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Engaging students and academics in work-ready learning contextualised for each profession in the curriculum

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Universities are facing increasing pressure to better prepare graduates for the workforce. Employers, professional societies and the government are increasingly calling for graduates who are work-ready. The University of Technology Sydney (UTS) *Work-Ready Project* is a curriculum renewal initiative that aims to improve graduates' professional attributes and employability skills. The collaborative project aims to design, develop, implement and evaluate into the existing curriculum high-quality, professionally contextualised, work-ready learning activities to better prepare students for the contemporary workplace.

The paper provides an overview of the project's curriculum renewal strategy of *contextualised by profession integrated into the curriculum*. Interviews with representatives of relevant professional societies identified their key graduate attributes. These attributes inform the structure of online matrices of work-ready activities and down-loadable learning and teaching support resources. These learning activities have been contextualised for each profession to maximise relevance for students and academics. Formative evaluation of the project's website is presented together with the strategies used to renew, integrate and embed work-ready learning into UTS's diverse professional and disciplinary curriculum.

Keywords: Contextualised and integrated learning, work-ready professional graduate attributes, curriculum renewal

Introduction

Since the early 1990s a series of reports from government, professional societies and employers have articulated an expectation that universities should produce graduates that are more ready for work (Mayer, 1992; ACNielsen Research Services, 2000; ACCI & BCA, 2002; DEST, 2004; Precision Consulting, 2007).

The importance of developing professional graduate attributes has been hotly debated in academic literature (Clanchy & Ballard, 1995; Fin, 1999; Holmes, 2002; Chapman, 2004; Barrie, 2005; Barrie, 2006). Barrie and Prosser (2004) observe that graduate attributes "have their roots in the contested territory of questions as to the nature of knowledge and the nature of a university" (p244).

Acknowledging this, the UTS *Work-Ready Project* (Figure 1) is a collaborative curriculum renewal initiative that aims to cumulatively improve professional graduate attributes by designing new subjects, new career-envisioning subject modules and short work-ready learning activities to be integrated into the existing curriculum (Litchfield, Nettleton &

Taylor, 2008). The *Work-Ready Project* directly addresses the UTS strategic plan's objective of increasing graduate preparedness to pursue successful careers in a changing professional workplace.

