Improving the Learning of Graduate Attributes in the Curriculum: a Case-Study in IT Management

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Abstract

Government, employers and professional societies want university graduates who are more ready for work. The UTS Work-Ready Project is a curriculum renewal initiative that aims to improve graduates' professional attributes and employability skills. The Project provides online teaching and learning resources to support the integration of Work-Ready Learning Activities (WRLA) into the existing curriculum. The paper provides an overview of the UTS Work-Ready Project and the incorporation of WRLA's into three Information Technology (IT) Management subjects which all included a group assessment item. In each subject, students were surveyed to gain feedback regarding how useful they found a team collaborative decision-making WRLA and whether it helped in their group assessment task. When averaged across the three subjects and the five surveys undertaken 85% of students thought the activity was useful, however there were mixed results in relation to whether the WRLA helped in the group assessment task. Under-graduate students reported the WRLA made no difference to the group assessment task, whereas post-graduates indicated the WRLA did help the team produce their group assessment item.

Keywords: Professional Graduate Attributes, Work-Ready, Teamwork, Curriculum Renewal

1. Introduction

Teams and teamwork are essential characteristics of any organization. Employees collaborate, cooperate and work effectively together in today's workplace to allow organizations to meet the demands of the marketplace (Hertel, Geisterb & Kontradtb 2005, Majchrzak, Malthora & John 2005). This is not a new phenomenon, a survey of U.S. firms in 1995 found that over 84% of complex and innovative products and projects relied on cross-functional teams (Griffin, 1997). Most IT management texts have a chapter dedicated to working in teams (for example see Hughes & Cotterell 2006, Marchewka 2009, Smith & Imbrie, 2007) such is the importance of teamwork in the workplace.

The focus of the paper is the implementation of a teamwork-oriented collaborative decision-making Work-Ready Learning Activity (WRLA) into the curriculum of three Management subjects within the IT under-graduate and post-graduate programs at UTS. Being able to work effectively as a team member is crucial to the successful operation of organizations and hence a core skill for any graduate entering the workplace.

To enable graduates to be more ready for professional employment, the learning of graduate attributes needs to be closely aligned to relevant employability skills. Teamwork is a major attribute identified in the key employability skills in the Australian Government Department of Education, Science and Training employability skills framework (DEST, 2004).

The paper has the following components. An overview of the need for better work-ready graduate attributes in the curriculum is presented followed by a discussion of the Work-Ready Project. The teamwork literature is then discussed followed by details of the implementation of the collaborative decision-making WRLA into the three UTS IT subjects. The next section evaluates the student feedback on the WRLA. Lastly conclusions are drawn and future research is discussed.

2. Work-Ready Graduate Attributes and the Curriculum

Over the last two decades a variety of reports by government departments, professional societies, accrediting bodies and employers have expressed the belief that universities should produce graduates that are more ready for professional employment (Mayer, 1992; ACNielsen Research Services, 2000; ACCI and BCA, 2002; DEST, 2004; Precision Consulting, 2007). The academic literature during the same period has discussed and debated the importance of developing professional graduate attributes (Clanchy and Ballard, 1995; Finn, 1999; Holmes, 2002; Barrie, 2005; Barrie, 2006; von Konsky, 2008; von Konsky, Hay & Hart, 2008). Barrie and Prosser 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" (2004, p.244).

Traditionally universities have focused their curriculum at the disciplinary body-of-knowledge and profession-based understandings. However, today this focus is no longer sufficient to meet the employment needs of the various stakeholders as they increasingly require university graduates to have contemporary workplace professional attributes, understandings and skills (Litchfield, Nettleton & Taylor, 2008). Continuing pressure for graduates to possess work-ready skills is influencing universities to better map the systematic development of professional work-ready learning objectives and outcomes in curriculum design and renewal activities.

However an important caveat is that improving the teaching and learning of professional graduate attributes and employability skills in the existing curriculum cannot replace the real-world experiences of a lengthy work-placement or on-the-job training. Nevertheless through curriculum renewal universities can more methodically address student learning of graduate attributes together with the traditional body-of-knowledge of the discipline and profession. These pedagogic outcomes are not incompatible and can be combined to support each other.

