Work-integrated professional learning: Shifting paradigms through transdisciplinary engagement

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Work-integrated learning (WIL) is widely used to connect students with the world of work and authentic industry practices. WIL research and practice is primarily focused on the benefits to students and universities, whilst the value of WIL to partner organisations remains relatively underexplored. This study takes an industry, government and community partner-centric perspective to examine learning in partner organisations stimulated through engagement with transdisciplinary WIL. A case study of a transdisciplinary, innovation-focused project-based WIL subject at one Australian university is interrogated through the theoretical lenses of practice theory and mutual learning. Fifteen interviews with stakeholders in partner organisations are analysed against the three dimensions of practice articulated by Kemmis et al. (2014): sayings, doings and relatings. The analysis shows that through engagement with university-led transdisciplinary WIL partners were able to advance their learning projects, disrupt and reconfigure organisational practices, and legitimise experimentation within their organisations. The study builds the case for conceptualising WIL engagement as a professional learning opportunity for partner organisations, in addition to the well-documented benefits to students and universities.

Keywords: professional learning, work-integrated learning, transdisciplinarity, mutual learning, practice theory

Introduction

Contemporary education policy debates about lifelong learning tend to focus on the economic aspects of global competitiveness in the knowledge economy (Fenwick 2006, Wheelahan, Moodie, and Doughney 2022). Internationally, the challenge is framed around fulfilling

industry and employer needs, with Australian higher education institutions, in particular, being steered through policy to develop 'job-ready' graduates (Norton 2022, Department of Education 2020). The need to create ongoing learning opportunities for the wider population, including upskilling the professional workforce, is typically conceived as engaging individuals in further education through formal enrolment in university programs and, more recently, through just-in-time training and micro-credentials (Wheelahan and Moodie 2021). This narrow view of lifelong learning is often criticised for the lack of understanding of industry and community practices and needs, and credentialism that reduces the broader value of education (Buchanan et al. 2020, Wheelahan, Moodie, and Doughney 2022). In this paper, we explore other ways that professionals' lifelong learning might be supported by universities, decoupling professional learning from the 'industry needs' discourse through a transdisciplinary focus on complex challenges and social learning.

Transdisciplinarity involves working 'across, between and beyond' disciplinary boundaries to develop holistic understandings of complex challenges (Nicolescu, 2002). First introduced in the 1970s (Jantsch, 1972), transdisciplinarity has grown in prominence with an increased recognition that complex problems span the boundaries of disciplines, organisations and industries. Effective responses to these problems demand the integration of professional knowledge, academic expertise, and local, practical, and Indigenous knowledge (Klein, 2004; Polk and Knutsson, 2008).

Transdisciplinary integration fosters innovation and systemic change through mutual learning, partnership and reflexivity (Klein 2017, Baumber 2022). From a professional learning perspective, transdisciplinarity emphasises social learning, implying that individuals learn by working as active co-investigators, integrators, and problem-solvers as they tackle complex problems across various domains (Collins and Ison, 2009; van der Bijl-Brouwer, Kligyte, and Key, 2021).

As the notions of professional expertise continue to evolve in response to the complexity faced by organisations, the aspects of university education that connect students to the world of work and authentic industry practices, such as work-integrated learning (WIL), should also adapt. In Australian universities and internationally, approaches to WIL range from immersive work placements and internships to simulations and project-based work, led or supported by external partners (Jackson 2015, IJWIL 2022, Kay et al. 2019). Transdisciplinary WIL is not yet commonly practiced in universities, but it holds great potential. By bridging disciplinary boundaries, promoting collaboration and fostering adaptive problem-solving skills, transdisciplinary WIL can equip students with the capabilities required in a rapidly evolving professional landscape. While related approaches like entrepreneurial education also aim to prepare students to face complexity and changing circumstances, transdisciplinarity uniquely emphasises the significance of collective learning across domains and sectors to foster innovation and systemic change (Mars and Hart 2022). In this paper, we further argue that a transdisciplinary framing of existing WIL initiatives might facilitate more reciprocal partnerships, including supporting professional learning in organisations, albeit in more fluid, informal and non-credentialed ways.

Whilst WIL involves transcending organisational boundaries and engaging at least three types of stakeholders (students, universities and partner organisations), considerable knowledge gaps exist in our understanding of the value of WIL to partner organisations. WIL research and practice tend to primarily focus on student learning experiences and the role of universities in facilitating meaningful encounters with industry practices. In particular, much published research focuses on the benefits of WIL to students. These benefits include opportunities for students to apply theoretical knowledge in practical settings, develop their workplace skills, career clarity and work readiness, which can result in improved graduate employability (Jackson 2015, Smith, Ferns, and Russell 2014). Where WIL partner

perspectives are considered, transactional outcomes, such as increased productivity, access to talent and building a recruitment pipeline are typically foregrounded (Patrick et al. 2008, Peach et al. 2011, ACEN n.d.). Broader reputational gains derived by external organisations through associating with universities are also identified, with partners citing corporate responsibility and a desire to 'give back' to the younger generations as important reasons for participating in WIL (Jackson et al. 2017, Smith et al. 2006). Whilst WIL is sometimes seen as an opportunity for workplace supervisors to develop their mentoring and supervision skills (Smith et al. 2006), the potential for partner professional learning through WIL remains relatively underexplored in the existing literature.

