learners	Students undertake an enriched learning program, with a strong emphasis on employability skills and opportunities to practise those skills in leading workplaces. They also benefit financially.
Value to employers	Access to some of the brightest students and a role in their development. A dynamic relationship with university staff. The opportunity to influence curriculum and student development.

3.5.1 Issues in relation to WIL

While the research and pedagogy surrounding WIL revolves around what is primarily a tripartite system made up of the student, an academic coordinator and a supervisor in the workplace, what is lacking is a wider systemic view. Many placements occur within organisations because of the motivations of individual managers, rather than the wider enterprise or industry. This is where peak bodies like the Australian Association of Graduate Employers (AAGE) and professional organisations may be able to play a greater role in supporting WIL programs.

Employers prefer students who have had relevant work experience and WIL programs are a means to provide it. Yet organising and monitoring effective WIL programs is time consuming for universities and employers. In many cases, there are concerns over insurance or conflicting advice about what insurances need to be in place. Furthermore, some workplace supervisors do not have well developed skills to engage with and support students.

In some universities WIL is only available to some students in a particular cohort, and places are competitive. In these cases it is usually students with the strongest academic achievements who are selected for participation. Perhaps it is the less able students who most need the developmental opportunities afforded by a WIL placement?

For some disciplines, such as engineering, where there are presently skills shortages, universities find it relatively easy to obtain student placements; employers will take students on for work experience in the hope that they will find a suitable recruit for a position following graduation. In other industries it can be more difficult for universities to locate suitable employers. Alternatively professional bodies, industry and employer bodies could 'recruit' organisations willing to offer WIL placements in particular roles and make this information available to relevant university faculties. Yet in certain disciplines, psychology for example, there are legal or other reasons why students cannot undertake clinical placements.

Some interviewees believe that a more coordinated approach to finding WIL placements would assist everyone. Individuals from different universities and different faculties from within the same university may be approaching the same employers asking for participation in WIL programs. Some more prestigious universities find it easier to obtain placements for their students. One suggestion is the creation of a national database listing universities and faculties needing placements for their students, and employers willing to take on students for work placements and in what work area. The database could have different portals for different industry areas. The database could work in the same way that databases used by recruitment agencies work, except that it would provide a matching of course coordinators with students looking for work placements with employers.

Another technology-based model that is currently under development has been funded by the Australian government and NSW state governments. The Transport and Logistics Centre (TALC) has created Transport Integrated Learning Information Service (TILIS), a web-based, shared infrastructure project under construction for the national transport and logistics industry. TILIS will enable real-time collaboration, knowledge exchange and access to extensive training and education resources, irrespective of users' location or activity within the transport and logistics industry. TILIS will provide information about: careers paths, compliance, recruitment service providers, and training and education providers. It will also be a repository where publishers, developers and providers (universities, libraries, TAFE and government) and users (authors, staff, students, and parents) store and manage content.

University staff are looking for better and more efficient ways to obtain WIL placements for students, and new technologies may be part of the solution. However, an increase in the total number of employers offering placements, rather than just a sharing of available placements, will be required. If the reported advantages of WIL placements for the development of employability skills in an increased number of graduates is to be realised, employers and professions will need to take increased responsibility for working with universities to provide work experiences related to the undergraduate's field of study.

3.6 Mentoring

Increasingly universities are offering structured mentoring programs to students as a way to deepen students' understanding of their intended profession and to build relationships that will assist them following graduation. The University of Melbourne runs a Career Mentor Connection (CMC) program. The CMC locates mentors who may be urban planners, GPs and medical specialists, landscape architects, horticulturalists, engineers, architects or those in other businesses. Often mentors are required to have at least five years professional experience. Career mentors

and students meet four to six times per year and have regular email/phone contact. The programs are supported with guidelines, newsletters and individual monitoring by CMC coordinators.

The Faculty of Economics and Business at the University of Sydney is participating in a mentoring program specifically designed to assist disadvantaged female undergraduates in the faculty.

University of Sydney Faculty of Economics and Business – The Lucy Program

The Economics and Business Faculty, University of Sydney has a faculty-based Office of Teaching and Learning and a faculty-based Careers Service. Both services are working with academic staff to integrate approaches to building employability skills. The faculty also participates in a NSW Office for Women LUCY Mentoring program.

The LUCY program is a partnership program between government, universities, and the public and private sectors that offers young undergraduate women, with leadership potential and who may be from disadvantaged backgrounds, a mentoring program. The goal is to see an increase in the number of young women graduates in business, finance, economics and accounting and ultimately more women in senior roles in these areas.

The Faculty of Business and Economics identifies students with potential for the program and mentors and mentees work together on small work-related projects. The work-based activity totals 35 hours in the mentor's workplace. Mentor and mentees are provided with kits and resources for their roles. The University of Sydney asks its students engaged in LUCY to maintain a reflective learning journal and to highlight those graduate attributes they have developed and how. The graduate attributes provide the students with a structure to review their learning process.

The University of Western Sydney is also involved in the program.

Benefits

As well as building learning relationships between the student and the mentor, this program builds relations between the faculty and industry representatives. The graduate attributes are actively used by the student to assist their awareness of how they are building the generic skills they will use following graduation. The other obvious advantage is the way which this process will assist young women to progress their career aspirations and gain relevant work experience.

Limitations of the approach

The project has acquired resources from government and is located in Sydney. A 2006 evaluation of the program is available, although this provides data from evaluations by students and no feedback from academic staff or mentors about the value of the program.

Broader applications

As a model, the LUCY program appears to have many features which could be adopted or adapted by other professions or industries and by other institutions. Other faculties and universities are offering students mentoring programs without government involvement, but LUCY serves as a useful model because of its networking opportunities, emphasis on developing employability skills, its structure, and resources to support the mentoring process.

Mentoring is an increasingly common method for universities to expose students to experienced professionals who assist them to reflect on their development needs and career direction. The LUCY program is different because of (1) its specific focus on developing young women for leadership and (2) the priority is given to women from disadvantaged backgrounds.

3.7 Student Employment

Developing employability skills is an ongoing process. In secondary school, many students obtain their first experience as employees and continue to work in different job roles throughout the rest of their education.

Research commissioned by the Australian Vice-Chancellors Committee in 2006 (AVCC 2007) showed that the typical Australian student in 2006 was undertaking considerable paid work during the semester: 70.6 per cent of full-time undergraduates reported working during semester; on average these students were working 14.8 hours per week. One in every six of the full-time undergraduate students who were working during semester was working more than 20 hours per week. More than one-third of the nation’s full-time university students – 35.2 per cent – were working at least 13 hours per week during semester.

Similar reckoning for part-time students shows that 79.6 per cent are in paid employment during semester and 41.8 per cent of all part-time students were working at least 38 hours per week – in effect, full-time paid employment. A small yet notable proportion of full-time students reported being in full-time employment – 4.5 per cent of full-time undergraduates (up from 3.1 per cent in 2000) and 13.3 per cent of full-time postgraduates (AVCC 2007).

These figures indicate that the great majority of students will commence their careers as graduates with considerable work experience. One of the roles of the university then is to assist students to find ways to recognise how to translate or reorient the skills from their part- or full-time jobs to suit professional contexts.

Full-time students are less likely than part-time students to be employed in work that relates to their studies, and less likely to have selected that work because they believe it will progress their career goals. Presumably full-time students are more likely to be employed in casual unskilled jobs. Key figures from these findings are summarised in the following tables:

Table 2: Students in paid employment during semester (%)

	Full-time students	Part-time students	All
Undergraduate	70.6	79.6	72.3

Table 3: Employed students reporting that the type of work they do is not related to their studies (%)

	Full-time students	Part-time students
Undergraduate	67.6	33.8

Table 4: ‘I chose to do the work I most often do because it will progress my career and help me with my career goals’ (% agreement, employed students)

	Full-time students	Part-time students
Undergraduate	24.4	52.0

The overwhelming majority of employers contacted during this project indicated that any work experience is better than none; however, they also indicated that the more relevant the work experience is, the better the standing of that applicant.

Employability skills are transferable skills, and the challenge is (1) how to assist students to obtain jobs which will more directly link to their intended professions and (2) how to assist these students to identify the employability skills they are learning in their student work roles and link them to professional goals. Support from careers services and structured e-portfolios which are geared towards employability skills will further help.

As well as the employability skills that are learned in the classroom and through paid employment, there are other learning opportunities. For students who attend classes on campus, campus life offers many students new and different experiences outside classes. Being in a culture of learning and exposure to new people and experiences contributes to the development of many life skills with applications to the workplace.

3.8 Graduate Perspectives

3.8.1 Longitudinal Survey of Australian Youth (LSAY)

The LSAY collects data on a wide range of topics every three years from an ongoing group of 1300 young people aged between 15–25 years. In 2006 the LSAY added two questions to briefly explore recent graduates' perspectives on the ACCI/BCA employability skills.

Respondents from the 1995 cohort (aged on average 25 in 2006) and the 1998 cohort (aged on average 22 in 2006), were selected to answer questions on employability skills if they had completed a degree or degree with honours in the previous twelve months, and were in full-time employment.

Both groups were asked to rate each of the employability skills in terms of its importance (very important, important, or not important) to their current job role. They were then asked how well (very well, well or poorly) their university studies prepared them for these skills in relation to their current job. The results for the 1995 group are shown in Table 5 below and the results for the 1998 group are shown in Table 6.

Table 5: Aggregated responses from the LSAY 1995 Year 9 Sample Wave 12 (2006) – 126 respondents to the employability skills questions

Skill Area	Importance of skill for job Very important/ important (per cent)	How well university provided cohort member with skills needed in job Very well/well (per cent)	Difference between 'how important' and 'how well' (percentage points)
Communication	98.4	83.9	14.5
Teamwork	96.8	77.9	18.9
Problem solving	94.4	85.7	8.7
Initiative/creativity	88.9	79.5	9.4
Planning/organisation	96.0	82.6	13.4
Self-management	92.9	86.3	6.6
Learning skills	94.4	90.8	3.6
Technology	90.5	77.2	13.3
Average %	94.0	83.0	11.0

Table 6: Aggregated responses from the LSAY 1998 Year 9 Sample Wave 9 (2006) – 393 respondents to the employability skills questions

Skill Area	Importance of skill for job Very important/ important (per cent)	How well university provided cohort member with skills needed in job Very well/well (per cent)	Difference between 'how important' and 'how well' (percentage points)
Communication	99.0	89.7	9.3
Teamwork	96.9	89.2	7.7
Problem solving	96.2	92.9	3.3
Initiative/creativity	89.3	77.8	11.5
Planning/organisation	94.9	91.7	3.2
Self-management	96.9	91.9	5.0
Learning skills	98.2	95.1	3.1
Technology	90.3	79.7	10.6
Average %	95.2	88.5	6.7

Respondents in both cohorts considered that all of the employability skills were of high importance in their job, with creativity/initiative and technology skills being less so, but still considered important or very important by 90% of respondents. There was almost no difference in the responses between the two cohorts.

The proportion of respondents saying that the university course prepared them well or very well for the employability skills was lower than the proportion saying that these skills were important/very important for all employability skills. The average gap was just under 7 percentage points for the younger cohort but over 11 percentage points for the older cohort. For the 1995 cohort, the gap was largest for teamwork, communication and planning/organisation. For the 1998 cohort the disparity was greatest for communication, initiative and creativity and technology skills.

The data indicates that employability skills are seen by graduates as highly relevant to their roles and that on the whole they believe that universities provided them with the skills they needed, although slightly less so for the older cohort.

