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A framework for assessing work integrated learning

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Work Integrated Learning (WIL) is a signature feature of study at RMIT University and takes many forms including industry projects, field work, internships and one year co-operative education programs. Student ‘work readiness’ is a strategic priority. This capability relies on successful WIL experiences that ideally integrate the advancement and application of academic knowledge and skills with personal and generic employability capabilities. Assessing the acquisition and application of these skills in a work-based learning situation is the challenge addressed in this paper. Traditional assessment practices are typically used to measure the understanding and application of academic knowledge disseminated within the confines of the higher education environment. As these tools are not always the most appropriate measure for assessing work-based learning, research was conducted to map emerging innovative tools and practices designed for use outside the classroom and educational institutions. Surveys were conducted to obtain information from all stakeholders (academics, students, industry representatives) to provide their perceptions of assessment task validity in terms of professional and generic skill development. A synthesis of the findings formed the basis of the Contextual, Capability driven, Action-based learning, Relationship and collaboration building, Developmental, Student Centred (CCARDS) assessment framework. Each phase of our investigation either reinforced previous findings or gave new insights into the complexities surrounding WIL assessment practices. This paper presents the CCARDS framework as a simple checklist to be used to improve the quality of WIL assessment resources.

Keywords: work integrated learning, work-based learning, assessment in the workplace

Introduction

The current global paradigm shift has facilitated the emergence of the knowledge economy, a fundamental change that could be compared to the industrial and agricultural revolutions. Employers and professional bodies work with educational institutions to ensure the provision of vocational education. Today, adding value by crafting, generating and utilising knowledge is fundamentally limitless in its application and has changed the educational needs of individuals and employers to a ‘just in time’ mode (Burns et al., 2000). Work Integrated
Learning (WIL) curriculum projects offered by educational institutions endeavour to provide learning experiences that prepare students for the rigours of a rapidly changing global workplace.

WIL is a signature feature of study at RMIT University and takes many forms including industry projects, field work, internships, practicum and one-year co-operative education programs. RMIT recently strengthened the WIL component in all programs across the university, as a strategic priority. ‘Work readiness’ is seen as the product of work integrated learning experiences that integrates the advancement and application of academic knowledge and skills with personal and generic employability capabilities. These employability skills or ‘soft skills’ include communications, team work; problem-solving; initiative/enterprise; planning and organisation; self-management; learning; and technology (DEST, 2002).

Assessing the acquisition and application of these employability skills in a work-based learning situation is a challenge that many academics face. Assessment practices which are typically used to measure the understanding and application of academic knowledge in an educational situation are not always the most appropriate tools for assessing work-based learning. Assessing work integrated learning experiences requires consideration of: the activity to be measured, the context of the activity and the stakeholders involved (academics, students, industry representatives, peers). This paper summarises and discusses an investigation into assessment practices in work-based learning.

Research methodology

This study focused on the co-operative year (co-op) offered by the undergraduate programs in four Schools (Marketing & Management, Accounting and Law, Economics and Finance and Business Information Systems) within the College of Business.

A project-based research methodology was used that involved three phases of activity:

1. A literature review of existing WIL assessment practices.
2. An analysis of surveys completed by key stakeholders on current WIL assessment practices.
3. A synthesis of the findings of the above investigations formed the basis for developing a framework for assessing work-based learning.

The extensive literature review conducted across the fields of co-operative education, work-based learning, organisational learning and higher education laid the foundation for the design and content of the surveys. As students, academics and co-op placement employers were major the stakeholders, separate surveys were designed for each group.

Survey participants were invited to provide information relating to the nature of their WIL activities, together with their perceptions of the effectiveness of assessment tasks completed in terms of the development of discipline learning and employability skills. The data collected from these surveys was analysed using SPSS to chart user perceptions of the effectiveness of the different types of assessment tasks and the contribution WIL makes to the development of ‘soft skills’. Comments provided on the surveys enhanced the data set available for analysis.