3. The UTS Work-Ready Project

The UTS Work-Ready Project is a collaborative curriculum renewal initiative involving five Faculties that aims to improve professional graduate attributes through the design and integration of work-ready learning activities into the existing curriculum (Litchfield et al, 2008). The UTS strategic plan has an objective of increasing graduate preparedness to pursue successful careers in a changing professional workplace and the Work-Ready Project is directly aligned to this objective.

3.1 Identifying key professional graduate attributes for IT Students

During the period September to November 2007 representatives of the Australian Computer Society (ACS), which accredits the IT courses run by the UTS Faculty of Engineering and IT, were interviewed to gather specific data relating to the work readiness of graduating IT students.

The key question asked was 'what are the attributes of a professional work-ready graduate?' In the interviews, questions were asked in regards to - what is meant by 'professional' and the understandings, knowledge and skills employers seek in a university graduate. Suggestions on how to improve graduates work-readiness were also requested.

The ACS representatives observed that large employers believe that the basis for recruitment decisions are made on generic professional attributes rather than technical skills. They also believe that whilst employers have the ability to train new graduates in the required technical skills it was simply 'too hard' to develop the generic skills of communication, teamwork, initiative, ability to develop rapport with clients, analytical skills, making sound judgments and applying their technical knowledge (Litchfield et al, 2008).

The identification of the key IT professional work-ready graduate attributes has been informed by; 1) the interviews with the ACS representatives and 2) the key employability skills highlighted in the Australian Government Department of Education, Science and Training (2004) framework, namely communication, teamwork, planning and organizing, technology, problem solving, self-management, life-long learning, and initiative and enterprise.

The ACS highlighted the DEST employability skills as well as professionalism and ethics, global perspectives and the ability to apply knowledge. Discussions with colleagues identified information literacy and research as key attributes, and the application of knowledge was incorporated into a number of other key work-ready attributes. Eleven key work-ready graduate attributes have been identified as follows:

1. Communication
2. Ethics and Professionalism
3. Global and Local Perspectives
4. Information Literacy and Management
5. Initiative, Enterprise and Creativity
6. Planning and Organizing
7. Problem Solving and Critical Thinking
8. Research
9. Self-Management and Life-Long Learning
10. Teamwork and Leadership
11. Technology Literacy

3.2 Online matrices of work-ready learning activities for each profession

For each key professional graduate attribute relevant sub-attributes, understandings and skills that can be learnt have been identified to form a conceptual matrix which is the backbone of the UTS Work-Ready Project's wiki website. These professional understandings and skills are then aligned with short Work-Ready Learning Activities (WRLA) designed by colleagues, educational designers and the project's UTS partners; the ELSSA academic literacy centre, the Careers Service, and the Library. Academics can browse the matrices for relevant learning activities, which are 50 minutes in duration and therefore suitable for tutorials and laboratories.

The first and most up-to-date matrix supports an online collection of generic work-ready learning activities. Then for each professional field of study involved in the project there is a separate matrix of these learning activities (currently 16 exist) which have been contextualised to suit each profession and to improve academic and student relevance and motivation to learn. Thus the work-ready understandings and skills are learnt within their professional context and hence this approach supports the integration and embedding of the learning of graduate attributes into the curriculum

Figure 1 depicts the project's online matrices and their relationship to one another. The figure depicts the project's support for the learning and teaching of graduate attributes via two key components;

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

For IT students an example of how the generic attributes for Teamwork and Leadership are aligned and contextualised to the graduate attribute of Teamwork is shown in figure 1. Involvement by academics in the process of developing and sharing learning activities and experiences is actively encouraged. Academic ownership of developing graduate attributes has been well documented (Scoufis, 2000; Sharp and Sparrow, 2002) in the success of such projects.

In each profession's matrix the work-ready learning activities are colour-coded to indicate availability. An academic searching for a suitable activity in their profession's matrix can see which activities are available or already taken or not yet designed.

