

Online interdisciplinary work-integrated learning: An undergraduate course review

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The landscape of work continues to evolve post-pandemic, leading to a shift in focus within higher education from discipline-specific knowledge and skills to capabilities that are transferable and reflect real-world complexities. A review of higher education to meet future economic and social trends and skill sets is a feature of many countries including Australia, where work-integrated learning (WIL) has been identified as a priority. This research identifies how to successfully involve online students in interdisciplinary WIL to develop complex problem-solving skills, resilience, and adaptability – all imperative for competing in a constantly changing and digitally reliant economy. Adaptable and scalable, online teaching provides an alternative to traditional student placements while supporting student collaboration on authentic real-world projects. This study reflects on student and industry feedback of an online, interdisciplinary WIL course over four years. The key learnings and, challenges of online interdisciplinary WIL are identified along with recommendations for further research.

Keywords: Online teaching and learning, interdisciplinary work-integrated learning

National higher education reviews ensure meaningful economic and social benefits by stimulating analysis leading to improved policies and initiatives (OECD, 2024). In Australia, the higher education landscape is undergoing a major, comprehensive review of student access, quality and funding (Australian Government Department of Education, 2024). One of the areas highlighted in the 2024 *Australian Universities Accord Final Report*, which sets out plans for the higher education sector's future needs, is WIL and equitable access to student internships and placements. WIL has become an essential component of curriculum planning in many disciplines. Employers are looking for graduate skill sets which can address complex societal problems through innovative idea creation underpinned by the ability to work well in high functioning teams embracing of multi-tasking (Foundation for Young Australians, 2020; Australian Government Department of Education, 2024). While graduate demand for WIL related skills and knowledge is increasing, there is a limit to the ability of higher education institutions to continue to scale and sustain traditional WIL pedagogies like industry-based placements. There is also a need to address the challenges for regional, remote, students with disabilities, and those working for example, to fully participate in meaningful WIL (Burke et al., 2016; Australian Government Department of Education, 2024).

Online collaboration and team-based problem-solving is indicative of a longer-term trend, with employers identifying the value of these work-ready skills in our graduates as the landscape of work constantly evolves (Brewer et al., 2022). Work-integrated learning is essential to prepare students for work readiness in a dynamic employment market that requires new and diverse graduate capabilities including how to work in global, distributed teams, navigate ambiguity and find interdisciplinary solutions to complex societal challenges (Foundation for Young Australians, 2020). Interdisciplinary, problem-based learning provides students with opportunities to develop employability capabilities in critical thinking, problem solving and creativity while simultaneously building skills in communication and teamwork (Brewer et al., 2022). Literature indicates that team-based learning (TBL) reduces

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attrition rates, promotes better student attitudes, and improves both critical thinking and academic performance of students (Freeman et al., 2014).

Drawing on an Australian context and the challenges facing universities (Universities Australia, 2019), this study considers the need for collaboration between universities, industry partners and students in the learning process while developing WIL approaches to education and supporting the national WIL body's strategic plan (Australian Collaborative Education Network, 2023). This review of practice examined an online, undergraduate WIL course over four years, where it was run as a pilot in 2019 and commenced in 2020, and is core in three online degrees. The course has high levels of low SES students (16.5%) and regional/remote students (20.7%), reflecting the appeal of online study for students from equity-deserving backgrounds.

The study incorporated a review of literature and analysis of the course supported by industry partner interviews and student focus groups. The aims of this research are to identify the student experience of an online interdisciplinary WIL course and review the teaching practices and pedagogical approach following the first four years of delivery.

FUTURE FOCUSED WIL: ONLINE AND INTERDISCIPLINARY

Within the context of student-centered learning, non-placement WIL and online employability, understanding courses that embrace emerging models of WIL is needed (Kay et al., 2019). Few studies have investigated all three elements of this study's particular model of non-placement-based WIL – online, interdisciplinary, and team-based. The challenges of fully online, interdisciplinary WIL cannot be over-stated, and include non-engaged teammates (Nguyen et al., 2023), unclear WIL academic workloads (Wenham et al., 2020), maintaining engaged and authentic industry problems and partners (Chatoor, 2023), and academic integrity issues in the age of generative AI (Darban, 2023). While the accessibility of online learning for equity-deserving students has created greater opportunities for diverse cohorts of students, research into the provision of non-placement-based WIL to provide accessible and equitable WIL is in its infancy. Despite recent studies on the effects on WIL of COVID-19 (for example, Zegwaard et al., 2020), a recent Canadian study evaluating how educators support student wellbeing in online WIL highlights that “research specifically about online WIL has been scarce” (Taylor et al., 2023 p. 262). The value to WIL scholarship in undertaking further research into models of online interdisciplinary team-based WIL can help understand the benefits of such models (Piggott & Winchester-Seeto, 2020) for employability and accessibility as well as mitigate the challenges.