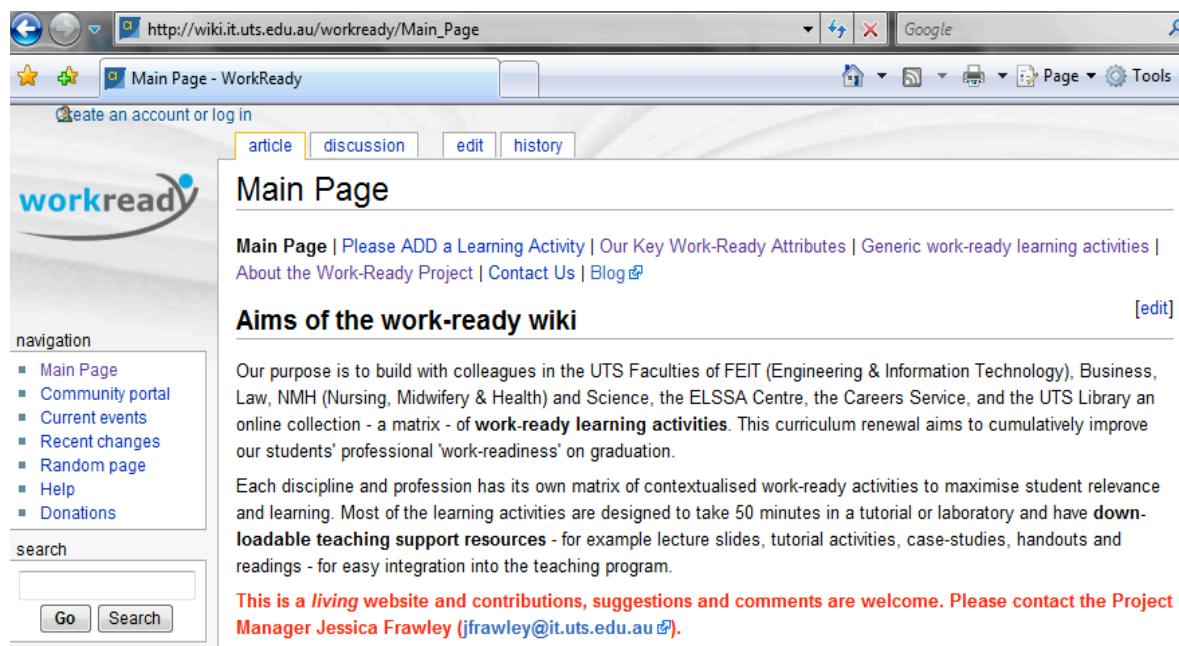


Figure 1: Screen shot of the aims of the Work-Ready Project website

Professional societies involved in the project

After a preliminary literature review, representatives of six professional and accrediting societies were interviewed to identify the key generic attributes necessary for a graduate to succeed in the contemporary workplace (Nettleton, Litchfield & Taylor, 2008). The six societies interviewed were involved in the accreditation of UTS courses in the Faculties of IT and Business. Initial interviews were conducted during September to November 2007 with:

- Association to Advance Collegiate Schools of Business (AACSB) International,
- Australian Computer Society (ACS),
- Australian Human Resources Institute (AHRI),
- Chartered Institute of Marketing (CIM),
- Certified Practising Accountants Australia (CPA), and the
- Institute of Chartered Accountants in Australia (ICAA).

When there was no available accrediting body for an award course an alternative professional society was identified:

- Graduate Management Association of Australia (GMAA),
- Australian Marketing Institute (AMI), and the
- Certified Financial Analysts Institute (CFA).

The research question asked at these interviews was: '*what are the attributes of a professional work-ready graduate?*' Questions were asked about the professional societies understanding of what is meant by 'professional', the understandings and skills employers look for in university graduates now and in the future, and their suggestions on how to improve graduates

work-readiness and employability. A summary report (Nettleton, 2007) of key findings was sent to all interviewees to confirm the intention and meanings of their comments.

The project's original Faculties of IT and Business have since July 2008 been joined by four others: Engineering, Law, NMH (Nursing, Midwifery and Health) and Science. Reflecting this wider collaboration the *Work-Ready Project* has invited the following professional societies to become involved in the project and contribute their perspective:

- Australian Nursing and Midwifery Council (ANMC),
- Engineers Australia (EA),
- Law Society of New South Wales,
- Medical Technology Association of Australia (MTAA), and
- New South Wales Bar Association.

Work-ready attributes identified by professional societies

Many of the professional society representatives observed that large employers believe that whilst technical skills are important, the basis for their recruitment decisions are made on generic professional skills. Many believed that whilst employers can train new graduates in technical skills it was simply 'too hard' to train graduates in the generic skills of communication, teamwork, initiative, ability to develop rapport with clients, analytical skills, making sound judgments and applying their technical knowledge (Nettleton, Litchfield & Taylor, 2008). These key graduate attribute descriptors were found to be common from all the professional societies:

- Ethics and professionalism,
- Global perspective,
- Communication capacity,
- Ability to work well in a team,
- Ability to apply knowledge, and
- Creative problem-solving and critical thinking skills.

Although the above list is not exhaustive of the graduate attributes suggested by the professional societies, these are the ones considered most important across all the societies (Litchfield, Nettleton & Taylor, 2008).

The development of these professional graduate attributes in the existing curriculum cannot replace the extensive real-world understandings learnt and gained through lengthy work-placements or on-the-job training. Nevertheless through curriculum renewal universities can more systematically and better address the learning and teaching of these attributes together with the traditional body-of-knowledge of each discipline and profession. These different pedagogic foci are compatible, and can combine to reinforce each other (Litchfield & Nettleton, 2008).

Identifying key professional work-ready attributes

Key graduate attributes were identified and informed by the interviews with professional societies and the *Employability Skills* framework of the Department of Education, Science and Training. The framework consists of eight key employability skills: communication,

teamwork, planning and organising, technology, problem-solving, self-management, life-long learning and initiative and enterprise (DEST, 2004).

The professional societies highlighted the DEST attributes as well as the importance of professionalism and ethics, global perspectives and the ability to apply knowledge. In discussion with colleagues, information literacy and research were also identified as key attributes, and the application of knowledge was incorporated into a number of other key work-ready attributes. Eleven key work-ready professional attributes were identified, as shown in Figure 2. The twelfth attribute 'other' is to be inclusive of colleagues' enthusiasms and ideas not yet identified.