This paper seeks to address the knowledge gap around partner professional learning in WIL and expand our understanding of reciprocal WIL partnerships through a focus on transdisciplinary engagement. Specifically, we examine a transdisciplinary project-based WIL experience at one Australian university that engages students in complex real-world challenges posed by industry, government and community partners. We adopt a broad concept of professional learning as occurring in and from practice (Kemmis 2021) and draw on the notion of mutual learning arising from transdisciplinary research and practice (Polk and Knutsson 2008, Baumber et al. 2020) to examine opportunities for partner professional learning through WIL. Fifteen interviews with stakeholders in external partner organisations are analysed against the three dimensions of practice: sayings, doings and relatings (Kemmis et al. 2014) to build an argument that WIL can stimulate partner professional learning. This inquiry positions mutually beneficial exchange of value between students and partners at the centre of the WIL endeavour, and invites further research into WIL partner experiences and professional learning opportunities.

Conceptualising partner learning

Professional learning in/as practice

Over the past couple of decades, our understanding of workplace learning has evolved to incorporate broader understandings of learning through practice (Kemmis 2021), shifting away from individualised, credentialed and knowledge acquisition-focused notions of learning (Reich, Rooney, and Boud 2015, Van Dellen 2018). To examine learning stimulated by WIL in partner organisations, we adopt Kemmis's (2021) broad definition of learning as 'coming to participate differently in practices' or, more generally, as 'a process of coming to practise differently' (p. 289). This concept of learning challenges the prevailing and limiting view of learning as the acquisition of knowledge seen as primarily happening in formal education or professional development settings (Reich, Rooney, and Boud 2015). Building on Lave (2019) and her colleagues' (Lave and Wenger 1991) concept of situated learning, Kemmis (2021) proposes that 'learning is not movement away from the everyday' but rather it takes place through 'ubiquitous, heterogeneous, changing relations of participation in everyday life' (p. 289). This conception of learning is akin to the notions of 'informal learning' (Eraut 2004) and 'fluid work' (Lizier and Reich 2021) in its recognition that partner professional learning typically occurs implicitly through engagement with students on everyday WIL tasks, often without deliberate planning or an explicit learning-orientation.

According to Kemmis (2021, 283), work practices unfold across the three dimensions of the intersubjective space: (1) semantic space expressed in the medium of shared language and discourses, such as 'the language we speak there, and the things we talk about there'; (2) physical space–time in the medium of work and activity, including shared artefacts, 'like the familiar objects found there, and the times we spend there'; and (3) social space which is manifested 'in the medium of solidarity and power', such as 'the changing and sometimes contested relationships we have with people there'. Reflecting these three dimensions, practices are composed of sayings, doings and relatings, including the characteristic ways

these dimensions 'hang together' forming a particular practice (Mahon et al. 2018, Kemmis et al. 2014).

Drawing on Kemmis's (2021, 2014) conceptual work, in this study we adopt the view of professional learning as a dialectic process of experimentation, discovery and innovation that takes place across the three dimensions of practice in partner organisations. At the core of this process is an encounter between the pre-existing arrangements 'found in' organisations and practices that are 'brought to' into organisations by students and university educators through WIL (Kemmis 2021, 283). Importantly, the intersubjective space where these 'old' and 'new' practices are enacted and negotiated by students, partners and educators through transdisciplinary WIL is not confined to the site of a partner workplace. The intersubjective space of WIL extends across the partner organisation and university boundaries, as participants engage with the complex challenge at the heart of the transdisciplinary WIL endeavour, completing project tasks and interacting with each other. Elsewhere, we refer to these types of WIL encounters as 'third spaces' where participants derive mutually beneficial outcomes through the negotiation of different identities, values and practices (Kligyte et al. 2019, Kligyte et al. 2022).

Next, we examine the distinct characteristics of transdisciplinary WIL partnerships that further shape the nature of professional learning.

Mutual learning in transdisciplinary WIL

The concept of *learning in/as practice* is at the heart of transdisciplinarity. Transdisciplinary WIL seeks to create a space for various stakeholders to come together at the boundaries of what is currently known to examine the complex problems facing partner organisations (Baumber 2022, Le Hunte and Kligyte 2022). The challenges addressed within transdisciplinary WIL encompass a wide range of issues, spanning from social challenges

such as fostering resilience in social housing communities or tackling gambling addiction, to environmental concerns like developing waste collection and distribution systems, and even encompassing systemic approaches to transitioning regional economies towards carbon neutrality. Although transdisciplinary WIL typically has a single organisational partner as a problem 'owner', these types of challenges often involve multiple cross-sector stakeholders, from corporate to non-for-profit and community organisations, as well as decision-makers and individuals affected by these challenges. Creating these types of transdisciplinary WIL experiences relies on a range of contributions made by academic and non-academic participants, including industry, government and community partners, educators, university-based partnership professionals, as well as students themselves. Meaningful transdisciplinary WIL experiences are not simply about immersing students into professional worlds, nor are they a one-way transfer of knowledge. In transdisciplinary WIL partnerships, differently positioned stakeholders have distinct expertise they can contribute and, in turn, relevant learning they can achieve.

