

# Boosting Graduate Employability: Bridging the Cognitive and Affective Domains

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Australian universities and select businesses recently struck an alliance to boost graduate employability, a milestone in Work Integrated Learning (WIL). However, teaching for WIL competency is largely directed at delivering appropriate discipline knowledge and practical abilities based mainly on cognitive skills with little emphasis on the affective domain including emotional skills, a requisite in the workplace. This study looks at empirical evidence of work-readiness of WIL students through their learning experiences and their understanding of the cognitive domain as well as the affective domain. The research is based on a validated employability framework, the Work Skills Development framework (Bandaranaike & Willison, 2009), which was used to assess core employability competencies and performance levels of 138 multidisciplinary WIL students and gain feedback from 111 employers. Statistical analysis was used to compare variations in the application of cognitive and affective skills and tested across gender, age, discipline and previous work experience. The study concluded that overall among students there was a limited understanding of the affective domain. However, the employers' emphasis was on improving student emotional skills. Therefore, to unlock the potential of the cognitive skills and for a deeper understanding of emotional skills by students, the concept of *Emotional Work-readiness* [EW] is introduced in this study.

Key Words: Cognitive domain, Affective domain, Emotional Intelligence, Work Integrated Learning

The contemporary world demands instant gratification, expeditious delivery, prompt employment, instant social networking with minimal time to reflect on our emotions, feelings and social relationships. Employability is most often associated with generic and specific competencies (Core Skills for Work developmental framework (CSfW), 2013; Australian Qualifications Framework, 2013; DEEWR, 2012; van der Heijde & van der Heijden, 2006), qualifications (Hillage & Pollard, 1998), preparedness for work, career development (Nilsson & Nilsson, 2013), teamwork (Bradshaw, 1989; Riebe *et al.*, 2010) and developing critical, reflective abilities (Harvey *et al.*, 2003, p.3). However, employment and employability are complex phenomena that involve more than the acquisition of cognitive skills (Yorke, 2006). Not only do graduates need to engage in ways that are socially and emotionally savvy, but there are strong reasons to suggest that these affective ways of operating are crucial to the unlocking of the potential of the cognitive skills.

Universities increasingly require students to undertake Work Integrated Learning (WIL) programs so that they may gain a full, if not fully developed, repertoire of employability skills through relevant employment experience (Gardner, 2011). WIL is intended by universities to meet the demand for work-ready graduates (Patrick *et al.*, 2008, p.3). Yet, employers identify graduates, even those in programs that incorporated WIL, as having mainly cognitive skills and not necessarily the ability to 'intelligently apply that knowledge in the work setting' (McLenan & Keating, 2008; Business Industry and Higher Education Collaboration Council, 2007). De la Harpe *et al.* (2000) suggest that there is concern world-wide that existing undergraduate programmes are not producing graduates with appropriate life-long learning skills necessary for their careers. Archer and Davison (2008) confirm that most employers view social skills and personality type as more important than their degree qualification.

The economic imperative to make graduates work ready with cognitive-oriented graduate attributes has to a large extent resulted in the neglect of affective skills. These social and emotional skills are the ones most highly sought by employers and yet are different from the skills students typically possess on graduation (Krahn, Lowe and Lehmann, 2002). Higher order thinking facilitated only within the cognitive domain limits graduates' ability to 'self-regulate learning and process new knowledge' while in employment (Michalsky, 2012, p.1106).

To address this gap, the current study introduced '*Emotional Work-readiness*' (EW), a concept that presents the emotional and social attributes of the affective domain in order to deepen conceptualisation and practice that enables students to be more work ready than is currently the case.

The aim of this study was firstly, to evaluate WIL learning outcomes in the cognitive and affective domains, and secondly, to introduce the concept of EW to facilitate higher order holistic graduate employability.

This paper will first, apply the *Work Skills Development framework* (WSD: Bandaranaike & Willison, 2009, 2010) to assess WIL learning outcomes in the cognitive and affective domains; secondly, test the significance of variations in the application of the cognitive and affective skills; thirdly, introduce the concept of EW in the workplace and discuss its implications for WIL pedagogy.

## METHODS

The analysis is based on a conceptual framework, the Work Skills Development framework (WSD) which has been tested and applied to WIL students since 2009 (Bandaranaike, S., & Willison, J. (2010). It is an assessment tool for WIL students, which mirror the concepts and philosophy of the Research Skills Development framework [RSD] of Willison and O'Regon (2006). The WSD comprises six work skill facets of *Initiative, Technology, Learning, Management, Problem Solving and Communication* as defined in Table 1 (see Appendix). Since the aim of this study was to evaluate the performance of WIL students in the cognitive and affective domains, the above skills were categorised into three primarily cognitive focus facets of *Technology, Management and Problem Solving*, and three primarily affective focus facets of *Initiative, Learning and Communication*.