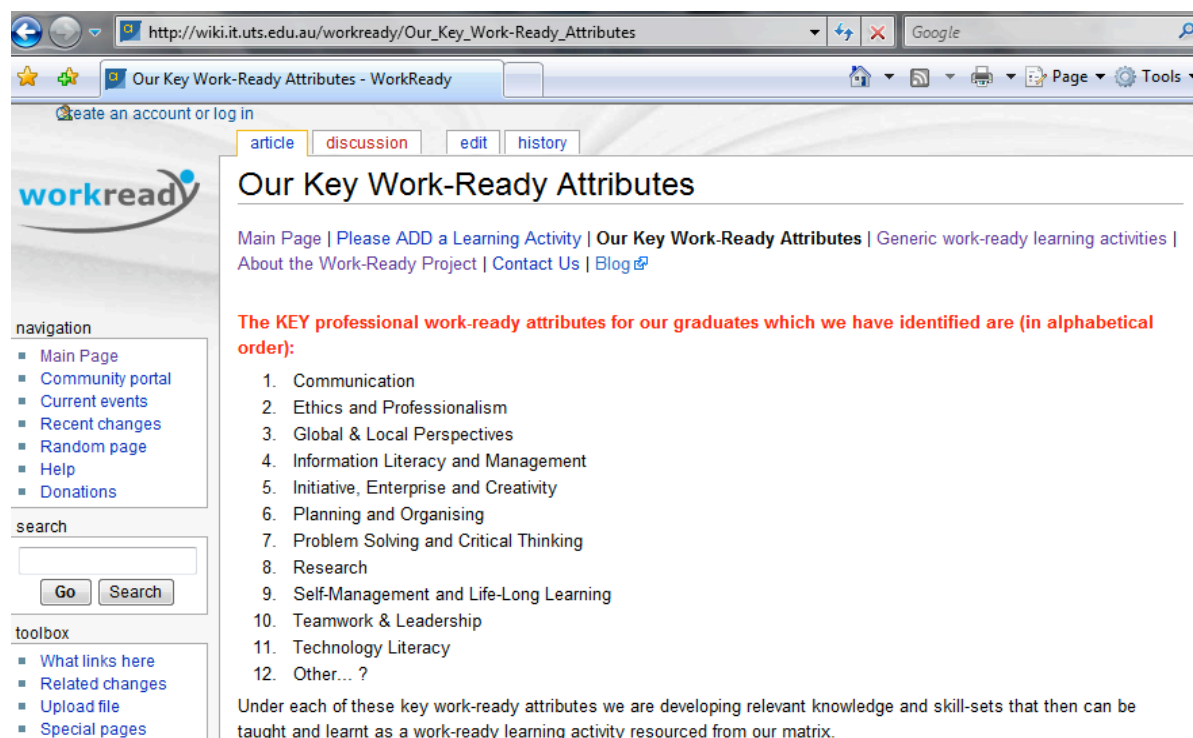


Figure 2: Screen shot of the Work-Ready Project's key professional graduate attributes

Contextualising and integrating work-ready learning into the curriculum

Once the eleven key professional graduate attributes were identified the project focused on designing implementation strategies and a website to support the learning and teaching of these attributes. The approach has been a systematic one of identifying sub-attributes, understandings and skills that can be learnt for each key attribute. Following this, the project commenced designing generic work-ready learning activities which were then contextualised for each profession to support the integration and embedding of this learning into the existing curriculum.

An online matrix was developed of *generic* key work-ready attributes, sub-attributes, understandings and skills that can be learnt. Then each profession and discipline has its own matrix of *contextualised* learning activities. Academics can browse the matrices for relevant learning activities, most of which are of 50 minute duration to be suitable for tutorials and laboratories.

Downloadable teaching support resources, including lecture slides, tutorial activities, case-studies, handouts and readings, are available for each activity. These teaching supports enable the academic to incorporate the work-ready learning activity into their subject effectively and with reasonable ease. For copyright compliance these learning and teaching resources are only available to UTS staff.

Consulting professional societies & identifying key generic graduate attributes.