WRLA's may have introductory, intermediate and advanced versions which are suitable for use in both undergraduate and postgraduate programs. Each work-ready learning activity is designed for easy, effective and practical integration into the existing curriculum and teaching program. Academics can view, choose and download work-ready learning activity outlines that describe each activity using a standard one-page template. Most activities are designed to take 50 minutes to facilitate and come with down-loadable teaching and learning support resources such as lecture and tutorial slides, tutorial and classroom activities, case-studies, and relevant handouts and readings. These teaching supports enable the academic to incorporate the work-ready learning activity into their subject effectively and with relative ease.

4. Teams and Teamwork

The ACS considered teamwork skills critical to functioning in organizations as most positions and projects inevitably involve working with others. Graduates need to know how to: work in teams, communicate with others, solve problems collaboratively and reach a consensus. Adaptability and flexibility to work with different departments and levels of seniority and with multicultural members are important features of successful teamwork. The contemporary professional must adapt to ever-changing teams while working on different projects with different people for different time periods.

Forret & Love (2008) state that in most organizations project work is prevalent and therefore employees must work effectively as part of a team. Hertel et al (2005: p71) note that team members "collaborate interactively to achieve common goals". However the initial formation of a team can be dysfunctional as it "is composed of some number of relatively independent individuals who each have their own needs, goals, and expected outcomes …" (Day, Gronn & Salas 2004; p860). O'Neill & Kline (2008) observe that teams are groups of individuals who have a common purpose, interact to accomplish organizational goals, and share responsibility for team outcomes .As such, individual team members need to ensure they have the collaborative skills to enable them to work effectively within their team and to deliver expected team outcomes.

Forret & Love (2008), Hertel et al (2005) and Majchrzak et al (2005) all posit that collaboration and cooperation among employees in today's workplace is essential to allow organizations to function in their dynamic environments and to meet the demands of both the global and local marketplaces. With the growth in the global marketplace, the use of distributed or virtual teams has become increasingly important. As a member of such a team knowing your role and responsibility to the team are extremely important as these teams cross geographic locations and business unit boundaries and may have diverse reporting requirements (Majchrzak et al 2005). "Senior executives … usually have a very clear idea of their roles and responsibilities and how they relate to one another and how to work together effectively, and the result is a well-oiled operation" Doz & Kosonen (2007: p1).

Consulting professional societies & identifying key generic graduate attributes.

Identifying sub-attributes, understandings and skills for each attribute to create a matrix of generic learning activities

Attribute	Attribute Reference	Introductory Learning Activities	Intermediate Learning Activities	Advanced Learning Activities
10. Teamwork & Leadership				
10.1 Capacity to lead in organisational situations	Generic	GEN.10.1.intro	GEN.10.1.med	GEN.10.1.adv
10.2 Multicultural team formation and development	Generic	GEN.10.2.intro	GEN.10.2.med	GEN.10.2.adv
10.3 Group problem solving and applying teamwork	Generic	GEN.10.3.intro	GEN.10.3.med	GEN.10.3.adv

Each profession in the project 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 (AHRI) - 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 then published on the project website

Attribute	Attribute Reference	Introductory Learning Activities	Intermediate Learning Activities	Advanced Learning Activities
10. Teamwork & Leadership				
10.1 Capacity to lead in organisational situations	FIT.GA1 - Teamwork	IT.10.1.intro	IT.10.1.med	IT.10.1.adv
10.2 Multicultural team formation and development	FIT.GA1 - Teamwork	IT.10.2.intro	IT.10.2.med	IT.10.2.adv
10.3 Group problem solving and applying teamwork	FIT.GA1 - Teamwork	IT.10.3.intro	IT.10.3.med	IT.10.3.adv
10.4 Coaching and mentoring skills including giving feedback	FIT.GA1 - Teamwork	IT.10.4.intro	IT.10.4.med	IT.10.4.adv
10.5 Group and individual dynamics in organisations	FIT.GA1 - Teamwork	IT.10.5.intro	IT.10.5.med	IT.10.5.adv
Other	Please click here to add a learning activity or suggest a new sub-attribute			

Displayed: Beginning of the IT profession's contextualised matrix of work-ready activities

Academics choose 50 minute work-ready learning activities from the generic or their profession's matrix and can down-load teaching support resources for effective and efficient integration into their subjects

Figure 1: The process of contextualising work-ready learning activities.

