

# An innovative multidisciplinary model for work placement assessment

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Assessment methods and practices have been identified as a key issue in the delivery of work-integrated learning programs worldwide. Maintaining academic standards, ensuring the relevance and consistency of assessment processes and determining responsibility for assessment are some commonly raised problems. This paper presents a case study of an innovative assessment model developed for application in multidisciplinary workplace settings, which attempts to address some of these issues. The case study is based on an optional 6 or 12 month paid WIL program, available to undergraduate students. The paper discusses the strategy adopted to formulate the model. The assessment tool was trialed in 2010, with positive outcomes reported by academic supervisors from its first application. Key Improvements included an increase in the quality of student reports and greater evidence of graduate attribute development being documented by students. The project outcomes may be useful for other practitioners addressing assessment practices in WIL. (*Asia-Pacific Journal of Cooperative Education*, 2012(3), 135-145)

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## ASSESSMENT PRACTICES IN WIL

A review of literature regarding assessment methods in work-integrated learning identified some key challenges. In particular, the WIL scoping study(Patrick, Peach, Pocknee, Webb, Fletcher & Pretto, 2009) recognized that the “development and implementation of effective assessment methods were key issues in higher education” (p. 42). The study highlighted the key concerns as being the ability to maintain academic standards, ensuring the relevance and consistency of assessment processes, determining responsibility for assessment and deciding what should be assessed when on a work placement and the processes by which the assessment is supported and managed.

The report also identified that a range of methods are being used in assessing WIL in Australian higher education institutions including reflective journals, portfolios, ePortfolios, workplace mentor/supervisors reports and workplace projects “...aimed at providing value to employers and students” (Patrick et al., 2009, p. 40). The main conclusion regarding assessment methods in WIL programs was a recommendation that the methods should encourage reflection and integration of theory and practice, as suggested by Jorgenson and Howard (2005), as well as taking into consideration the resourcing and employer commitment and involvement, ensuring the approaches are constructively aligned with the WIL learning experience as well the professional program in which it is situated (Patrick et al., 2009).

Other literature surrounding assessment also raised the need to ensure that the determination of learning outcomes and the related assessment practice of cooperative

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education programs incorporate the differing views and needs of the stakeholders (students, employers and the educational institution), and involve a combination of performance based measures that employers consider important to develop competencies, or 'hard skills', often required of science graduates (Zegwaard, Coll, & Hodges, 2003).

Additionally, (Hodges, Smith & Jones 2004) highlight that student learning must also involve more than skill acquisition and workplace competencies, with the development of 'soft skills' which relate to the practical application of theoretical principles and the students' behavioural development. Assessment practice should be designed to include evidence of what students learned about workplace culture, norms of practice and behaviour, reflecting evidence of the development of wide range of graduate attributes, not just those relating to technical competencies. The employer or mentor should also authenticate evidence of the development of these hard and soft skills. Consideration of these issues suggested that a further examination of the use of portfolios and reflective practice was warranted.

#### PORTFOLIOS AND REFLECTIVE PRACTICE

Portfolios, as a method of assessment in cooperative education and WIL activities, together with reflective practice, are becoming more commonly cited in literature. A review of literature, although not exhaustive, informed the use and value of the application of these methods for students participating in science, social sciences, multimedia and psychology (in accordance with our multidisciplinary faculty).

The review did reveal some interesting points. Meeus, Questier and Derks (2006), define a portfolio as a "...collection either of a number of actual pieces of work or representations of pieces of work..." (p. 134), and further explain that it is impossible to give a simple and unequivocal description of a portfolio in education, as the characteristics of the tool vary according to how it is used and it is a very flexible tool which can be tailored to specific education context.

However, Meeus et al. (2006) describe the general characteristics of a portfolio to be student-centred, competence-orientated, cyclical with regard to action and reflection, and multimedia orientated. They further make some useful points regarding the general application of characteristics, highlighting that students should learn from the experience of the development of the portfolio, with the tutor's role to scope what the student can operate within, while giving the student as much ownership as possible to determine what it contains (Meeus et al., 2006).

They also observe that it would be over-ambitious for a portfolio to represent all competencies which the course is equipping students for, but would be better to focus on a limited number, particularly those not yet mastered. In doing so, students must be motivated to undertake an analysis of their strengths and weaknesses, have the ability to draw up a learning plan, and reflect on the series of actions that demonstrate the competences achieved.