The LSAY contains a lot of information about the individual, the course they undertook and the job they are in. Questions on employability skills have recently been added to the survey. Because the sample size of graduates in any given cohort is relatively small (519 in this case) the data cannot be used to infer anything about a given university and its development of employability skills in graduates, yet it is interesting trend data. As employability skills gain increasing attention from universities, the same questions should continue to be included in the LSAY to monitor for any changes. Perhaps the most interesting feature of this data is the difference in perspectives of the older and younger cohorts, both of whom were university students in the same timeframe.

3.9 Employer Role in Skill Development

Employers play an important role in developing the generic skills of graduates, and in many cases, undergraduates. In any given organisation many approaches are employed to ensure staff have the right skills for the job. As well as induction, training shadowing, vacation programs, mentoring and other development techniques, some companies are looking to actively grow the people they want by offering cadetships and programs where employment and tertiary education can happen concurrently. Bluescope, for example, takes on a significant number of its employees through cadetships. The case study below shows how one medium sized organisation is utilising a range of approaches to develop staff with employability skills.

Port Waratah Coal Services

Port Waratah Coal Services Limited (PWCS), located at Newcastle, NSW, operates one of the world's largest coal handling operations. It employs 379 people, mostly in operational roles.

Graduates are recruited for engineering, occupational health and safety, accounting and information technology. PWCS recruit graduates with technical skills who will fit into their culture. They want graduates who will adapt and fit into a highly unionised environment. Personal awareness and cultural fit are important parts of the recruitment process at PWCS.

PWCS takes work placement students from school and universities and management believes that graduates with strong work-integrated learning experience are usually quicker to become productive employees. They also offer a High School and University Scholarship Program with commitments to 32 people. The University Scholarships provide students with ten weeks of paid work a year, for up to four years, and \$7000 per annum to use for their education. There is no obligation on the recipients of the scholarships to work for PWCS after graduation, nor is there any obligation on PWCS to make an offer of employment; however, if scholarship recipients are working well they often become employees. The arrangement gives PWCS an opportunity to assess the student's levels of motivation and their skills in a real setting.

The cadetship model (although they are termed 'trainees' there) is used in accounting and information technology at PWCS. This arrangement means that cadets are employed prior to starting university; they receive a salary and have time off to attend university. PWCS selects people as cadets who have the right attitude, and appear to have the potential to develop the necessary technical skills. They have continued with this approach because it means they can support the development of the employee in ways that fit directly with job roles and business requirements.

Cadetship models are more common in accountancy and information technology and they are seen to offer a range of benefits for employers and employees. Employers can develop and 'shape' staff to suit the needs of the business. Employers who offered cadetships were strongly of the opinion that the model was of value because it means that employers are actively engaged in the learning and development of the employee from the beginning. Yet cadetships, which used to be widely available in areas such as journalism, media, advertising and accounting have become less available. Interviewees suggested that whilst employers favour the model, there is a lack of financial support for them when compared with the government incentives for traineeships in the VET sector.

Traineeships in the VET sector presently attract government funding, yet there are no similar incentives for employers to take on employees and support their development through university. In 2003–04, incentive payments for the Vocational Education and Training New Apprenticeship (Traineeship) program comprised \$510 million (Learning for Life: Review of higher education financing and policy 2004). One suggestion is that employers who contract people on structured cadetships should be entitled to some type of tax relief to encourage the practice, and to acknowledge the cost to the company, recognising the value that employers are adding to the skill set of the individual and the prestige of the university from which they graduate.

Most employers recognise that universities will never be able to provide them with a graduate who can step into a role and be completely work-ready. Employers often provide structured programs to induct new graduates and to further orient them to the workings of the business. The State Services Authority in Victoria, for example, through its Graduate Recruitment Scheme offers an ongoing and highly structured 12 month program with formal training and rotations across two to three government departments. The development scheme has four streams covering generalist, accounting and finance, economics and engineering. Other large employers such as the National Australia Bank, Deloitte and Bluescope have highly structured programs to assist new graduates to continue their development following employment. In some cases these programs include mentoring by senior managers.

Small and medium enterprises (SME) are less well placed to provide this level of support. One advantage SMEs have is that because they are relatively small, newly employed graduates are quickly exposed to all facets of the business and its staff. SMEs however claim to have more trouble attracting the graduates they need. Some universities have aimed to assist SMEs to have better access to their graduates; the University of Sydney, for example, is conducting a special careers night for SMEs.

3.10 Conclusion

Developing employability skills is a continuum; students learn them through their academic work, paid employment, community and social connections on- and off-campus, and life experience.

Developing students' employability skills requires teaching staff with suitable skills, resources and awareness of current industry practice. Students' employability skills will also be strengthened where students have access to relevant work experience through quality work-integrated learning programs, cooperative learning or mentoring programs.

Employers play an important part in developing undergraduates' employability skills through their participation in work integrated learning programs, offering mentors, providing scholarships and cadetships, and engaging with universities' careers services and academic programs. Businesses offering traineeships through the VET system are not afforded the same advantages for cadetships, despite the important role they play in developing the skills of untrained individuals.

4 Assessment and Reporting

4.1 Introduction

Good practice in the assessment of employability skills will reflect and relate to current professional requirements and standards. Whilst knowledge can be rigorously assessed using traditional written approaches, the assessment of skills typically requires a broad range of assessment techniques and strategies. In some disciplines there is a long history of assessing for specific workplace skills; law schools conduct moot court sessions to assess oral presentation skills of students, for example.

However, while this project found many examples of employability skills development in higher education, there were fewer examples of developed assessment approaches. Even where universities have made graduate attributes explicit in learning outcomes, many are working to find relevant and meaningful techniques that will provide formative and summative assessment of student effort and capabilities in relation to the attributes.

Assessment is typically understood in the academic context. Yet employability skills are assessed regularly by employers; in selection and recruitment and through performance appraisal most notably. Higher education and employers are both engaged in the assessment of employability skills, in different ways and at different points in time.

4.1.1 The importance of assessment in higher education

One interviewee made the comment that 'students won't learn what isn't assessed'. Assessing employability skills is arguably the most effective way to ensure that the skills are developed. Assessment pushes students to identify what skills they need to develop and how. Assessment can stimulate development, help students to see their skill gaps and clarify what skills are critical to a given task.

Ideally assessment of employability skills will be grounded in a work or work-like context. (Boud and Falchikov 2005) note the increasing use of the term 'authentic assessment', which is:

'a way of describing the linking of assessment tasks with normal professional tasks to ensure that there is greater correspondence between student work and work that is undertaken in workplaces'.

Boud and Falchikov emphasise the importance of assessment as a stimulus for learning beyond higher education.

Assessment should be fair and reliable, it should be manageable for staff and it should actually help students to develop the relevant skill. In being clear about how the skill is judged or assessed, students can reflect on, and hopefully improve their own performance. Transparent assessment processes for employability skills will heighten student awareness of what employers are looking for and how their performance and behaviours will be judged in the workplace.

In this decade Australia has seen the development of a range of tools to assess and report on an individual's employability skills. Some address the eight employability skills of the Employability Skills Framework more comprehensively than others.

4.2 Tools and Techniques

4.2.1 Graduate Skills Assessment (GSA)

The GSA was developed by DEST and ACER and was first piloted in 2000 to assess university students' generic skills. It is a formal testing program designed to be conducted on university entry and exit that considers four specific areas – problem solving, critical thinking, interpersonal understanding and written communication. The rationale behind the entry and exit tests is that students who sit both tests will have a measure of the value added to their skills by their university studies, and the institution will be able to identify the skills gained by their graduates. Graduating students will also have a measure of their skills benchmarked against national criteria to present as evidence to prospective employers.

The test consists of a two-hour multiple choice test and a one-hour written test. The multiple choice questioning is similar to that of other psychometric tests asking questions such as 'complete the pattern' and 'what is meant by statement xxx'. On completion of the test students receive a personalised report, with scores on their performance for each of the components tested. The report also provides comparative data with other individuals studying in the same area or similar discipline areas.

The uptake of the GSA in universities appears to be limited and employers are still largely unaware of it. The test is voluntary for students and universities are under no obligation to use it. As the GSA has now been available for seven years, there seems little likelihood of the GSA increasing in popularity.

One of the main criticisms of the GSA is that as a written test it has limited capacity to measure the way in which skills will be applied in a work setting. Universities assert that it is expensive to administer and that as employers are unfamiliar with it, they do not utilise the reports. Other criticisms are (Chanock et al. 2004) that the GSA:

'Does not test what it purports to test, nor pitches its tasks at the level to which we would hope these skills would develop in the course of a university education

Is likely to disadvantage some candidates through its cultural assumptions and language

Presents a risk if universities devote time to seeing that students perform well on the GSA when curricula is already over crowded.'

Others argue that there are more established and reliable general aptitude tests that can be utilised to assess and report on generic skills.

Whilst it would be possible to redevelop the GSA to specifically address the eight employability skills of the Employability Skills Framework, it would be a costly process. As the GSA has been available since 2000 and still has very limited uptake and low levels of support, redevelopment is not recommended.

4.2.2 Employability Skills Profiler (ESP)

The Employability Skills Profiler (ESP) was developed in 2006 by Chandler and Macleod in association with the Australian Government. It focuses on fitting people to specific job roles. The Australian Jobsearch website claims

'The ESP is the first tool of its kind in the world to objectively assess a job seeker against a nationally-consistent generic skills framework, and then match the job seeker's employability skills to the employability skills required in various occupations.'

The ESP is an online questionnaire that produces three reports – a job options report, a job fit and development report and an employability skills profile. The ESP is available through participating Job Network Members (JNMs) across Australia. It was used in the first instance in the disability sector.

The ESP would need redevelopment to more closely fit the graduate context. Like the GSA, there is a per person cost associated with the test and reports. Perhaps the ESP is most useful as a careers guidance tool for students thinking about how to reorient their career choices.

The strength of the ESP is that it directly draws on the Employability Skills Framework. However, the ESP measures an individual's aptitudes or innate strengths, rather than what has been learned through a university education. As an online multiple choice test it is more limited than the GSA in that it does not include a written test. It is a general tool that has been developed for the wider community. As the ESP was only developed last year it is too early to measure employer satisfaction with it as a recruitment aid.

4.2.3 Assessment resources

Some years ago the Centre for the Study of Higher Education developed five guides for assessment in the sector and these are well regarded. They address online assessment, assessing large classes, minimising plagiarism, assessing group work and assessing students unfamiliar with assessment practices in Australian higher education. These are resources to guide practice and assist academics in their assessment responsibilities. They are mentioned here because there is a need for a similar suite of products which address the assessment of employability skills in higher education.

Griffith University, as previously mentioned, has included a section on assessment in its toolkit for graduate attributes, and there are other resources specific to particular universities, but there is currently a gap in resources to specifically support the assessment of the employability skills in higher education.

4.3 Assessment through Work Integrated Learning (WIL)

WIL programs offer students placements with employers, and provide students with opportunities for the application of theoretical knowledge in an authentic industry setting and professional environment. However, WIL programs also mean that students are functioning in a professional and social context which requires the application of a range of employability skills, such as interpersonal and communication skills, teamwork skills, research skills, project design and organising work to meet agreed timelines.

Typically students operating in professional environments are required to reflect, record and report on their experiences and are assessed on these products. Both academic and workplace supervisors play a role in the WIL assessment process through monitoring and reporting on student learning outcomes.