Surveys targeted by stakeholder group were distributed to students via email and hard copy, key academics involved in WIL were current workplace supervisors in industry were emailed.
The student survey sample was restricted by size and scope. All of the students surveyed were selected from one business school in Melbourne, Australia and might not represent the characteristics of all business schools or other professions, such as, health or education. The analysis results may have been more congruent than exist across all industry sectors due to the restriction to the business discipline.

**Literature review**

WIL programs seek to connect the professional and the practical and have the potential to reinforce professional learning acquired in traditional university environments; whilst ensuring generic skill development is irreplaceable. Atkinson, Rizzetti and Smith (2005) recognised that WIL has the potential to provide broader learning outcomes than classroom-based study as it permits students to obtain benefits in terms of educational, individual, careers and vocational skills development. Corrin and Smith (2007) highlighted the increasing emphasis on WIL type learning experiences in Universities and the associated need to examine and refine the academic standards of its related assessment. Assessment tools used in WIL need to be such that they validate professional development and student learning experiences.

Concerns about assessment processes in WIL programs include observations that assessment tasks are often completed in a rush, in less than ideal conditions and focus on that which is easiest and in doing so omit a more detailed insight about student core capabilities (or lack thereof). Consequently assessments for work-based projects differ little from those which are university-based. Wellington et al. (2002) found that many institutions continue to use traditional assessment techniques such as exams as a preferred means of ‘testing’ student learning in WIL programs. This remains the scenario in most engineering courses and supposedly reflects the desire to assess the acquisition of specific knowledge and intellectual skills. Importantly however Wellington et al., along with others, argue that it is of doubtful validity in a WIL setting.

The underpinning cause for inadequate WIL assessment is a lack of understanding of the nature of learning in the workplace i.e. what is being learnt and how. Learning in the workplace is influenced by personal, interpersonal, institutional, social and historical factors (Foley, 2004). Workplace learning can be formal, non-formal, informal and incidental. However, most learning occurs informally, but consciously through experience; or incidentally and unconsciously (Eraut et al., 1998). This means that measurement of learning and capturing individual learner progress is fraught with complexity. Teaching and learning approaches for WIL need to cross disciplinary boundaries and go beyond traditional practices.

Several studies support the concept of aligning assessment with learning (Ramsden, 1992; Biggs, 2003, Henderson and McWilliams, 2008). A range of assessment tasks such as fieldwork assignments, reflective journals or self-appraisal reports are used to develop student early growth of job skills.

The fundamental concept of WIL is not new, as it encompasses a broad range of study and skill development, including cadetships, internships, apprenticeships and work placements over varying time frames. Vocational oriented programs such as nursing, engineering and education have included practical placements as graduate work preparation since certification was introduced. The inherent diversity of contexts has been met with not only an enormous
range of learning activities but innovative assessment tools and practices. The literature review uncovered a number of criteria essential to the assessment of the WIL process.

A. Self-directed, self-centred learning
The nature of learning associated with WIL requires the student to be more self-directed ‘than being formally taught by teachers’ (Costley, 2007, p.2). Teachers become facilitators and students are required to demonstrate their successful WIL experience through the assessment process. However, students need to first be engaged with theories of learning so that they know what the learning is about and can articulate and provide evidence of learning (Costley, 2007; Brodie & Irving, 2007). This approach fits well in a constructive perspective of knowledge, which emphasises that knowledge is built by students, not by a teacher’s direct instruction (Biggs, 2003). The student-centred learning approach places students as collaborators in the learning process taking responsibility for their own learning.

B. Critical reflection
In order for students to be enriched by their working experiences and develop work-related capabilities, Brodie & Irving (2007) promote the use of critical thinking as an assessment tool that encourages students to justify and validate their claims for learning. This process extends the value of critical thinking by enabling students to recognise their future learning needs and develop their capabilities for lifelong learning. This echoes the concept of assessment for lifelong learning (Boud, 2000; Boud & Falchikov, 2006). The assessment strategy of critical reflection also provides opportunities for students to assess themselves in both formative and summative ways through various assessment tasks such as learning journals, reflective interviews and reflective reports.