Identifying sub-attributes, understandings and skills in each generic attribute and creating a matrix of generic learning activities

Attribute	Attribute Reference	Introductory Learning Activities	Intermediate Learning Activities	Advanced Learning Activities
1. Communication				
1.1 Written Professional Communication	Generic	GEN.1.1.intro	GEN.1.1.med	GEN.1.1.adv
1.2 Oral & Visual Professional Communication	Generic	GEN.1.2.intro	GEN.1.2.med	GEN.1.2.adv
1.3 Listening, understanding & empathising	Generic	GEN.1.3.intro	GEN.1.3.med	GEN.1.3.adv

Each profession or discipline has its own matrix of contextualised work-ready activities

- **Information Technology (ACS)** - Australian Computer Society
- **Business (AACSB)** - Association to Advance Collegiate Schools of Business
 - **Accounting (ICAA and CPA)** - Institute of Chartered Accountants in Australia and Certified Practising Accountants Australia
 - **Finance (CFA)** - Chartered Financial Analyst Institute
 - **Human Resources (AHRJ)** - Australian Human Resources Institute
 - **Management (GMAA)** - Graduate Management Association of Australia
 - **Marketing (AMI)** - Australian Marketing Institute
- **Engineering (EA)** - Engineers Australia
- **Law** - NSW Bar Association
- **Nursing, Midwifery and Health** - Australian Nursing & Midwifery Council
- **Science**
 - **Chemistry, Materials and Forensic Sciences**
 - **Environmental Sciences**
 - **Mathematical Sciences**
 - **Medical and Molecular Biosciences** - MTAA
 - **Physics and Advanced Materials**

Contextualised learning activities are quality assured by local-area leaders and the professional societies and published on the *Work-Ready* website

Attribute	Attribute Reference	Introductory Learning Activities	Intermediate Learning Activities	Advanced Learning Activities
1. Communication				
1.1 Written Professional Communication	FIT.GA8 - Professional Communication	IT.1.1.intro	IT.1.1.med	IT.1.1.adv
1.2 Oral & Visual Professional Communication	FIT.GA8 - Professional Communication	IT.1.2.intro	IT.1.2.med	IT.1.2.adv
1.3 Listening, understanding & empathising	FIT.GA8 - Professional Communication	IT.1.3.intro	IT.1.3.med	IT.1.3.adv
1.4 Networking	FIT.GA8 - Professional Communication	IT.1.4.intro	IT.1.4.med	IT.1.4.adv
1.5 Developing a rapport with clients	FIT.GA8 - Professional Communication	IT.1.5.intro	IT.1.5.med	IT.1.5.adv
1.6 Negotiating	FIT.GA8 - Professional Communication	IT.1.6.intro	IT.1.6.med	IT.1.6.adv
Other	Please click here to add a learning activity or suggest a new sub-attribute			
2. Ethics and Professionalism				
2.1 Ethical and legal responsibilities in organisations and society	FIT.GA6 - Responsibility & Ethics	IT.2.1.intro	IT.2.1.med	IT.2.1.adv
2.2 Awareness of professional codes of ethics, their role and limitations	FIT.GA6 - Responsibility & Ethics	IT.2.2.intro	IT.2.2.med	IT.2.2.adv
2.3 Ethical decision-making	FIT.GA6 - Responsibility & Ethics	IT.2.3.intro	IT.2.3.med	IT.2.3.adv
Other	Please click here to add a learning activity or suggest a new sub-attribute			
3. Global and Local Perspectives				

Displayed: Beginning of the IT contextualised wiki matrix

Academics choose 50 minute work-ready learning activities from their matrix and download teaching resources for effective integration into their subject

Final contextualising by academics to 'fine-tune' and develop ownership of the activity

Figure 3: Contextualising work-ready learning activities

Figure 3 depicts the work-ready website matrices and their relationship to one another. The *Work-Ready Project*'s support for the learning and teaching of graduate attributes has two key components:

- Contextualising learning activities for each profession and discipline, and
- Integrating and embedding work-ready learning into the existing curriculum.

The professional societies have expressed the need for improvement in what could be interpreted as common graduate attributes. Yet the *Work-Ready Project* has adopted a professionally contextualised and integrated learning and teaching approach.

To appreciate the premise for the *Work-Ready Project*'s contextualised and integrated approach we examine:

- Arguments for contextual learning,
- Processes of contextualising and embedding developed by the project,
- The success of this approach in the initial project evaluation to-date.

The importance of context in learning and teaching

The idea of context in learning is not new and problems posed by the making of meaning in the social world of context are inextricably linked to the problem of learning (Lave, 1993). Boud & Walker (1998) highlight the importance of context-specific learning in the design of educational programs: "The context in which we operate... has a profound influence over who we are, what and how we think and what we regard as legitimate knowledge"(p5).