Day et al (2004) suggest most organizations strive for enhanced teamwork amongst their employees as superior employee collaboration can help achieve corporate goals and competitive advantage. Hence, teamwork is often promoted as a fundamental competency in organizations. "Star performers don't operate in a vacuum; they operate as part of a team, and their success stems at least in part from their team relationships" (Groysberg & Abrahams 2006: p1). Good team relationships allow team members to give and take advice from one another making it easier to appreciate the team's combined responsibility to the task (Doz & Kosonen 2007).

Day et al (2004) reported on a survey of Fortune 100 company human resource professionals which highlighted that teamwork and how to capitalise on it was a high priority for these companies. There are many ways to develop teamwork skills with the most common being team training. Day et al (2004) reviewed eight specific team training and development strategies that have been used to enhance team performance. Of the areas covered team building, scenario-based team training and team coordination training appear well suited as techniques to enhance graduate teamwork skills.

All authors mentioned above refer to collaboration or working collaboratively as a key to successful team operation. Decision-making in the team environment is not an individual task as input is canvassed from various team members before a team decision is put forward. Hence the ability to collaborate during the decision-making process and collaborate in the completion of work activities are fundamental skills that team member must possess.

5. The Case-Study in IT Management

Having knowledge of teams, teamwork and how teams operate is essential in the IT industry. Most IT graduates and employees will at some point in their career work in a team, some may also lead a team, while others may manage projects and project teams.

Over the Spring 2008 and Autumn 2009 semester's three IT Management subjects incorporated a teamwork-oriented WRLA into their course content. These subjects were chosen as most relevant to undertake the teamwork activity as the subject assessment included a group work assignment. Students undertook the teamwork activity in a tutorial-based class and were surveyed to gain feedback concerning the impact of the WRLA. In the Spring 2008 subject all students were surveyed after the completion of their group work assignments whereas in the Autumn 2009 subjects the students were surveyed immediately after undertaking the work-ready learning activity selected teamwork activity and also after completing the group work assignment.

The aim of the surveys was to gain student feedback in relation to the WRLA in an attempt to evaluate how useful the activity was to the group assessment tasks and also to gain constructive feedback with the aim of making improvements to the WRLA.

All three subjects used the one-page learning activity template describing a 6-step group collaborative problem solving model (Bolton, 1987) depicted in figure 2 below.

5.1 The Pilot

In Spring Semester 2008, the IT post-graduate subject Project Management had a WRLA incorporated into the curriculum structure. Project management focuses strongly on teams and teamwork and hence this subject was a suitable choice to act as a pilot implementation of the collaborative decision-making WRLA. In this subject two group assessment tasks were undertaken 1) a weekly workshop and 2) the final assignment. The team makeup was the same for both tasks.

After providing students with the overview of the "Teamwork: Group Problem Solving" activity as shown in figure 2, they then undertook the teamwork based activity. The WRLA was conducted approximately half way through the semester. Students were surveyed after the completion of the final assignment (end of semester) as to how useful they found the "Teamwork: Group Problem Solving" activity in relation to their team assignment.

The pilot survey consisted of five (5) questions with questions 2 to 5 being open questions.

1. How would you rate the Work–Ready Activity? (A scale answer with 1 not useful through to 5 very useful)
2. What are the best aspects of the Work–Ready Activity?
3. What were the least useful aspects of the Work–Ready Activity? How could it be improved?
4. Did the Work–Ready Activity influence your assignments?
5. Do you have any other comments?