For example, throughout the placement semester, students of School of Engineering at an Australian University use a Professional Development Log to record their work activities and identify critical learning events, on a weekly basis. Each of these logs are given a mark by the academic but only the top six marks are included in formal assessment. Through reflective thinking in this industry internship program, students are recognising their progress with skills such as communication, negotiation, leadership and networking, and gaining professional maturity before entering the workplace as graduate engineers.

C. Capability development
Capability building is a key component of successful WIL; but how to assess the quality of professional capability that meets student, employer and higher education requirements remains a challenge. The use of critical reflection (reflective thinking) is not sufficient for assessing capability building as it is based on the evidence of learning provided by the student, which is not necessarily verified by an objective source (McNamara, 2008; Brodie & Irving, 2007). An assessment strategy designed to overcome the lack of objective evidence, is to also include reports written by employers. Employer reports are a major assessment tool use in an architectural work experience program at an Australian University (Williamson, 2008). Assessments submitted by students and employers during the period 2000 to 2007 were reviewed and illustrated that ‘in major work experience areas there is close agreement between the student and employer assessments’ (p.628). To establish the acceptance of a WIL program and the quality of the assessments, it is necessary to obtain assessments from both students and employers (Williamson, 2008).

D. Combination of formative and summative assessment
A study by Jones, Jackson & Coote (2008) reveals that the most popular types of assessments used in the planning discipline is a combination of formative assessment by workplace
supervisors and summative assessment provided by university academic staff. Students value the day-to-day feedback on work tasks provided by their workplace supervisors and this facilitates the development of student professional capabilities. However, many workplace supervisors have not received formal training in student supervision. Hence the judgmental feedback provided by some workplace supervisors may create barriers to learning (Jones et al., 2008, McNamara, 2008). In terms of summative assessment, students expect to receive clear criteria for writing a good reflective report from their academic supervisors (Jones et al., 2008).

E. Feedback from mix of sources
It is important to have learning outcomes for WIL activities that reflect the unique nature of the learning. It is not just the on-the-job learning nor is it just academic learning, rather it is a combination of the two. This work-based learning may involve a workplace supervisor and/or mentor and workplace colleagues and thus their role in assessment and feedback needs to be taken into consideration.

McNamara (2008) presents a model for the assessment of workplace capabilities in legal internships using evidence from a mix of sources, the student, the workplace supervisor and the academic supervisor to address the bias from a single source of evidence. Academic supervisors are involved to provide some moderation of variations across assessors. McNamara (2008) also encourages collaboration between stakeholders through the creation of a placement plan negotiated between the academic, student and supervisor. Peer assessment is another tool used in WIL assessment (McCulloch, 2008) which requires the provision of written feedback on team members’ participation, active contribution, performance of tasks in line with agreed timelines, and ability to contribute to the team effort.

Alignment of assessment with work-based learning requires an understanding of the nature of learning in a work-based context. A number of strategies, tools and techniques for assessing WIL have been described. In the next section, the current assessment practices across RMIT’s College of Business are reviewed.

Analysis of findings
Surveys were distributed to 4th year students across the Business College. Of the total of 67 respondents surveyed, 37 were from Accounting programs, 17 from Business Information, 5 from Economics and Finance and 8 from Marketing. Over 64% of respondents were male. Interestingly, only 15% of respondents were international students. The majority of respondents were full time students (91%) or with a study mode of combination of full and part time (7.5%). Paid co-op placement was the type of WIL activity undertaken by most of the respondents (82%). The number of industry survey responses was limited to 11. The number of responses received from each cohort was not sufficient to deem the surveys as statistically valid. However, their responses were indicative of some of the views held and have been used in this light. It is intended to use the survey within RMIT outside the College of Business and at other Universities to build on the existing dataset.