Good WIL assessment practice includes structured workplace supervisor feedback on the student's employability or generic skills, as well as the discipline-specific or technical skills in formative assessment. Workplace supervisors see how students are able to negotiate workplace relations, address day-to-day problems and operate in a workplace setting. Workplace supervisor feedback and perspectives can provide positive reinforcement of good work by students, and assist students to see areas where they need to further develop workplace competencies.

A well conducted WIL program will involve supervision by the academic institution and the workplace. WIL is a tripartite arrangement and all parties need a clear understanding of what is to be assessed, by whom, and how.

Collated reports and thematic analysis of workplace supervisor feedback should also provide academic staff with important information about how their program design is preparing students for the given profession, and which employability skills are well developed in students and which need further attention by the university.

Reports by WIL workplace supervisors are a highly relevant and authentic means to record results of assessment of a student's employability skills. Universities can assist by providing quality structured report formats for supervising employers to complete. Some workplace supervisor report formats more clearly ask for feedback about the student's employability skills. Explicitly including employability skills in supervisor feedback would provide the student with important information about areas for development and information that can be used with prospective employers.

E-portfolios

E-portfolios do not measure or assess an individual's employability or other skills, but they are a means to collect and present evidence of skills that have been acquired. Traditionally portfolios have been used by artists and artisans to showcase their work. E-portfolios similarly draw together examples of evidence of employability skills that can be used for job applications and at interview. The European Institute for E-Learning 2005 uses this definition:

'An ePortfolio is a personal digital collection of information describing and illustrating a person's learning, career, experience and achievements. ePortfolios are privately owned and the owner has complete control over who has access to what and when.'

EDUCAUSE, a non-profit organisation to further the applications of information technology in US higher education, defines an e-portfolio as:

'a collection of authentic and diverse evidence, drawn from a larger archive, that represents what a person or organization has learned over time, on which the person or organization has reflected, designed for presentation to one or more audiences for a particular rhetorical purpose...' ... 'The larger archive may be considered itself an e-portfolio that contains multiple views of its contents directed towards multiple audiences. This collection usually takes the form of a set of pieces of evidence of learning and performance, reflections or interpretations on that evidence, and representations of relationships between and among the evidence, interpretations, and evaluation criteria'.

In the United Kingdom, e-portfolios are typically termed Personal Development Plans or PDPs. It is apparent from the literature available that e-portfolios are an international trend and university students in Europe and North America are being guided to develop and manage their own e-portfolios. Perhaps one of the greatest strengths of the approach is that it provides a structured and cost-effective means to encourage students to manage their own career planning and skill development.

The University of Wollongong, the University of New England, Queensland University of Technology, Victoria University and the University of Melbourne are some of the Australian universities that are making e-portfolios available to students.

Typically an e-portfolio might contain evidence of:

- academic results
- awards
- achievements and highlights of university experiences
- employment history, employer reports and reports on participation in WIL programs
- volunteer work
- hobbies and interests
- personal reflections of experiences.

In creating e-portfolios students are required to think broadly about their skills and experience and how they relate to work contexts. Although they can be considered student-driven, the higher education institution provides the technological infrastructure to allow students to build and maintain their own portfolios.

There has been discussion about privacy and intellectual property in relation to e-portfolios. A 2005 University of Melbourne seminar commented that:

'when the storage is institutionally owned there are inherent problems with ownership'.

Swinburne University commented in the course of this project that digital portfolio systems present some specific challenges and comments from other institutions echoed the same concerns:

- There is a difficulty in developing a system that will accept all the formats of materials that students and teaching staff may want to add
- The speed of change in all things digital can render special purpose software obsolete in short periods of time
- There is a vexed authentication issue, whereby material in a portfolio bearing the university's stamp might be reasonably expected by an employer to be authentic and universities do not usually have the resources to vet everything a student chooses to add to a portfolio
- Whether the student loses access to the portfolio system on graduation
- Workload allocation and the cost of software support (disk space etc.).

In the VET sector in recent years there have been a number of projects looking at the feasibility of a national database for e-portfolios, or 'skills passports'. The management of a database of this size has been seen to be unworkable because of problems associated with cost, functionality, privacy, authentication and administration. However, there are many examples of smaller scale approaches at an institutional level in higher education which would suggest they can be more readily managed.

Employers generally favoured the e-portfolio approach as a means to obtain a more informed picture of a job candidate than is usually provided in a traditional curriculum vitae. Universities though would favour better information about what employers think of e-portfolios, what they would like as evidence in portfolios, how employers think they should be structured and the formats they would prefer. At this stage universities are often using graduate attributes as the organising principle for these portfolios, but better information about employers' needs and preferences would assist universities to provide better direction to students.

The discipline or process of creating an e-portfolio can be seen as evidence of a range of employability skills. Students must have the necessary technology skills, they must think about and organise their personal data and information in ways that will communicate effectively and they hopefully follow through work to address identified skills gaps. E-portfolios can be a signifier of a graduate's seriousness about obtaining employment and a means for them to clarify their understanding of their skills and interests. As one employer remarked, students who have put an e-portfolio together are often more articulate about what skills they have, how they acquired them and how they hope to develop them.

E-portfolios are a growing trend. There are some issues to be worked through, but they have potential benefits for both graduates and employers.

4.4 The Australian Diploma Supplement

Under the Lisbon Recognition Convention which was ratified by Australia in 2002, Australia has an international obligation to promote the widespread use of the Diploma Supplement by Australian tertiary institutions.

The Diploma Supplement is a European initiative which aims to describe a higher education qualification in an easily understandable way and relate it to the higher education system within which it was issued.

The Diploma Supplement is a valuable tool for achieving transparency, recognition and mobility of qualifications. There is widespread and increasing use of the Diploma Supplement across Europe, much of which is driven by students and other stakeholders, who recognise its value in describing qualifications in a way that is clear to potential employers and other higher education institutions. In September 2006 the Hon. Julie Bishop, Minister for Education, Science and Training, announced that the Australian Government would provide \$400,000 for a consortium of universities to develop a single agreed template for an Australian Diploma Supplement.

A project to develop an agreed template for an Australian Diploma Supplement commenced in January 2007 and will include recommendations on detailed implementation and management strategies. It is envisaged that the Diploma Supplement will take the form of documentation issued to graduates by awarding institutions in addition to the testamur and academic transcript and will describe the nature, context, content and status of a graduate's qualification.

The project will be completed by January 2008.

Although most of the information required on the form is about identifying the student, identifying the institution and describing the qualification outcomes, and there are apparent constraints about deviating too far from agreed template, other relevant information can be included in the document. In terms of a reporting format that could be almost universal across Australian universities, this presents an opportunity for the employability skills of the graduate to be listed.

4.5 Employers' Assessments and the Recruitment Process

Employers use a range of tests, tools and techniques for recruitment and selection to assess a candidate's suitability for a job role. Students move through the continuum of assessment for school, university, for jobs and as employees.

4.5.1 Graduate recruitment

While graduates are clearly finding jobs, employers appear to be having more difficulty in locating the right graduates. *Graduate outlook 2006* (Graduate Careers Australia 2006a) informs us that 42.5 per cent of employers indicated they would have recruited more graduates had they been available. Hiring the right people is one of the most important things that can happen in a company. Employer opinions of graduates are important to universities as they represent a key measure of the institution's success.

Data from the *Graduate outlook 2006* showed that employers rate applicants' academic skills and performance significantly higher than they rated them on areas aligned with employability skills. Table 7 below displays data gathered from *Graduate outlook 2006* on graduate employers' top ten key selection criteria, other than relevant qualifications. The data is consistent with the data gathered in interviews for this project; however interviewees for this project placed higher importance on cultural alignment or values fit and extra and intra curricula activities.

Table 7: Top 10 selection criteria for recruiting graduates

Key Selection Criteria	%
Interpersonal and Communication Skills (written and oral)	57.5%
Academic Qualifications	35.4%
Work Experience	27.6%
Leadership Skills	18.1%
Passion/Knowledge of Industry/Drive/Commitment/Attitude	15.7%
Teamwork Skills	15.7%
Critical Reasoning and Analytical Skills/Problem Solving/Lateral Thinking/Technical Skills	15.0%
Emotional Intelligence (including self-awareness, strength of character, confidence, motivation)	8.7%
Activities – includes both intra and extra curricular	7.9%
Cultural Alignment/Values Fit	7.9%

Although there was strong endorsement for all of the Employability Skills, written and oral communications skills are resoundingly the skills which employers would most like to see more developed in graduates. In addition to what employers want from graduates, the project looked at how employers assess graduates through the recruitment process.

Employer practices

Data gathered from The Australian Association of Graduate Employers Ltd (AAGE) a national body of organisations which recruit and develop graduates or which offer services in connection with graduate recruitment and development – Deloitte, National Australia Bank (NAB), the Australian Customs Service, Geoscience Australia and State Services Authority (Vic), Bluescope Steel, Timbercorp and other large employers – showed that there is a common set of recruitment practices with variables between industries and enterprises. The process can be characterised by a series of steps which are designed to filter through large groups of applicants, providing opportunities to assess different qualities and abilities of graduates at each stage. These stages are:

- 1. Initial assessment of academic results** – While employers are certainly unanimous in emphasising the importance of employability skills, this is not at the expense of academic results. Most commonly, organisations expect a minimum average of 60–65%, with any graduates with lesser marks being removed from the process.
- 2. Online applications** – Where initial application is made online, and for volume recruiters it nearly always is, some sort of initial testing is made relating to specific skills for the given employer. For example, some employers may target communication and abstract reasoning skills at this point. In some, but not all cases, online applications allow graduates the opportunity to specify particular areas of the business they wish to apply to. This is a decision which may shape the types of questions and assessment they are given later in the process, as well as who the staff responsible for interviewing and reviewing of their documentation may be. Common questions also seek to evaluate an applicant's awareness of the organisation – something on which a surprising number of people do not perform well.
- 3. Phone interviews** – Phone interviews generally take approximately 20 minutes, and in some cases are outsourced due to the volume of calls required. As this is considered an increasingly important point of first contact with applicants, phone interviews may be conducted by internal staff or through outsourced providers, with care taken to ensure that the recruiting organisation is represented in the best possible manner.
- 4. Assessment centres** – While assessment centres are often utilised by larger employers, the processes they use can vary widely. They commonly include a mix of individual and group activities. Individual activities generally relate to responses to scenarios, reading comprehension, and writing and in some cases additional personality or behavioural testing. Group activities commonly include simulations, group discussions or task-based activities, and are primarily designed to assess communication, teamwork and problem solving. Organisations vary as to whether assessment centres are run in-house, but responses clearly indicated that these are an essential part of the recruiting process. Employers repeatedly indicated that the best way to assess the employability skills of a graduate is through workplace performance, generally undertaken in some form of work integrated learning. As this is not always possible, the next best option is to use an assessment centre. Several interviewees indicated that even though their assessment centre is outsourced they still ensure that one member of their staff is always present at each session. In employers' experience it is very beneficial to observe candidates in action.
- 5. Personality testing** – Personality testing is very commonly used as part of approaches to recruitment, though there is a great deal of variation in tests used and what is being tested. Many indicated that these tests are useful to a point but this is not the most valuable or important part of the process. One way in which usefulness of the tests is increased is through the mapping of test results against any competencies or value systems used by the organisation.
- 6. Interviews** – Interviews are generally conducted as the final step in the process, by the time an applicant has reached this stage. Again a variety of methodologies is used, but the face-to-face interaction allows employers to really develop a feel for how a graduate may behave in the workplace and interact with colleagues. It is believed that by the time candidates reach

interview, almost all are capable of successful workplace performance.

