AUSTRALIAN TECHNOLOGY NETWORK OF UNIVERSITIES

MULTISECTOR PROJECTS

Interdisciplinary Project-Based Work-Integrated Learning:

Student-centred learning to enhance employability

Curtin University

RMIT UNIVERSITY

University of South Australia

UTS

This is an Australian Technology Network of Universities (ATN) Excellence in Learning and Teaching project.

ATN brings together four of the most innovative and enterprising universities in Australia: University of Technology Sydney, RMIT University, University of South Australia and Curtin University.

The views expressed in this report do not necessarily reflect the views of the ATN.

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Executive summary

Project context

The landscape of work has shifted in recent years in response to the rise of technology, super-structured organisations and global connectedness. In response, new jobs are emerging, job mobility is on the rise and recognition is growing that many of today's complex problems require interdisciplinary solutions. As a result of these changes, the skills required in the 21st century include complex problem solving, critical and creative thinking, people management, a service orientation and interdisciplinary teamwork. The development of these skills requires universities to focus on the employability skills of graduates, often through the provision of work-integrated learning (WIL) experiences.

Industry-based placements, a subset of WIL, have grown in popular in higher education but present challenges to both students and universities who are struggling to source sufficient placements. Interdisciplinary project-based WIL provides one solution to these placement issues. This education approach can deliver authentic, sustainable learning experiences at scale as students engage in complex tasks that align with the development of 21st century employability skills outlined previously.

Aim of the project

The aim of the project was to enhance the employability of university graduates through interdisciplinary project-based WIL. Interdisciplinary projects were developed in collaboration with university staff, industry staff and students from a range of courses across health, business, humanities and STEM. A small number of these projects were then pilot tested and assessed for their impact on students and staff.

Project approach

The project adopted an exploratory multi-site case study approach. The first step was an informal review of the literature on interdisciplinary project-based WIL to ensure good practice informed the project activities. The learnings from this review were published in a good practice guide. The second step was a forum (workshop) at each of the four partner universities to develop the interdisciplinary WIL project. During the workshops university staff, industry staff and students generated ideas for the interdisciplinary project, the final product to be produced, how these products would be assessed and how future project ideas could be generated. Following assessment of each project by project team members one pilot was conducted at each institution. A total of 34 university staff, 19 industry staff, and 265 students participated in the pilots between July 2019 and February 2020. A comprehensive evaluation, based on Kirkpatrick and Kirkpatrick's (2006) program evaluation model, was undertaken. While participation in quantitative surveys was poor, the focus groups and interviews conducted generated clear themes for publication.

Project outputs/deliverables/resources

The three planned project outputs were successfully delivered: (1) a guide to good practice in interdisciplinary project-based WIL was developed and disseminated, (2) the project website multisectorprojects.com was launched to ensure widespread dissemination and sustainability of the project, and (3) a community of practice, linked to the Australian Collaborative Education Network (ACEN), has been established to ensure interest in embedding interdisciplinary project-based WIL into curriculum is sustained.

Six project dissemination activities were planned. The four activities completed to date are: (1) a webinar conducted on May 28, 2020 to promote and share the project outcomes and outputs, (2) a short report distributed to relevant university and industry stakeholders, (3) a project flyer 3/4 with a marketing/promotion focus 3/4 distributed via a variety of forums, and (4) abstracts were submitted for this year's HERDSA and ACEN conferences. Both conferences are postponed due to global Covid19 pandemic. The two activities yet to be finalised are a journal manuscript, currently under development for submission to the Higher Education Research and Development journal later this year, and the capacity building workshops planned at each of the four participating ATN universities, also delayed due to Covid19. An additional dissemination opportunity arose recently when the project leads were invited to co-author a book chapter for a forthcoming textbook to be published by Routledge.