The notion of *mutual learning* is frequently used to describe the process of negotiation and adaptation, characterised by reciprocity, informal exchanges and reflexivity in transdisciplinary collaborations (Polk and Knutsson 2008). Mutual learning is seen as emerging through social interactions implicit in joint work and collaboration (Mitchell, Cordell, and Fam 2015). Reflexivity, defined as the 'on-going scrutiny of the choices that are made when identifying and integrating diverse values, priorities, worldviews, expertise and knowledge' (Polk 2015, 114) is seen as a key enabler of mutual learning in transdisciplinary practice.

Mutual learning in transdisciplinary encounters can be seen as unfolding across the three dimensions of practices described by Kemmis et al. (2014): sayings, doings and relatings, as outlined in Table 1.

Table 1. Dimensions of practice in the professional learning and transdisciplinary mutual learning literature.

Dimensions of practice internal to an organisation/ community	**Professional learning in/as practice** (Mahon et al. 2018)	**Transdisciplinary mutual learning** (Mitchell, Cordell, and Fam 2015)	**Dimensions of practice** across organisations, communities, sectors and disciplines focussed on a complex problem
Sayings	Variation in or transformation of 'utterances and forms of understanding' (p. 6)	'New perspectives, new orientations' (p. 92); shared understandings of problem situations, new language and discourses	**Emergent language and discourses**
Doings	Variation in or transformation of 'modes of action' (p. 6)	'New strategies, and new tools' (p. 92); new patterns of action and artefacts	**Emergent actions and artefacts**
Relatings	Variation in or transformation of 'ways in which people relate to one another and the world' (p. 6)	'Appreciative stance towards difference' (p. 93); new roles and relationships	**Emergent roles and relationships**
Object of learning and change	Improved performance, solving problems, innovation in an organisation	Long-term systemic and transformative change (e.g. change in norms, goals and problem definitions) beyond a single organisation or site of practice	**Emergent objectives of learning and change**

Despite similarities, three important distinctions exist in how learning and change are conceptualised in the professional learning and transdisciplinary mutual learning literature. First, distinct from Kemmis's (2021) conceptualisation of learning as a situated process taking place in/as practice in every site of activity, the notion of mutual learning emphasises the explicit change-orientation inherent in transdisciplinary work. Whilst, in the workplace, change in practices can be desirable, at other times it is unnecessary. Due to a focus on complex problems in transdisciplinary collaborations, they are typically driven by a desire for change and transformation. Second, in transdisciplinarity, changes in the relatings dimension of practices are seen as having a greater potential to lead to persistent systemic change (Kligyte et al. 2021). Altered norms, values and goals shaping the decision-making process

are associated with ‘higher order’ ‘transformative’ and ‘generative’ learning in transdisciplinary encounters, more so than changes in the cognitive or behavioural realms (Mitchell, Cordell, and Fam 2015, 93). Finally, as Table 1 emphasises, whilst professional learning is primarily considered as a contextualised process situated in a particular organisation, transdisciplinary mutual learning is concerned with broader systemic changes occurring beyond a single organisational site of practice.

Transdisciplinary WIL case study

The transdisciplinary WIL setting for this study is the award-winning Industry Innovation Project (IIP) subject that forms part of the fourth and final year of the Bachelor of Creative Intelligence and Innovation (BCII), a transdisciplinary undergraduate degree at the University of Technology Sydney, Australia. Students undertake the BCII as a double degree, completing a ‘core degree’ in one of 26 different fields while undertaking transdisciplinary BCII subjects with students from other core degrees. The transdisciplinary learning approach employed in the BCII includes collaboration in multi-disciplinary teams, working on complex real-world challenges set by external partners and experimentation with various concepts including creative methods, futures thinking, complexity, leadership and entrepreneurship, whilst cultivating reflexivity and ongoing sensemaking of students’ emerging professional expertise.

The IIP subject invites BCII students to work on complex challenges set by external partners, in collaboration with a team of 4-6 students over the duration of a 12-week semester. Student teams apply a transdisciplinary methodology to develop innovative responses to an authentic complex challenge an organisation is grappling with. The insights generated by students are expected to be derived from creative interventions tested in real-world contexts through engagement with stakeholders. The WIL journey typically involves

research and exploration, participatory engagement with the partner organisation and creative experimentation. Students are guided by external partners, an academic tutor, and the formal IIP curriculum also includes structured workshops and opportunities to cross-fertilise ideas with peers. Whilst each team's arrangements differ, throughout the semester, students are encouraged to spend time in the partner organisation office space to gain access to the organisational context and stakeholders.