- 7. Resumes and letters** – Resumes and letters are a useful means to assess an applicant's skills in written communication and expression. But they also reveal details about an individual, particularly if employability skills are the focus. Those who work with and recruit graduates are very clear in stating that any work experience is good, but the more relevant or related the experience, the stronger the candidate's standing will be. Likewise extra-curricular activities are an important indicator of initiative in taking up roles and responsibilities.

Employers, through their selection processes, are typically assessing employability skills. Assessment centres use a range of techniques to gauge the candidate's interpersonal skills, problem solving abilities and initiative.

4.6 Issues for Small and Medium Enterprises

Where possible, employers dedicate significant resources to assess graduates. While these lengthy and costly activities do lead to successful outcomes, they can be prohibitive to smaller and medium sized organisations (SMEs) because of the resources they require. Larger organisations typically attract larger numbers of applicants. SMEs often lack the human resource personnel to conduct sophisticated recruitment practices and they do not have the resources to hire recruitment experts or build links with university career services. The current competitive market for graduates has placed increased importance on employer branding and pre-employment engagement. SMEs are particularly challenged by this.

4.7 Reporting

The increasing integration of graduate attributes across learning objectives, curriculum and course design in universities will lead to employability skills that are developed in a discipline-specific context. Employability skills are being cultivated in undergraduates; valid and reliable practices to assess these skills are often still in formation. Yet reporting on the assessment of these skills, in ways that are manageable for universities and of benefit to employers, is a real challenge.

As the VET system commenced its adoption of the Employability Skills Framework some years ago, there have been several projects to review options for reporting and assessment. Most recently (Allen Consulting Group 2006) several options were reviewed for their suitability for reporting on employability skills in VET. The options were:

Option 1	'Competent' or 'not yet competent' – results for each of the employability skills for an individual
Option 2	Reporting levels of competence – three levels would be developed , independent of the Australian Qualification Framework, for each of the employability skills for an individual
Option 3	Descriptive reporting – short sentences to describe the nature of the employability skills developed. These relate to the qualification and not the individual
Option 4	Reporting through portfolios – where students take responsibility for communicating their employability skills

The report concluded that options one and two were unsuitable because reporting on an individual's employability skills would place a heavy burden on the issuing institution. Option two was also rejected because employability skills results could readily lead to confusion with grades. Option three was supported and Employability Skills Summary Statements for qualifications will be made available to employers and others as a way of reporting. The report recommended that further to this, students should be encouraged to develop their own portfolios to provide employers with information on their employability their skills.

The higher education sector is markedly different to the VET sector. The VET sector has thousands of training organisations, ranging enormously in size and focus, but they all work with the same qualifications and are bound to comply with the requirements of nationally endorsed competency standards. Universities by contrast have considerable autonomy and there is a cultural valuing of diversity in the sector. Despite these sectoral differences, universities would face the same raft of logistical problems as Registered Training Organisations if they had to formally report on each individual student's employability skills. Furthermore, employers question whether universities should be given this responsibility.

The Australian Diploma Supplement could potentially provide employers with information about the employability skills developed through the qualification, in much the same way as the VET sector has done with Employability Skills Summaries for qualifications.

Similarly there are advantages to students taking responsibility for reporting on the employability skills they have acquired.

4.8 Conclusion

Universities are generally encouraging students to develop their employability skills and to prepare for job interviews by providing examples of these skills and how they have been acquired. Formal reporting on employability skills by universities would add significantly to university staff workloads, require changes to student records software and add new burdens to a stretched system. At this stage employers do not expect universities to provide this level of detail about a student's employability skills and universities are not generally in a position to do so.

Universities are working to develop more integrated assessment of employability skills. Where learning objectives include these skills, they can and should be assessed.

Representatives from universities did not favour tests, such as the GSA, that did not have a specific application or context. As a written test, the GSA was seen to measure knowledge and written communication skills; it was not seen to measure any of the other employability skills as they would be applied in the workplace.

E-portfolios are a trend which is gaining increasing popularity. They provide benefits to employers who wish to obtain a more complete picture of a graduate and their skills and experience. The process of developing the e-portfolio requires students to review their skills and skill gaps, and the creation of a good e-portfolio can be interpreted as demonstration of some of the employability skills. However, there is a range of university-related issues that need to be resolved with e-portfolios, such as intellectual property, validation of material and claims and changes in technology.

Industry is, at this stage, more concerned that the employability skills are well developed and that graduates are work ready. It would be difficult for universities to provide personalised and detailed reports on all graduates' employability skills – presumably the purpose would be to assist employers. Employers themselves question whether universities should bear this financial burden and workload and claim that even if they were provided with university generated reports of these skills, they would still want to conduct their own assessments of these important skills for job selection. Larger businesses are confident that their recruitment processes will help them to select graduates with well developed employability skills, however small and medium enterprises are less satisfied with their processes and the outcomes.

There is no single approach to address the requirements for reporting on employability skills but assessment and reporting will be enhanced if:

- universities continue to provide development of integrated employability skills and improve assessment practices and there are supporting tools and professional development
- students take responsibility for explaining and demonstrating examples of their capabilities through portfolios and portfolios are structured to meet employer needs
- workplace supervisors participating in WIL programs provide meaningful reports on student employability skills
- the Australian Diploma Supplement includes details of the employability skills acquired in that qualification.

5 Conclusion and Recommendations

This project has developed a suite of recommendations that would improve the identification, development, assessment and reporting of employability skills in higher education. The first recommendation provides an overarching recommendation and those that follow address specific issues that emerged in the course of the project.

Recommendation 1

To establish an Employability Strategy Fund

Issue	Most universities are already to some extent addressing employability skills in ways that reflect their unique culture and are appropriate to their student cohorts. Given the diversity of the sector and the range of courses with vocational and non-vocational outcomes, there is no single strategy that can be applied to all Australian universities to enhance students' employability skills. Enabling universities to bid for funds would allow them to address students' employability skills, in ways that would best suit their situation, would both increase the breadth and quality of effective approaches. In the United Kingdom, particularly in Scotland and Wales, strategic funding programs have been offered to universities to develop graduate employability (in Scotland £1,000,000 per annum has been made available for this purpose).
Proposed action	Provide funding for universities to systematically review their work on developing employability skills and address gaps: this might involve analysis in the areas of curriculum, teaching and learning services, or support through careers services or research into areas of greatest efficacy. Access to funding could depend on submission of a succinct three-year plan from the university outlining what the university has been doing to facilitate employability skills to date, gaps and challenges, proposed actions and their benefits to students, employers and other higher education institutions.
Output	A strategic funding program for employability skills in higher education.
Outcome	<p>More focussed and diverse strategies, which are appropriate to the university and discipline, to address employability skills in higher education.</p> <p><i>Benefits to students / graduates</i></p> <p>A more developed and integrated approach to the way in which the university addresses employability skills.</p> <p><i>Benefits to universities</i></p> <p>The opportunity to address the issue of employability skills in ways that will suit their needs and provide greatest benefit to all relevant parties.</p> <p><i>Benefits to employers</i></p> <p>Improved employability skills in graduates.</p>
Cost estimate	\$10 million over three years.
Possible organisations to facilitate process	'The fund could be administered in consultation with major professional organisations and employer groups
Impact on higher education sector	The provision of targeted funding will reinforce the importance of employability skills and stimulate the sector to find innovative ways to address the issue. Because universities will be responsible for designing the way in which they will utilise the resources they will take ownership and contribute to the development of a body of knowledge about good practice in employability skills in higher education.
Possible interactions with VET sector	Some initiatives by universities will undoubtedly provide information relevant to the VET sector. Dual sector universities in particular may look at ways in which they can streamline pathways for students or take cross-sectoral approaches.

Possible interactions with schools sector	The results of the work undertaken by universities will be of interest and value to the school sector and may inform them of good practice in relation to curriculum and teaching and assessment practices.
Comments	Universities have taken very different approaches to how they can best ensure the employability of their students. This diversity needs to be encouraged and universities need support to achieve different outcomes specific to their institutional requirements. There are developed examples of how the approach has worked in the UK; in Scotland universities have submitted institutional plans for employability together with the specific strategies that require funding. Wales has a similar program.

5.1 Explicitly Identifying and Developing Employability Skills

The project brief required: Practical cost-effective options that enable employability skills that are embedded in higher education qualifications to be explicitly identified as part of higher education assessment and reporting processes, including an assessment of the impact of recommended approaches on higher education, and possible interactions with the vocational education and training and secondary education sectors.

Identification of embedded employability skills will involve a mapping process whereby each of the employability skills is mapped against each course curriculum document. This report provides examples of how some universities have mapped the graduate attributes of the university against the curriculum documentation. A similar methodology would be required to map the employability skills. In cases where the graduate attributes have already been mapped, it would be a relatively straightforward additional step to map the graduate attributes against the eight employability skills of the Employability Skills Framework.

Curriculum mapping will produce a report at a course or qualification level about which employability skills are embedded. This report can then be made available to graduates, to employers and to others. This could also be included in course brochures or posted on websites where outcomes of the course are listed.

Curriculum mapping tools and supporting resources which take a whole-of-university approach and which focus on courses and the integration of employability skills should be developed. The curriculum mapping can be used to inform and generate course and unit or subject outlines which explicitly show how employability skills are addressed and how they will be taught, practised and assessed at the unit level. The outcomes of this process can generate statements that can be used for employers and others to describe and explain course outcomes and employability skills, as they relate to the given discipline.

Ultimately curriculum mapping will provide a framework for academic staff to integrate employability skills across learning outcomes and objectives, learning activities, assessment tasks and assessment criteria for each subject or unit.

Recommendation 2

To explicitly identify employability skills in all university curriculum

Link to project brief:

To identify embedded employability skills in higher education qualifications.

Issue	At present it is not possible to clearly identify whether all or any of the employability skills are addressed in many higher education qualifications. Whilst some universities have engaged in detailed processes such as curriculum mapping, to make these skills explicit in qualifications, many universities have not. It is common practice for universities to require staff to complete a tick-box to record which graduate attributes are developed in the unit, but without a detailed whole-of-qualification analysis this approach provides little benefit.
Proposed action	Develop resources to support curriculum mapping for employability skills and fund universities to undertake this mapping.
Output	Clearly articulated documents about where and how employability skills are addressed in each qualification and its component units.
Outcome	<p>Curriculum mapping will make clear how employability skills are included in the curriculum so that there is a consistency of approach within and between faculties. Teaching and assessment practices will directly reflect and integrate employability skills in meaningful and discipline specific ways.</p> <p>Benefits to students / graduates</p> <p>Because teaching and assessment of employability skills will be underpinned by curriculum which integrates employability skills, students will (a) have a stronger awareness of these skills and (b) develop and hone these skills through their coursework.</p> <p>Benefits to universities</p> <p>Curriculum guides teaching and consequently assessment. Academic staff will have a clear understanding of when to address each employability skill with students, what content to cover and how learning outcomes should reflect employability skills. Information from curriculum mapping can be used to market and explain how qualifications address employability skills.</p> <p>Benefits to employers</p> <p>Employers requesting information about qualifications, and how they address employability skills, will receive information from universities which is unambiguous because it is based on solid curriculum and learning outcomes.</p>
Cost estimate	<p>\$150,000 to develop tools to support a curriculum mapping process.</p> <p>\$150,000 to explain and promote the process and expected outcomes to universities, and to monitor and coordinate activity.</p> <p>+ funding for 38 universities to complete the task. Note: costs of complete mapping are difficult to estimate. Work to develop tools, and map these skills in approximately 2500 qualifications in the VET sector cost approximately \$2 million in 2005 (approx. \$800 per qualification). Costs per qualification in higher education would be significantly more as there is much greater variation within and between universities in how qualifications are structured. However some universities have already completed significant aspects of this task.</p>
Possible organisations to facilitate process	The development and coordination of this process could be undertaken by DEST or an organisation such as Universities Australia.