When considering professional and disciplinary curriculum renewal it is important that the context is one that emphasises and legitimises its own content. A project aim is to encourage students to think about work-ready learning more explicitly. Situating this learning within the student's intended work-place provides a context that supports and reinforces the content (Lave & Wenger, 1990). From this specific context we can ask the student to add to their understanding of their profession or discipline.

Stinson (1990) argues for integrated contextual learning as a solution to education that is seen as too theoretical and out-of-touch with business realities. The relationship between perception and the motivation to learn according to Ramsden (2005) arises from context rather than specific understandings brought to the learning by that student. By contextualising work-ready learning to the profession that the student hopes to gain employment in will assist in overcoming attitudes that the content is irrelevant. A contextualised approach to work-ready learning is more than legitimising the content it is hoping to engage student interest and improve motivation to learn.

Designing contextualised work-ready learning

Having contextualised learning activities as the principle strategy for engaging students and academics in the existing curriculum, an appropriate design approach was developed (Figure 3). In addressing the requirements of diverse professional and disciplinary courses the project has recognized the need for a collaborative approach. Having academics involved in the process of developing and sharing learning activities and experiences is central to embedding this learning in the curriculum. The importance of academic ownership of developing work-ready attributes has been well recognised in the success of such curriculum renewal (Scoufis, 2000; Sharp & Sparrow, 2002).

To support the embedding of work-ready activities into subject and curriculum design the *Work-Ready Project* has developed a collaborative approach to both the contextualising of the activity (language, writing, learning resources) and the embedding of that learning within the discipline, whether it be Business, Engineering, IT, Law or Science. The entire process is available for academic involvement from designing the learning activity design through to specific professional contextualising, integration and use.

The contextualising process is detailed below in steps and also graphically in Figure 4:

1. Design generic work-ready learning activity,
2. Publish to the generic activity matrix,
3. Generic activity is contextualised for each profession by the project staff and academics,
4. Improvement sought from academics and the professional societies before the activity is integrated into the *Work-Ready Project* website,
5. The academic chooses and may further tailor the learning activity for their purposes,
6. Integration and use by the academic,
7. Academic and student evaluation of the activity for redesign and improvements to the contextualised version.

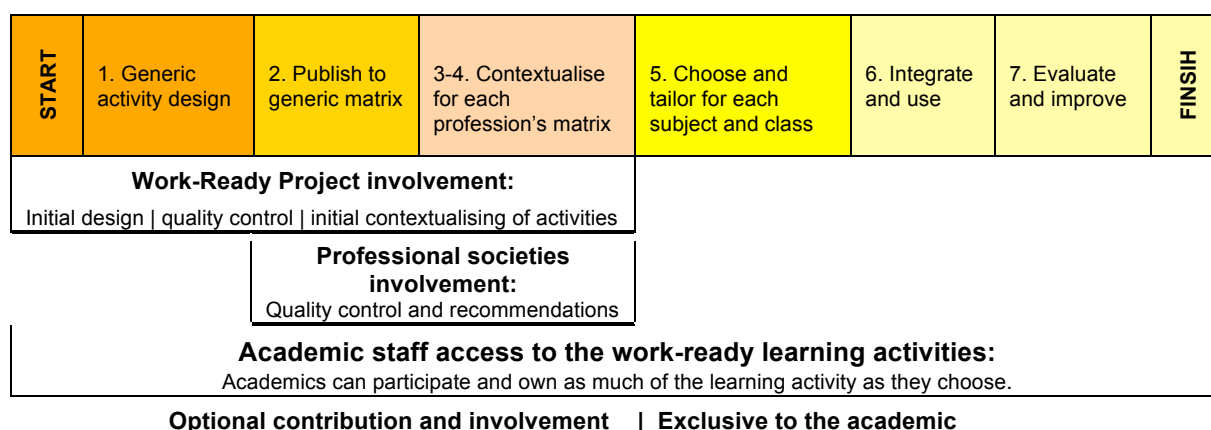


Figure 4: Level of academic staff involvement in the contextualising process

Academics have the option to be involved in the entire design process or only the final stages of integration and use. Academics choose how best to integrate the work-ready learning into their subject. The *Work-Ready Project* team and the professional societies offer supporting roles, but do not determine which activities are to be used. This academic ownership helps enable curriculum renewal.