Impact of the project

Key impacts from the project to date are the UniSA pilot has been developed further and will now be offered in three courses. Several interdisciplinary project-based WIL activities are underway in 2020 at Curtin University as a direct result of the ATN project including students working with a local council and further projects with pilot project partner Pathwest. Other impacts include the participation of 69 academic and professional staff from across Australian and international institutions in the project webinar. A high level of interest in an ongoing community of practice was established at the conclusion of the webinar. Feedback on the project website and good practice guide has been very positive. Furthermore, the outcomes for the students, university and industry staff who participated in the four pilot projects were largely positive.

Key findings or recommendations

The interdisciplinary project-based WIL pilots generated a high level of interest from university students and staff and our industry partners. Students reported they had developed skills in teamwork and collaboration, research and critical thinking, communication, project management and problem-solving. Students perceived they had a competitive edge over others as a result of the industry networking opportunity and their enhanced skills and confidence. However, interdisciplinary project-based WIL is not without its challenges. Dedicated academic champions of interdisciplinary project-based learning are essential to success. Siloed working and a lack of cooperation and collegiality are roadblocks to engaging staff in this educational approach so staff development is essential. The demands on students are high so students in the latter stages of their degree program 3/4 with extensive discipline knowledge 3/4 are most suited to successful interdisciplinary project-based WIL. The rigidity of university policies and procedures (including timetabling) can prohibit the innovation and flexibility in program design and industry engagement needed. Accommodating the needs of diverse disciplines in validating student outcomes is intensified when working across multiple disciplines so care must be taken to ensure relevance of the experience to all participating disciplines. Collaboration with industry is crucial to successful outcomes of interdisciplinary project-based learning.

Project report

Project context

The two key, interlinking drivers for this project were the changing landscape of work and the increased focus on the employability skills of university graduates.

Changing landscape of work

The landscape of work has shifted in recent years in response to the rise of technology, super-structured organisations and global connectedness (Davies, Fidler, & Gorbis, 2011). The most in-demand occupations and specialties did not exist a decade ago, Australia having gained over one million new jobs in knowledge and service industries over the past 25 years (World Economic Forum, 2016). This unprecedented pace of change means high job mobility with predictions that Australians entering the workforce today may have up to five different careers and change employer 17 times over their working life (McCrindle Research, 2014). In their report *Future Work Skills 2020*, Davies *et al.* (2011) identified a number of skills required for the 21st cen tury workforce: sensemaking, social intelligence, novel and adaptive thinking, cross-cultural competency, computational thinking, new media literacy, transdisciplinarity, design mindset, cognitive load management, and virtual collaboration. Innovation and Science Australia (2017) highlighted the increase in 'interaction' jobs (i.e. jobs involving more complex human interactions and judgements) with employees of the future spending more time on interpersonal, creative, problem solving and entrepreneurial skills. Similarly, participants at the World Economic Forum (2018) outlined 10 skills employees will need to survive the rise of automation: complex problem solving, critical thinking, creativity, people management, coordinating with others, emotional intelligence, judgement and decision making, and service orientation.

Another issue facing society is that many of today's complex problems require interdisciplinary solutions (Ramaley, 2014). Davies *et al.* (2011) describe the ideal worker as "*someone with a deep understanding of at least one field but the capacity to be conversant language of a broader range of disciplines*" (p. 11). Several researchers (e.g. Brassler & Dettmers, 2017; Khadri, 2014; Millar, 2016) claim interdisciplinary teaching and learning is key to higher education in the 21st Century.

Given this shift in skill demand it is perhaps not surprising current employers are generally satisfied with graduates discipline specific knowledge and skills but are concerned about gaps in essential generic skills including communication, teamwork, self-confidence, and intercultural competence (Smith & Worsfold, 2014). This skill gap is impacting negatively on businesses with employers claiming graduates' poor teamwork, communication, literacy and numeracy skills are negatively impacting on their business (Australian Industry Group, 2018). To address these changes in the landscape of work and calls for greater employability skills in our graduates, higher education institutions have increased the focus on work-integrated learning.