Impact on higher education sector	The impact of mapping curriculum would vary between universities, drawing on work already completed by many institutions in relation to mapping their curriculum against their graduate attributes. While some universities would take up any offer of funding and support to undertake curriculum mapping activities, others may be likely to question the value of the outcome. A further opportunity exists in the possible linkages with work being done as part of the Australian Diploma Supplement.
Possible interactions with VET sector	The VET sector is already engaged in a process to identify and make explicit employability skills in every nationally endorsed qualification. Both VET and higher education qualifications will explicitly describe how they address employability skills and pathways will be clearer.
Possible interactions with schools sector	There are wide variations in the ways states address employability skills in the school system. At this stage there has not been any national identification of the links between curriculum and employability skills in schools, although some states have been active in this area.
Comments	Some universities have already developed their own methods and processes to map for these skills in curriculum. There needs to be flexibility so that universities can approach this in their own way and where they can take ownership of the process and see its value.

5.2 Assessment and Reporting Approaches

The project brief required: Recommended assessment and reporting approaches for the recognition of graduate employability skills, identifying the benefits of additional practical, cost-effective and educationally sound processes to assess and report employability skills beyond current arrangements, including an assessment of the impact of recommended approaches on Higher Education, and possible interactions with the vocational education and training and secondary education sectors.

Work has been undertaken in the vocational education and training area for several years in relation to the identification, assessment and reporting of the eight employability skills from the Employability Skills Framework. During that time there has been considerable debate about the option of separately assessing employability skills and about how such assessments at an individual level could and should be reported. As national training packages have explicitly identified the embedded facets of each of the employability skills in the qualification, and where necessary, enhanced qualification components, it is now possible to report that in achieving a particular qualification an individual has demonstrated the employability skills.

The Allen Consulting Group in its March 2006 report *Assessment and reporting of employability skills in training packages* (p. 7) recommended 'a descriptive reporting approach supplemented by student portfolios of evidence'. In the report they also argued that in order to minimise the cost and effort involved in reporting, the information reported should relate to the qualification rather than the individual. Since the report was delivered in early 2006 further work has been undertaken on behalf of the National Quality Council to review the implications of the report and to operationalise the recommendations. It appears likely that the outcome favoured in the vocational education and training area will be one where a line is added to the qualification results document, indicating that 'The Employability Skills Summary for this qualification can be found at www.website.com.au', where the website listed will provide the summary of the particular facets of each of the employability skills found in that qualification. It should be noted that the plan in the VET sector is not to provide the individual with a specific statement about their skills in comparison with anyone else's skills but rather to report on the employability skills in the program. The inference is that anyone with that qualification carries those employability skills.

The most cost effective way to report at this level in the higher education sector would be by adding the results of the curriculum mapping exercise to the proposed Australian Diploma Supplement. However there is a range of ways in which current assessment and reporting practices could be enhanced.

Recommendation 3

To improve and increase access to Work Integrated Learning (WIL)

Link to project brief:

To develop employability skills assessment and reporting beyond current arrangements.

Issue	At present faculties and university staff work to build links with businesses to arrange WIL programs for students. This is a time consuming and often cumbersome process which is often dependent on personal networks. Work Integrated Learning is an excellent and important opportunity for students to develop critical employability skills in professional settings; WIL supervisor reports are an important measure of employability skills. Streamlined processes that provide employers and students with more opportunities to participate in WIL, and engage employers in assessment of employability skills, are required.
Proposed action	Undertake a feasibility study into options for national WIL databases or portals, by industry and/or profession, where employers willing to offer student placements can register their details and interest and universities can provide details of the placements they require. The feasibility study should review costs for setting up and maintaining these databases/portals.
Output	A report with sound advice about the viability and cost of this approach.
Outcome	<p>Assuming the feasibility of the approach, access to WIL opportunities will be increased and linkages between employers, universities and students will be strengthened and streamlined.</p> <p>Benefits to students / graduates</p> <p>National databases / portals will mean students have wider options to participate in WIL programs: in rural or remote areas and with a wider range of businesses, including SMEs. Hence, more contact with potential employers.</p> <p>Benefits to universities</p> <p>Decreased time in contacting businesses and asking them to provide placements – businesses can register their interest directly online and update their own details. Universities will be in a position to establish links with a wider range of businesses.</p> <p>Benefits to employers</p> <p>Increased opportunities to take students for placements and to see how they perform in the workplace; particularly helpful in areas where there are skill shortages. Access to students from a range of universities will also be advantageous to employers.</p>
Cost estimate	Cost for the feasibility study is estimated at \$250,000 -300,000. The feasibility study would provide a more informed picture of the actual costs to develop and maintain the databases / portals.
Possible organisations to facilitate process	<p>DEST could contract a consultant directly to undertake the feasibility study, or provide a peak body or suitable higher education research organisation with funding to oversee this work.</p> <p>Databases/portals could be managed by professional bodies, employer groups or one of the peak networking bodies for collaborative education.</p>
Impact on higher education sector	As the databases / portals will be available to all universities there will be potential for more national collaboration and stronger links between universities' staff involved in organising WIL programs.
Possible interactions with VET sector	Unless the databases / portals were broadened to address WIL opportunities for VET students as well, this initiative would not generate significant interactions between the sectors. However students moving from VET on to higher education would have better information about their options for work placements.

Possible interactions with school sector	Similarly, there would be no significant interactions, except by providing advice to school students moving on to higher education about their options for work placements.
Comments	Many individual faculties, services and industry bodies already possess such databases. A centralised database would provide this data to a wider range of employers and students. It may be possible to build on one of these existing databases. An alternative approach and more 'low-tech' would be to encourage professional associations and employer groups to promote university WIL programs amongst their membership and try to increase direct involvement in that way.

Recommendation 4

To enhance teaching and assessment of employability skills

Link to project brief:

To develop employability skills assessment and reporting beyond current arrangements.

Issue	Academic staff are actively working to develop and assess students' employability skills in a range of ways, but recognise that they need to improve their practice in this area. Teaching skills requires different approaches to teaching knowledge or theory. Whilst knowledge can be accurately assessed using written tests, the assessment of skills requires different techniques and approaches. Professional development of academic staff is the responsibility of the employing institution; there is no national professional development program on employability skills which targets academic staff. Although there are many resources suited to the assessment of skills in the VET sector, there is a marked lack in higher education and academic staff would like support in this area.
Proposed action	Develop and deliver a professional development program, with a suite of supporting resources which specifically address best practice in teaching and assessment of the eight employability skills in the higher education context. The program and resources could consider different disciplines and learning contexts.
Output	Delivery of a professional development program and a suite of resources covering each employability skill, tailored to higher education context.
Outcome	<p>Improved teaching and assessment of employability skills in higher education.</p> <p>Benefits to students / graduates</p> <p>Students are more likely to learn what they know will be assessed. Clarity around assessment tasks and practices will motivate students to develop employability skills. Assessment will also provide them with feedback about their respective strengths and areas they need to further develop. Good assessment will motivate student skill development.</p> <p>Benefits to universities</p> <p>Academic staff will have resources to guide their assessment practices for employability skills and provide models and techniques that can be tailored to meet the needs of the discipline. If the resources are supported by a professional development program, academic staff will have the opportunity to learn from experts and hear from other staff about best practice in assessment.</p> <p>Benefits to employers</p> <p>Students who are assessed for employability skills will be in a position to provide employers with details of their employability skills assessment tasks and how they performed on those tasks. This information will assist in recruitment and selection processes.</p>

Cost estimate	\$250,000 to develop the program and the resources. A further \$250,000 to deliver the professional development program nationally.
Possible organisations to facilitate process	The Centre for Study of Higher Education, University of Melbourne, developed some assessment resources (not addressing employability skills) in the 1990s and these were highly regarded. There are some renowned individuals, with expertise in assessment in higher education, who would be suitable authors and facilitators of professional development in this area. Many universities would be well placed to manage a contract of this nature.
Impact on higher education sector	The overall impact would be to further develop the assessment and reporting of employability skills, and to increase the capability of university teaching and assessment staff.
Possible interactions with VET sector	No significant interactions.
Possible interactions with school sector	No significant interactions.
Comments	<p>Better assessment of employability skills will 'raise the bar' in the sector. Assessment needs to be explicit and tailored to meet the needs of the discipline.</p> <p>'A common theme for teaching and learning of generic skills is that success depends crucially on them being made explicit for students. Leaving them implicit, as they are in many traditional courses, does little to encourage learning and development.' (B-HERT 2002).</p>

Recommendation 5

To offer students self assessment options for employability skills

Link to project brief:

To develop employability skills assessment and reporting beyond current arrangements.

Issue	Students should have the opportunity to take responsibility for reviewing their own employability skills. Easy access to a self-assessment tool would encourage students to test their own skills, identify gaps and develop plans to improve these skills.
Proposed action	Conduct a feasibility study into providing students with an opportunity to test their own employability skills using a variety of tools, such as the Canadian WorkKeys System, the General Aptitude Test, the Employability Skills Profiler, the Graduate and Managerial Assessment (GMA), Critical Reasoning Tests (CRT) or other relevant tools. The feasibility study could look at the range of tools available and review their efficacy in assessing employability skills and issues with making preferred tools available more generally. Note: there are also some tools that have been developed for use with specific disciplines. For example a new project conducted by the Business Faculties at UTS, University of Sydney, University of Qld, Queensland University of Technology using some software called ReView (online criteria based assessment) to assist academic staff in the integration of graduate attribute assessment. These could also be considered in the study.
Output	Report on available self assessment tools for employability skills, suitable to the higher education context, together with advice about their cost-effectiveness, availability and practicality.

Outcome	Support for students to undertake self assessment of their own employability skills. This will assist in career planning and identifying the types of skills and opportunities where further development will be required.
	<i>Benefits to students / graduates</i> With information about their relative strengths and areas for development, students can focus their learning and make more informed career choices.
	<i>Benefits to universities</i> Students take greater responsibility for developing their own employability skills.
	<i>Benefits to employers</i> Graduates with greater knowledge of employability skills, and hopefully more highly developed skills and self-awareness of their own skill levels.
Cost estimate	Costs for the feasibility study are estimated at \$200,000 – 250,000. Following this there may be costs to develop or refine tools, to make them available and to market and promote them to students.
Possible organisations to facilitate process	A range of organisations could manage this project; Universities Australia, Australian Association of Graduate Employers, National Association of Graduate Careers Advisory Services or Graduate Careers Australia.
Impact on higher education sector	Assuming that suitable and cost-effective tools are located and made available universities will need to raise awareness of the tools and make them accessible to students. Careers advisory services would be the most obvious part of the universities to take responsibility for implementation.
Possible interactions with VET sector	Work done to date on the Employability Skills Profiler (ESP) developed through Department of Employment and Workplace Relations could be further adapted to apply to self assessment in the higher education sector.
Possible interactions with school sector	No significant impact.
Comments	While previous reports on the assessment and reporting of employability skill (DEST 2004a; Allen Consulting Group 2006) highlight the role of self assessment in relation to gathering evidence in portfolios, this recommendation goes beyond that. This model of self assessment is based on tools that guide individuals through questions to explore perceived performance and abilities against a defined framework.