Non-traditional Work-Integrated Learning - Bridging the Theory-Practice Gap

Studies have shown a push towards WIL embedded in university programs that is responsive to job market and industry needs in line with technological advances and communication practices (Ferns et al., 2019; Ferns, Lewis, et al., 2021). As Zegwaard and Pretti (2023) state, “WIL is uniquely positioned by explicitly linking the learning activity to employability outcomes by requiring external stakeholder involvement and authentic practice, thereby allowing students to be part of a relevant professional practice” (p.3). Placement models of WIL have traditionally appeared as the most prevalent, accepted, and utilized forms of WIL (Zegwaard et al., 2020), however, non-placement WIL is emerging as a recognized pedagogy to scaffold employability skills across all year levels of a degree (Dean et al., 2020). This scaffolding of skills has been viewed in the literature as aiding in equipping students with resilience and confidence to undertake pinnacle WIL placements or internships in their degree capstones. Case studies of interdisciplinary WIL are also emerging as effective final year WIL courses

due to their pedagogical and curriculum design (Brewer et al., 2022; Piggott & Winchester-Seeto, 2020). As Smith et al. (2021) explore, “interdisciplinary team-based WIL can support learners to evidence enterprise capabilities so that they are better positioned to articulate these capabilities when finding and creating work opportunities” (p. 146).

In the first half of 2020, as the COVID-19 pandemic changed the way higher education was conducted in Australia, a more prevalent need for alternative and remote models of WIL became apparent (Rook & Dean, 2023). Together with an ever-increasing reliance on digital communications, working in the post-covid workplace, the importance of providing online WIL that is carefully designed and pedagogically-sound is imperative (Piggott & Winchester-Seeto, 2020). The key reasons cited by scholars for further consideration of alternate online models of WIL is not only the continued contemporary remote nature of work, but the complexities of measuring the benefits and employability outcomes (Jackson & Cook, 2023). Campbell et al. (2019) propose that effective employability can be measured by students’ own connections of WIL to “prior and future learning and work” (p. 2). This study builds on the argument for alternate online models by seeking to understand students’ experiences and connections in an online, interdisciplinary and team-based WIL project.

Team-Based Learning

Virtual student team-based learning (TBL) and assessments have been present in higher education curriculum since the advent of online and blended learning in the first decade of the 21st century (Clark et al., 2018). However, research into online team-based learning is limited. For example, Jahan et al. (2022) reported in their systemic literature review that “group-based assessments were predominantly researched in face-to-face settings” and called for further research into online TBL, as the findings from the studies reviewed “may not be generalizable to the group assessments conducted on an online platform” (p. 14). Similarly, due to heightened attention to virtual teamwork for undergraduate students during the pandemic, Ismailov and Laurier (2022) propose a thorough investigation of the “transition, action, and interpersonal processes” (p. 122) that occur. Studies analyzing online TBL, while not as prevalent as scholarship of face-to-face student teamwork, are primarily found in health-related disciplines (see Burhanuddin et al., 2020; Chhabria et al., 2019; Linn et al., 2022; van Diggele et al., 2021; Wai et al., 2021) and to a lesser extent in engineering (for example, Cortázar et al., 2022). Interdisciplinary online TBL studies are even fewer, although studies have reported the replication of holistic healthcare discharge teams of social workers, physiotherapists, and occupational therapists in blended simulations of hospital discharge practices (see Ritchie et al., 2016, for examples).

Within the context of WIL, where the involvement of an industry partner is crucial to the pedagogy, Piggott and Winchester-Seeto (2020) assert that TBL develops student flexibility and adaptability in addition to respect and understanding of different team member roles and skillsets. These skills replicate real-world, authentic practices of students’ future workplaces. However, online, team-based, interdisciplinary WIL is a combination not often explored despite the benefits in our digitally connected society.

Equitable and Accessible Work-Integrated Learning Experiences

The increased cost of living and the ability to take time off from paid employment to access WIL are issues facing more students (Australian Government Department of Education, 2024). For Dollinger et al. (2021) “increasing access and participation in higher education for regional/remote, low socio-economic status, and Indigenous students has proved to be an intractable problem, as demonstrated by flat or declining university participation rates for these groups” (p. 750). Goldman et al. (2023) state

that equity-deserving students can experience greater barriers in WIL due to structural inequalities related to promotion, access, reflection, and evaluation of WIL experiences. Peer, academic, or host biases and resistance to inclusivity have factored as impediments to equitable and accessible WIL (Peach et al., 2016), requiring resilient students and considered, effective institutional strategies (Drysdale et al., 2021).