Work-integrated learning to enhance employability skills

The role of higher education is changing with greater focus on employability than ever before. Oliver and Jorre de St Jorre's (2018) review of contemporary university graduate attributes noted the increased focus in recent years on information literacy, global citizenship, problem solving, and interdisciplinarity. Students are also more focused on employability with growing expectations that their university qualification will equip them for the world of work (Lasen, Evans, Tsey, Campbell, & Kinchin, 2018). However, Gallup and Strada Education Network's (2018) large scale study of over 100,000 working Americans with college experience found only 26% strongly agreed their education was relevant to their work and daily life.

Directly aligned with employability skill development is work-integrated learning (WIL). WIL can enhance not only disciplinary knowledge but also the development of key employability skills including problem-solving, verbal and written communication, interpersonal communication, teamwork, leadership and negotiation skills, self-esteem, confidence, and work readiness (Smith & Worsfold, 2014; Lim, Andrew, Lewis, & Gao, 2018). WIL is "*an umbrella term for a range of approaches and strategies that integrate theory with the practice of work within a purposefully designed curriculum*" (Patrick *et al*., 2009 p.9).

Industry-based placements have a long history in health sciences (Rodger *et al*., 2008) and education (Ronfeldt, 2015) and more recently have grown in popularity across STEM courses (Edwards, Perkins, Pearce, & Hong, 2015). However, these placements do not come without their challenges. Grant-Smith, Gillett-Swan, and Chapman's (2017) review of industry-based WIL placements in Australian universities found these are troublesome for many students due factors including direct costs incurred (e.g. travel, uniform), indirect costs (e.g. lost wages from their employment), lack of support from industry supervisors, and a feeling of abandonment by the university during these placements. Securing sufficient placements to ensure equity of access for all students is also a growing challenge (Davies *et al*., 2011; Fairbrother, Nicole, Blackford, Nagarajan, & McAllister, 2016).

Project-based WIL provides one solution to these industry-based placement issues. For example, the University can manage the costs to the student by reducing or eliminating travel and uniform requirements, and provide high quality supervision of students during their projects. In addition, project-based WIL has the potential to deliver authentic, sustainable learning experiences at scale (Vega, Jiménez, & Villalobos, 2014). The key features of project-based learning are that the projects: involve complex tasks, are based on challenging questions or problems, involve students in design, problem-solving and decision-making or investigative activities, give students the opportunity to work relatively autonomously over extended periods of time, and culminate in authentic products or presentations (Thomas, 2000). Interviews conducted by Lasauskiene and Rauduvaite (2015) with lecturers involved in project-based learning highlighted the benefits of this approach not only in developing students competencies but also in enhancing collaboration between staff and students, and improving the professional competencies of staff (e.g. changing their attitude to active learning methods, encouraging personal initiative, and increasing collaboration amongst themselves). Project-based learning provides students with the opportunity to gain a deep understanding of concepts and potentially allows them to solve societal problems (Moalosi, Oladiran, & Uziak, 2012). Furthermore, the level of student engagement in their learning process during project-based learning aligns with the rise in students wishing to have greater control as proactive producers and managers of their learning (Flynn & Vredovoog, 2010). Interdisciplinary project-based WIL will prepare our graduates for the contemporary world of work where complex problems demand interdisciplinary solutions and employers focus on interdisciplinary collaboration skills (e.g. World Economic Forum, 2018) as super-structured, matrixed organisations continue to rise in popularity (Davies *et al*., 2011). Partnering with industry in the development of project-based learning enhances university relationships with industry and support the national WIL strategy (ACEN *et al*., 2015) and with the Australian Industry Group's (2018) report which stated that the most important form of support industry requires from higher education is examples of student activities that could assist their business.