While the cognitive skills engage in developing knowledge and intellectual skills (Bloom, 1956; Anderson *et al.*, 2000) and is the focus of most employability frameworks (Papadopoulos *et al.*, 2011), the affective skills are based mainly on Goleman's concept of Emotional Intelligence (EI). Goleman defined EI as 'the capacity for organising our own feelings and those of others, for motivating ourselves and for managing emotions within ourselves and in our relationships' (Goleman, 1998, p.317). EI is used to analyse job satisfaction, turnover (Cherniss & Goleman, 2001), performance (Bachman *et al.*, 2000), gender differentiation (Fernandez-Berrocal *et al.*, 2012), and general emotional attributes in the workplace (Sharma *et al.*, 2013). Overall the affective domain contributes to the development of a student's motivation, confidence, relevance of perceived knowledge, and the significance of the learning experience (Polhemus *et al.*, 2000). The affective domain thus shapes learning into meaningful, pertinent lifelong learning experiences.

The analysis in this study is based on student and employer transcripts at the School of Earth and Environmental Sciences, James Cook University, Townsville between 2009 and 2014. The transcripts ranged from Reflective Journals, Essays, and Interviews to Employer feedback assessment. Students made regular entries in their Reflective Journals under each of the WSD work skill facets throughout their placement duration of 5-8 weeks. The Essay was written on guided reflections in the cognitive and affective domains, at the end of the placement. This was followed by a 45-minute face-to-face interview to extend their understanding of the cognitive and affective skills. The interviews, transcripts, data coding and interpretation were finalised by the Placement Coordinator. Employers were either interviewed directly or feedback mail outs sent and comments received on student performance in each of the work skill facets. The data analysed from the above transcripts form the basis of this study. Students ranged from undergraduates to postgraduates and across the disciplines of Environmental and Marine Sciences ('Environmental'), Geology and Earth Sciences ('Geology'), and Urban and Regional Planning ('Planning'). Variations in gender, age, disciplines and previous work experience across the cognitive and affective skills were tested for statistically significant differences as explained below.

### *Research Questions & Hypotheses*

Research Questions RQ<sub>1</sub> and RQ<sub>2</sub> analysed broad trends using descriptive statistics. Hypotheses H<sub>1</sub> to H<sub>4</sub> tested mean differences in cognitive and affective skills using t Tests, ANOVA and Tukey-Kramer Post Hoc test.

**RQ<sub>1</sub>** : Is there a difference of opinion between employers and students in the learning experiences of cognitive and affective skills in WIL?

**H<sub>1</sub>** : There is no significant difference in gender and the application of cognitive and affective skills

**H<sub>2</sub>** : There is no significant difference in age and the application of cognitive and affective skills

**H<sub>3</sub>** : There is no significant difference in disciplines and the application of cognitive and affective skills

**H<sub>4</sub>** : There is no significant difference between students who had previous work experience and those that did not, in their application of cognitive and affective skills

**RQ<sub>2</sub>** : Do students display *Emotional Work-readiness* in WIL?

The Iman-Conover Rank transformation method [RT] was used to convert ranks of data and to apply usual parametric tests (Conover & Iman, 2003). A two-tailed independent t Test was used at  $p < 0.05$  to test hypotheses H<sub>1</sub>, H<sub>2</sub> and H<sub>4</sub>. A One Way ANOVA analysis was used at  $p < 0.05$  to test H<sub>3</sub>, followed by the Tukey-Kramer Post

Hoc test (Ramsey & Ramsey, 2007) to explore additional differences among means and provide more specific information on which means were significantly different from each other. The results and findings are discussed below.

## RESULTS & FINDINGS

The analysis will focus on (i) differences in perceptions between employers and students in the use of cognitive and affective skills in the workplace (ii) significant differences between skills and the independent variables of gender, age, discipline, previous work experience (iii) the level of students' *Emotional Work-readiness*.