IIP has been running since 2017, and partners have included large corporations, government agencies, community partners, and a diversity of smaller start-ups and consultancy firms. While the potential for student projects to be implemented or taken further after the subject varies, the high proportion of returning partners demonstrates there is value for the organisations.

Methodology

To examine the partner perspective on transdisciplinary WIL engagement, fifteen interviews with IIP partners were conducted by BCII academic staff members in accordance with UTS research ethics protocols (Table 2). Partners were selected from those who were highly-rated in a survey of students from 2017-2021 that employed the following partnership values, drawn from students-as-partners and transdisciplinary mutual learning literature: reciprocity, adaptability, agency, valuing of student knowledge and reflexivity (Matthews et al. 2018, Polk 2015). This represents an appreciative inquiry approach (Reed 2006) aimed at identifying relationships characterised by mutual learning, rather than seeking a representative sample of partners.

Table 2. Partners interviewed.

Interview	**Partner(s)**	**Type of organisation**

1	Partner 1	Large Corporate
2	Partner 2	Medium NFP
3	Partner 3	Large Corporate
4	Partners 4 and 5	Small Management Consultancy
5	Partner 6	Medium NFP
6	Partner 7	Large NFP
7	Partner 8	Large Corporate
8	Partner 9	Large Corporate
9	Partner 10	SME Creative Consultancy
10	Partners 11 and 12	SME Creative Consultancy
11	Partners 13 and 14	SME Management Consultancy
12	Partner 15	Local Government
13	Partner 16	Social Enterprise
14	Partner 17	Government-funded Agency
15	Partner 18	Large Corporate

The semi-structured interviews with partners asked them what they learnt through their transdisciplinary WIL experience, how they would describe their relationship with students

during IIP, and whether they viewed this relationship as reciprocal. Interview transcripts were de-identified and analysed using NVivo 12 software, thematically coding the interview data against the Kemmis et al. (2014's) key dimensions of practice – 'sayings', 'doings' and 'relatings' – as the key terms (i.e. in vivo coding, Braun and Clarke 2006). The coded data was then collectively interrogated by the authors in two collaborative analysis workshops seeking to articulate the key argument, and select the illustrative examples from the data. An integrative analytic writing strategy was then used to weave together the theoretical and analytical components with research participant statements to produce an interpretive narrative resembling flowing prose (Emerson, Fretz, and Shaw 1995).

Learning and change in partner practice

The following section of the paper reports on the learning, outcomes and impact reported by the interviewees against the three dimensions of practices: sayings, doings and relatings (Kemmis et al. 2014).

Sayings: language and discourses

Firstly, partners identified shared language as an important starting point for a mutual learning relationship to emerge. Partner 9 from a Large Corporate described how in this WIL encounter, the common language centred around concepts such as 'prototyping', 'divergent and convergent thinking', 'testing and iteration.' Since the discourse of the innovation practice was shared by Partner 9 and students from the outset, the partner felt that they were 'not having to teach them and they're not having to teach us.' In Partner 9's view, this shared language enabled mutual learning to occur, as the focus of interaction shifted away from transferring or acquiring knowledge to forming knowledge together.

On multiple occasions, partners spoke about the opportunities to learn new concepts and methodologies from students. Whilst students undertaking IIP were taught the innovation

language used by industry as part of their university study, they also learnt a range of transdisciplinary concepts that were not yet commonly used in the workplace. Some partners acknowledged that they went into this WIL encounter with an awareness of students' knowledge in this space, and a deliberate intent to learn from students. Partner 1 from a Large Corporate perceived this as 'a really low risk' opportunity to learn due to the openness and flexibility afforded by working with students in contrast to operating within the corporation's 'rigid' culture. For example, he described how he used this transdisciplinary WIL encounter as 'my own way to research how I should do my job as someone who was a deliberate innovation person in [Large Corporate].' Through IIP, partners could experiment with new sayings 'brought to' the workplace by students (Kemmis 2021, 283), and advance their personal learning projects in ways that were relevant to them.

It was also common for partners to describe the value of 'taking time to sit in the problem space' with the students and 'asking the critical questions to understand the problem more thoroughly from different perspectives', as reported by Partner 6 from a Medium NFP. Partner 2 from a Medium NFP also described how 'coming in as a fresh pair of eyes, students were able to see where other problems or opportunities lay. Sometimes when you're really in the nitty gritty day to day stuff, you might be sitting on and miss the most obvious thing.' In these situations, student perspectives prompted partners to question their taken-for-granted practices, which resulted in subtle shifts in how they perceived their own work, prompting them to 'participate differently' in their own practices (Kemmis 2021, 289).

