Building capacity for work-readiness: Bridging the cognitive and affective domains

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Teaching for work-integrated learning (WIL) competency is largely directed at delivering knowledge based cognitive skills with little emphasis on affective skills. This study looks at empirical evidence of WIL students through their understanding of the cognitive and affective domains. The research is based on a validated employability framework, the work skills development framework (Bandaranaike & Willison, 2009), to assess core employability competencies of 138 WIL students and feedback from 111 employers. Statistical analysis was used to compare variations in the application of cognitive and affective skills. The study concluded that whilst overall students had limited understanding of affective skills, employers emphasized the need for greater affective skills in the workplace. In order to unlock the potential of the cognitive skills and for a deeper understanding of affective skills, this research introduces the concept of emotional work-readiness as a pathway for building work-readiness capacity. *(Asia-Pacific Journal of Cooperative Education, Special Issue, 2015, 16(3), 223-233)*

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The contemporary world demands instant gratification, expeditious delivery, prompt employment and 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 (Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education and Department of Education, Employment and Workplace Relations 2013; Australian Qualifications Framework Council, 2013; Department of Education, Employment and Workplace Relations [DEEWR], 2012; Van der Heijde & Van der Heijde, 2006), qualifications (Hillage & Pollard, 1998), preparedness for work, career development and teamwork (Bradshaw, 1989; Riebe, Roepen, Santarelli, & Marchioro, 2010) and developing critical, reflective abilities (Harvey, 2005; Van Woerkom, Loek, & Nieuwenhuis, 2002). Harvey (2005) notes employability is not just about getting a job but developing attributes, techniques, or experiences for life. 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 their 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. WIL is intended by universities to meet the demand for work-ready graduates (Patrick et al., 2008). 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, Radloff, and Wyber (2000) suggest that there is concern worldwide that existing undergraduate programs are not producing graduates with appropriate life-long learning skills necessary for their careers. Ferns and Zegwaard, (2014, p. 186) state "traditional

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assessment methodologies focus on knowledge acquisition rather than proficiency in employment capabilities". Archer and Davison (2008) validate the importance of the affective domain by confirming 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, & 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 posits 'emotional work-readiness', a concept that incorporates emotional and social attributes of the workplace to deepen conceptualization and practice and enable students to build their work readiness capacity for future employability.

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 emotional work-readiness 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; and thirdly, introduce the concept of emotional work-readiness in the workplace and discuss its implications for WIL pedagogy.

METHODOLOGY

The methodological framework in this study is based on the Work Skills Development framework [WSD], a comprehensive tool to guide student transition from university to workplace. It has been applied to WIL students at James Cook University since 2009 (Bandaranaike & Willison, 2010). It is primarily an assessment tool for WIL students designed on employability criteria of the Department of Education, Science and Training (DEST) employability skills framework (Precision Consultancy, 2006), and mirrors the concepts and philosophy of the Research Skills Development framework [RSD] of Willison and O'Regan (2006) used extensively in developing undergraduate research skills (Willison, 2012). This study focuses on learning outcomes in the cognitive and affective domains using the conceptual framework of the WSD. The six work skill/employability facets of the WSD are categorized into three primarily cognitive focused facets of technology, management & problem solving, and three primarily affective focused facets of initiative, learning & 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, Taylor, Fallshaw, & Zanko, 2011), the affective skills are based mainly on Goleman's concept (1998) of emotional intelligence (EI). Goleman (1998) defined EI as "the capacity for organizing our own feelings and those of others, for motivating ourselves and for managing emotions within ourselves and in our relationships" (p. 317). EI is used to analyze job satisfaction, turnover (Cherniss & Goleman, 2001), performance (Bachman, Stein,

Campbell, & Sitarenios, 2000), gender differentiation (Fernandez-Berrocal Cabello, Castillo, & Extremera, 2012), general emotional attributes in the workplace (Sharma, Bottom, & Elfenbein, 2013) and learning experience (Polhemus, Shih, & Swan, 2000). The affective domain thus shapes learning into meaningful, pertinent lifelong learning experiences.

This research is part of a broader research project with ethics approval H-024-2006 gained from The University of Adelaide Human Research Ethics Committee to undertake research in the application of extensions to RSD in other universities. This study therefore contributes to the application of the affective aspect in undergraduate learning and introduces the concept of emotional work-readiness.

The total numbers of participants were 138 students and 111 employers. This study is based on student and employer transcripts at the School of Earth and Environmental Sciences, James Cook University, Townsville. The transcripts range from student 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 210 hours of full time employment. At the end of the placement, an essay was written on guided reflections in the cognitive and affective domains. 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 performed 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 analyzed 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 statistical significance as explained below.