Project approach, including methodology used

This ATN project adopted an exploratory multi-site case study underpinned by a mixed-methods approach to evaluation. The first step undertaken by the project team was an informal review of the literature on interdisciplinary project-based WIL to ensure good practice informed the project activities. The learnings from this research review were published in a good practice guide (discussed in more detail in the Project Outputs and Findings).

In the second phase, each partner university conducted a forum-in the form of a workshop-to develop the interdisciplinary WIL project. Aligned with good practice, the intention was for all workshops to include representation from the three key stakeholder groups in interdisciplinary project-based WIL: university staff, industry staff and students. Due to significant changes in the project team membership and roles during the project, alterations to this plan were required at UTS. The UTS team conducted planning sessions aligned with good practice and engaged all three stakeholder groups at a delayed and accelerated pace.

During the workshops, suggestions for interdisciplinary projects were generated along with the final product to be produced by the students, how these products would be assessed and ideas for how future project ideas could be generated. Potential projects were then assessed by the project team against pre-determined criteria (e.g., value, employability skills, scalability, sustainability). Smith's (2012) quality framework for WIL was used to inform the design of each pilot: authenticity, alignment of teaching and learning activities and assessment with integrative learning objectives (i.e. constructive alignment), learning support across the university and industry site (if the project was located in the workplace), access to staff support, and induction and preparation for both staff and students.

The third major step was the pilot conducted at each of the four partner institutions as described below.

University pilot programs

Curtin University, Lab Tests Online Australia (LTO^{AU}) and WA Health Consumer Council worked collaboratively to provide an inter-disciplinary, industry-focused learning experience for students. The project involved Curtin students from the disciplines of marketing, media and graphic design, and data analytics. Deliverables of the project included an analysis of Google Analytics to understand the publics' demand and patterns of use of educational material on pathology. Evaluation of the LTO^{AU} web design, consumer surveys and analysis of Google Analytics provided an evidence-base to re-design the website to improve performance for the user and optimise search engine capability. A media strategy, including the use of social media, was developed which has appeal for a diverse audience. Visual design of the existing website was reviewed and renewed to increase impact and address literacy issues. The re-designed website will incorporate icons, animation, and graphics that create an engaging and easy to navigate interface. The new website is informed by the findings emerging from the collaborative project with Curtin students and LTO^{AU}.

UniSA developed a course that brought together students from communication, marketing and digital media to develop a social media campaign for an industry client. This course was the first UniSA fully online, interdisciplinary WIL orientated course. Over a 10 week study period the students co-designed and developed an industry standard communication plan complete with campaign prototypes. The South Australian Department for Innovation and Skills supported the pilot and provided the campaign challenge to increase Apprentice and Trainee participation. The Department provided the students with market research and campaign feedback.

RMIT brought together students from human resources, marketing and accounting disciplines in the Future of Work course, to research and develop project reports and recommendations for three different industry and community partners. A workshop initiated the collaborative process to negotiate and design the project briefs, overarching learning goals, benefits and proposed outcomes of the projects.

UTS piloted a summer studio subject with over 15 interdisciplinary-focused, open-ended, project-based studios creating design solutions for real-world problems including students from the faculties of Engineering and Information Technology, Design, Architecture, Building and Transdisciplinary Innovation. The studios launched with a design thinking boot camp and continued for 6 weeks

providing students with six credit points. The subject included a showcase event during orientation week and engaged students, parents, community and industry leaders as well as staff. The students demonstrated their projects such as designing liveable cities, tackling global warming, re-conceptualising healthcare solutions using medical devices to designing community spaces with indigenous and community stakeholders in Broken Hill using culturally sensitive, stakeholder-centric design techniques.

Pilot Participants

A total of 34 university staff, 19 industry staff, and 265 students participated in the four pilots programs conducted between July 2019 and February 2020 as seen in Table 1 below.