Twenty two (22) students responded to the survey. Eighteen (18) students rated the activity 3 or greater (question 1) and therefore identified that it was in fact a useful activity. Fifteen (15) students stated that the activity was useful for the team assignment work. One most interesting comment came from a part-time student in response to the question 4 'Did the Work-Ready Activity influence your assignment?' The

student's response was "no, but that could be because I work fulltime and already use these processes and understand how to work in a group". This comment clearly aligns with the objective of the Work-Ready project of giving students skills that are used in the professional workplace.

v7: Work-Ready Learning Activity: UTS LTPF Curriculum Renewal Project Learning activity and template design by Andrew Litchfield © 2008	
Matrix Reference #:	11.3.1intro
Matrix Workready Attribute:	**11. TEAMWORK: GROUP PROBLEM SOLVING**
Generic/Profession:	Generic + contextualised version for each profession
Course Graduate Attribute to be developed:	BScIT.GA1 – Work in collaborative environments BBus.GA2 – Communication & interpersonal skills + also relevant for the MIT, MPA, MBA, and other courses
Student Learning Level:	Introductory – best learnt in 1st year Bachelor & 1st year Masters
Best time in Semester:	As soon as possible after student teams have formed
Teaching Time required:	Total: 50 minutes
Lecture/Tutorial/Laboratory:	Can be introduced in lecture and run in tutorial or laboratory

Learning Activity Name:	**6-STEP COLLABORATIVE DECISION MAKING METHOD**	
Learning activity objective/s ie. what will the students learn?	Introduction to a method to support learners understanding and skill development in collaborative decision-making to improve teamwork dynamics and teamwork outcomes.	
Teaching & Learning strategy eg. classic teaching cycle case-studies games role-plays simulations, other active learning strategy.	The teaching strategy is to use the classic cycle; 1. Presentation of 6-step decision making model. 2. Guided team practice #1: case-study & discussion. 3. Guided team practice #2: case-study & discussion. 4. Plenary discussion + take-away reading & independent practice case-studies for skill mastery.	 10 mins 15 mins 15 mins 10 mins 50 mins
Content synopsis a short overview of about 100 words more content details can be links from the teaching resources available as listed below.	The 6-step collaborative problem solving method has many applications at home, at work, and never forget university…! This is a most important personal and professional understanding and skill and its use has favourable consequences; Step 1. *Define* the problem in terms of *needs*, not solutions. Step 2. *Brainstorm* possible solutions. Step 3. *Select* the solutions that will best meet all members' needs. Step 4. *Plan* who will do what, where, and by when. Step 5. *Implement* the plan. Step 6. *Evaluate* the problem solving process and, at a later date, *evaluate* how well the solution turned out.	
Assessment as part of a teamwork task as part of a reflection task potential exam questions	This work-ready learning activity supports improved teamwork outcomes which are usually assessable. The assessment could also be part of a student reflection on teamwork when relevant to your subject. There is potential for exam question/s on the 6-step model.	
Student learning resources links to online resources access details for hard-copies	**Click** for a soft copy of Chapter 14 'Collaborative Problem Solving: Seeking an Elegant Solution' from Bolton, R. (1987) *People Skills*. **Click** for generic and contextualised case-studies for independent practice.	
Academic teaching resources links to online resources access details for hard-copies	**Click** for powerpoint lecture & tutorial slides on the 6-step method. **Click** for various contextualised case-studies for both guided and independent practice of the 6-step model in tutorials or labs.	
Copyright status permission sought if required	One chapter paper handout is fair use for educational purposes in Australia.	
Acknowledgements who is responsible for the design of the activity?	This generic work-ready learning activity is designed by Andrew Litchfield <ajl@it.uts.edu.au> based on the work of Robert Bolton (1987). *People Skills*, Simon & Schuster.	

Figure 2: The one-page template description of the team decision-making WRLA.

5.2 The Follow-up

In Autumn Semester 2009 two additional IT subjects IT Contracts and Outsourcing (post-graduate) and Managing Client Vendor Relations (under-graduate) were chosen to include the WRLA in their curriculum structure. Both subjects focus on IT Outsourcing. Project work and teamwork play a major role in IT Outsourcing and therefore both subjects were suitable candidates for the use of the "Teamwork: Group Problem Solving" WRLA. Each subject had a group presentation assessment task. All students were given an overview of the learning activity (see figure 2) and then undertook a teamwork based activity.