Research Questions and Hypotheses

Two research questions, RQ_1 and RQ_2, analyzed trends in student learning outcomes in the workplace using descriptive statistics.

> RQ_1: Is there a difference of opinion between employers and students in how they perceive learning outcomes in the cognitive & affective domains?
> RQ_2: Do students display emotional work-readiness?

RQ_1 assessed whether there is a difference of opinion between employers and students in identifying learning outcomes between cognitive and affective skills in WIL. RQ_2 assessed whether students displayed *emotional work-readiness*?

Four hypothesis, H_1, H_2, H_3 and H_4, tested mean differences in the learning outcomes of cognitive and affective skills.

> H_1: There is no significant difference in gender and the application of cognitive and affective skills in the workplace
> H_2: There is no significant difference in age and the application of cognitive and affective skills.
> H_3: There is no significant difference in disciplines studied and the application of cognitive and affective skills.
> H_4: There is no significant difference between students who had previous work experience and those that did not.

These hypotheses were evaluated using t-tests, ANOVA and Tukey-Kramer Post Hoc test (Table 1). The Iman-Conover Rank transformation method [RT] was used to convert ranks of data and to apply usual parametric tests (Conover & Iman, 1976). A two-tailed independent t-test was used at $p < .05$ to test hypotheses H_1, H_2 and H_4. A One Way ANOVA analysis was used at $p < .05$ to test H_3, 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 analysis focuses 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 four independent variables (iii) the level of students' emotional work-readiness.

The four independent variables are gender (male/female), age (>25 & ≤ 25 years) discipline (environmental, geology, planning), and previous work experience (yes/no). A mean (M) value of between 5 and 6 indicates a very high association/learning outcome of a skill, and a mean closer to 1 or 2 indicates a lower association or learning outcome of a particular skill.

RESULTS AND FINDINGS

RQ_1 : *Is there a Difference of Opinion Between Employers and Students in how they Perceive Learning Outcomes in the Cognitive and Affective Domains?*

Typically employers were looking for initiative and motivation within the workplace. As induction and supervision of students takes time, in return, they looked for a high degree of motivation and expected to see a completion of a task or project by the students. The employers stated that they have a heavy workload and in return they wanted to see an increase rather than a decrease in productivity during the students time with them. Communication skills were also rated high and they preferred students who "asked questions"; "have a team focus and get along with different people".

Student transcripts had a higher focus on learning outcomes from cognitive skills as illustrated in Table 1. Their total focus was on "doing the job" or engaging in "problem solving". They were of the opinion that they needed to "absorb as much information as possible" while in the workplace. They were more concerned about getting the job done rather than the human and social context of what feelings they might evoke in themselves and/or others in the process of doing their placement. Barone and Van de Werfhorst (2011) believe this high focus on cognitive skills most probably was a consequence of students focusing their behaviors on experience gained from their previous training where 'getting a job done' was more important than the emotions that their actions may evoke.

H_1*: There is no Significant Difference in Gender and the Application of Cognitive & Affective Skills in the Workplace*

As illustrated in Table 1, there was no significant difference between male and female students in their learning outcomes in cognitive skills. However, there was a clear differentiation in favor of females who applied communication skills more effectively than males in the workplace.

TABLE 1: Learning outcomes in cognitive [C] and affective [A] skills in student and employer responses: Statistical significance testing

RQ_1: Is there a difference of opinion between employers & students in learning outcomes?	**H_1: There is no significant difference in gender**	**H_2: There is no significant difference in age**	**H_3: There is no significant difference between the disciplines studied**	**H_4: There is no significant difference between students who had previous work experience & those that did not**
Employer Outcomes 1. 68% Initiative [A] 2. 46% Communication Skills [A] Note: Greater emphasis on two of the three affective skills from employers.	No significant difference [$p \leq .05$] between male [N=81] & female [N=51] students in all C & A work skills, with the exception of communication skills [A]	No significant difference [$p \leq .05$] between those aged >25 & ≤25 years in all C & A skills, with the exception of technology skills [C]	Significant differences existed between the disciplines, particularly in the learning outcomes in all 3 cognitive skills	No significant difference between those who had previous work experience and those who did not, in all C and A skills.
Student Outcomes 1. 42% Technology [C] 2. 33% Management [C] 3. 33% Problem Solving [C] Note: Greater emphasis on all three cognitive skills from students.	Females applied communication skills ($M = 4.6$, $SD = 1.5$) better than males ($M = 3.7$, $SD = 1.9$) t (132) = 0.004	Students aged ≤ 25 years had a higher learning outcome from the use of technology in WIL ($M = 3.9$, $SD = 1.9$ $t(107)=0.02$ than those aged >25 years.	*Geology* students had a higher learning outcomes in technology skills [C] ($M = 4.8$, $SD = 1.8$) than environmental ($M = 3.4$, $SD = 0.2$), or planning students ($M = 2.3$, $SD = 0.2$), t (2,78,), 8.69,$p \leq .05$ Planning students had higher learning outcomes in the application of management skills [C] ($M = 5.5$, $SD = 1.7$) than geology ($M = 4.4$, $SD = 1.7$) or environment students ($M = 4.9$, $SD = 1.4$) t (2.78), 4.26, $p \leq .05$ Environment students ($M = 5.9$, $SD = 1.4$) indicated significantly higher application in problem solving skills[C], than geology ($M = 3.1$, $SD = 1.0$) or planning students ($M = 4.4$, $SD = 1.2$), $t = 2$, 78), 7.8, $p \leq .05$	