Equity-deserving students have reported numerous benefits of online WIL. They find it to be more inclusive, providing them with opportunities to collaborate with diverse student cohorts (Bell et al., 2021). Industry also benefit through enhanced connectivity to a greater number of students through mediated communication (Bell et al., 2021). Students expect the online environment will provide the same graduate outcomes from traditional WIL as required by industry (Taylor et al., 2023). However, the challenges to online WIL experiences are more significant for equity-deserving students – for example, the work/life balance considerations for students, hosts, and academics with students located in various timezones (Bell et al., 2021), student costs of maintaining or accessing stable internet connections (Piggott & Winchester-Seeto, 2020), and language and learning difficulties within an online environment (Nguyen et al., 2023).

Despite the challenges, intentionally-designed and inclusive curriculum can provide significant benefits to equity-deserving students accessing WIL (Goldman et al., 2023). Additionally, non-placement models of WIL can promote identity formation, scale opportunities particularly in team-based settings (Rook & Dean, 2023).

Is Online Learning the New Normal?

The 2010s saw an emergent body of literature pointing to a shift in higher education institutions' purpose towards a greater emphasis on marketable education offerings and the creation of a knowledge economy (Berg et al., 2016). Various researchers claim that the effect of globalisation on flows of information, culture, communication, and technology has changed how the university sector is perceived from within the academy (Bentley et al., 2013) and indeed by the wider community. For instance, in Sadik's (2016) study, respondents commonly criticised degrees earned through online platforms, citing concerns about their potential impact on integrity.

The provision of virtual WIL opportunities for students has faced similar challenges, including a perceived need for greater staff capabilities in online delivery (Ferns et al., 2016). Formentin and Auger (2021) suggest the identification, analysis, and research of real-world challenges in teams is critical to online student engagement while also strengthening the overall student experience and understanding of client perspectives. In the same context, Dean and Campbell (2020) refer to the need of industry partners as part of authentic WIL design processes and the demand of online WIL to meet access and scalability demands. Dean and Campbell (2020, p. 355) argue that students respond positively to gaining real-world skills while learning online and recognize "the nature of work has evolved new practices and ways of being which has seen the adoption of remote work settings, fluid time constraints and continuous connectivity."

Online higher education uptake rates have increased and therefore the need for online WIL is more apparent. In 2022, according to the Australian Government's Department of Education, 52.2% of domestic higher education students commenced their degrees in fully-external or blended mode, up 25.9% since 2012 (26.2%) (Australian Government, 2023). Together with the volatile and disruptive change occurring post-pandemic a certain elasticity is required in today's graduate talent pool. As Gardner and Perry (2023) assert, "being talent elastic means possessing or attaining the right skills

and competencies, expressing behaviors and attitudes that best handle disruptions, organizing work augmented with technologies, and leveraging new work arrangements (such as virtual teams or remote work)” (p. 493). These skills and competencies reflect our increasingly digital world of work.

Pedagogical Considerations

The WIL course under investigation and presented below, draws on the principles of enabling and inclusive pedagogies. Enabling pedagogy guides educators in creating inclusive online spaces where students can participate as equal peers and challenges any unconscious bias and contribution students may perceive of different disciplines (Burke et al., 2016). Closely aligned in the context of online interdisciplinary WIL, inclusive pedagogical approaches facilitate trust in the online student groups and manage stereotypes particularly for non-typical students who may be alienated from traditional learning experiences (Burke et al., 2013).

During the pandemic-driven shift to online learning in communication and media courses, researchers (Boynton & Carter, 2021; Formentin & Auger, 2021) highlighted the importance of course design in addressing student inclusivity challenges. They identified that strategic and pedagogically framed online learning is critical (as opposed to reactive pivots during pandemic closures). They asserted the challenges for educators related to developing online pedagogy and scaffolding student learning to support group work, alongside the need to ensure less engaged students were accountable in team outputs. Boynton and Carter (2021) also note the need for educators to “manufacture interactions” (p. 61) to stimulate discussion and connection between students, and comment on the criticality of educator training in online space to avoid technological challenges. Together, providing employability skills in a team-based learning context in an online environment can facilitate equitable and accessible WIL.

THE COURSE

The curriculum in this 10 week course draws on a socio-constructivist informed teaching approach based on real-world problem solving (Bednar et al., 1992), and acknowledges students learn through connecting ideas and experience with their own knowledge and understanding. The course incorporates online delivery, group work and participation of students from different disciplines, such as communication, marketing, and digital media. The course pedagogy incorporates co-design principles as students are empowered to influence their learning journey by sharing responsibility and build team capability through assigning individual tasks to team members. For this reason, the real-world challenge is intentionally designed to be relevant to the students' interests and lived experience to provoke deeper engagement with proposed solutions.