Recommendation 6

To explicitly report on employability skills demonstrated through Work Integrated Learning

Link to project brief:

To identify embedded employability skills in higher education qualifications.

Issue	Workplace supervisors of students in WIL programs are ideally placed to assess a student's employability skills. Typically these supervisors generate a report to the university supervisor about the student's performance, using the pro forma provided. Firstly the data in these reports often does not specifically address employability skills and secondly these reports are generally not used by students when making applications for jobs as graduates.
Proposed action	That a common but flexible reporting tool is developed for WIL workplace supervisors. This should address employability skills and allow for customisation for discipline-specific reporting and required university information. The report will provide information for both university supervisors and prospective employers.
Output	A flexible reporting tool for workplace supervisor's assessment of WIL student's performance.
Outcome	<p>Workplace supervisor reports of students' performance, which specifically assess employability skills and which provide relevant information to universities and employers.</p> <p>Benefits to students / graduates</p> <p>Students will have a record of how employers regard their employability skills and a clear picture of areas that may need further development; they will also be able to utilise these WIL reports when seeking employment.</p> <p>Benefits to universities</p> <p>Common reporting formats may ease the administration and reporting burdens associated with WIL programs, as well as providing ease of comparison for assessing students as part of holistic course outcomes. Universities will also be able to use these reports for feedback on the efficacy of their development strategies.</p> <p>Benefits to employers</p> <p>Prospective employers will have the opportunity to receive information from other employers about the student's employability skills as they were demonstrated through work placement.</p>
Cost estimate	<p>Approximately \$150,000 could support a project to develop a common reporting format or template for WIL. This cost would include consultations with the broad range of providers of WIL programs across various disciplines within the higher education sector. Development of a common reporting format would also benefit from significant consultation and involvement with employers and their representatives.</p> <p>A further \$50,000 to market and promote the tool would boost uptake and implementation of the reporting tool.</p>
Possible organisations to facilitate process	Peak bodies such as the Australian Collaborative Education Network, the Australian Association of Graduate Employers or National Association of Graduate Careers Advisory Services
Impact on higher education sector	This initiative will provide greater benefits to students and employers, without burdening higher education. Greater commonality on workplace supervisor reports will be helpful when students are transitioning between universities or between faculties.
Possible interactions with VET sector	The reporting tool could potentially be adapted for use in the VET sector, facilitating pathways between the sectors.

Possible interactions with school sector	As with VET, the tool could be adapted for use for assessment of employability skills of school students doing work placement.
Comments	<p>Throughout this project employers demonstrated a strong support for work placements as part of undergraduate programs. It was also reported that one of the difficulties they face in recruitment is comparing students' results in a variety of formats. Common reporting of WIL would assist in both of these areas. Successful implementation would also depend on promotion of the report as a useful tool.</p> <p>A common reporting format will also provide students with easier opportunities to attach supervisor comments to e-portfolios.</p>

Recommendation 7

To encourage more effective integration of employability skills in student e-portfolios

Link to project brief:

To identify embedded employability skills in higher education qualifications.

Issue	<p>Many universities are providing students with the option of creating e-portfolios and often these are structured so that students can store evidence of their experience and skills in line with the university's graduate attributes. Universities encourage students to use e-portfolios as a means of managing their own learning and so that students will have readily accessible examples of their skills when applying for jobs. Yet little is known about employer preferences for how useful e-portfolios are to them and how they could better identify student employability skills for employers.</p> <p>Note: this recommendation is not to create a national e-portfolio system. The VET system have already investigated this option and found such a system to be too expensive and unmanageable. Universities would prefer to continue to directly offer their own versions of e-portfolios to their students.</p>
Proposed action	To research employer preferences for the structure, content and formats of e-portfolios and make findings available to universities, so that e-portfolios can better reflect employer needs.
Output	A report on employer preferences for how e-portfolios should address employability skills with specific advice to universities.
Outcome	<p>Students will create and maintain e-portfolios which record and document their experiences and evidence of their employability skills in formats that are useful to prospective employers.</p> <p>Benefits to students / graduates</p> <p>Students will have a more informed understanding of how to structure their e-portfolios and best present their employability skills.</p> <p>Benefits to universities</p> <p>Graduates who can provide better evidence of their employability skills in ways that are relevant to employers.</p> <p>Benefits to employers</p> <p>New graduates should be more articulate about their employability skills and positioned to provide specific examples of evidence of these skills. Employers will be provided with better information about graduates' capabilities.</p>

Cost estimate	This is a research project. Estimated costs are \$250,000-300,000 to conduct the research and disseminate findings.
Possible organisations to facilitate process	DEST to contract a consultant or to provide funding to an employer group, such as ACCI, BCA or the Ai Group to manage the contract.
Impact on higher education sector	Individual faculties and or careers advisory services will be able to utilise the research to refine their e-portfolio offerings.
Possible interactions with VET sector	While e-portfolios were initially suggested as an option for assessment and reporting in VET, they are not widely used in that sector. Any work done toward e-portfolios in higher education could explore opportunities for collaboration and cost sharing with other sectors.
Possible interactions with school sector	Similar to interactions with VET, there may be opportunities for collaboration with schools, pending completion of a related project on employability skills in schools.
Comments	e-portfolios are gaining popularity in North America, Europe and the UK. As a resource they offer many potential benefits yet the challenge is how to make them work effectively for students and employers so that employability skill are effectively addressed.

Recommendation 8

To explicitly include employability skills in the forthcoming Australian Diploma Supplement (ADS)

Link to project brief:

To assess and report employability skills beyond current arrangements.

Issue	Employers need meaningful and relevant information about what is covered in qualifications; they need to know what skills and knowledge graduates from different programs have acquired. Increasingly the international trend is to provide graduates with a document that details their qualification so that the qualification can be interpreted in different national contexts and for different audiences. In Europe the Diploma Supplement (which applies to a range of diplomas, degrees and certificates) aims at improving international 'transparency' and at facilitating the academic and professional recognition of qualifications. A current Australian project to research the introduction of an Australian Diploma Supplement is underway. Note: in order to provide information on employability skills, universities will need to have mapped these skills for the given qualification.
Proposed action	That when the Australian Diploma Supplement is produced, it includes a report of employability skills based on the outcomes of curriculum mapping for that qualification, as well as other course documentation.
Output	Australian Diploma Supplements which detail employability skills gained by graduates from that program.
Outcome	Employers, and other institutions, will have information about the structure and content of different higher education qualifications, which also make explicit reference to the employability skills and how they are addressed in that qualification.
	<p><i>Benefits to students / graduates</i></p> <p>The ADS will provide graduates with official documentation about their qualification which can be used in other countries, with other educational institutions and potentially, with employers. The ADS could explain the way in employability skills were addressed in that qualification.</p>

	<p><i>Benefits to universities</i></p> <p>Following curriculum mapping of employability skills, and teaching and assessing these skills, the ADS provides universities with a way to report on these skills to a range of audiences.</p>
	<p><i>Benefits to employers</i></p> <p>Documentation from the university that provides information about the particular qualification and articulate the manner in which employability skills were addressed.</p>
Cost estimate	\$400,000 has already been provided to a consortium of universities to develop a common template for an Australian Diploma Supplement. An additional \$100,000 would enable them to test feasibility and to determine how best to include employability skills in the supplement.
Possible organisations to facilitate process	A consortium of universities are working to develop the ADS, with additional funding they could also look at how best to include employability skills.
Impact on higher education sector	Assuming the ADS is taken up within all universities, the employability skills could be reported on as part of the supplement, on the basis of curriculum mapping (as described in Recommendation 1).
Possible interactions with VET sector	Through Training Packages, the VET sector documents the make-up of each nationally recognised qualification; presently Industry Skills Councils are working to include an explicit employability skills summary for each qualification. The effect of including employability skills in the ADS will mean that both higher education and the VET system are reporting on employability skills in relation to specific qualifications.
Possible interactions with school sector	VET in Schools programs will detail employability skills through the employability skill summaries for each qualification offered. At some later stage schools may be in position to produce formal documentation of how curriculum addressed employability skills (note this would need to be generated from the states as curriculum in schools is determined by the states).
Comments	The project investigating a common template for the ADS is not expected to be completed until January 2008 and there may be limitations as to how much of the template can be changed while still adhering to the Lisbon Recognition Convention. These issues would need to be addressed as part of the project.

5.3 Further Recommendation

Recommendation 9

To encourage businesses to provide structured cadetships

Link to project brief:

To develop employability skills assessment and reporting beyond current arrangements.

Issue	<p>Employers who hire trainees or apprentices, whose training is undertaken in the VET system, are eligible for various state and Australian government financial incentives. Many employers believe that cadetships offer valuable opportunities to take a student with potential, and train them in the workplace whilst they are concurrently studying at university – yet there is no support from government for this approach. There is need to promote cadetships as a valuable model for employers and employees and to recognise the contribution employers are making when they employ cadets.</p>
Proposed action	<p>That work is undertaken to investigate ways in which companies that offer structured cadetships could be eligible for tax relief.</p>
Output	<p>A report on the viability of tax relief for employers offering structured cadetships.</p>
Outcome	<p>If tax relief was available for employers offering cadetships, this would lead to more companies providing cadetships that link structured learning opportunities with employment within a business.</p> <p><i>Benefits to students / graduates</i></p> <p>Cadetships provide ongoing work which develops employability and other skills in the workplace, together with formal higher education qualifications. The combinations of both these learning modalities will mean that students/graduates will have well developed skills and experience to readily take up their professional roles.</p> <p><i>Benefits to universities</i></p> <p>This recommendation has little impact on universities; however more students on cadetships would lead to changed student profiles and presumably classrooms with more students who could link theory to workplace practice. Cadetships may also offer potential for stronger business and higher education collaboration.</p> <p><i>Benefits to employers</i></p> <p>Recognition of the contribution they are making to build the skills of the workforce. Support for cadetships could help SMEs in particular; SMEs often have trouble attracting graduates and cadetships would enable them to develop the people and skills they need.</p>
Cost estimate	<p>For the financial year 2004–2005 DEST contributed nearly \$706 million to the New Apprenticeships Scheme (DEST 2005a); this includes employer incentives, personal benefits to New Apprentices (living away allowances) and payments to New Apprenticeships Centres for administration. State governments also offer incentives which predominantly related to payroll tax exemptions or rebates (NCVER 2005).</p> <p>Though there are significant differences between VET sector apprenticeships and traineeships, there would be similarly significant costs involved in providing similar incentives or funding to support cadetships in higher education. A research consultancy for \$350,000-450,000 could provide more structured suggestions and costings relating to support for cadetships and determine the parameters around which such incentives may operate.</p>

Possible organisations to facilitate process	The investigation of the feasibility of offering tax incentives for cadetships could be done by a consultant contracted to DEST or a peak employer group.
Impact on higher education sector	The impact on the higher education sector could increase opportunities for partnerships at the interface between business and higher education and provide universities with more students with work experience relevant to their course.
Possible interactions with VET sector	No significant interactions.
Possible interactions with school sector	No significant interactions.
Comments	Through this project cadetship models were identified through as ideal ways for students to develop employability skills in the workplace and for employers to 'grow' skills in their employees so that they fit the culture and needs of the business. Support for cadetships would recognise the worth of this approach.

Appendices

Appendix I – The Employability Skills Framework

EMPLOYABILITY SKILLS FRAMEWORK

Employability skills definition: Skills required not only to gain employment but also to progress within an enterprise so as to achieve one's potential and contribute successfully to enterprise strategic directions. Employability skills are sometimes referred to as generic skills or capabilities or key competencies.