H2**:** *There is no Significant Difference in Age and the Application of Cognitive and Affective skills.*

While there were no significant differences in age cohorts in the application of the affective skills, students ≤25 years had a higher learning outcome from the use of technology**,** but not with the other cognitive skills.

H3: *There is no Significant Difference in Disciplines Studied and the Application of Cognitive and Affective Skills.*

Interestingly, results from One Way ANOVA indicated significant differences between the disciplines [sub groups], in all of the cognitive skills (Table 1). The ANOVA results were analyzed further using the ANOVA Post Hoc tests (Ramsey & Ramsey, 2007) to identify which of the three disciplines was significantly different from the rest. It was noted that geology students displayed a significantly higher learning experience in technological skills, compared with environmental students and planning students, most likely due to the nature of the discipline. For example, the high focus on techniques of mineral identification in rocks and the practical use of safety gear in geology. Planning students on the other hand, found significantly higher utility in the application of management skills than geology or environmental students thus focusing more on organizing and managing information. Environmental students indicated significantly higher application in problem solving skills than geology or planning students, conceivably emphasizing the conservation and natural resource management aspects.

H4: *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

The concept of emotional work-readiness was used in this research as a *modus operandi* to bridge the gap between the cognitive and affective domains and build capacity for work readiness. The degree of work-readiness was assessed in this study through the research question, RQ2: Do students display emotional work-readiness?

To answer this transcripts were analyzed with reference to students' feelings and emotions when faced with 'challenges' and 'stressful situations' in the workplace. Results indicated that 83% of the challenges related to interpersonal relationships of not understanding the communication styles (21%), visualizing gender and age discrimination (26%), understanding speech (accent, modulation) (10%), accepting dissimilar habits and perceptions (15%), and understanding ethnic and cultural diversity (11%) of those in the workplace.

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". It was observed seventeen percent of the challenges were intrapersonal 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'.

There is also evidence to show that students are mindful of feelings and emotions generated in the workplace ('self-awareness', Goleman, 1998) as for example, "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, these same students lack an understanding of how to deal with those emotions ('self-management', Goleman, 1998) which supports the contention 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. Future WIL training must therefore overcome this limitation. RQ_1 confirms while the majority of placement students are cognitively-oriented, the employers emphasize a greater focus on the practice of affective skills in the workplace. Gender analysis [H_1] supports the existing documentation that in the workplace, females are more sensitive emotionally than males (Day & Carroll, 2004; Lumley Gustavson, Partridge, & Labouvie-Vief, 2005; Palmer, Gignac, Monocha, & Stough, 2005) and particularly so in communication. Younger students [H_2] were found to be more accomplished in the use of technology in the workplace and thereby more favored by graduate recruiters who are increasingly attracted by new graduates with the right skills (Harvey, Geall, & Moon, 1998). Across disciplines [H_3] there was a greater emphasis on the learning experience from cognitive skills - technological, problem solving and management - than affective skills. Those who had pre-placement job experience were not necessarily more competent than those without pre-placement experience.

Emotional work-readiness [RQ_2] 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. Emotional work-readiness has its origins in EI and connects with Goleman's EI model (1998).