The undergraduate, final year course for this study is delivered at an Australian University. The course, UO Integrated Communication Planning, has experienced 252 student enrolments during the 2019 – 2023 period. The course requires students to develop an understanding of the integration, planning and management of key communication skills in an organisational context. The planning is informed by organisational goals and extensive research and analysis of the situation, organisation, issues and publics. Advanced skills are developed in the setting of communication goals and objectives, the development of strategies, tactics, budgets, and schedules, and the formation of measurement and evaluation plans. Consideration of relevant ethical, legal and social issues is required, which enables students to apply and integrate theoretical knowledge and understanding in a practical context.

On completion of the course, students should be able to meet the following learning outcomes:

1. Demonstrate an understanding of the knowledge and skills that inform strategic communication planning;
2. Develop the key elements required for an industry standard communication plan to engage defined target audiences;
3. Demonstrate an understanding of teamwork and how to deal with group dynamics.

Scaffolding each week throughout the curriculum enable students to develop active listening skills, a capability to negotiate, think creatively and collaborate with diverse groups of people.

Through each course iteration, an industry partner is engaged to embed authentic practices and task students through addressing a real-world problem. The industry partner provides a comprehensive brief related to the student challenge including previous market research, communication plans, advertising and metrics. The industry partner participates in a question and answer video facilitated by the educators, responds to student queries, and reviews student work for applicability to real-world development. Students work in interdisciplinary teams (of 3-5 students) to present an online pitch of their ideas, apply feedback and then extend an existing marketing strategy by planning and producing a social media campaign which includes goals, tactics, content calendars, and content prototypes. Given that students work in interdisciplinary teams, co-design principles are embedded in the course including teamwork activities focused on developing understanding of the different skill sets, to challenge any preconceived ideas students may have held of their new team members. Table 1 details the industry partners that have been engaged since 2019.

TABLE 1: Summary of industry partners and student challenge.

Year	Industry partner	Challenge
2019 (pilot)	South Australian Dept of Innovation & Skills	Promote apprenticeships and traineeships to increase participation and uptake
2020-2021	South Australian Dept of Innovation & Skills	Promote apprenticeships and traineeships to increase participation and uptake
2022	South Australia Dept of Premier & Cabinet	Promote and raise awareness of employment pathways from secondary and tertiary education into high tech industries including defence, space, cyber and energy
2023	Cancer Council of South Australia	Raise awareness of the need for sun protection for males 18 – 35 years

The following research questions drove our enquiry into students' experiences during data collection:

1. What impact did participation in the interdisciplinary online WIL course have on students' attitude towards their future work-related skills?
2. What impact did participation in the interdisciplinary online WIL course have on students' attitude towards interdisciplinary learning?
3. What impact did participation in the interdisciplinary online WIL course have on students' attitude towards project-based learning?
4. Were there any unintended outcomes for students as a result of undertaking the course?

A semi-structured interview guide was also developed to gain an understanding of the 2022 and 2023 industry partners' experience. The guide explored the partners' attitude towards interdisciplinary learning during their involvement in course, and if there were any unintended outcomes as a result of their collaboration with the University.

METHODOLOGY

This study considered student attitudes, perceptions of employability skills, and their experience of online interdisciplinary, project-based learning. Two methods were employed to elicit rich data. First, student experiences were captured through focus groups, and second, semi-structured interviews were conducted with industry partners. This study employed a constructionist methodology that avoids normative assumptions about the nature of reality and embraces a focus on the complex and nuanced nature of experience as can best be captured through a qualitative approach that values lived experience (Lane & Kent 2018). The research design was qualitative to allow for identification of rich, in-depth themes in relation to student attitudes and perception with a focus on employability, learning and any unintended outcomes (Braun & Clarke, 2006).

Procedure

Ethics approval was gained from the University's Human Research Ethics Committee. E-mails to students invited them to register their interest in a focus group. Communication to students stressed their participation in the focus groups was not a mandatory activity nor related to their academic success or otherwise. Participants signed consent forms after reviewing an information sheet outlining details of the study and their contribution. Audio recordings of the focus groups were transcribed verbatim. Semi-structured interviews with the industry partners from 2022 (South Australian Department of Premier and Cabinet) and 2023 (Cancer Council of South Australia) were also undertaken. Both industry partners were managers in their respective organizations.

Participants

Participants were recruited for focus groups in the second half of each course offering, including the pilot, to ensure students had experienced the course in detail while avoiding final assessment due dates. In 2019, nine undergraduate students undertaking the pilot offering participated in one focus group held in October. The students ranged from 20-27 years and provided feedback across three discipline areas. In 2023, eleven undergraduate students ranging in age from 22-48 years participated in four focus groups, held in May and November, providing a cross section of feedback from three discipline areas (Table 2).