Buckley, Coleman, Davison, Khan, Zamora, Malick and Sayers (2009) discuss the introduction of portfolios as a learning and assessment tool, noting they are becoming more widespread across a range of health professionals as a form of assessment in undergraduate training. By undertaking a systematic review of 69 studies, Buckley et al. (2009) examined student and tutor perceptions of the effect of portfolio development on student learning across a range of discipline areas (including medicine, nursing and other allied health professional areas). In doing so, the authors found limited evidence regarding the strength

and extent of the evidence base for the educational effect of portfolios in undergraduate settings. Nevertheless, they did find that in some cases student knowledge and understanding, (particularly the ability to integrate theory and practice) had improved. They also considered that there was evidence of students' ability to learn independently, with greater self-awareness and encouragement to reflect taking place. However, the authors suggest that comparative studies measuring changes in student knowledge and abilities would be beneficial, rather than using evidence based on the reporting by students of perceptions of learning after portfolio completion.

Biggs (2003) suggests that reflective practice provides an opportunity to reflect on one's learning and philosophical position, legitimize one's own reflection by clarifying an adopted position and relevant experience, and to collaborate with peers to reflect on one's learning experience.

Mann, Gordon and MacLeod (2009) make some interesting observations with respect to the approaches to reflective practice amongst health professional education as a form of developing professional competence. During a systematic review of literature involving 29 studies regarding reflective practice, the authors found that guidance and supervision of reflection were factors perceived to be of benefit to learners. It was also highlighted that if used as a teaching strategy, the process should be guided appropriately supported by a culture and environment which values and considers it a legitimate strategy. Failure to do so may result in a loss of the potential benefit of reflection, or negative reflective experiences. Additionally, although there is a key assumption that reflection will enhance competence, there is no evidence to support or refute this assumption. There does not seem to be an agreed approach to reflective practice, it appears that professionals do reflect in different ways. Mann et al. (2009) consider that the result of this reflection may ultimately be of benefit to developing competence. The key points from this review informed the next stage of the project.

## CASE STUDY

Industry-based learning (IBL) is an optional 6 or 12 month paid placement, undertaken by students midway through their undergraduate bachelor degree program, in a workplace relevant to their studies. The program has, for the last 45 years, been an accepted part of many of Swinburne University of Technology's undergraduate programs. Within the Faculty of Life and Social Science, students have the opportunity to participate in the program from the discipline areas of science (biotechnology, public and environmental health, and biomedical sciences), multimedia, social science, psychology and psychophysiology.

The Australian Universities Quality Audit (AUQA) Good Practice Database broadly describes the program as follows:

Academic units are responsible for the development and management of IBL programs in each discipline. Within the academic units, IBL coordinators lead, manage and administer the placements on behalf of their respective units. Swinburne supervisors, in each discipline, establish and monitor the learning outcomes of each placement. Assessment of students involves a range of modes including written workplace reports, presentations and reflective logs and diaries. (Australian Universities Quality Agency, 2006, para.1)

The theoretical framework that supports the program is based on Kolb's experiential learning model, where students are exposed to many concrete experiences throughout their industry-based learning placement and are involved in observation and reflection. Students are also able to reflect on these experiences when they return to the classroom (Kolb, Rubin, & McIntyre, 1984).

The integration of industry experience within Swinburne has been a key strategic focus for the university for a number of years. Swinburne's "Professional Learning Model", provides a range of opportunities for students to engage in activities, such as internships, work placements and capstone projects aimed at improving graduate employability (Swinburne University of Technology, 2011).

This strategic focus is particularly driven by the growing pressure on the Australian higher education sector from government, industry and the community to produce work-ready graduates who are prepared in their relevant fields for professional practice (Patrick et al., 2009). McLennan and Keating (2008) recognize work-based programs as a "...unique and valuable learning environment for students" (p. 2). The measurement of employability outcomes also plays a significant part in Federal Government funding allocations to the Australian higher education sector, with recent research indicating that students who have undertaken a work-integrated learning experience or skill development during their studies were more likely to have achieved employment within their chosen field (Orrell, 2004).

In the delivery of this commitment, the university has spent considerable time and effort over recent years evaluating and updating its approach to co-operative education programs. This includes ensuring initiatives aimed at improving cooperative education programs and the employability of graduates are included in faculty strategic plans (Dunn & Pocknee, 2009).

