Lighthouse Project - Case Study
Deakin University

January, 2017

1. Project focus: Building capacity to lead the delivery of WIL across a faculty

This Lighthouse project set out to build the capacity and capability of key faculty academics to design and deliver a coordinated approach to graduate employability through the development of scaffolded curriculum initiatives.

Employment rates for graduates from the discipline of Natural and Physical Sciences (N&PSs) is poor in comparison to disciplines such as Engineering, Information Technology, Architecture and Built Environment and in disciplines outside the STEM focus. This is also true for the N&PSs at Deakin. As an institution, Deakin is redeveloping its graduate employment focus through new policy development, cross-faculty strategy groups and engagement with industry and corporate organisations. This focus is welcomed but requires student engagement to occur through course and discipline initiatives within the existing curriculum.

The Faculty of Science, Engineering and Built Environment at Deakin has had a longstanding curriculum initiative for all undergraduate courses to provide students with a WIL opportunity. Currently, these student offerings are not coordinated, scaffolded or organised to any large extent in ways that allow students to evidence growth in their learning about work, skills and employment. The curriculum initiatives are offered as a mix of faculty and discipline based units and while there is cooperation and sharing between teaching staff, differences exist in the understanding of academics around WIL, its purpose, its delivery approaches, but more importantly its assessment. Given the range of courses on offer in the Natural and Physical Sciences space (including environment), the project sought to provide resources, exemplars and workshops for course directors in order to build a coordinated and broader approach to employment opportunities for our students.

2. Context

At the beginning of this project, Deakin was in the early stages of developing an institutional approach to graduate employment. Two themes were developed. The first involved engaging faculties in improving student access to career education, linking students to employers through events and other activities, and building an on-campus 'freelancing' hub. The second required faculties to develop discipline-based WIL curriculum initiatives, however SEBE was already well down this path.

Over the past four years the Faculty of Science, Engineering and Built Environment (SEBE) has been developing WIL initiatives across all undergraduate courses. Through a small cohort of dedicated academics, a range of 'professional practice' curriculum initiatives has been introduced. The faculty developed three implementation models were developed as core units: A zero-credit unit which introduces students to WIL; a 80-120hr discipline-based placement unit; or a unit focused on developing professional practice (non-placement unit). A course would only use one of these options. Appendix A lists the option employed by each SEBE course at the beginning of this project. In addition to these WIL opportunities, SEBE also offered Internships and Industry-Based Learning opportunities as elective units.

In developing its WIL Strategy, SEBE has recruited a number of specialist academic and professional staff to support the program. Two WIL academics provide curriculum leadership and support to the discipline-based programs. These academics also deliver the elective Internship and Industry-Based learning program. One professional staff member provides the administrative support for the program including

student recruitment and the management of industry scholarships. A more recent professional staff appointment was an Industry Engagement Manager who develops the industry relationships to support our programs.

Within the Science discipline in the Faculty we also have two academics who teach into the professional practice program. These academics have taken on this role in addition to their discipline-based teaching. Their role is to oversee the placements undertaken by students and to provide assessment tasks that evidence student learning. The School provides administrative support to manage placement contracts.

This WIL strategy has been successful in getting students into the workplace but in reviewing our WIL activities and anecdotal employer feedback, a number of issues were identified:

- the program survives on student-initiated placements, but students do not have a good understanding of the range of possible industries and employers that they can approach leading to many students wanting to work with a limited range of employers
- students who go out on placements are well prepared in science but are often not well prepared for the workplace
- the development of workplace skills is not scaffolded very well within the curriculum
- WIL is not well understood by students and they misunderstand what is required to demonstrate learning
- WIL is not well understood by academics and therefore different explanations and expectations are projected to students.
- there were not well established assessment standards that allowed academics to have consistent approaches to learning and evidencing learning.

The WIL Lighthouse Project was an excellent opportunity to allow the Faculty to address some of these issues and develop solutions that will allow the program to deepen and grow.

3. Approach to implementation

The goal of this project was to work with course directors to improve their understanding and ability to implement within curriculum, a range of WIL opportunities that students value and use to find employment, either within their discipline or outside their chosen discipline. Clearly, improved employment outcomes are a key indicator of success but these are never immediate and are often affected by external factors. Other outcomes also indicate success such as the way students apply knowledge and skills after having WIL experiences, the professionalism they demonstrate before or after graduation, the range of industries that are placing students, and the feedback that employers provide about our students. However, a key criterion for success will be increasing the number of academics who are engaged in delivering WIL experiences to students. We started with course directors but they will then need to be the mentors for the academics who teach into their courses.