TABLE 2: Focus group participants.

Year	Students	Discipline	Age range	Location
2019 (pilot)	5	Communication and Media	20-27 years	South Australia (4), International (1)
	3	Marketing	20-23 years	South Australia (3)
	1	Film and Television	20 years	South Australia (1)
2023	2	Communication and Media	30-35 years	South Australia (1), Victoria (1)
	4	Marketing	22-27 years	South Australia (2), Victoria (1), International (1)
	5	Digital Media	23-48 years	South Australia (3), Western Australia (1), International (1)

Data Analysis

Thematic analysis (Braun & Clarke, 2006) and content analysis was used to analyze the data collected using an iterative action research and mixed methods approach. Using content analysis, researchers can analyze the presence, meanings, and relationships of such certain words, themes, or concepts. This entails a process of familiarization with the data, identifying a thematic framework, indexing, charting, mapping and interpretation. The focus group data was digitally recorded, transcribed, de-identified and checked against original recordings for transcription accuracy and as part of the familiarization process. A coding framework was developed based on a priori questions plus emergent themes. Focus group files were transcribed and coded using the qualitative data analysis software program NVivo12. Initial codes were generated using line-by-line coding. Transcripts were cross-coded and read multiple times to establish coding reliability and identify themes. Themes were identified based on the relative value of the assessment criteria placed by participants with final themes reported with supporting exemplar extracts. A summary report of the final qualitative data analysis was checked against excerpts of the qualitative data to determine whether data analysis was congruent with participant experiences.

The data analysis for the 2019 pilot focus group was undertaken in 2020 and informed the course development in 2020-2023. The data analysis for the 2023 focus groups was undertaken in 2023 and has informed the 2024 course delivery. The research employed methodologies that canvassed the views of student participants (see Table 2). Given our focus on issues of relevance to the students, the analysis employed a communication theoretical framework (Murphy, 2000; Murphy & Gilpin, 2013) and the emerging frame of dialogic engagement (Lane & Kent, 2018). These frameworks provide insight into complexity, sense-making, engagement, and dialogue in participants' responses, and are warranted as previous WIL studies have stated that effective and ethical WIL requires consideration of these concepts (Abery & Gunson, 2016; Fleming et al., 2018; Saltmarsh, 2017).

RESULTS

Three themes were identified: interdisciplinary experience, work readiness and online team-based learning.

Interdisciplinary Experience

Students identified the importance of different disciplinary knowledges, recognized the strengths of their group members, and identified the improvement in their communication skills over the course duration.

I think one of the biggest things that it has shown is teamwork and being able to work with those interdisciplinary teams (...) to have the chance to do that I think has been really interesting and see where people's strengths are and people's adaptability as well to try things that they haven't tried before. (Participant, Focus Group 4, 2023)

Students commented on how different disciplines brought unique knowledge to the team and how "knowing how to collaborate with everyone and bring everyone's strengths into play, is to make the best of the situation and a high-quality outcome." A number of students articulated the importance of self-awareness in a team situation: "being able to realize your own and someone else's strengths and being able to manage different tasks to best optimize all your teammates was a really good skill that I think all of us learned." Another student reflected "it just makes you appreciate your own strengths, your own weaknesses, and how you work and fit in with everyone else's strengths and weaknesses."

Participants were located across five different time zones. They reflected on the importance of time management and the need to be flexible and respectful of other priorities group members. One participant commented it replicated the "work environment where you have to work with different disciplines and work with different schedules."

Work Readiness

Students commented on working online in teams reflected the 'real-world' and how working together on projects is realistic and enjoyable. Students expressed the value of working on a societal challenge relevant to them describing it as rewarding and inspiring: "you've worked towards something important and you know you can be proud of the work that you've done." They saw value for their employability skills and described the course as 'realistic' and that the course had 'real value in the workplace' in comparison to other courses they had studied: "It's definitely had a positive impact on my employability skill. It's definitely giving me more confidence in knowing of what I can contribute to a team and to a business."

Students also spoke to their increasing level of confidence and preparedness for graduate employment: "I don't have much experience working in a team (...) so for me it built up a lot of confidence generally and in my communication skills" and:

You may have a boss interstate, you may have a team that's interstate and so I think just being able to work (...) without being face to face like that flows into (...) learning how to deliver feedback in the right tone. (Participant, Focus Group 1, 2023)

The importance of problem solving and decision making was consistently raised. One of the students was working in a managerial role and said it “would give me a lot of confidence hiring someone that's been through this experience.”