The initial contextualization of generic learning activities is undertaken by either an academic or a project officer. At the generic level prior to contextualising the “language we use to name the world” (Boud & Walker, 1998, p6) often presents a perception barrier both for the academic and the student that the content is not part of their discipline. One of the difficulties overcome through contextualising learning resources is to engage academics in the need for graduate attributes to be better integrated into their subjects and the existing curriculum.

Designing contextualised work-ready learning activities

As depicted in Figure 3 the first stage in the learning activity design process is to design generic activities: these activities are then contextualised and developed for each professional

course involved in the project. To successfully contextualise an activity will need varying approaches; some may need to be completely re-written, or have supplementary case-studies provided, others may need only minor changes to linguistic features. In the following example the contextualising moves from the generic sentence (sGen) to engineering (sEng) and IT (sIT) and adapts language to suit the particular profession:

(sGen): Alex and Terry (Alex's Manager) are having their weekly meeting

(sEng): Alex is a junior engineer for a large commercial engineering firm specializing in large scale building projects. Terry, Project Manager and Senior Engineer and Alex's direct manager is meeting with Alex for their weekly meeting

(sIT): Alex is an in-house programmer for a telecommunications company. Terry, Alex's manager and the IT Director, is meeting with Alex for their weekly meeting.

While contextualising is not always as simple as framing a scenario within a profession's context and language, the effect of language change is highly successful in overcoming perception barriers and legitimising the learning and teaching of work-ready attributes.

In some instances it is necessary to contextualise the formatting of the learning activities. On advice from academics from engineering it was suggested that passages of continuous text be broken down into systematic boxes that engineering students would be more familiar with, as illustrated in Figure 5.

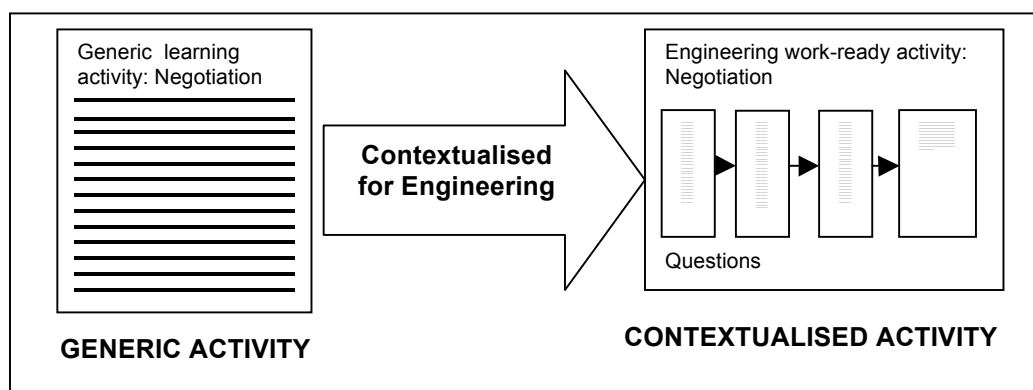


Figure 5: Contextualising through formatting

For some learning resources it may also be necessary to consider the skills and strengths within that discipline. For example engineering students are numerically adept and can favour equations over report writing. While this can be integrated into the design of an engineering learning activity and case-study, it would be inappropriate and alienating if this approach was applied to a Law activity. Contextualising work-ready activities improves the perceptions of both student and academics that might otherwise dismiss the development of graduate attributes as irrelevant and 'other' from their profession's body-of-knowledge.

Formative evaluation of the work-ready website

An initial evaluation of the work-ready website began in September 2008. Individual semi-structured interviews were used for data collection. This method provides opportunities for feedback on specific issues while also allowing for the emergence of issues related to the complexity of embedding the learning and teaching of work-ready attributes into the curriculum.

Academics were invited to comment on aspects of the website including ease of use, navigation and views on the applicability of the available resources to their teaching. The transcripts were analysed for common themes, perceptions and opportunities for improvement (Litchfield and Nettleton 2008). Positive responses are summarised as follows:

- The general structure of the website was viewed favourably,
- The participants generally found the website easy to use and navigate,
- The website was viewed as a valuable repository of shared materials. One participant noted that the website's flexibility to be adapted to developing needs,
- Most interviewees commented positively on the teaching support resources, and one suggested that it was also a potentially useful repository of administrative tools to improve efficiencies in marking,
- Academics may find a generic activity and modify it for their own purposes, even though it is not contextualised for their course. This was viewed as positive.