The interviewees also found that explaining their organisational practices to students was valuable in and of itself. For example, Partners 4 and 5 from a Small Management Consultancy described how 'for us, the benefit of working with our IIP student team was the fact that we could also sit back and reflect on how we had done all these projects that were quite important to us. It was about learning how we worked as [Small Management

Consultancy] and then also conveying that and discussing that with an external perspective.' Working with students enabled partners to take a more reflexive stance and make their processes more explicit, a rare opportunity for partners working on the ground to quick deadlines. By articulating their practice more clearly in an organisational meta-narrative, partners could then translate their 'sayings' into future contexts.

Doings: actions and new artefacts

In many instances, partners reported that they came to participate differently in practices' (Kemmis 2021, 289) by observing students' creative process and then embedding aspects of these approaches into their own work. By collaborating on partner challenges, students often created shared artefacts that became part of the repertoire of the methods and tools used by organisations. For example, Partner 1 from a Large Corporate explained how after supporting students in an analysis of change in his organisation, he can now 'use [this approach] next time in similar settings.' Moreover, Partner 2 from a Medium NFP reported that participation in IIP itself has become a part of organisational 'doings'. Through a multi-year engagement with students undertaking IIP, this WIL opportunity has become a highly anticipated annual event: 'it's almost become embedded within the yearly calendar for the innovation function [in the organisation].'

Through IIP, student teams often created tangible deliverables that were immediately beneficial to partners. These material outcomes were typically artefacts of learning, such as reports, videos or campaigns, produced by students under the guidance of partners. Varying importance was ascribed to these concrete deliverables, with some partners indicating that they were less useful than the broader learnings for the organisation, whilst others placed equal or more importance on these tangible outcomes. Importantly, many of these artefacts provided value to the partner well after the WIL engagement itself had ended. For example,

Partner 16 from a Social Enterprise described how a set of method cards created by students still has practical relevance in his organisation:

> I used [these cards] recently with one of our clients, a very large retail supermarket chain, redesigning their stores. I brought a group of them in, and I just walked around putting down the cards as they were designing [..] It's such a powerful tool, it makes people think instantly.

Where these tangible artefacts aligned with the business goals, partners gained concrete 'usable and profitable ideas', as described by Partner 16. Moreover, since the artefacts were packaged in material and transferable formats, it was possible to share them throughout the organisation or with other organisations. Partner 17 from Government Funded Agency describes how: 'We used [student artefact] as a building block to reach out to some other startups to say, look, here's a feasibility study', which enabled them to advance other areas of work.

Finally, partners indicated that at times students challenged their pre-conceptions about what was possible to achieve in their organisational contexts. For example, Partner 16 from a Social Enterprise found it 'refreshing' that students were able to recognise the flaws in their work and pivot even at a late stage of the project whereas 'usually in business you can't go and change it at that moment.' This flexibility was seen as being rare in industry 'because money is everything, and no company wants to risk anything.' An awareness about the lack of institutional consequences in WIL 'doings', enabled some partners to take a more experimental view of this transdisciplinary WIL engagement, and use students' contributions more strategically in their organisations.

Relatings: relationships of power and solidarity

Partners' histories seemed to influence how they engaged in WIL, often making them more conscious about their relationship with students. For example, Industry Partner 4 from a

Small Management Consultancy, who was also a recent BCII alumna described how the fact that she understood what students were aiming to achieve helped her 'shape our experience as partners, like how to get that mutual learning and the benefits for both the students and ourselves […]. I've done it [myself as a student] and now I'm also being a partner.' In contrast, Partner 16 recalled a negative experience of his creative idea being ignored in his early career, and how he sought to be more open to students' ideas as a result, 'and so every time a student comes up with a ridiculous idea, I let them go and I say, "You know what? Yes, go for it. Chase it."'

In many cases, engaging with students prompted partners to question their assumptions about students' capabilities pointing to the unique value and learning achieved through engaging with the student demographic who did not have a long history or entrenched views about the business. Partners 11 and 12 from a SME Creative Consultancy described how their initial assumption that 'there's no way the younger audience was going to pay for content' was challenged by the students who proposed some alternatives and then 'actually researched and tested with people at the Uni', putting some new options on the table, which the partner 'found quite interesting, because it went against [their] assumption'. Similarly, Partner 1 from a Large Corporate spoke about 'this young group of students who were on this adventure, and all of a sudden they were standing up and presenting really high-quality work to a bunch of people at [Large Corporate] which blew away the expectations of what people [in the organisation] were anticipating.' In these instances, students' ability to deliver interesting insights affected broader organisational perceptions about what could be gained through WIL and working with young people.

Several partners discussed how the guided process of students engaging with the organisation as part of IIP enabled the organisation itself to come together differently around the challenge students were working on. Partner 3 from a Large Corporate described how

students interacted with members of the organisation at different levels throughout the project, which transformed their relationship and organisations' perception of the challenge they were grappling with: 'By the time they got to [colleague], their presentation was so excellent. They've received so much feedback. It wasn't even the presentation. It was the messages and the concepts and the prototype and the slides and the way they were talking and the banter they had between them.' To achieve this, partners often enabled students to engage with colleagues, building interest in and curiosity about the problem space across different parts of an organisation. Interestingly, the fact that ideas came from students sometimes enabled organisations to consider the proposals more seriously. Putting challenging proposals forward was not always possible for partners themselves due to perceptions about their roles against organisational agendas and histories.