*RQ<sub>1</sub> - Is there a difference of opinion between Employers and Students in the learning outcomes of cognitive and affective skills in WIL?*

More than two-thirds of Employers [N=111] emphasised **Initiative** (68%) as one of the most important skills in the workplace. Employers were typically looking for - "... a net gain in productivity during their [students'] stay. We have a heavy workload and the induction and supervision of students takes time so in return, we look for completion of a required task or project with a high degree of motivation". **Communication** skills (46%) were also rated high in the workplace. Employers preferred students who "asked questions"; "have a team focus and get along with different people".

Student transcripts (N=138) indicated higher learning outcomes from cognitive skills of **Technology** (42%), followed by **Management** (33%) and **Problem Solving** (33%). They also said "... total focus was on doing the job, problem solving"; "I need to absorb as much information as possible" or in brief, getting the job done rather than the human and social context of how the job is done. This high association with cognitive knowledge and skills most probably was a consequence of students focusing their behaviours on experience gained from their previous training (Papadopoulos *et al.*, 2011).

Cognitive and affective work skills were also tested against the four independent variables of Gender (male/female), Age ( $\leq 25$  and  $>25$  years), Discipline (Environmental, Geology, Planning), and Previous Work experience (yes/no). A mean (M) value of between 5 and 6 indicated a very high association/application of a skill and a mean closer to 1 or 2 indicated a lower association or appreciation of that skill in WIL, and are discussed below.

*H<sub>1</sub> - There is no significant difference in Gender and the application of cognitive & affective skills.*

In **Technology**, **Management** & **Problem Solving** (cognitive domain), the null hypothesis was accepted or there was no significant difference between male (N=81) and female (N=51) students. This was also true in the affective domain with **Initiative and Learning** skills, but not with **Communication**. In the latter, the null hypothesis was rejected in favour of the alternative hypothesis, which stated differences did exist in that females (M=4.6, SD=1.5) applied communication skills better in the workplace than males (M=3.7, SD=1.9),  $t(132) = 0.004$ ,  $p < 0.05$ .

*H<sub>2</sub> - There is no significant difference in Age and the application of cognitive and affective skills.*

There were no significant differences between the domains, with the exception of **Technology** (cognitive skill). Students  $\leq 25$  years had a higher learning outcome from the use of **Technology** (M=4.6, SD=1.5) than students  $>25$  years (M=3.9, SD=1.9)  $t(107) = 0.02$ ,  $p < 0.05$ .

*H<sub>3</sub> - There is no significant difference in Disciplines and the application of cognitive and affective skills.*

Interestingly, results from One Way ANOVA indicated significant differences between the sub groups, in all of the cognitive skills. The ANOVA results were extended further using the ANOVA Post Hoc tests (Ramsey & Ramsey, 2007) to identify which of the three disciplines was significantly different from the rest.

Geology students displayed a significantly higher learning experience in **Technological** skills (M=4.8, SD=1.8) than Environmental Students (M=3.3, SD=0.2) or Planning students (M=2.3, SD=0.2),  $t(2, 78)$ , 8.69,  $p < 0.05$  due to the nature of the discipline, as for example, the high focus on techniques of mineral identification in rocks and the practical use of safety gear. Planning Students on the other hand, found significantly higher utility in the application of **Management** skills (M=5.5, SD=1.7) than Geology (M=4.4, SD=1.7) or Environmental students (M=4.9, SD=1.4)  $t(2, 78)$ , 4.26,  $p < 0.05$  thus focussing more on organising and managing information. Environmental students (M= 5.9, SD=1.4) indicated significantly higher application in **Problem Solving** skills than Geology (M=3.1, SD=1.0) or Planning students (M=4.4, SD=1.2),  $t(2, 78)$ , 7.8,  $p < 0.05$ , conceivably emphasising the conservation and natural resource management aspects.

H<sub>4</sub> - There is no significant difference between students who had Previous Work Experience and those that did not.

In both cognitive and affective skills there was no significant difference between those who had previous work experience and those who did not.

#### EMOTIONAL WORK-READINESS (EW)

RQ<sub>2</sub> - Do students display Emotional Work-readiness in WIL?

Students' feelings and emotions when faced with challenges and stressful situations in the workplace (WIL) were analysed to assess Emotional Work-readiness in WIL. Results indicated that 83% of the challenges related to inter-personal relationships of not understanding others' communication styles (21%), visualising gender and age discrimination (26%), interpreting language (accent, modulation) (10%), accepting habits and perceptions (15%), and ethnicity and cultural understanding (11%). Typical student transcripts read – "... opinions of people who have worked only short time in a mine site are not heard as it is considered they don't have knowledge or adequate understanding!"; "way we communicate is a challenge"; "... as a student planner they think I don't understand things and they talk down to me. At times it can be a challenge to explain that I understand what they are talking about"; "age gaps seem to be a primary driver of hierarchy". Seventeen percent of the challenges were intra-personal such as "... in report writing ... I had to redesign large chunks which left me stressed and nervous"; "I found it stressful adjusting to different perceptions like 'don't touch that!' ... 'how can you destroy that?'"; and the search for 'perfectionism'.