Personal attributes that contribute to overall employability:	<ul style="list-style-type: none"> • Loyalty • An ability to deal with pressure • A sense of humour 	<ul style="list-style-type: none"> • Personal presentation • Honesty and integrity • Adaptability 	<ul style="list-style-type: none"> • A balanced attitude to work and home life • Positive self esteem • Reliability 	<ul style="list-style-type: none"> • Commitment • Motivation 	<ul style="list-style-type: none"> • Common sense • Enthusiasm
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Skill	Element (i.e. facets of the skill that employer identified as important noting that the mix and priority of these would vary from job to job)	Skill	Element (i.e. facets of the skill that employer identified as important noting that the mix and priority of these would vary from job to job)
Communication ... that contributes to productive and harmonious relations across employees and customers	<ul style="list-style-type: none"> • Listening and understanding • Speaking clearly and directly • Writing to the needs of the audience • Negotiating responsively • Reading independently • Empathising • Speaking and writing in languages other than English • Using numeracy • Understanding the needs of internal and external customers • Persuading effectively • Establishing and using networks • Being assertive • Sharing information 	Planning and organising ... that contributes to long and short term strategic planning	<ul style="list-style-type: none"> • Managing time and priorities –setting time lines, coordinating tasks for self and with others • Being resourceful • Taking initiative and making decisions • Adapting resource allocations to cope with contingencies • Establishing clear project goals and deliverables • Allocating people and other resources to tasks • Planning the use of resources including time management • Participates in continuous improvement and planning processes • Developing a vision and a proactive plan to accompany it • Predicting – weighing up risk, evaluate alternatives and apply evaluation criteria • Collecting, analysing and organising information • Understanding basic business systems and their relationships
Teamwork ... that contributes to productive working relationships and outcomes	<ul style="list-style-type: none"> • Working across different ages and irrespective of gender, race, religion or political persuasion • Working as an individual and as a member of a team • Knowing how to define a role as part of the team • Applying teamwork to a range of situations e.g. futures planning, crisis problem solving • Identifying the strengths of the team members • Coaching and mentoring skills including giving feedback 	Technology ... that contributes to effective execution of tasks	<ul style="list-style-type: none"> • Having a range of basic IT skills • Applying IT as a management tool • Using IT to organise data • Being willing to learn new IT skills • Having the OHS knowledge to apply technology • Having the physical capacity to apply technology e.g. manual dexterity
Problem solving ... that contributes to productive outcomes	<ul style="list-style-type: none"> • Developing creative, innovative solutions • Developing practical solutions • Showing independence and initiative in identifying problems and solving them • Solving problems in teams • Applying a range of strategies to problem solving • Using mathematics including budgeting and financial management to solve problems • Applying problem solving strategies across a range of areas • Testing assumptions taking the context of data and circumstances into account • Resolving customer concerns in relation to complex projects issues 	Life-long learning ... that contributes to ongoing improvement and expansion in employee and company operations and outcomes	<ul style="list-style-type: none"> • Managing own learning • Contributing to the learning community at the workplace • Using a range of mediums to learn – mentoring, peer support and networking, IT, courses • Applying learning to 'technical' issues (e.g. learning about products) and 'people' issues (e.g. interpersonal and cultural aspects of work) • Having enthusiasm for ongoing learning • Being willing to learn in any setting – on and off the job • Being open to new ideas and techniques • Being prepared to invest time and effort in learning new skills • Acknowledging the need to learn in order to accommodate change
Self-management ... that contributes to employee satisfaction and growth	<ul style="list-style-type: none"> • Having a personal vision and goals • Evaluating and monitoring own performance • Having knowledge and confidence in own ideas and visions • Articulating own ideas and visions • Taking responsibility 	Initiative and enterprise ... that contribute to innovative outcomes	<ul style="list-style-type: none"> • Adapting to new situations • Developing a strategic, creative, long term vision • Being creative • Identifying opportunities not obvious to others • Translating ideas into action • Generating a range of options • Initiating innovative solutions

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Appendix II – Project Management Committee

Ms Gail Silman	Australian Industry Group
Ms Gillian Gribble	Australian Industry Group
Ms Stella Axarlis	Director, Stella Axarlis and Associates Pty Ltd
Mr Patrick Coleman	Business Council of Australia
Mr Peter Cook	Department of Education, Science and Training
Professor Margaret Gardner	Vice-Chancellor, Royal Melbourne Institute of Technology
Professor Ashley Goldsworthy	CEO, Business Higher Education Round Table
Ms Mary Hicks	Australian Chamber of Commerce and Industry (ACCI)
Mr Andreas Molt	Universities Australia
Ms Laura Barwick	Executive Officer, BIHECC, Assistant Director, Collaboration Unit, Department of Education, Science and Training
Ms Kim Comer	Policy Officer, Collaboration Unit, Department of Education, Science and Training

Appendix III – Consultation

Universities		
Interviewee	Title	Organisation
Assoc Prof Greg Hampton	Head of Student Services	University of Wollongong
Prof Jane den Hollander	PVC, Academic Standards	Curtin University
Prof Peter McPhee	DVC Academic	University of Melbourne
Prof John McCallum	DVC Education Programs	Victoria University
Ms Belinda McClennan	PVC, Teaching and Learning Services	Victoria University
Dr Amanda Pearce	Director of Student Learning Services	Victoria University
Dr Simon Barrie	Associate Director, Institute of Teaching and Learning	University of Sydney
Ms Rosemary Sainty	Career Development Manager	University of Sydney
Dr Calvin Smith	Senior Lecturer	Griffith University
Ms Carol-Joy Patrick	Program Manager, Industrial Affiliates Program, School of Engineering	Griffith University
Mr Shane Griffin	Director, Co-op Program	UNSW
Dr Beverly Oliver	Manager Teaching Development Unit & Learning Support Network	Curtin University
Ms Taye Morris	Manager, Careers and Employment	UNSW
Ms Judie Kay	Director of Industry Liaison	Swinburne University
Ms Margaret Mazzolini	Deputy Head, Higher Education and Director, Curriculum Development	Swinburne University

Peak Bodies/Associations/Policy

Interviewee	Title	Organisation
Dr Daryl Hull	Director	Transport and Logistics Centre
Mr Ben Reeves	CEO	Australian Association of Graduate Employers
Mr Patrick Coleman	Director, Policy	Business Council of Australia
Mr Lucio Krbavak	LSAY Management Group	DEST
Mr Murray Judd	Director, Training Reform Section, Vocational Education and Training Group	DEST
Mr Alan Bradley	Assoc. Director, Australian Engineering Accreditation Centre	Engineers Australia
Mr Emmanuel Hondros	Project and Research Coordinator	Minerals Tertiary Education Council, Minerals Council of Australia
Ms Roberta Dowd	EA to CEO and Deputy CEO	Australian Medical Council
Ms Adele Chynoweth	LSAY Management Group	DEST
Ms Di Rachinger	Business Development/Relationships Manager	Graduate Careers Australia
Ms Kathy Rankin	Senior Policy Adviser, Policy and Membership	NSW Business Chamber

Employer

Interviewee	Title	Organisation
Mr Steve Nicholls	Director	Albins Off Road Gear
Mr Michael Doolan	Quality Manager	Miric Industries
Mr Mark Englund	CEO	Redfern Optical Components Pty Ltd
Mr Phillip Rouse	HR Manager	Bluescope Steel, Technology
Mr Glenn Rose	Learning and Development Advisor	Norske Skog
Mr Peter Bertolus	Group Employee Relations Manager	SPC Ardmona
Mr David Roberts	HR Manager	Goulburn Murray Water
Mr Jon Retford	–	Wilson Transformer
Mr Steve Pickard	Technical and Engineering Training Manager	BAE Systems
Mr Martin Camp	National Manufacturing Manager	EDI Rail
Mr Jim Hawkes	HR Manager	Dywidag Systems International
Mr Chris Stuckey	General Manager	Multiserv
Mr Andrew Williams	Project Officer, Workforce Planning & Development	State Services Authority
Mr Daniel dal Bon	HR Manager	Thomas & Coffey
Ms Kate Jackson	Human Resources Manager	Port Waratah Coal Services
Ms Silvia Scalzo	Human Resources Manager	Timbercorp
Ms Sarah Milne	Manager, Graduate Recruitment and Development Scheme	State Services Authority
Ms Holly Waltham	HR Manager	Perks
Ms David Cvetkovski	National Graduate Manager, Talent Australia People & Organisational Development	NAB
Ms Anna Heywood	Graduate Management Consultant	NAB
Ms Caroline Henshaw	National Graduate Recruitment Manager	Deloitte
Ms Naomi McQuaid	Accounting and Finance Program Manager	Department of Treasury & Finance, Vic.
Ms Jenny Schmid	National Graduate Coordinator	Australian Customs Service

Appendix IV – Curriculum Mapping Example: Curtin Curriculum 2010

The table below is an example of curriculum mapping for one qualification, Curtin's Master in Environmental Health. Note that the map addresses graduate attributes and learning outcomes as they relate to professional competencies.

Curtin's graduate attributes	Professional competencies (Australian Institute of Environmental Health)	A graduate of the Master of Environmental Health can:
1. Apply discipline knowledge, principles and concepts	Apply basic public health science principles and concepts to issues of concern; understand the discipline of environmental health, its theoretical underpinnings and spheres of operation; use quantitative and qualitative methods for monitoring, assessing and evaluating events	1. Apply sustainable environmental health principles and practices to enhance the health and well-being of populations
2. Think critically, creatively and reflectively	Apply logical and rational processes to analyse the components of an issue; think creatively to generate innovative solutions; undertake systematic problem solving; employ principles of project management	2.1 Apply logical and rational processes to critically analyse issues relevant to environmental health 2.2 Think creatively to generate innovative solutions
3. Access, evaluate and synthesise information	Identify and access information sources and compile relevant and appropriate information when needed; analyse data, recognise meaningful test results, and interpret results; evaluate the effectiveness, performance or results of procedures, interventions and programs	3. Access, evaluate and synthesise relevant information and evidence from a range of sources applicable to practice
4. Communicate effectively	Exchange of information with colleagues, practitioners, clients, policy-makers, interest groups and the public; have appropriate interpersonal skills; facilitate conflict resolution within agencies, community and regulated parties; persuasively argue for the value and importance of environmental and public health	4. Communicate at an advanced level with individuals and groups and advocate for the improvement of health conditions
5. Use technologies appropriately	Learn to use new technologies; decide on appropriate applications, recognising their advantages and limitations	5. Effectively use new and existing technologies relevant to environmental health practice
6. Use lifelong learning skills	Responsible for making change; adapt effectively to change; take responsibility for their own learning and development; critically evaluate personal beliefs and assumptions	6. Take responsibility for own learning and professional development in environmental health practice
7. Recognise and apply international perspectives	Recognise individual and collective human rights; recognise the importance of cultural diversity and sensitivity; think globally	7. Recognise and apply international perspectives to environmental health
8. Demonstrate cultural awareness and understanding	Recognise individual and collective human rights; recognise the importance of cultural diversity and sensitivity; think globally	8. Demonstrate understanding and respect for individual human rights and cultural diversity
9. Apply professional skills	Work independently and in teams; demonstrate leadership; understand and demonstrate professional behaviour; demonstrate ethical practices; employ systems-thinking skills	9.1 Work professionally and ethically across a range of settings 9.2 Demonstrate independence and leadership in project management

Appendix V – Graduate Attributes

This list provides examples of graduate attributes from 29 Australian universities.