Online Team-Based Learning

A number of students reflected on feeling anxious commencing a course that required online team participation. They sought reassurance from the teaching team specifically on the roles of different team members (aligned to their disciplinary knowledge) and the planning process. Students commented working in teams online replicates many work environments and they anticipate some of their future workplaces will be reliant on online collaboration:

It is realistic to what it would happen in the real work environment, you know you're going to be working with different disciplines and it is that kind of train effect where you're doing communication stuff first and then it goes to the digital media people wherever they are [located]. And you've got to work together and you've got to bounce off each other and have that respect for each other's different expertise. It's really hard work, but I think it's really rewarding at the end of the day because it is realistic to what you're going to expect once you leave university. (Participant, Focus Group 2, 2023)

Participants highlighted the value of peer-to-peer learning with a number of students expanding on new technology used by disciplines different to their own that they had embraced. Students also spoke of the need to be familiar with multiple online communication channels as an important skill for their future workplaces. Students consistently referred to collaborating online, with one group sharing they seamlessly utilized four different communication platforms to suit the different stages in their project (Zoom®, Trello®, Whatsapp® and Canva®).

Industry Partners

While this study focused on student experiences, feedback was also sought from the two industry partners to explore their attitudes towards interdisciplinary project-based learning and their experiences collaborating with the university. Industry participants identified the ability to work in interdisciplinary teams and the need for strategic and coordinated communication to diverse audiences as core graduate outcomes. Industry participants also acknowledged the importance of collaboration in addressing complex societal problems and expressed the view that they considered it was vital university students to work on real-world situations: “I think this is an excellent way to immerse students into the world of communications and understand the sometimes-unanticipated impacts of working together as a team” (2022 industry partner, Department of Premier & Cabinet).

The industry partners commented on the alignment of the student experience to their future workplaces:

I think it was interesting to see how different each of the groups interpreted the brief resulting in a range of ideas and products developed which could be down to having students with different skills and knowledge on the team, each bringing in their own perspectives from what they've learnt. I think this structure also reflects the workplace. (2023 industry partner, Cancer Council)

Previous research in this field also identified the benefit industry gains when students provide contemporary knowledge, and apply new perspectives, to their products and services as an asset. This was also reflected by the industry partners in this study with one partner commenting it was “great to see our brand through another lens”.

Student Perspectives

A pilot of the same online, interdisciplinary WIL course in the communication and media field was offered in the second semester of 2019. With minor adjustments based on the pilot, the course was then offered to a larger cohort of students from 2020-2023. Nine students enrolled in the pilot participated in a focus group in October 2019 (fortuitously in hindsight given the impact of the pandemic was felt five months later). It is interesting to review the student focus group feedback from the 2019 pilot relative to the 2023 focus group findings. Similar to the 2023 focus group participants, the 2019 focus group participants were open to new interdisciplinary experiences, acknowledged how interdisciplinary teamwork can build their employability skills and the importance of working on real-world problems defined by an industry partner. Both cohorts referred to the need to improve time management skills and the importance of recognizing, and valuing, different disciplinary expertise. There were two notable shifts, however. The 2019 focus group participants referred to using one communication platform for their online group work:

We realized there was no point in us doing those activities independently, because if we were in a classroom setting, you'd be sitting next to each other and bouncing ideas off each other. So, we pretty quickly ended up uploading it into our Google Drive, and then all of us three would complete it. And so, not only did that save us time, it also was good (...) we could refer back to our activities that we'd done together (...) so I guess that was unique. (Participant, Focus Group, 2019)

Moving forward to 2023 and the teams used multiple communication channels including emails, instant messaging, group chats, general social media and discipline specific software (e.g., Animate), in addition to generative AI to help design campaign prototypes. One student commented working online in teams not only shared discipline specific skills and knowledge but demonstrated how other students were applying new technology:

[Group member] use AI a lot for work and we used AI for our prototypes, which we obviously got approval for. But listening to the guys and they use AI a lot in their day-to-day work and (...) that made me think, what a revolution. (Participant, Focus Group 3, 2023)

The other notable shift was the connection between the online WIL course and an online future world of work. The 2019 cohort highlighted the importance of “having people from different skill sets” and “working collaboratively within the team, facing the challenges together”, whereas the 2023 cohort highlighted the course provided an experience they thought “emulates actual real world work situations.” A 2023 student commented of the course:

It's good that this course is online because it is realistic. A lot of people work from home, so it is something that you have to get used to and is quite possible to happen in our careers in the future (...) we're not always going to be in an office and be able to just pop in someone's office and have a chat. (Participant, Focus Group 2, 2023)

DISCUSSION

The aim of this research was to explore student and industry perceptions of an online interdisciplinary WIL course and review the teaching approach after the pilot and first four years of delivery. The key teaching and learning challenges as identified by participants were online, group-based engagement, participation and conflict, and aligning the industry partner requirements with the teaching timelines. The findings provide insight into further developing our practice in teaching and curriculum design. In this discussion, we reflect on the findings from students and industry partners and unpack these along with our reflections on our teaching and curriculum practice during this period.