Participation in IIP also allowed partners to extend their personal and professional networks through connecting with students, university staff members, and to a lesser extent, other industry partners, through which they built stakeholder relationships. WIL engagement also impacted how partners related to their own clients. For example, Partners 11 and 12, from a SME Creative Consultancy, described how involving students in a client's brief demonstrated their commitment to the client who felt 'delighted and complimented' that they were selected for a project like this, strengthening the partner relationship with the client.

Finally, some partners explicitly mentioned the shifts in their career and education pathways as a result of engaging in WIL. Partner 1 from a Large Corporate explained that he appreciated the 'opportunity to work with the university that was five minutes walk away, to learn by participating, and observing, and being a bystander in what was being created.' Partner 10 from a SME Creative Consultancy described this program as a 'catalyst' for pursuing further Masters-level education, which was echoed by Partners 1, 11 and 12 who became aware of further education opportunities through their engagement in IIP. This

suggests that the mutual learning opportunity offered to partners through IIP enabled them to consider new 'relatings' and begin seeing themselves as learners rather than experts who have nothing to learn but a lot to 'give back' to the university.

Learning through engagement in transdisciplinary WIL

Our analysis shows that , WIL encounters have the potential to create new meanings and discourses affecting how partner practices are being talked about in the workplace. We demonstrate that equipping students with industry-relevant 'sayings' can advance less transactional and more mutual learning-oriented relationships in WIL. While preparation for industry practice is the prevailing focus of many university-based WIL programs, interviewees frequently mentioned new 'sayings' – specific concepts, methods and approaches – as something they also learnt from students. Partners also spoke about the subtle shifts in their perspective and new ways of engaging with their own work as a result of witnessing how students grapple with the challenges in the workplace. Further, WIL engagement compelled partners to make their organisational knowledge, processes and rules more explicit, for example, by working with educators to articulate the project brief – even 'question[ing] established definitions of problems or solutions' (Sollander and Engström 2021, 4).

The material innovations and artefacts produced by students tended not to be viewed merely as standalone project deliverables. They were interwoven with the 'doings' in partner organisations as 'boundary objects' – 'organic arrangements that allow different groups to work together' (Akkerman and Bakker 2011, 141). Whilst these artefacts enabled knowledge to be passed over the boundaries and across contexts (Star 2010), it was the liveness of engagement with these artefacts in organisational contexts – the process of creating and circulating them further – that enabled partner organisations to make and negotiate new

meanings and practices. These 'boundary objects' helped partners pull together the different components of organisational knowledge, resources and tools, and keep them at play and in tension so that boundaries between different entities could be redrawn differently (Fenwick 2012), and new patterns of action could emerge.

In the 'relatings' dimension of practice, we argue that contesting power differentials can stimulate learning well beyond traditional conceptions of WIL, where partners are seen as experts and students positioned as novices with much to learn about workplace practices. Despite partners being experts in their field, they often saw students as offering something valuable to their organisations, too. Our analysis demonstrates that through a transdisciplinary focus, WIL encounters were repositioned as spaces of mutual learning, inviting all participants – students, partners and educators – to question the taken-for-granted views and transcend the well-established practices, roles and identities to discover yet unknown possibilities at the edge of disciplines and professions (Le Hunte 2021, Kligyte et al. 2022). By inviting partners to step out of their role as an 'expert', 'supervisor' or 'mentor' into a more ill-defined position of a 'partner', 'collaborator' or a 'learner', transdisciplinary WIL encounters enabled partners to come to 'practise differently' (Kemmis 2021, 289).

The diagram in Figure 1 extends the Kemmis et al. (2014) conception of practice as consisting of the three dimensions of sayings, doings and relatings, and highlights the potential for expansive professional learning to occur across these three dimensions through transdisciplinary WIL. By working on a shared complex real-world challenge through a reflexive transdisciplinary approach, WIL participants (including partners and their organisations) engage with diverse knowledges, often prompting them to question and reimagine the existing organisational roles and associated practices. At times, this can lead partners to transform their practices through further experimentation with new meanings,

discourses, patterns of action and artefacts, as well as new roles and relationships within and across the boundaries of their organisations.