As part of this project, the Faculty created the WIL Steering Group that comprised the project team and the academics who were currently engaged in delivering WIL opportunities to students in the Science discipline. The Steering Group had two main tasks: the first was to define WIL within our context; and the second was to develop an understanding of how we could consistently assess students.

In delivering these two outcomes for the Faculty, the project team conducted three workshops with the course directors. The courses that engaged in this project were:

- Bachelor of Biological Science
- Bachelor of Biomedical Science
- Bachelor of Environmental Science (Environmental Management and Sustainability)
- Bachelor of Environmental Science (Marine Biology)
- Bachelor of Environmental Science (Wildlife and Conservation Biology)

- Bachelor of Forensic Science
- Bachelor of Science
- Bachelor of Zoology and Animal Science

All course directors attended at least one workshop. A number of course directors attended all three.

The focus of the workshops was on identifying the current understanding of how course directors perceive WIL and how they think WIL should be located within the course curriculum. The project team took the outcomes of the workshops to identify how WIL should be defined, what curriculum activities can be classified as WIL and what is not WIL, and what would constitute appropriate scaffolding activities. This thinking what continually referenced back to the Course Director group.

The project intended to complete a formal survey of existing employers engaged with our WIL program, however this was not possible within the project timeframe. Instead, an informal discussion with a few employers was completed to collect their perspectives of WIL and the programs we offer.

4. Achievements and impact

The project has allowed the Faculty to formally present a coherent view of WIL to staff and students. We have been able to define what WIL is within our context and what it is not. The most significant part of the project was finally defining what WIL means to us:

> *Work Integrated Learning (WIL) describes the intentional learning activities that expose students to authentic and proximal opportunities to help develop the transferable skills for employment, further education and active participation in their community.*
>
> *WIL activities should seek to provide students with the opportunity to learn how to apply specific discipline knowledge, skills & practice in the workplaces of the future*

We have embedded WIL in the minds of Course Directors across the science discipline. They have responded that they now feel empowered to identify and embed WIL in a confident manner and that this aspect of their work is important in the development of their courses.

The WIL Steering Group established as part of this project has been retained by the Faculty and expanded to include each of the disciplines within SEBE. This is a great achievement and will lead to further development of WIL within new contexts. The Steering Group has members who are also part of the Deakin-wide WIL initiatives and so the ideas developed through this project will begin to gain a greater audience as we communicate our outcomes more generally.

The continuation of the WIL Steering Group also means that we can continue to drive subtle and then pivotal changes through good practice and scholarship. It has also allowed individuals to identify themselves as leaders in this domain and feel empowered to be innovative in their contextualised curriculum - space for creativity and trying things is needed to allow our curriculum to be enhanced.

Mapping of WIL in the curriculum has been a frustrating process. The problem is that it maps intentions and not outcomes. Regardless of how good the chosen language and schematic of the unit curriculum description, or even the detailed unpacking of the meanings for each criteria through systems such as rubrics, the interpretation of the analysis of assessment levels and types to the mapping criteria will always involve an element of subjectivity. Only when we are better at evidencing the outcomes of learning will we be able to map WIL in the curriculum. However, we have continued with the current process of mapping, not because it provides something useful in its own right, but because it is a useful place to begin the conversation with course directors about what innovations are possible.

The outcomes from this project show that by increasing the level of authenticity (how close the learning

activity aligns to tasks within the workplace) or proximity (the closeness of students to existing practitioners) of assessment items allow students to have an industry oriented and relevant course that will improve their opportunities for employment, where ever they choose to land upon graduation, and beyond. The difficulty is to situate authentic and proximal opportunities in a scaffolded way within the curriculum. One idea that the Steering Group will continue to follow is to focus on authenticity that is enhanced through proximity rather than striving for both. This will allow our programs to be more sustainable and scalable over time.

The project team identified a number of WIL opportunities that are not placement based. The challenge is to shift thinking that WIL is really about placements and placements are really just work experience. WIL is about learning outcomes and so, a focus on non-placement WIL will be a priority in the future.