It is a fact that students are mindful of feelings and emotions generated in the workplace ('self-awareness', Goleman, 1998) – "I get frustrated and depressed when I cannot identify a mineral [in rocks] and then receive contradictory identification from others when I ask for help". Yet, they lack an understanding of how to deal with those emotions ('self-management', Goleman, 1998) which supports the notion that students do not currently display Emotional Work-readiness in the workplace.

#### DISCUSSION

It is clear from the above analysis that there is a strong emphasis by industry partners for students to develop emotional/social skills and improve their work etiquette. This needs to be considered in future WIL training. RQ<sub>1</sub> confirms while the majority of placement students are cognitively-oriented, the employers emphasise the greater practice of affective skills in the workplace. Gender analysis [H<sub>1</sub>] supported the existing documentation that in the workplace, females are more sensitive emotionally than males (Day & Carroll, 2004; Lumley *et al.*, 2005; Palmer *et al.*, 2005) and particularly in *Communication*. Younger students [H<sub>2</sub>] were found to be more accomplished in the use of technology in the workplace and thereby favourable with graduate recruiters who are increasingly attracted by new graduates with the right skills (Harvey *et al.*, 1997, 1998). Across disciplines [H<sub>3</sub>] there was a greater emphasis on the learning experience from cognitive skills - Technological, Problem solving and Management - than affective skills. As for pre-placement work experience [H<sub>4</sub>], it did not have a significant impact on placement behaviour. Possibly this is due to more financial motivation than WIL training when they first took on employment.

Emotional Work-readiness [RQ<sub>2</sub>] is the key to understanding feelings and emotions within oneself and of others, and the management of those emotions when working with cognitive knowledge and skills. It has its origins in EI and specifically Goleman's EI model (1998). The function of EW is to trigger social responsibility in the individual (Table 1). For example when applying cognitive skills in *Technology*, EW triggers social responsibility in terms of 'Adaptability' (monitoring and managing the emotional and social context of delivering Technology to others); 'Innovation' (accepting a new idea and managing one's own emotions); and 'Understanding Others' (empathising and being thoughtful of behaviours of others who may be unfamiliar to new skills).

Graduate employability has taken a new impetus with the recent *Statement of Intent* signed between Universities of Australia, ACEN and select industry groups with one of its major objectives - 'improving the work-readiness of university graduates' (Statement of Intent, 2014). While employability is the propensity of the graduate to exhibit attributes that employers anticipate will be necessary for the effective functioning of their organisation (Harvey, 1999), employer expectations are sensitive to a demand for work ready graduates who have intellectual capacity and also equipped with work place expertise (Ferns, 2012). While industry representatives appear generally satisfied with the technical or discipline-specific skills of graduates, there is a perception that employability skills are under-developed (Precision Consultancy, 2007). This focus on the cognitive domain could be a legacy of the Australian based Mayer Report (1992) and its emphasis on the application of cognitive knowledge and skills. Perceptions of employment and employability must move on and link the cognitive and affective domains for greater work readiness. The concept of EW has the potential to make students understand

emotional and social skills, and bridge the gap between the cognitive and affective domains. EW makes students aware of another significant dimension (the affective domain) in WIL. In practice, EW can be introduced to WIL through a series of guiding questions written into an assessment such as an online reflective journal.

The objective of this study was to rationalise the application of cognitive and affective skills in WIL using WSD as a practical assessment tool. Student and employer perceptions on priorities in the workplace were analysed and WIL learning experiences and outcomes noted. Hypotheses H<sub>1</sub>, H<sub>2</sub>, H<sub>3</sub> and H<sub>4</sub> have proved the current imbalance between the cognitive and affective skills in the practice of WIL. The main learning experience for all students was clearly on the cognitive, in Technology, Management, and Problem Solving. In the affective domain the main learning experience, albeit often negative, was through Communication, for both males (25%) and females (31%). This current focus on the cognitive domain could be a consequence of the training delivery at universities. The need to develop the affective skills in WIL was also strongly supported by the employer responses. However, the ability to articulate and address this issue clearly in curriculum design, teaching strategies and assessment procedures will remain a challenge.