Australian National University	<ul style="list-style-type: none"> • Are competent in literary and oral communication • Are independent, critical and creative thinkers with analytical and problem solving skills • Are well acquainted with the broader contexts of higher learning • Have an in-depth knowledge base and comprehensive understanding of the conceptual and theoretical underpinnings of their disciplines • Trained in computer based technology, and relevant discipline-based technical and methodological skills • Understand major issues facing Australia and the wider world • Value intellectual rigour, creativity, curiosity, integrity and life-long learning
Central Queensland University	<ul style="list-style-type: none"> • Developing classroom based learning communities • Emphasising mastery learning • Integrating classrooms and instructional laboratories • Integrating critical thinking and content • Integrating study skills instruction with content instruction • Practising classroom assessment techniques • Using active learning techniques • Utilising diverse methods of presenting instructional material
Charles Darwin University	<ul style="list-style-type: none"> • Citizenship • Personal practical knowledge • World View
Charles Sturt University	<ul style="list-style-type: none"> • Address unfamiliar problems • Communicate effectively in a manner relevant to their discipline • Demonstrate a broad overview of their field of knowledge • Demonstrate a national and international perspective • Demonstrate an understanding of, and commitment to, values-driven practice in their field of study that takes account of open enquiry, ethical practice, social justice, cultural diversity, reconciliation and environmental sustainability • Demonstrate analytical skills, including the exercise of critical and reflective judgment • Plan their own work • Work as a team member
Curtin University	<ul style="list-style-type: none"> • Access, evaluate and synthesise information • Apply discipline knowledge, principles and concepts • Apply professional skills • Communicate effectively • Demonstrate intercultural awareness and understanding • Recognise and apply international perspectives • Think critically, creatively and reflectively • Use technologies appropriately • Utilise life-long learning skills
Deakin University	<ul style="list-style-type: none"> • Ability to communicate effectively, with the engineering team and with the community at large • Capacity for creativity and innovation • Fluency in current computer-based word-processing and graphics packages

	<ul style="list-style-type: none"> • Manage own time and processes effectively, prioritising competing demands to achieve personal and team goals and objectives • Proficiency in engineering design
Edith Cowan University	<ul style="list-style-type: none"> • Awareness of political, social and ethical issues • Communication • Enterprise, initiative and creativity • Internationalisation/cross cultural awareness • Problem solving/decision making • Professional knowledge • Service • Teamwork • Use of technology/information literacy • Workplace experience or applied competencies
Flinders University	<ul style="list-style-type: none"> • Financial management • Healthcare operations management • Interpersonal, communication and team work skills • Leadership, politics and ethics • Patient or client and community focus
Griffith University	<ul style="list-style-type: none"> • Be creative and innovative • Be information literate • Be responsible and effective citizens • Behave ethically in social, professional and work environments • Communicate effectively • Make critical evaluations • Solve problems • Work autonomously and in teams
James Cook University	<ul style="list-style-type: none"> • Critical thinking • Interpersonal understanding and communication • Problem solving • Project management
Monash University	<ul style="list-style-type: none"> • An international outlook, cultural sensitivity and an inclusive approach to difference • Capacity for critical thought, analysis and synthesis • Effective oral communication skills • Effective problem solving skills • Effective written communication skills • Enthusiasm and capacity for enquiry and research • Information literacy • Information technology literacy • Socially responsible and ethical attitudes • The ability to articulate a sound argument • The ability to work collaboratively and to assume appropriate leadership roles • The insight to identify a problem and introduce innovative solutions
Murdoch University	<ul style="list-style-type: none"> • Communication • Critical and creative thinking • Ethics • Global perspective • Independent and life-long learning

	<ul style="list-style-type: none"> • In-depth knowledge of a field of study • Interdisciplinarity • Social interaction • Social justice
Queensland University of Technology	<ul style="list-style-type: none"> • Characteristics of self-reliance and leadership • Critical, creative and analytical thinking, and effective problem solving • Effective communication in a variety of contexts and modes • Knowledge and skills pertinent to a particular discipline or professional area • Social and ethical responsibility and an understanding of indigenous and international perspectives • The ability to work independently and collaboratively • The capacity for life-long learning
Swinburne University of Technology	<ul style="list-style-type: none"> • Adaptable and manage change • Entrepreneurial in contributing to innovation and development within their business, workplace or community • Aware of local and international environments in which they will be contributing (e.g. socio-cultural, economic, natural) • Capable in their chosen professional, vocational or study areas • Operate effectively and ethically in work and community situations
The University of New South Wales	<ul style="list-style-type: none"> • A capacity to contribute to and work within the international community • A respect for ethical practice and social responsibility • An appreciation of, and a responsiveness to, change • An appreciation of, and respect for, diversity • An in-depth engagement with the relevant disciplinary knowledge in its interdisciplinary context • The skills to locate, evaluate and use relevant information • The ability to engage in independent and reflective learning • The capacity for analytical and critical thinking and for creative problem solving • The capacity for enterprise, initiative and creativity • The skills involved in scholarly enquiry • The skills of effective communication • The skills required for collaborative and multidisciplinary work
The University of Sydney	<ul style="list-style-type: none"> • Communication – graduates will recognise and value communication as a tool for negotiating and creating new understanding, interacting, and furthering their own learning • Ethical, social and professional understanding – graduates will hold personal values and beliefs consistent with their role as responsible members of local, national, international and professional communities • Information literacy – graduates will be able to use information effectively in a range of contexts • Personal and intellectual autonomy – graduates will be able to work independently and sustainably, in a way that is informed by openness, curiosity and a desire to meet new challenges • Research and inquiry – graduates will be able to create new knowledge and understanding through the process of research and inquiry
University of Adelaide	<ul style="list-style-type: none"> • A commitment to continuous learning and the capacity to maintain intellectual curiosity throughout life • A commitment to the highest standards of professional endeavour and the ability to take a leadership role in the community • A proficiency in the appropriate use of contemporary technologies • An ability to apply effective, creative and innovative solutions, both independently and cooperatively, to current and future problems

	<ul style="list-style-type: none"> • An awareness of ethical, social and cultural issues and their importance in the exercise of professional skills and responsibilities • Knowledge and understanding of the content and techniques of a chosen discipline at advanced levels that are internationally recognised • Skills of a high order in interpersonal understanding, teamwork and communication • The ability to locate, analyse, evaluate and synthesise information from a wide variety of sources in a planned and timely manner
University of Canberra	<ul style="list-style-type: none"> • Communication – to be able to identify, analyse, evaluate and communicate information and knowledge, using appropriate oral, visual and written mediums • Creativity – to use original approaches to produce works that critique and extend current forms of knowledge and understanding • Ethical practice – to respect, understand and apply ethical practices personally and professionally • Inquiry – to be able to develop advanced approaches and techniques for defining, investigating and resolving research questions • Knowledge – to be able to conceptualise, acquire, apply, integrate, grow and contextualise knowledge • Organisation – to be able to develop advanced strategies to lead the planning, management and implementation of a project
University of Melbourne	<ul style="list-style-type: none"> • Academically excellent • Active global citizens • Attuned to cultural diversity • Knowledge across disciplines • Leaders in communities
University of New England	<ul style="list-style-type: none"> • Communication skills • Global perspective • Information literacy • Life-long learning • Problem solving • Social responsibility • Teamwork
University of Notre Dame	<ul style="list-style-type: none"> • A commitment to community service and social justice within their future field of work • Excellent employment prospects • Highly developed intellectual skills • Strong practical capacities within their disciplines and professions
University of South Australia	<ul style="list-style-type: none"> • Can work autonomously and collaboratively as a professional • Communicates effectively in professional practice and as a member of the community • Demonstrates international perspectives as a professional and as a citizen • Is an effective problem solver, capable of applying logical, critical, and creative thinking to a range of problems • Is committed to ethical action and social responsibility as a professional and citizen • Is prepared for life-long learning in pursuit of personal development and excellence in professional practice • Operates effectively with and upon a body of knowledge of sufficient depth to begin professional practice

University of Southern Queensland	<ul style="list-style-type: none"> • Communication • Decision-making • Teamwork
University of Tasmania	<ul style="list-style-type: none"> • Communication skills – access, organise and present information, particularly through technology based activity • Knowledge – apply technical and information skills appropriate to their discipline or professional area • Problem-solving skills – find, acquire, evaluate, manage and use relevant information in a range of media
University of Technology Sydney	<ul style="list-style-type: none"> • Is equipped for ongoing learning in the pursuit of personal development and excellence in professional practice • Operates effectively with the body of knowledge that underpins professional practice • Is committed to the actions and responsibilities required of a professional and a citizen <p>Personal:</p> <ul style="list-style-type: none"> • Managing own work • Working with others • Cross cultural understanding • Capacity for initiative and innovation • Capacity for community engagement <p>Professional:</p> <ul style="list-style-type: none"> • Disciplinary, professional and technical knowledge • Application of expertise appropriate to the practice context • Understanding the contexts of professional work • Ethical understanding <p>Intellectual</p> <ul style="list-style-type: none"> • Critical and independent thinking • Spoken and written communication • Information technology literacy • Information literacy
University of the Sunshine Coast	<p>To understand:</p> <ul style="list-style-type: none"> • To have relevant, discipline-based knowledge, skills and values • To be able to apply and evaluate knowledge <p>To think:</p> <ul style="list-style-type: none"> • To value and respect reason • To be able to reason competently <p>To learn:</p> <ul style="list-style-type: none"> • To be self-aware, independent learners • To be able to collect, organise, analyse, evaluate and use information in a range of contexts <p>To interact:</p> <ul style="list-style-type: none"> • To be able to interrelate and collaborate • To value and respect difference and diversity <p>To communicate:</p> <ul style="list-style-type: none"> • To speak, listen and write competently • To be competent users of information and communication technologies <p>To initiate:</p> <ul style="list-style-type: none"> • To be constructive and creative • To be enterprising

	<p>To value:</p> <ul style="list-style-type: none"> • To have self-respect and a sense of personal agency • To have a sense of personal and social responsibility • To understand and apply ethical professional practices
University of Western Sydney	<ul style="list-style-type: none"> • Applies knowledge through intellectual inquiry in professional or applied contexts • Brings knowledge to life through responsible engagement and appreciation of diversity in an evolving world • Commands multiple skills and literacies to enable adaptable life-long learning • Demonstrates comprehensive, coherent and connected knowledge
University of Wollongong	<ul style="list-style-type: none"> • A basic understanding of information literacy and specific skills in acquiring, organising and presenting information, particularly through computer-based activity • A capacity for, and understanding of, teamwork • A commitment to continued and independent learning, intellectual development, critical analysis and creativity • A desire to continually seek improved solutions and to initiate, and participate in, organisational, social and cultural change • An ability to logically analyse issues, evaluate different options and viewpoints, and implement decisions • An acknowledgement and acceptance of individual responsibilities and obligations and of the assertion of the rights of the individual and the community • An appreciation and valuing of cultural and intellectual diversity and the ability to function in a multi-cultural or global environment • Coherent and extensive knowledge in a discipline, appropriate ethical standards and, where appropriate, defined professional skills • Self confidence combined with oral and written skills of a high level
Victoria University	<ul style="list-style-type: none"> • Can locate, evaluate, manage and use information effectively (including 'critical thinking', ICT and statistical skills) • Can work both autonomously and collaboratively as a professional • Can work effectively in settings of social and cultural diversity • An communicates effectively as a professional and as a citizen • Is an effective problem solver in a range of settings, including professional practice

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