We have made a number of observations in working with employers. Employers like to engage in placement WIL for a number of reasons. These are well documented in the literature and centre on accessing a talent pool of potential employees who bring new ideas into the workplace culture. However, we found that employers struggle with low return on investments, particularly with short-term placements, low take-up by some student cohorts, cumbersome paperwork and long lead times. These issues need to be addressed if we are to improve placement-WIL.

5. Emerging Issues and next steps

We continue to struggle with the term 'WIL' or 'Work Integrated Learning'. It is not a widespread term that is well understood by industry, students or academics. The project team thinks that a more engaging and universally accepted term would make the concept of WIL more attractive. Our dilemma was that we could not find a better term.

We need to improve the culture of new students to engage more fully in WIL and to prepare better. We also need to improve the culture of workplaces to be more amenable to taking on students in placements. While students complete these activities for credit, to fully engage students need to be paid for the work that they do. Many students need to forgo their part-time paid work to take up short periods of full-time unpaid work, albeit within their discipline. This needs to change if placement WIL is to be more successful.

The project team believes that we have developed a workable WIL strategy; work still needs to be done with the middle years of a course. We provide career development and WIL introductions for beginning students and placements often occur within the final year of the course. The project has allowed us to recognise that we need to focus more on non-placement WIL opportunities in the middle year(s). This will allow students to obtain a more valuable experience when they do complete an extended placement.

6. Role of the WIL in Science project

The WIL in Science Lighthouse project has had a significant impact on SEBE. Most of the impact has been described in the earlier sections. The development of a community of practice has been the most significant aspect of the project. The WIL Steering Group have developed a Faculty WIL Fact Sheet that describes WIL in our context and provides the language and concepts around which we build WIL. Even more encouraging is that there is a willingness to share good practice and scholarship.

Through this project we have established a consistent view on assessment standards and what students must demonstrate to achieve success from their WIL activities. The project has also initiated discussions within the Faculty about how we should organised, administer and manage WIL. This all bodes well for the future.

7. Project team contact details:

If you would like to be listed as a contact for other faculties implementing WIL in Science please provide your preferred contact details. If you would prefer not to be contacted, please leave this section blank.

The project team consisted of:
Professor Malcolm Campbell,
Deputy Dean, Faculty of Science, Engineering and Built Environment and Project Lead
Dr Adam Cardilini, Associate Lecturer in WIL
A/Prof Jo Coldwell-Neilson former SEBE Director of Graduate Employment
Dr Sharon La Fontaine, Senior Lecturer and current SEBE Director of Graduate Employment
A/Prof Stuart Palmer, Associate Professor in Integrated Learning
Ms Shannon Rogers (Intern), Project Manager and student in Bachelor of Zoology and Animal Science
Mr Mark Tolson, SEBE Industry Engagement Manager (WIL)
Dr Karen Young, Senior Lecturer in WIL

The project team can be contacted through:
Professor Malcolm Campbell
Deputy Dean, Faculty of Science, Engineering and Built Environment
Deakin University
Geelong Waurn Ponds Campus, Locked Bag 20000, Geelong, VIC 3220
Phone: +61 3 5227 2897
malcolm.campbell@deakin.edu.au

APPENDIX A: WIL engagement across SEBE courses prior to the project

SEBE has implemented a compulsory WIL placement unit in these courses:

- Bachelor of Information Technology
- Bachelor of Games Design and Development
- Bachelor of Computer Science
- Bachelor of Cyber Security
- Bachelor of Civil Engineering (Honours)
- Bachelor of Mechanical Engineering (Honours)
- Bachelor of Electrical and Electronics Engineering (Honours)
- Bachelor of Mechatronics Engineering (Honours)
- Bachelor of Environmental Science (Marine Biology)
- Bachelor of Environmental Science (Environmental Management and Sustainability)
- Bachelor of Environmental Science (Wildlife and Conservation Biology)
- Bachelor of Environmental Science (Marine Biology)
- Bachelor of Biological Science
- Bachelor of Biomedical Science

Additionally, the courses containing significant non-placement WIL are:

- Bachelor of Science
- Bachelor of Forensic Science

Courses where core WIL opportunities are currently being planned are:

- Bachelor of Zoology and Animal Science
- Bachelor of Construction Management

Courses with no significant WIL (according to our definition of WIL) but with significant industry interaction and studio learning:

- Bachelor of Design (Architecture)