Table 1

Pilot program participants across the four partner universities

Pilot	Location	Total participants	
		Staff (university & industry)	Students
1	Curtin University	4 university staff and 4 industry staff	6
2	University of South Australia	4 university staff, 3 university online learning specialists, 3 student advisors and 1 industry partner	9
3	RMIT	2 university staff and 3 industry partners	60
4	University of Technology Sydney	18 university staff, 11 industry partners and 7 students as studio leaders	190

Project outputs and findings

Our project aimed to provide eight core outputs. The Good Practice Guide, website and community of practice are discussed in this section. The remaining outputs-webinar, manuscript, flyer, short report and conference presentations are discussed in the section on Project impact, dissemination and evaluation.

1. **Good practice guide:** A guide to good practice in interdisciplinary project-based WIL specific to the higher education context was developed. The guide includes the drivers for interdisciplinary project-based WIL and the core principles for leading, designing, implementing and evaluating interdisciplinary project-based WIL. Members of the Expert Reference Group helped share the structure and content of the Guide. The Guide was disseminated via the project webinar and project website and will be included in the journal manuscript (in development).

2. **Project website:** A project website multisectorprojects.com was developed to ensure widespread dissemination and sustainability of the project. The website houses the project resources including the good practice guide, the March 2020 interim (short) report, the four pilot case studies and links to workshops and webinars. The website provides a portal for the submission of future project ideas, particularly from industry and students. On submission of a new project idea an email will be sent to staff at the relevant university. To date the website has been disseminated via the project webinar, project flyer, short report and good practice guide. Further dissemination to other higher education institutions will occur via conference presentations and the journal manuscript. In keeping with the research focus, UniSA students from digital media and communication design worked with an industry partner in developing the website structure.

3. A **community of practice** is in the process of being established. This community will ensure interest and momentum in embedding interdisciplinary project-based WIL into curriculum is sustained. This online group will be linked to the existing and highly successful community for practice ACEN. Interest in joining this community of practice was generated at the webinar in late May. At least two formal meetings will be held each year for the next two to three years.

Project dissemination, impact and evaluation

Project dissemination

Six project dissemination activities were planned. To date only the first three listed below have been completed to date.

1. A **webinar** was conducted on May 28, 2020 to promote and share the project outcomes and outputs. This webinar was promoted via the Australian Collaborative Education Network (ACEN). The webinar focussed on the core elements of interdisciplinary project-based WIL, the benefits for stakeholders and showcased the pilot studies conducted at each university. Participants engaged in discussion on the enablers, challenges and design features of interdisciplinary project-based WIL. Zach Riordan, a Curtin student who participated in the Curtin Pilot, presented an overview of benefits and outcomes from a student's perspective. The 69 attendees comprised a combination of both academic and professional staff, and representatives from international institutions. Activity via the Chat function, questions posed following the presentation of each pilot, and inclusion of the student voice ensured a highly engaged and interested audience.

2. A **short report** was published for distribution to relevant stakeholders including relevant PVCs, heads of schools/disciplines, Deans for Teaching and Learning, institutional WIL Communities of Practice, other University staff and industry partners who participated in the project.

3. A **project flyer**, with a marketing/promotion focus, was developed for distribution via a variety of forums including the four partner university newsletters, the ACEN newsletter and the Australian Industry Group. Multiple copies of the flyer were printed for ongoing dissemination at teaching and learning forums.

4. **Abstracts** were submitted to present the project at this year's HERDSA and ACEN conferences. Due to the Covid19 pandemic, the HERDSA conference was postponed until July 2021. The ACEN conference was postponed until October 2021 but an online WIL Virtual Summit will be conducted in October 2020 where our project will be disseminated. Abstracts will also be submitted to the 2021 Australasian Association for Engineering Education conference.

5. A **journal manuscript** is under development for submission to the Higher Education Research and Development journal later this year.