Existing assessment practices within the College of Business
Within the College of Business the predominant assessment in co-op programs is the preparation of a business proposal and submission of a 3000–7000 words business report. A number of programs set hurdle requirements such as formal oral presentations on their work.
placement, job applications and employment contracts. Particular examples of innovative practices include:

- **Reflective journals** – Assessment of the students includes the construction of journals and reflection papers. This activity develops their reflective practice capability.
- **WIL student teams** – Students are allocated to ‘WILLING’ teams at the start of their industry placement. These teams meet during the industry placement to exchange stories, discuss issues and concerns and to offer each other support. Guided discussion encourages students to look for connections between practice and theory.
- **Co-op student mentoring** – Alumni and final year students mentor the current cohort of students completing work placements. These co-op student mentors meet with students at the monthly seminars and on-line within ‘team talking spaces’. They are encouraged to promote discussion of issues, concerns and experiences.
- **Design of learning environments supported by eLearning** – All course resources, student presentations and discussion forums are available online.

Employability skills are developed through knowledge gained from student learning experiences. Prior to work placements, course activities are firmly contextualised to ensure the transfer of knowledge gained from the academic components of the degree. To support students’ success during co-op, classes are provided prior to the placement and during the industry work. Components of the course taught prior to the experience are geared to developing requisite skills e.g. preparation of a personal skills inventory, resume writing, practicing behavioural interview and job search techniques. After the co-op year, fourth year courses bring together individual learning experiences and re-embed the work experience in the growth of skills and knowledge delivered in the student’s final year.

**Work integrated learning skills**

Students and staff surveyed did not rate the workplace skills provided by the co-op experience in the same order of importance. Students ranked analytical, initiative and enterprise skills as the most important, though the differences between these and the next important were only marginal. Academics rated preparation for the workforce as the most critical, and problem-solving skills, analytical skills, teamwork and application of theories and concepts as a very close second. It was a little surprising that students did not rank preparation for the workforce as the most important.

<table>
<thead>
<tr>
<th>Student ratings workplace skills</th>
<th>(n=11) Means</th>
<th>Academic ratings workplace skills</th>
<th>(n=11) Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical skills</td>
<td>3.5</td>
<td>Preparation for workforce</td>
<td>3.7</td>
</tr>
<tr>
<td>Initiative and enterprise skills</td>
<td>3.5</td>
<td>Problem solving skills</td>
<td>3.5</td>
</tr>
<tr>
<td>Confident tackling unfamiliar problems</td>
<td>3.4</td>
<td>Analytical skills</td>
<td>3.5</td>
</tr>
<tr>
<td>Problem-solving skills</td>
<td>3.4</td>
<td>Team work</td>
<td>3.5</td>
</tr>
<tr>
<td>Plan and manage work</td>
<td>3.4</td>
<td>Theories and concepts application</td>
<td>3.5</td>
</tr>
<tr>
<td>Preparation for workforce</td>
<td>3.4</td>
<td>Written communication</td>
<td>3.4</td>
</tr>
<tr>
<td>Written communication</td>
<td>3.3</td>
<td>Confidence tackling unfamiliar problems</td>
<td>3.2</td>
</tr>
<tr>
<td>Team work</td>
<td>3.3</td>
<td>Plan and manage work</td>
<td>3.2</td>
</tr>
<tr>
<td>Application of theories and concepts</td>
<td>3.3</td>
<td>Initiative and enterprise</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Students perceive the co-op experience as an important factor in improving their skills in the areas of initiative, enterprise and confidence. The connection between professional development through the WIL experience and an improvement in students’ application of
theories and skills did not appear to be recognised by the student cohort surveyed. Table 1 summarises the differences in academic and student perceptions of the relative importance of employability skills developed.

Discussion of findings

In order to create and facilitate measurable work-based learning tasks that ensure ‘work ready’ graduates all of the workplace skills cited in Table 1 must be addressed. Designing and implementing assessments that embed generic professional capabilities, academic theories and concepts and the needs of industry is a complex task. Industry representatives, academic mentors and students value different types of assessments geared to individual development needs. Workplace learning is influenced by a highly complex set of variables loosely grouped across three overlapping dimensions: the contextual dimension, the social dimension and the learning dimension.