Online Engagement in Student Groups

Adopting socio-constructivist principles (Bednar et al., 1992), one of the challenges overcome was creating interpersonal engagement in the online environment. For example, 'chat prompts' were introduced as an online adaptation of the socio-constructivist idea of learning by conversation, as was working with peers to problem solve from new/different perspectives. The students did not know each other before being placed into online teams and required opportunities to develop and support group dynamics and build rapport. This feedback is in line with previous studies on interdisciplinary WIL:

Students acknowledged the importance of going into the experience without preconceived ideas, ready for the opportunity provided to them (...) and they articulated demonstrable benefits of learning from one another during project-based WIL, most of which related to learning with students who had different skill sets and perspectives. (Brewer et al., 2022, p. 25)

Online chat was a communication medium already familiar to the students, and by scaffolding weekly task related prompts into the course the educators were able to transform stifled and reserved online group participation into enthusiastic and collegiate behavior. Boynton and Carter (2021) also noted in their research on online teaching in a service-learning course the need for educators to 'manufacture interactions' to facilitate online student engagement. Using this communication approach with peers in an unfamiliar learning environment compels students to learn and work in their groups in a self-directed manner. Socio-constructivist theory (Bednar et al., 1992) supports the concept that students want to explore new ideas together to create their own knowledge.

Real-world Outcomes

This course supports students in preparing for their own world of work through the development of strategic planning and management skills in an organizational context. Graduate employers value skills that reflect real-world complexities and this course develops complex problem-solving skills, the ability to work in diverse teams and critical communication and interpersonal skills (Brewer et al., 2020). To achieve this, a successful element of this course was the focus on a clear and tangible, real-world challenge. To maximize engagement it is important the industry partner's brief to students remains contemporary and relevant to the cohort. Student feedback highlights their view that the challenge they are addressing (for example, the creation of a social media campaign to raise awareness of sun protection for males 18 – 35 years), is more interesting (and therefore engaging) if it reflects a societal challenge relevant to their interests and that of their peers. Students commented they wanted to be creative and 'have fun' and 'be vibrant' with their ideation and felt the challenge "gave us that opportunity (...) the sun effects all of us"[group members].

When selecting the industry partner and setting the real-world challenge, some commonality between the ages of the student cohort and the age of the target audience is desirable. There are two reasons for this: the students are working online in interdisciplinary groups for the first time and having an established base understanding of the target audience assists in both creating an initial groundswell of ideas, and also facilitates the relatively short turnaround time required for teaching and assessing the course. The second reason relates to the unique contribution students can bring to addressing a real-world challenge that impacts their age group, adding both unique perceptions of the challenge and potential solutions. Students develop an understanding during the course that different disciplinary requirements and workloads occur at different stages. While this replicates practice in interdisciplinary teams in the workplace, educators need to communicate the peaks and troughs of workload the students will experience early in the course. This ensures students from each discipline understand their contribution will be fair and equitable with their contribution varying in the timeline.

Respecting other Disciplines and Initial Hesitancy to Team-based Learning

Group conflict and uneven distribution of work is cited in the literature as a challenge in TBL (Gunning et al., 2022; Tumpa et al., 2022). If there are divergent values, goals and interests of team members then collaboration and communication can be restricted. A peer review of teamwork component in the assessment can overcome this challenge and ameliorate these effects to some extent (Burley et al., 2022; Cortázar et al., 2022), and this study found that while initially apprehensive of TBL, students developed respect of the different disciplinary strengths and perspectives of their team-mates. The research team also acknowledges that students self-selected to participate in the focus groups so the benefits of working in diverse team settings may be more apparent to these active participants. Nonetheless, findings pointed to a strong appreciation of the real-world reality of working in diverse teams and respect that team-members come with various skill and knowledge levels. The researchers propose three reasons for students being able to make the link between the course objectives and their future work prospects; first, the acceptance of remote work post-pandemic, secondly, the presence of an industry partner who provides a real-world challenge to address, and thirdly, the presence of the teaching team as mentoring guides encouraging a safe space for learning to work in a team. The twin parameters of interdisciplinary team-work and team-work in an online environment, was perceived by students as likely to be an experience they would encounter in their future workplaces – with both skill sets (i.e., working in teams and working online) required for their own success.