## PROBLEM

The Faculty of Life and Social Science is a multidisciplinary faculty, which was formed as a result of a university restructure in 2004. As a faculty strategic initiative, a Cooperative Education Committee was established to identify and address academic and administrative issues relating to the provision of cooperative education or work-integrated learning (WIL) programs, which includes IBL. Data provided through the university's quality improvement processes, and anecdotal evidence gathered through academic and administrative engagement with the program, raised concerns regarding the consistency, clarity, appropriateness and currency of the academic assessment practices for students participating in IBL within the faculty. Examination of the assessment requirements highlighted that one generic assessment model was being applied in the form of a 'written report' in seven of eight discipline areas and a discipline specific model involving the submission of a 'portfolio' was being applied in one discipline area in the faculty. Assessment for the IBL unit is based on a pass or fail.

Comments had been raised by both students and employers about the value of the generic written report, with academics questioning whether this approach provided sufficient evidence of the development of both technical and generic attributes during their workplace experience. Administratively, concerns were also raised regarding the resource implications of applying the different models of assessment, particularly when the students were enrolled

in the same unit code as a result of the faculty restructure. To address these issues, a project group was formed.

## PROJECT OVERVIEW

The aims for the project were:

- To determine the strengths and weakness of our current models of assessment
- To develop an assessment model for multidisciplinary workplace setting

A stakeholder committee with representation of academics from the various discipline areas within the faculty, the cooperative manager responsible for the administration of the IBL program, and the faculty's educational advisor was established.

The role of the stakeholder group was to assist in defining the nature and scope of the project, provide educational expertise with respect to the evaluation of assessment practices, gather information and provide feedback on current and proposed methods of assessment from employers, students and other academics involved in the program.

The formation of a stakeholder group was considered important to help facilitate the success of the project by engaging the relevant parties in the process of seeing the need for a change in current practice and ensuring that appropriate time and support would be made available to assist with making the new change (Taylor, 2003).

The approach and focus adopted for the evaluation of the assessment practices was informed by Patton (2010). This involved consideration of who the primary users of the evaluation findings would be and the intended use. Consideration of the constraints of the project, which included time (particularly with respect to members of the stakeholder group) were also factors; however, not compromising the integrity of the evaluation process to ensure the intended users were satisfied with the findings was also considered. The evaluation involved an examination of the formative (interim report requirements, site visit practices) and summative (final report requirements) components of the current methods of assessment used within the IBL program. In particular, a focus on the processes and activities which took place within the assessment practices (e.g. satisfaction with methods of assessment, documentation used to support the assessment), together with an overview of the outcomes of the assessment components (supply of evidence regarding meeting learning objectives, attribute development) was undertaken. Data used to inform this process included analysis of stakeholder feedback obtained from the university's quality assurance processes and anecdotal evidence gathered through academic and administrative engagement, supported by a review of literature. A SWOT (Strength, Weakness, Opportunities and Threats) analysis of the current assessment methods being used was undertaken (Gordon, Hazlett, Ten Cate, Mann, Kilminster, Prince. & Newble, 2000). This is discussed in the following sections.

## SWOT ANALYSIS

A SWOT analysis was used for this project as it was considered a planning tool that would assist in identifying the strengths, weakness, opportunities and threats that lie within any environment or organization (Gordon et al., 2000). It was also a concept familiar to all project group members who considered the tool to be efficient and simple to apply.

A SWOT analysis of the written report being applied to assess students undertaking IBL within the faculty was undertaken by the group (refer Figure 1). Consideration was given to the key issues and constraints regarding approaches and strategies used in the assessment of WIL identified in the literature and feedback received through consultation with stakeholders informally and formally through the university's quality assurance system.

<b>Strengths</b>	<b>Weaknesses</b>
<p><i>Single document</i></p> <p><i>De facto portfolio status</i></p> <p><i>Some use of reflective statements</i></p>	<p><i>Unfocussed document</i></p> <p><i>Inconsistent standard</i></p> <p><i>Learning outcomes unclear</i></p> <p><i>Lack of skill and experience documentation</i></p> <p><i>Lack of consistent reflective process</i></p> <p><i>Lack of coherence (covers 1 year)</i></p> <p><i>Variable quality in assessment</i></p>
<b>Opportunities</b>	<b>Threats</b>
<p><i>Expansion of reflective processes</i></p> <p><i>Smaller manageable sections</i></p> <p><i>Redirect effort to portfolio</i></p> <p><i>Clearly tabulated experience and skills</i></p>	<p><i>Poor student and academic engagement</i></p> <p><i>Potential loss of employment opportunities</i></p>

FIGURE 1. SWOT analysis of changing the student IBL report to a portfolio structure.