#### *Limitations of the Study*

Apart from current drawbacks in WIL training, one of the limitations in this study was the absence of questions directed specifically at EW in the transcripts. To optimise student learning outcomes, a set of EW descriptors should be used. This work is currently in progress. The most effective strategy would be to develop learning pedagogies that deliver emotional and social skills in an online environment to maximise student learning and meet the trends of the 21<sup>st</sup> century. The analysis indicated significant differences between disciplines (H<sub>3</sub>) in WIL learning experiences. Therefore further research in EW descriptors needs to take into account the nature of each discipline and modify the generic EW descriptors given in Table 1 (Appendix).

#### CONCLUSION

This study has attested that in order to boost graduate employability and contribute to work-readiness, WIL training must not be restricted to the cognitive domain only but extended to the affective domain as well. Our changing world economy, changing demographics, changing technology, has made our planet too inanimate with high tech, speed, greater output at the expense of losing the human touch, feelings, emotions, conversations. Therefore in the context of WIL, cognitive knowledge and skills should be delivered through an awareness of Emotional Work-readiness for future capacity building in employability. The Emotional Work-ready skills are sector independent, operationalise affective skills, draw on emotional and social attributes and combine with job-specific cognitive skills to optimize an individual's employability.

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APPENDIX

TABLE 1. Contextual Background to Work-Readiness

WORK SKILLS [based on WSD]	Application of EW in the workplace	Emotional Work-readiness [EW] Attributes [based on EI Models <sup>1</sup> ]
<p>Initiative Student is goal directed and clarifies &amp; embarks on role</p>	<p><i>Student communicates feelings, beliefs and thoughts openly and defends personal rights and values in a socially acceptable, non-offensive, and non-destructive manner</i></p>	<ul style="list-style-type: none"> <li>• Achievement drive: strives to improve or meet a standard of excellence</li> <li>• Commitment: aligns with the goals of the group or organization</li> <li>• Optimism: persists in pursuing goals despite obstacles and setbacks</li> </ul>
<p>Technology Student applies skills, knowledge, technology and other resources to find and generate information</p>	<p><i>Student adapts emotions, thoughts and behaviours to unfamiliar, unpredictable circumstances when applying skills, knowledge and other resources</i></p>	<ul style="list-style-type: none"> <li>• Adaptability: flexible in handling change</li> <li>• Innovation: comfortable with an openness to novel ideas, approaches, and new information</li> <li>• Understanding others: an intuitive sense of others' feelings and perspectives, and shows an active interest in their concerns and interests</li> </ul>
<p>Learning Student critically evaluates their role and reflects on lifelong learning skills and career management</p>	<p><i>Student copes with stressful or difficult situations &amp; believes in managing or influencing situations in a positive manner and remains hopeful and resilient despite occasional setbacks.</i></p>	<ul style="list-style-type: none"> <li>• Emotional awareness: recognises one's emotions and their effects and impact on those around</li> <li>• Accurate self-assessment: knows one's strengths and limits</li> <li>• Self-control: manages disruptive emotions and impulses</li> </ul>
<p>Planning Student organises and manages self while being perceptive to managing the needs of others</p>	<p><i>Student has ability to be self-directed and free from emotional dependency on others while making decisions, planning and engaging in daily tasks.</i></p>	<ul style="list-style-type: none"> <li>• Self-confidence: certainty about one's self-worth and capabilities</li> <li>• Conscientiousness: takes responsibility and is accountable for personal performance</li> <li>• Building bonds: nurtures instrumental relationships for employer/work success</li> </ul>
<p>Problem Solving Student analyses &amp; synthesises information to create coherent understanding</p>	<p><i>Student is resilient, self-directed and shows transparency, adaptability and the drive to meet standards of excellence</i></p>	<ul style="list-style-type: none"> <li>• Creativity: initiates and/or manages change in the workplace</li> <li>• Persuasive: uses effective tactics and techniques to persuade and convey desired results</li> <li>• Reliability: maintains standards of honesty and integrity</li> </ul>
<p>Communication Student communicates and collaborates with others, and applies ethical, cultural, social and professional standards [ECSP]</p>	<p><i>Student articulates interpersonal understanding and acts with social consciousness, and concern for greater community.</i></p>	<ul style="list-style-type: none"> <li>• Coherent: sends clear and convincing messages that are understood by others</li> <li>• Conflict resolution: negotiates and resolves disagreements with people</li> <li>• Collaboration and cooperation: networks with others toward shared goals and accommodates diversity</li> </ul>