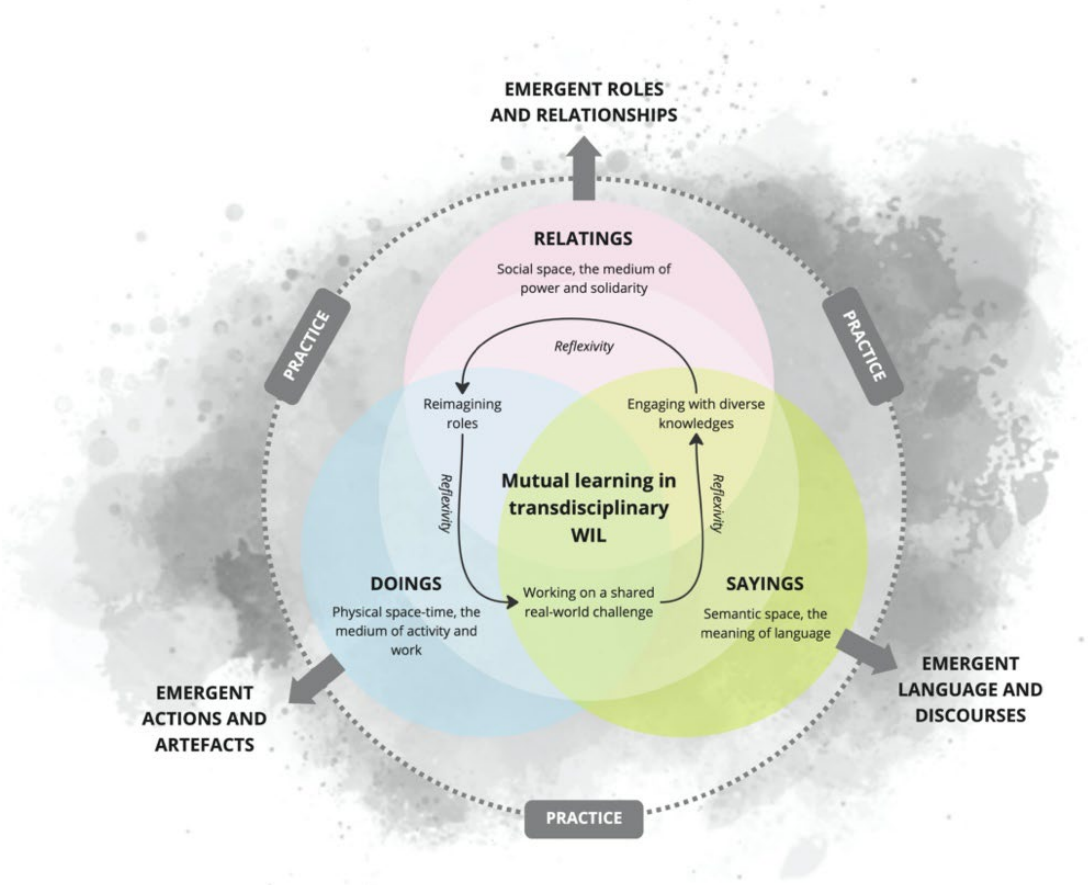

Figure 1. Professional learning and change across the three dimensions of practice stimulated by mutual learning through transdisciplinary WIL, adapted from Kemmis et al., 2014.

A case for partner professional learning through transdisciplinary WIL

Whereas much of research into WIL focusses on what universities can do to embed WIL into the formal curriculum for students, this study takes a partner-centric perspective to build the case for conceptualising WIL engagement as a professional learning opportunity for partner organisations. Our analysis demonstrates that partners often utilised transdisciplinary WIL engagement to advance their own learning projects; WIL disrupted routine practices and allowed organisations to temporarily reconfigure themselves differently creating a liminal

space for organisational experimentation.

First, although IIP was not structured as a formalised and credentialed professional development opportunity, many partners went into this WIL experience led by curiosity, and with a personal learning intent. On numerous occasions, partners explained how by providing an authentic real-world challenge they themselves were able to learn by proxy of student learning. For example, student experimentation and learning typically led to new insights for the organisation, directly informing partners' own practice. Through engagement with students, partners could also pursue their own curiosity and questions for which they might not have had space within their day-to-day role or through formal professional development.

Further, encounters with students often functioned as a welcome disruption of routine work practices in partner organisations. Sollander and Engström (2021, 5) point out that many organisations overinvest in streamlining and 'exploitation' of the existing practices 'at the expense of exploration' and development of new practices. By grappling with new perspectives and practices brought to the workplace by students, partners moved away from routinised and automated actions, towards exploration of new discourses, patterns of action and relationships. Importantly, partner professional learning was not confined to the learning of an individual WIL supervisor. Students typically dealt with organisational practices distributed across all levels of organisational hierarchies involving multiple differently situated internal and external stakeholders. As a result, the ripple effects of mutual learning often unfolded at a more systemic level, enabling partners to experiment with new patterns of 'relatings' within and beyond their organisations. For example, some partners used this WIL opportunity to temporarily redraw the lines between their existing organisational functions and configure them differently. Student projects also enabled organisations to connect with their own external stakeholders differently, well beyond the specific WIL encounter itself.