Based on feedback obtained from the pilot, students in these two subjects were surveyed twice. The first time was immediately after they had completed the WRLA and the second time was immediately after they had completed their group assessment item. Students were requested that if they did not complete the initial survey then they were not to complete the second survey.

The follow-up subject findings are presented in tabular form to allow the survey questions and summary of responses to be presented together.

Table 1 below shows the post-graduate findings.

Initial Survey - 29 students responded	Final Survey - 26 students responded
How would you rate the Work–Ready Activity? (A scale answer with 1 not useful through to 5 very useful) 28 students (96%) rated the activity 3 or greater (question 1) therefore giving the impression that the activity was in fact useful	*How would now rate the Work–Ready Group Problem Solving Activity? (A scale answer with 1 not useful through to 5 very useful)* 24 students (92%) rated the activity 3 or greater again giving the impression that the activity was useful for developing their group presentation
What are the best aspects of the Work–Ready Activity? The majority of students commented that the activity: • gave the opportunity to hear other student's ideas • helped to get to know other students in the class, • helped to get a feel for team or group work • helped to communicate with others	*Did you find this Work–Ready Group Problem Solving Activity useful when developing your presentation?* 23 students agreed that the WRLA was useful for the assessment item. Some comments included: • "The work ready group problem solving activity certainly helped develop a good presentation" • "Yes, quite effective" • "It reinforced the practices presented by ELSSA during my induction week..."
What were the least useful aspects of the Work–Ready Activity? The limited responses obtained focused on: • students not participating in the activity or giving limited input • having a dominant person in the group • the group generating too many ideas	*Did this Work–Ready Group Problem Solving Activity have any influence over how your group developed your presentation?* Produced a negative result with 14 students commenting that the WRLA did not influence how the group developed their presentation. 12 students stated that it did help and the most common reason cited was using brainstorming to generate ideas.
Do you have any other comments? Only several responses received: • "a lack of information in the case scenario" • "working in groups is a really essential for us …" • "Because I work full-time … I can see it being beneficial for an under-grad or someone who hasn't worked"	*Do you have any other comments?* Very few responses received, however the following comments were made • "needs to be carried out frequently in class" • "effective and can be used in any problem solving activity"
Note on the question rating the usefulness of the work-ready activity 6 students in each survey rated the activity at the mid-point of 3 indicating they were potentially neutral to the usefulness or otherwise of the activity.	

Table 1: Post-Graduate IT Contracts and Outsourcing Findings

Table 2 below shows the under-graduate findings.

Initial Survey - 27 students responded	Final Survey - 24 students responded
How would you rate the Work–Ready Activity? (A scale answer with 1 not useful through to 5 very useful) 25 students (92%) rated the activity 3 or greater (question 1) therefore giving the impression the activity was in fact useful	*How would now rate the Work–Ready Group Problem Solving Activity? (A scale answer with 1 not useful through to 5 very useful)* 16 students (67%) rated the activity 3 or greater again giving the impression the activity was useful for developing their group presentation
What are the best aspects of the Work–Ready Activity? The majority of student comments focused on: • Brainstorming to generate ideas • Collaboration to derive a consensus • Group participation leading to different opinions • Communication with others	*Did you find this Work–Ready Group Problem Solving Activity useful when developing your presentation?* 8 students indicated the WRLA was useful with brainstorming of ideas and determining what should be included the most cited reasons. 11 students stated that it did not help or they did not use the WRLA concepts. Comments made included: • "It was done to long ago" • "I found it was really applicable for our group"
What were the least useful aspects of the Work–Ready Activity? Most students (22 of 27) commented on this question Most comments focused on the lack of detail or scope of the case scenario or the lack of time allowed for the activity.	*Did this Work–Ready Group Problem Solving Activity have any influence over how your group developed your presentation?* Produced a negative result with 19 students saying that the WRLA did not influence how the group developed their presentation. One student made the following comment "No it didn't help, we still stuck to our old habits (which was inefficient as usual)". Only 5 students said the WRLA helped but failed to give the reasons behind this.
Do you have any other comments? Only 4 responses were received: Two students commented on lack of detail in the case scenario. One suggested that the activity should be a whole class activity to allow more conflict to surface while another said that the activity was enthralling.	*Do you have any other comments?* No responses were received
Note on the question rating the usefulness of the work-ready activity a relatively high number of students (initial survey 10 and final survey 12) rated the activity at the mid-point of 3 showing they were potentially neutral to the usefulness or otherwise of the activity.	