6. **Capacity building workshops:** One workshop was planned at each of the four participating ATN universities. The workshops were designed to enable project team members to share the project outcomes with staff at these institutions, educate participants on the elements of good practice in interdisciplinary project-based WIL and then work to develop a plan for how they can embed this into their curriculum. As a result of the global Covid19 pandemic, staff in the four ATN universities were struggling with making changes to their teaching practices in a time of major stress and uncertainty. The impost of asking staff to introduce a new educational approach that required close collaboration with staff from other disciplines and industry was deemed to be insensitive. The project team is working to identify the timing of these capacity-building workshops to ensure their success.

An additional dissemination opportunity arose towards the conclusion of the project. The project leads were invited to co-author a **book chapter** for the textbook *Advances in Research, Theory and Practice in Work-integrated learning: Enhancing Employability for a Sustainable Future* to be published by Routledge. The chapter is due by the end of July 2020.

Project impact

Project impact is examined in relation to the IMPEL model by Hinton, Gannaway, Berry, & Moore (2011). The goal of the project team was to achieve a number of impacts on completion of our project, each of which is described in Table 2 on next page.

Table 2

Project impact summary

Planned impact	Progress to date
Shared understanding of good practice in interdisciplinary project-based WIL delivery	Our Guide sets out the key principles and practices for good practice specific to the Australian higher education context
Community of practice (CoP) developed and sustained	Interest in the CoP was established during the project webinar. The decision to integrate this CoP into the existing ACEN CoP should ensure greater reach and sustainability for the group
Interdisciplinary project-based WIL experience leads to enhanced cognitive, intrapersonal and interpersonal competencies	Students reported development in teamwork and collaboration, research and critical thinking, communication, project management, problem-solving, and peer to peer collaborative learning. Students also perceived they had a competitive edge over others as a result of industry networking opportunity and enhanced confidence.
All project members have presented at project events, national or international conferences and forums, highlighting the level of scholarship among team members	ACEN will be running an online mini-conference later in 2020 where the project team will present a roundtable discussion. Dr Sally Lewis, from UniSA, was invited to present at the joint ACEN/NZACE webinar on Online Work Integrated Learning held on March 31, 2020 where she discussed online, problem-based WIL informed in part by this project. Curtin University presented on the project at the Festival of Learning in November 2019 and will also present at this annual event in September 2020. The presentation will focus on transitioning interdisciplinary project-based WIL to the online environment.
Redesign of curricula to include interdisciplinary project-based WIL in pilot programs	The UniSA pilot has been further developed and will now be offered in three degrees; as a core capstone course in two degrees and an elective in the third.

Planned impact	Progress to date
Principles for good practice in interdisciplinary project-based WIL are included in learning and teaching guidelines in programs	The project website, which houses the Good Practice Guide, has been widely disseminated.
Participating universities are aware of project resources and actively promote these to other institutions and organisations	The project website, which houses the project resources, has been widely disseminated.
Participating universities have increased awareness of project-based interdisciplinary WIL	RMIT has shared the project website on their WIL Skills Yammer group with over 300 members. UniSA will present the research findings at the Teaching and Learning Breakfast Series. This presentation was scheduled for March but postponed to later in 2020 due to the Covid-19 pandemic. UTS will present the research findings at a capacity-building workshop with the UTS Careers Community, which represents professional and academic staff from every faculty at the university. The object of the workshop is to increase awareness and to share good practice in interdisciplinary project-based WIL, the project guide and website and engage the community in identifying how these practices can be promoted and expanded at UTS. As outlined above, Curtin University participated in a World Café at the Festival of Learning in 2019 and will do so again in 2020. Several interdisciplinary project-based WIL activities are underway in 2020 as a direct result of the ATN project. Data Science, Mathematics and Urban and Regional Planning students are working with the City of Canning to undertake a transport network analysis and land-use audit to profile and identify industries in the area. A project with Pathwest will include Health Science, Data Science and Computing students.