This process identified that the written report, while encouraging students to reflect and report on the range of generic attributes and tasks undertaken during the IBL year, had its problems. One was that the reflective component was not well understood by students and the guidelines associated with completing the report were fairly cumbersome and required significant renewal. The general nature of the report approach meant that a wide range of styles and content were delivered, and there was considerable variation in the quality and presentation of these reports.

The dual aim of the report was to document the student's work placement experience for the purpose of assessment, and to also as act as a record of their experiences. The written report, therefore assumed the role of a de facto portfolio. This further suggested that the assessment method should adopt a portfolio format. To do this, we drew upon experience from the existing portfolio approach applied in the faculty.

#### EXISTING PORTFOLIO APPROACH

An examination of the portfolio approach currently adopted for the public and environmental health discipline revealed that the assessment practices involved a

combination of performance-based measures. These mapped the development of competencies or hard skills, and reflective written reports to enable the assessment of soft skills, relating to practical application of theoretical principles and the student's behavioural development (Zegwaard et al., 2003).

The portfolio involved students in the following activities:

- Writing a series of structured reports based on a range of activities or topic areas which are representative of their professional discipline area;
- Developing learning objectives in relation to these activities, showing evidence of involvement, reporting on whether they met their own learning objectives and providing reflective summaries of these experiences;
- Developing an Experience Record Sheet which provides evidence of the completion of a number of discipline specific tasks, at an observed, supervised and unsupervised level (*independent*);
- Mapping their graduate attribute development, in consultation with the academic and workplace supervisor in the form of completing a pre- and post-'learning benchmark'; and
- Submitting the cumulative collection of work as a portfolio.

To increase the authenticity of this approach, the employer or mentor is required to authenticate the portfolio (Hodges et al., 2004).

This approach to assessment had been developed over many years through negotiation with relevant stakeholders. It had been used to ensure students were exposed to a range of learning activities in order to maximize the placement experience and enhance graduate employability. Feedback from stakeholders involved in the this type of assessment indicated strong support for this model (Dunn, 2006).

An analysis of this model also revealed that this approach addressed many issues identified by the SWOT discussed earlier.

This approach was then examined to ascertain its transferability to other discipline areas in the faculty.

#### TRANSFERABILITY

The student work placement position descriptions were used as a basis for identifying the types of technical skills which could be mapped to provide evidence of completion in the form of the Experience Record Sheet. These were then used to identify topics or activities that could be used as a basis for a series of structured written reports, which were representative of the professional discipline area, as described earlier.

Informal consultation with students, employers and industry supervisors helped inform this mapping. This led to a strong support for the portfolio model and narrowed down the scope of the overall number of documents involved.

The process identified that the Experience Record Sheet was readily adaptable to a range of workplace settings as it could be easily adapted to reflect tasks or duties undertaken as part of the students' work placement description.

Similarly, the topic areas suggested for the structured reports were readily transferable to the range of discipline areas, as they involved generic topics or activities directed at providing evidence of learning about workplace culture, norms of practice, and development of professional competence (Hodges et al., 2004).

For example, topics include reporting on:

- Orientation - the organization and the organizational structure that the student operated within;
- Professional Involvement - a professional group meeting or seminar and its relationship to the professional practice area;
- Workplace Activity - the development of a technical competence undertaken as part of the Experience Record Sheet; and
- Project Work - a special project that developed both technical and graduate attributes.

This resulted in an agreement to apply the framework used for the existing portfolio approach to the other discipline areas. The format for the series of written reports and the Experience Record Sheet was adapted for each of the areas by providing examples of discipline-specific workplace activities that could be reported on. To facilitate this further, students, in consultation with industry and workplace supervisors, were encouraged to develop their own topics and activities relevant to the workplace setting. The Learning Benchmark, the final component of the portfolio, was a generic document reflecting the university graduate attributes, and was applicable to all disciplines. (See Figure 2 for the key elements of the portfolio.)