Table 2: Under-Graduate Managing Client Vendor Relations Findings

6. Lessons Learnt

Overall the feedback from the students in relation to the "Teamwork: Group Problem Solving" WRLA was positive and indicated it was a beneficial change to the subject design. The activity was found to be useful by 90% of post-graduate students and 80% of under-graduate students.

The different findings between the post-graduate and under-graduate subjects are quite interesting as the initial philosophy behind the work-ready project was that it should be focused on the under-graduate programs. From the feedback received it appears that under-graduate students are less concerned about work preparedness than the post-graduate students.

An influencing factor may be the high number (approximately 75%) of full-time international students in the post graduate subjects who see any attempt to provide expertise in workplace knowledge and skills as beneficial.

The post-graduates were also more candid in their responses to the open-ended questions as the majority gave reasons behind their Yes / No answer. This is in stark contrast to the under-graduates who mostly answered Yes / No with little explanation. Does this suggest that our under-graduates are blasé about entering the workforce or is it that most are actually combining work with study? It is far easier to identify

the full-time post-graduate student than it is to identify the under-graduate.

We are pleased by the overall positive student feedback and response as the IT subjects involved are the first subjects to incorporate a WRLA into their design. However from the feedback received further improvement on the design of the case scenarios used in the WRLA is required.

Additionally when we survey future cohorts of students again about the usefulness of the WRLA further questions regarding student enrollment status (full or part time) and student work experience should be included. This will help the Work-Ready Project make more informed decisions as to the content to be included in case scenario's and the level of activity best suited to a full or part-time student.

7. Conclusion

This paper has provided an overview of the Work-Ready Project and the implementation of a teamwork collaborative decision-making WRLA into the design of two post-graduate and one under-graduate subjects. As team work and project work is widespread in most organizations, the ability to collaborate with others is an essential skill for anyone entering the workforce. Hence, providing students with a collaborative decision-making framework while at university can only assist in their transition from student to employee and team member.

While the implementation of the WRLA was successful in the these IT management subjects, student feedback suggests more work is needed so that the activities have enough depth of content to ensure successful outcomes are achieved by all participants. Other important feedback received suggests that thought should be given as to which cohort of students (for example full-time or part-time, under-graduate or post-graduate) are the best target group for undertaking a specific WRLA.

The experience student's gain through work-placements is crucial if they are to succeed in the workplace after graduation. Such real-world experience can never be fully duplicated by the renewal of university curriculum to incorporate work readiness through improving the learning of graduate professional attributes. Nevertheless the need for substantial curriculum renewal to better develop the professional attributes of graduates is increasingly recognised by universities, government, professional societies, accrediting bodies and employers.

Recently von Konsky, (2008) and von Konsky et al, (2008) reported on work undertaken to address the skills and competencies to be demonstrated by practicing ICT professionals (the Skills Framework for the Information Age). This framework may well provide a valid platform to steer the future of the UTS Work-Ready Project in relation to employability skills and work-ready competencies required by IT graduates.

The UTS Work-Ready Project supports curriculum renewal and change through the online availability of generic and professionally contextualised learning activities and teaching resources, developing local-area implementation and integration strategies, and funding the collegial support activities of local-area change leaders. The status and matrices of the work-ready learning activities can be viewed at <wiki.it.uts.edu.au/workready>.

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