Longer term post-completion impacts (six to 24 months post) are yet to be ascertained but will be monitored via the community of practice and regular audits of website activity. Project evaluation

A comprehensive evaluation was undertaken to measure the impact of the project on students, university and industry staff who participated in the project pilots. The research questions for this exploratory, mixed methods study were:

1. What impact did the project have on university and industry staff:-
    - attitude towards interdisciplinary learning?
    - attitude towards project-based learning?
    - confidence with facilitating interdisciplinary project-based learning?
    - knowledge of how to facilitate interdisciplinary project-based learning?

2. What impact did participation in the interdisciplinary project-based WIL pilot have on students' attitude towards interdisciplinary learning?
3. What impact did participation in the interdisciplinary project-based WIL pilot have on students' attitude towards project-based learning?
4. What impact did the project have on industry staff attitudes towards collaboration with the university?
5. What impact did participation in the capacity building workshops have on university staff?
6. Were there any unintended outcomes for either staff or students as a result of the program?

The evaluation plan, outlined in Table 3, was based on Kirkpatrick and Kirkpatrick's (2006) program evaluation model and the updated program resources developed by Kirkpatrick Partners (2009).

Table 3

Project evaluation: Planned and actual (completed)

Level	Outcome	Measure	
Level 1	Reaction	Students views on the learning experience (pilot project)	Planned: Survey Actual: Interview
Level 2a	Modification of attitudes and/or perceptions	Changes in staff and student attitude towards interdisciplinary learning	Planned: Survey Actual: Interview
		Changes in attitude towards project-based learning	Planned: Survey Actual: Interview
		Increase in staff confidence to facilitating interdisciplinary project-based learning	Planned: Survey Actual: Interview
Level 2b	Acquisition of knowledge/skills	Increase in staff knowledge of how to facilitate interdisciplinary project-based learning	Planned: Survey Actual: Interview
		Increase in students' employability skills	Planned: Focus group Actual: Focus group survey & questions
Level 3	Behavioural change	Students transfer learning to practice	Not within scope (timeframe) of project
Level 4a	Changes in organisational practice	Increase in project-based interdisciplinary WIL	Planned: Staff interview Actual: Staff interview
Level 4b	Benefits to the universities and industry	Student and graduate employability, networks with industry, etc. Employer satisfaction with graduate's employability	Not within scope (timeframe) of project

The key themes to emerge from the qualitative evaluation are summarised in Table 4 below.

Table 4

The major benefits from participating in the project

Stakeholders	Key themes from interviews
Students	Teamwork and collaboration – learning from each other Research, critical thinking Communication Project management Problem-solving skills Peer-to-peer collaborative learning Competitive edge – industry engagement and networking Confidence Students were grateful for the experience
University staff	Building collaborative partnerships Opportunity to rethink/redesign curriculum Embed real-world learning and authentic assessment Working with motivated students Working with other disciplines Facilitate student learning rather than didactic approach Reflecting on own practice
Industry partner staff	Relationships with other industries and universities Potential for further collaborations Access to new ways of thinking, creative input from students Awareness of innovative technologies Identification of future talent Influence learning experiences of future workforce Input into enhancing employability skills Findings/outcomes addressed real workplace issues

As outlined previously the full evaluation results will be published in a peer reviewed journal manuscript.

Conclusion

In conclusion, this project faced multiple challenges due to the staffing changes within three of the four universities (as outlined in the interim report). The complexity of interdisciplinary collaboration, combined with the need to partner with industry, needs to be considered when universities embark on interdisciplinary project-based WIL. Due to heavy workloads, some projects were delivered on a significantly smaller scale than planned. Changes then had to be made to the evaluation plan due to low student numbers at some sites and their lack of participation in the quantitative survey. Despite early setbacks the project team were able to deliver on the key outputs with several dissemination activities still underway. In particular, the easily accessible Guide provides a sustainable resource for universities wishing to implement interdisciplinary project-based WIL.

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