As illustrated in Table 2, the function of emotional work-readiness is to trigger social responsibility in the individual. For example when applying cognitive skills in technology, emotional work-readiness triggers social responsibility in terms of 'adaptability' (monitoring and managing the emotional and social context of delivering technology to others); 'innovation' (accepting new ideas from others and managing one's own emotions); and 'understanding others' (empathizing and being thoughtful of behaviors 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 a major objective - 'improving the work-readiness of university graduates' (ACEN, 2014). While employability is the propensity of the graduate to exhibit attributes that employers anticipate will be necessary for the effective functioning of their organization (Harvey, 2001), 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. This study suggests that educators who use WIL should give consideration to linking explicitly the cognitive and affective domains for greater student engagement and learning in WIL and for subsequent work readiness / employment. The concept of emotional work-

readiness has the potential to make students understand emotional and social skills, and bridge the gap between the

TABLE 2: Contextual background to work-readiness

Work Skills [based on WSD]	**Application of emotional work-readiness in the workplace**	**Emotional work-readiness attributes** [based on EI Models[1]]
Initiative Student is goal directed and clarifies and embarks on role	Student communicates feelings, beliefs and thoughts openly and defends personal rights and values in a socially acceptable, non-offensive, and non-destructive manner	**Achievement drive:** strives to improve or meet a standard of excellence **Commitment:** aligns with the goals of the group or organization **Optimism**: persists in pursuing goals despite obstacles and setbacks
Technology Student applies skills, knowledge, technology and other resources to find and generate information	Student adapts emotions, thoughts and behaviors to unfamiliar, unpredictable circumstances when applying skills, knowledge and other resources	**Adaptability:** flexible in handling change **Innovation**: comfortable with an openness to novel ideas, approaches, and new information **Understanding others:** an intuitive sense of others' feelings and perspectives, and shows an active interest in their concerns and interests
Learning Student critically evaluates their role and reflects on lifelong learning skills and career management	Student copes with stressful or difficult situations & believes in managing or influencing situations in a positive manner and remains hopeful and resilient despite occasional setbacks.	**Emotional awareness**: recognizes one's emotions and their effects and impact on those around **Accurate self-assessmen**t: knows one's strengths and limits **Self-control:** manages disruptive emotions and impulses
Planning Student organises and manages self while being perceptive to managing the needs of others	Student has ability to be self-directed and free from emotional dependency on others while making decisions, planning and engaging in daily tasks.	**Self-confidence**: certainty about one's self-worth and capabilities **Conscientiousness:** takes responsibility and is accountable for personal performance **Building bonds**: nurtures instrumental relationships for employer/work success
Problem Solving Student analyses & synthesizes information to create coherent understanding	Student is resilient, self-directed and shows transparency, adaptability and the drive to meet standards of excellence	**Creativity**: initiates and/or manages change in the workplace **Persuasive**: uses effective tactics and techniques to persuade and convey desired results **Reliability:** maintains standards of honesty and integrity
Communication Student communicates and collaborates with others, and applies ethical, cultural, social and professional standards [ECSP]	Student articulates interpersonal understanding and acts with social consciousness, and concern for greater community.	**Coherent**: sends clear and convincing messages that are understood by others **Conflict resolution**: negotiates and resolves disagreements with people **Collaboration and cooperation**: networks with others toward shared goals and accommodates diversity

[1] Adapted from Goleman (1998); Bar-On (1997); Salovey & Mayer (1990)

cognitive and affective domains and build capacity for work-readiness. Emotional work-readiness makes students aware of another significant dimension (the affective domain) in WIL.

The objective of this study was to rationalize 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 analyzed and WIL learning experiences and outcomes noted. Hypotheses H_1, H_2, H_3 and H_4 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 emotional work-readiness in the transcripts. To optimize student learning outcomes, a set of emotional work-readiness descriptors should be used. This work is currently in progress. One strategy to connect the affective and cognitive domains is to develop learning pedagogies that deliver emotional and social skills in an online environment to maximize student learning and meet the trends of the 21st century. The analysis indicated significant differences between disciplines (H_3) in WIL learning experiences. Therefore further research in emotional work-readiness descriptors needs to take into account the nature of each discipline and modify the generic emotional work-readiness descriptors given in Table 2.

CONCLUSION

This study has attested that in order to boost graduate employability and contribute to work-readiness, WIL training may be better conceptualized as including not only the cognitive domain but also extended to the affective domain. Our changing world economy, changing demographics and changing technology, has made our planet too inanimate with high tech, speed and greater output at the expense of losing the human touch, feelings, emotions and 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, operationalize affective skills, draw on emotional and social attributes and combine with job-specific cognitive skills to help optimize an individual's employability.

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In this Journal, Co-op/WIL is defined as an educational approach that uses relevant work-based projects that form an integrated and assessed part of an academic program of study (e.g., work placements, internships, practicum). These programs should have clear linkages with, or add to, the knowledge and skill base of the academic program. These programs can be described by a variety of names, such as cooperative and work-integrated education, work-based learning, workplace learning, professional training, industry-based learning, engaged industry learning, career and technical education, internships, experiential education, experiential learning, vocational education and training, fieldwork education, and service learning.

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