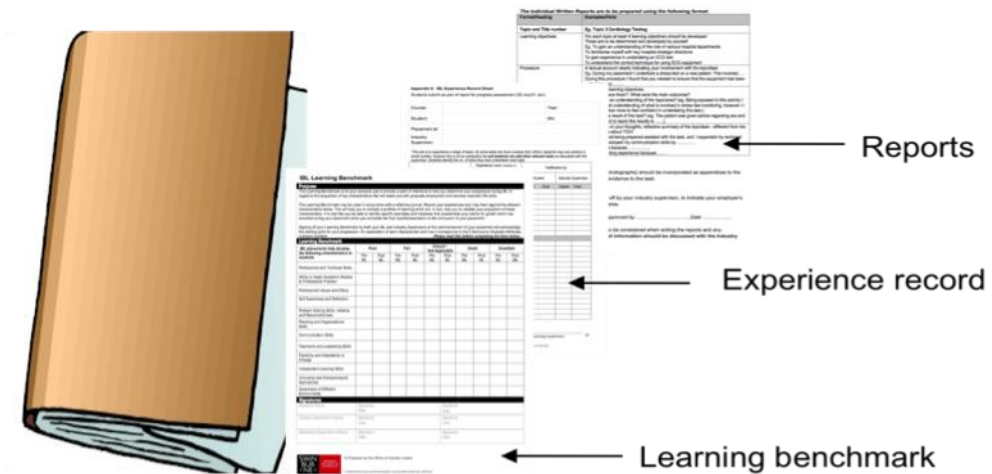


FIGURE 2. Key elements of the portfolio: learning benchmarks, experience record, and reports.



## OUTCOMES

The portfolio approach was trialled as an assessment model for a range of multidisciplinary workplace settings in 2010. This included science (biotechnology, and biomedical sciences), multimedia, social science, and psychology and psychophysiology positions.

Informal feedback from academic supervisors to date has generally been very encouraging. It was commonly considered that the quality of the reports had improved from previous years, with greater evidence of graduate attribute development, particularly in those relating to the development of technical skills. However, this appeared to be more evident in science-based positions where it was considered that the mapping of activities for the Experience Record Sheet could be more easily determined. Despite this, it was encouraging to observe students from multimedia and social sciences listing various activities that they considered representative of their workplace experience.

Preliminary feedback from industry supervisors and students has also been encouraging with a general consensus that the assessment requirements are clear and reasonably straightforward to follow. In some cases, however, there did appear to be a lack of understanding regarding the role of the reflective component, and the development of students' own learning objectives with respect to the various written reports. Feedback also indicated that in a few cases, students did not appreciate the flexible nature of the topics that could be selected for the written reports and this was also not fully understood by some academic staff. This indicated that professional development surrounding the pedagogical approach adopted for the new assessment model for both academic and industry supervisory staff should be explored as a means to address these issues.

The new model appears to have addressed issues identified through the SWOT analysis. In particular, clearer tabulation of evidence of workplace activity and clearer development of workplace objectives appear to have been achieved by students, through the completion of the Experience Record Sheet and adoption of the new written report requirements. From an administrative perspective, the new model had contributed to greater efficiencies as it enabled all documentation regarding assessment to be aligned in a consistent manner.

As discussed, the findings to date are preliminary and based mainly on anecdotal evidence. A more systematic evaluation of the new approach to assessment as a more effective measure of achieving improved evidence of learning outcomes is warranted. This could involve a more extensive investigation of the application of the two models, particularly amongst users of both the former and existing methods, such as academics and industry supervisors.

## PROJECT LEARNINGS

Resource issues for staff of universities and employers involved in work-integrated learning, especially constraints surrounding workload and time, are widely documented (Patrick et al., 2009). This project was no exception to these issues.

Mindful of these constraints, the project aimed to use all stakeholders' time as efficiently as possible, without compromising the integrity of the project. This was done by:

- Operating all meetings as outcome focused meetings;
- Using already documented evidence regarding best practice approaches to assessment in work-integrated learning; and
- Examining existing resources that could be applied to address the issues arising during the consultation process.

Ideally, wider and more rigorous consultation with all stakeholders regarding the proposed new methods would have been useful to help refine and improve practice. However, it is anticipated that ongoing quality improvement processes will continue to inform the project.

## CONCLUSION

The innovative assessment model was developed for application in multidisciplinary workplace settings. The model aimed to address current trends in higher education surrounding workplace assessment. In particular, it was an effort to improve students' ability to provide greater evidence of the development of graduate attributes and employability skills. This was achieved at the same time as establishing greater consistency and clarity amongst academics and industry partners regarding the requirements for workplace assessment, whilst improving administrative efficiency. While the assessment model would benefit from further evaluation and refinement, early indications suggest that the model is achieving the intended aims, particularly those related to providing evidence of graduate attribute development. The process adopted for this project, together with the outcomes, may benefit other practitioners who are also seeking to review assessment practices in WIL programs.

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