WIL in Science

A national project to develop work-integrated learning in Faculties of Science

From the Australian Council of Deans of Science

Professor Liz Johnson, Director ACDS TL Center
Professor John Rice, Executive Director ACDS
10 types of scientist

Not all scientists wear white coats and work in labs. There is a wide variety of jobs and careers that require knowledge and application of science, from research to business and from regulation to teaching.

The Science Council has identified 10 types of scientist working today. Which one are you?

Business scientist
Jackson 2014: ‘Employers expect ... technical expertise [and] a wealth of generic skills. These typically comprise team working, communication, self management, problem solving, analysis and self-awareness skills.’

Project context

Demand from:

Industry: ‘we want work-ready grads’
Government: ‘we need to justify funding and plug skills shortages’
Students: ‘we want to secure relevant employment’

Benefits in:

Improving job prospects
Building confidence in workplace abilities of students
Enhancing the ‘soft skills’
Science Context

• Generalist degree
• No explicit professional focus
• Multiplicity of tacit professional roles
• Few science students have industry placement (1/7)

Discovery Research

Teaching

WIL


Work Integrated Learning in STEM in Australian Universities
**Estimated** proportion of students involved in WIL activities during undergraduate degree, by broad discipline (%)

<table>
<thead>
<tr>
<th>Type of WIL activity</th>
<th>Natural and Physical Sciences</th>
<th>Agriculture Environmental and Related Studies</th>
<th>Information Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industry Projects</td>
<td>14.5</td>
<td>26.9</td>
<td>72.9</td>
</tr>
<tr>
<td>Short term placements and internships (less than 6 weeks duration)</td>
<td>5.5</td>
<td>37.4</td>
<td>7.0</td>
</tr>
<tr>
<td>Medium term placements and internships (6-12 weeks duration)</td>
<td>2.8</td>
<td>19.5</td>
<td>15.2</td>
</tr>
<tr>
<td>Long term placements and internships (more than 12 weeks duration)</td>
<td>2.6</td>
<td>17.5</td>
<td>12.2</td>
</tr>
</tbody>
</table>

Note: Estimates of student numbers for calculating participation rates are based on 2013 commencement data supplied by Commonwealth Department of Education.

Note: Table contains estimated enrolment proportions and numbers for WIL programs identified in the WIL ACER/OCS project – missing data and non-responses are not included. Outcomes are indicative only.
is clearly linked to theoretical aspects of courses ... creates ‘ah-ha’ moment

- has well articulated expectations of both students and industry partners;
- has clear induction processes at the beginning and
- has facilitated opportunities for reflection on experiences at the end - for both students and industry;
- has well established processes for logistics and support of students and industry; and
- has support from leadership and dedication from academic staff.

Building WIL is complex

Diagram developed from: Patrick, C. J. et. al. (2014). Leading WIL: a distributed leadership approach to enhance work integrated learning. Office for Learning and Teaching
Benchmarks for WIL in Science Faculties

• Co-ordinated senior leadership
• Clear point of contact for industry engagement
• Explicit models for engagement with industry
• Processes to embed WIL within courses
• Recognition and credit for WIL for students and staff
• **National leadership network**
  – Ongoing peer-to-peer learning
  – National consensus

• **Build capacity: resources and mentoring**
  – Build understanding of WIL
  – Share standards and course structures

• **Action to foster WIL: lighthouse projects**
  – Industry relationships
  – Alignment with university
Where to start?

**Intention & plan**

- Define WIL: what counts?
- Map WIL: where is it?
- Possibilities/SWOT?

**Assessment**
- Delivery
- Quality

**Ideas:**
- Industry Partners
- Students as partners
- Using existing student work
- Using honours
- Entrepreneurship/start-ups

**Build & trial**

**Refine and expand**

**Systems:** management
**Capability:** specialists and course teams

**Ideas:**
- Limits to growth
- Orienting teachers
- Co-teaching WIL

**Intention:** what would success look like?
Lighthouse Projects


Illuminating the WIL journey for Faculties
- Strategy & objectives
- WIL activities
- People
- Systems

Developing alternative approaches to WIL
University of Queensland
Monash University

Setting up Faculty WIL programs
University of Tasmania
Western Sydney University

Extending WIL and building capacity for the future
University of Technology, Sydney
Deakin University

Case studies
Ideas
Mentoring

Darren Flinders Flamborough Lighthouse, East Yorkshire, Creative Commons
Successful WIL in science

OLT grant: Aug 2016 – Aug 2018

- Grow network activity
  - Peer mentoring
- Curate existing resources
  - Case studies
  - WIL in Science guide
- Student & recent graduates
National WIL in Science Forum: Dec 15, Dec 16

Faculty Planning Workshops
- Melbourne Aug 18
- Sydney Aug 24
- Brisbane Aug 25

Faculty Action Plan

How will your faculty improve employability?

http://www.acds-tlcc.edu.au/
ACDS: WIL in Science Projects

Thankyou

WIL in Science project teams
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Funded by the Office for Learning and Teaching