The key findings of the literature review and stakeholder surveys present characteristics that specifically pertain to learning in a workplace environment namely:

- Each work placement context offers a unique set of student experiences.
- The capabilities required in a workplace are more than just the discipline-specific or technical skills and knowledge students acquire at university. It is an imperative that students apply these skills in a real world industry setting. Common generic employability skills are written and oral communication, teamwork, problem solving, initiative and enterprise, planning and organising; self management and professional practice.
- An action learning model encourages the learner, the organisation and the program facilitators to reflect, review and modify assumptions and actions (Kolb, 1984).
- The increasing importance of collaborative relationships between the students, the academics and the employers.
- The developmental nature of workplace learning requires assessment to be designed so as to provide formative and summative feedback to the student from a mix of sources (academic, workplace supervisor, work peers or study peers).
- Students should take greater responsibility for their learning. This responsibility is linked to action learning and feedback for development.

The CCARDS assessment framework for workplace learning has emerged from the literature review and survey findings and addresses these key characteristics.

The CCARDS assessment framework

The research to date has identified a number of innovations; the challenge now is to consider the findings that indicate the preferred assessment modes that are relevant to the context and to investigate their implementation. Construction of the CCARDS assessment framework is based on pedagogical and practical underpinnings (Figure 1).
Table 2 demonstrates what criteria might be considered in constructing assessment tools. The CCARDS assessment framework provides a simple checklist for ensuring the professional context, environment and generic development are embedded in the choice of assessment type. The table also illustrates, in red, examples of innovative assessment tools employed in the Bachelor of Business (Business Information Systems) co-op program.

Table 2: WIL assessment framework

| Contextual | Does the assessment tool allow students to take into account characteristics about their specific workplace?  
| e.g. organisational analysis |
| Capability driven | Does the assessment tool specifically measure the discipline-specific capabilities and graduate attributes / employability skills articulated in the course objectives?  
| e.g. workplace performance review includes list of capabilities |
| Action-based learning | Does the assessment tool encourage students to reflect, review, and modify actions to make improvements in their learning cycle?  
| e.g. placement plan and report on achievements |
| Relationship collaboration | Does the assessment tool factor in feedback from workplace supervisors? How do all the stakeholders collaborate and relate?  
| e.g. three site visits where students, workplace supervisor & academic supervisor discuss a placement plan, middle & final work performance reviews |
| Developmental | Is the assessment tool developmental in nature? Does it specifically provide for formative feedback and assessment?  
| e.g. formative feedback on learning activities |
| Student-centred | Does the assessment tool recognise the self-directed learning and increased responsibility that the student takes in learning in the workplace?  
| e.g. reflective journals & learning papers |

Conclusion

Students, academics and employers were surveyed to gain an insight into their perspectives on the effectiveness of existing assessment practices. An analysis of our survey findings highlighted the misalignment between the potential learning outcomes of WIL and the assessment tasks. Consequently assessment tasks were seen as a chore rather than a way of
promoting learning. The results of the surveys highlighted the need for academics to develop WIL assessment tasks from pedagogical foundations; for assessment strategies to be designed for students to take responsibility for their own learning; and the need to involve and engage employers and other students in the learning and assessment processes.

The extensive literature review conducted across the fields of co-operative work, work-based learning, adult learning and organisational learning highlighted the complexity of assessment in WIL and the need to look at assessment strategies that involve the contextual, social and learning dimensions. The review also reinforced the rich learning environment of the workplace for learning and developing professional skills particularly generic employability skills. Literature on current assessment practices was reviewed and characteristics of innovative assessment practices identified. These characteristics were used to prepare the multi-dimensional CCARDS assessment framework.

A synthesis of the findings of the above investigations further developed the CCARDS assessment framework. Each phase of our investigation either reinforced previous findings or gave new insights into the complexities surrounding WIL assessment practices. A holistic picture of assessment tools and delivery attributes was created in the CCARDS Framework. We believe this Framework will provide a useful starting point for academics to develop effective and efficient assessment tasks for WIL.

References


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