Finally, partners mentioned the importance of working with a university as a way of legitimising informal professional learning without dedicating time and resources for experimentation across organisational boundaries. In some instances, the academic framing legitimised the exploration of challenging questions about organisational practices as part of students' learning, rather than aspects of organisational change. Organisations are contested places (Billett 2004). Formal and informal power relations can often determine what type of learning is recognised and deemed relevant to an organisation, including who is given learning opportunities (Assinger 2022). Learning that disrupts organisational patterns of relations rather than serving 'the needs of capital' can be seen as invalid or even undesirable (Fenwick 2006, 269). Our analysis shows that new spaces of possibility were created by shifting the transdisciplinary WIL encounter away from addressing the perceived direct organisational needs towards an exploration of a relevant complex challenge (Baumber 2022). Experimentation with organisational practices framed as WIL does not carry the seriousness of the consequences for partners if they were to undertake similar activities as part of their day-to-day organisational role. By allowing a liminal space for partners to experiment more freely and stay 'open-eyed and open-minded' in their organisational practices (Kemmis 2021, 289), the 'third space' of transdisciplinary WIL can function as a powerful place from which to learn and make a difference (Kligyte et al. 2022).

Further research could be conducted to explore opportunities for partner professional learning in more traditional WIL settings. In particular, shifts in the relational configurations in organisations as a result of WIL, such as examining, challenging and transcending traditional roles, such as 'teacher-student' or 'expert-novice' dichotomies (Baumber et al., in progress, Kligyte et al. 2022) warrant further research. Moreover, personal and organisational factors enabling these types of learning deserve scrutiny to inform future attempts to stimulate professional learning and organisational change through WIL. Finally, it is

important to acknowledge that transdisciplinary WIL requires resource-intensive engagement by multiple stakeholders across organisational boundaries, in addition to the well-known challenges associated with WIL such as diverse student cohorts, mismatched timelines and authentic assessment. Given the partner-centric focus of the present study, the educator perspective on noticing, brokering, negotiating, assembling, translating, re-imagining, and re-inventing opportunities as part of transdisciplinary WIL are discussed elsewhere (see Kligyte et al. 2022).

Future directions for professional learning scholarship and practice

Through this study we identify two areas that warrant further theorising, scholarly dialogue and investigation. First, if professional learning is conceptualised as change (any change) in practice, questions can be asked whether some changes in organisational practice are more desirable than others. Whilst practice theory researchers view the discursive, material and relational dimensions of practice as being entwined and inseparable from each other, with change and learning occurring across all three dimensions (for example, see Mahon et al. 2018), mutual learning scholars emphasise the transformative potential of learning in the 'relatings' domain (Mitchell, Cordell, and Fam 2015). Changes in individuals' assumptions, beliefs and value systems are of particular importance in transdisciplinary work due to a focus on improving problematic real-world situations. In the case study examined in this paper, students, partners and educators were invited to scrutinise their individual and shared values and explicitly negotiate their goals as part of transdisciplinary WIL. We suggest that to avoid the capture of professional learning by 'the needs of the capital' (Fenwick 2006, 269), the role of values in determining the object of professional learning requires further investigation.

Second, we invite transdisciplinary researchers to turn their scholarly attention towards examining how the changes in the 'relatings' dimension of practice might be shared, translated and inscribed in ongoing individual and organisational practices. If we view new 'sayings', 'doings' and 'relatings' as being embedded in socio-material practice architectures within and across organisations, learning and transformation can be conceptualised as being distributed across different sites of activity, rather than being confined to individual learners or specific challenge areas. We would welcome further scholarly dialogue examining relational configurations in transdisciplinary initiatives through the socio-material practice lens, and invite scholars to further examine – conceptually and practically – the opportunities for partner professional learning through WIL.

Concluding reflections

This study highlights that WIL does not have to be conceptualised simply as a matter of knowledge transfer from workplace supervisor to students or induction of students into the culture of the host organisation, which are two common assumptions about the purpose of WIL. We demonstrate that partner professional learning can arise through an interplay between partner organisations and new practices brought to the site by students. In many cases, the existing partner understandings, material arrangements and relationships can be enriched and extended through transdisciplinary WIL.

We argue that a transdisciplinary framing of WIL can help us shift away from a focus on professional knowledge transfer, towards the development of shared sayings, doings and relatings around shared complex challenges, reconceptualising WIL as a professional learning opportunity for partners. Through a focus on mutual learning, rather than solely student learning, our empirical study extends this research where partner learning is under theorised. Transdisciplinary WIL can be seen as an encounter where both students and

partners (and even university educators) stand to gain something, advancing the 'logic of development' within and across organisational boundaries (Ellström 2011, 10).

As we seek to forge mutually beneficial partnerships across organisational divides, we must shift the conversation away from the deficit discourse, whereby universities and students are seen as lacking practical experience and partner organisations as 'giving back' through WIL engagement. Instead, we can articulate the benefits of partnership engagement in more reciprocal terms, building an argument for the mutual exchange of value in these types of experiences. Our study shows that through core activities, such as WIL, universities can make a valuable contribution to educating professional sectors and industries, beyond just delivering 'job-ready' graduates. In addition to the benefits for partner organisations gained through mutual learning, these types of WIL experiences are also likely to lead to more effective and enjoyable learning experiences for students.

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TOTAL: 7820 words