CONCLUSION

This study has considered student perspectives and teaching practices of online, interdisciplinary WIL. It was observed the post-pandemic pivot to working from home, and the increasing remote location of colleagues who predominantly collaborate and work online, has influenced student perceptions of the value of online WIL. Online collaboration and team based problem-solving post pandemic is an acceleration of a longer-term trend and employers identify the value of these work-ready skills in our graduates. Whether continual technological progress or a pandemic induced necessity influencing the work landscape, students are intuitively using multiple digital communication platforms to collaborate, and problem solve in teams. Students identified value in sharing discipline specific knowledge and skills and spoke of developing capabilities that are transferrable and reflect real-world complexities. While outside the scope of this study, further research on graduate employability success post completion would be valuable. Further work also needs to be undertaken to understand the access and equity benefits of online interdisciplinary team-based WIL for diverse cohorts as this is a limitation of this study.

In many fields, and specifically in the creative industries, working in teams with people who bring disparate highly technical skillsets is necessary. Online learning is an adaptable delivery option that effectively supports students to collaborate on authentic projects, encourage flexible working dynamics, embrace multi-tasking and work well in high functioning teams. However, what is less clear are the future skills and knowledge industry partners require in our increasingly online and digitally reliant, post-pandemic world of work. Further research is needed to successfully design online WIL curriculum to deliver emerging and new work skills that promote participation and authentic educational inclusion for all students. To achieve this early planning and detailed co-design with industry is needed to identify the skills future online WIL students require, the skills industry perceive online interdisciplinary teamwork can offer, and the online communication platforms future graduates will be using in the workplaces of the future.

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About the Journal

The International Journal of Work-Integrated Learning (IJWIL) publishes double-blind peer-reviewed original research and topical issues related to Work-Integrated Learning (WIL). IJWIL first published in 2000 under the name of Asia-Pacific Journal of Cooperative Education (APJCE).

In this Journal, WIL is defined as:

An educational approach involving three parties – the student, educational institution, and an external stakeholder – consisting of authentic work-focused experiences as an intentional component of the curriculum. Students learn through active engagement in purposeful work tasks, which enable the integration of theory with meaningful practice that is relevant to the students' discipline of study and/or professional development (Zegwaard et al., 2023, p. 38).*

Examples of practice include off-campus workplace immersion activities such as work placements, internships, practicum, service learning, and cooperative education (co-op), and on-campus activities such as work-related projects/competitions, entrepreneurship, student-led enterprise, student consultancies, etc. WIL is related to, and overlaps with, the fields of experiential learning, work-based learning, and vocational education and training.

The Journal's aim is to enable specialists working in WIL to disseminate research findings and share knowledge to the benefit of institutions, students, WIL practitioners, curricular designers, and researchers. The Journal encourages quality research and explorative critical discussion that leads to the advancement of quality practices, development of further understanding of WIL, and promote further research.

The Journal is financially supported by the Work-Integrated Learning New Zealand (WILNZ; www.wilnz.nz), and the University of Waikato, New Zealand, and receives periodic sponsorship from the Australian Collaborative Education Network (ACEN), University of Waterloo, and the World Association of Cooperative Education (WACE).

Types of Manuscripts Sought by the Journal

Types of manuscripts sought by IJWIL is of two forms: 1) *research publications* describing research into aspects of work-integrated learning and, 2) *topical discussion* articles that review relevant literature and provide critical explorative discussion around a topical issue. The journal will, on occasions, consider good practice submissions.

Research publications should contain; an introduction that describes relevant literature and sets the context of the inquiry. A detailed description and justification for the methodology employed. A description of the research findings - tabulated as appropriate, a discussion of the importance of the findings including their significance to current established literature, implications for practitioners and researchers, whilst remaining mindful of the limitations of the data, and a conclusion preferably including suggestions for further research.

Topical discussion articles should contain a clear statement of the topic or issue under discussion, reference to relevant literature, critical and scholarly discussion on the importance of the issues, critical insights to how to advance the issue further, and implications for other researchers and practitioners.

Good practice and program description papers. On occasions, the Journal seeks manuscripts describing a practice of WIL as an example of good practice, however, only if it presents a particularly unique or innovative practice or was situated in an unusual context. There must be a clear contribution of new knowledge to the established literature. Manuscripts describing what is essentially 'typical', 'common' or 'known' practices will be encouraged to rewrite the focus of the manuscript to a significant educational issue or will be encouraged to publish their work via another avenue that seeks such content.

By negotiation with the Editor-in-Chief, the Journal also accepts a small number of *Book Reviews* of relevant and recently published books.

Reference

Zegwaard, K. E., Pretti, T. J., Rowe, A. D., & Ferns, S. J. (2023). Defining work-integrated learning. In K. E. Zegwaard & T. J. Pretti (Eds.), *The Routledge international handbook of work-integrated learning* (3rd ed., pp. 29-48). Routledge. <https://doi.org/10.4324/9781003156420-4>



International Journal of Work-Integrated Learning

ISSN: 2538-1032

www.ijwil.org

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