There were some suggestions for improvement:

- Provide a facility to track use by academics,
- Measure the use of a particular work-ready learning activity,
- Log student numbers against activities when completed to avoid duplication,
- Add ratings to each resource to produce some sort of "Citation Index".

Almost all interviewees commented that dissemination and embedding into the curriculum was a major challenge, one stating that it was a much more difficult than the technology behind it. There were a number of different views on how the learning activities could be integrated into the curriculum. Some viewed the learning activities as non-assessable, while others stated that to integrate work-ready attributes into the curriculum, there is a need for them to be incorporated explicitly into subject design and assessment.

As with any new learning in the curriculum it is important to consider whether or not the learning can be assessed. To-date the *Work Ready Project* has been successful through a contextualised and integrated approach, and when designing assessment strategies will need to adopt a variety of approaches in collaboration with academics. These assessment strategies will be developed as the project's work-ready activities are more widely implemented.

A number of participants viewed the website as a resource of material that has been through a quality assurance process. The quality assurance process was viewed as very important. Although the process of submitting material to the website was relatively smooth, some assistance from the website administrators was seen as valuable. These suggestions for improvement are currently being implemented as much as possible to improve the website's usability and sustainability.

Work-ready curriculum renewal and embedding change

Significant university curriculum renewal and change is notoriously difficult due to the complexity of historical interests and diversity of perspectives. In the UTS experience stand-alone resources which are not integrated, not contextualised and are developed without the buy-in of academics, tend not to be used.

Our three main strategies for curriculum integration and embedding are:

1. Each Faculty's Associate Dean Teaching and Learning is developing a *top-down* work-ready curriculum integration strategic plan relevant to local cultures and practices, for example, attribute mapping in courses, targeting core subjects,
2. The *bottom-up* availability of relevant work-ready learning activities with down-loadable teaching support resources to minimise academic time and effectively support integration into existing subjects, and
3. Collegial *side-ways* peer support with local-area leaders given financial incentives to pilot integrating work-ready learning activities, host local awareness raising seminars and to review their profession's contextualised learning activities.

By January 2009 over 300 work-ready learning activities had been developed, posted to the website and were available for use across UTS's diverse curriculum. Local-area leaders were appointed in each Faculty and academics had begun to select work-ready learning activities from the website for integration into their subject. Other academics have embedded a learning activity into their subject for 2009. Local-area work-ready seminars have been conducted as part of the dissemination strategy. The local-area leaders are at varying stages of editing and providing feedback on the contextualised learning activities for their profession before they are presented to the professional societies as a final draft for their comment.

Through curriculum renewal universities can more systematically and better address student learning of work-ready attributes together with the existing bodies-of-knowledge of each profession and discipline. These pedagogic outcomes are not mutually incompatible and can combine and reinforce each other through best-practice and subject & curriculum design. For example an activity to learn a collaborative decision-making process at the beginning of a group project assists the student team to function and improves their group outcomes which are then assessed.

Many of the understandings and skills referred to as professional graduate attributes are already present within the curriculum. The UTS *Work-Ready Project* is improving this 'hidden', and often incidental, curriculum by making it more visible, more explicit and more systematically taught.

Conclusion

The need for substantial curriculum renewal to better develop professional graduate attributes is becoming increasingly recognised. The *Work-Ready Project* at UTS aims to better support the development of professional attributes in the existing curriculum through making available online learning activities and down-loadable resources that are contextualised by profession to be integrated into the existing curriculum. Work-ready curriculum change is being enabled through the development of local-area implementation strategies, the ready availability of appropriate learning activities with easy-to-use teaching resources, and the collegial support activities of local-area change leaders.

The challenges of improving work-ready learning within diverse professional and disciplinary curriculum, and gaining then sustaining learner engagement can be addressed through contextualising the learning activities for each profession and integrating the learning into the existing curriculum. While the work-ready activities are initially designed generically, the

activities are redesigned specifically for each professional context to maximise student and academic relevance and motivation to learn.

Government, professional and employer stakeholders will continue searching for the 'renaissance' university graduate for some time. At UTS we are expanding the project across the curriculum using contextualised, integrated and embedded learning to better support and motivate student learning. Even with the efficacy of these strategies curriculum renewal in university education is difficult and takes time.

Acknowledgements

Available at:

<wiki.it.uts.edu.au/workready/About_the_Work-Ready_Project#Acknowledgments>

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