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Enabling the transfer of skills and knowledge across classroom and work contexts

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Introduction

When students create knowledge in the classroom it is important they are later able to find meaning in this learning, actively connecting it with new situations arising in different contexts, such as the workplace. Graduating higher education (HE) students' are expected to operationalise their skills and knowledge across varied work environments (Foundation for Young Australians 2016) and are engaging more in casual, short-term and project-based working arrangements (Committee for Economic Development of Australia 2015). This means the successful transfer of skills and knowledge is critical and any industry observations of graduates being inappropriately skilled for contemporary work (Deloitte 2017) could be attributed to their poor ability to transfer (Jackson 2016). In their efforts to produce career-ready graduates, HE providers appear focused on developing industry-aligned curricula yet are overlooking graduating students' ability to effectively transfer and enact their learning in new environments.

Bransford and Schwartz's (1999) 'Preparation for Future Learning' paradigm forms the conceptual framework for this study. Here, future learning relies on the ability to 'transfer in' prior knowledge which prepares students to learn and create new knowledge in the different setting. The transfer of skills and knowledge is influenced both by an individual's propensity for connecting past learning with current and future learning, as well as their response to, and interpretation of, different learning contexts (Schwartz, Bransford, and Sears 2005). Leberman, McDonald and Doyle (2006) assert learning transfer can occur on a spectrum from simple to complex, defined by the difficulty of tasks being transferred across contexts. They argue some transfer is not automatic, requiring effort and conscious thought, termed 'mindful' transfer. They, and others (e.g. Kirwan and Birchall 2006), argue transfer is significantly influenced by characteristics of the learner and the nature and degree of similarity between the original learning setting and the new application context (Baldwin and Ford 1988; de Rijdt et al. 2013). 'Far' transfer, meaning where the source of learning and new context are dissimilar (Barnett and Ceci 2002), is considered more difficult (i.e. adapting past learning to build new knowledge).

Experimental learning provides an opportunity to develop transfer (Analoui 1993), as individuals can 'practice' the process. Further, transfer may be augmented by more closely aligning learning environments to workplace contexts (Davids et al. 2017), e.g., authentic simulations where classroom learning is designed to emulate the professional setting, significantly improving students' work-readiness (Smith, Ferns, and Russell 2014). Work Integrated learning (WIL), also referred to as workplace learning or work-based learning, is where students

undertake - and are formally assessed on - authentic activities through engagement with industry and community partners (Jackson, 2018). It is for academic credit and is an in-curricular intervention which may foster effective transfer. WIL in tertiary education can be immersive - such as internships, placements and practicums – or undertaken virtually or in the classroom through consultancy and project-based learning (Kay et al. in-press). Immersed models provide a unique opportunity to gauge and develop transfer as students shift between classroom and professional settings.

This study extends existing scholarship, seeking to better understand the transfer of skills and knowledge through WIL experiences in a tertiary education setting. Specifically, the research objectives were to: i) examine the extent to which students perceive they are transferring skills and knowledge across classroom and work settings; ii) determine inhibitors and facilitators of skill and knowledge transfer across classroom and work settings; and iii) identify strategies to facilitate skill and knowledge transfer from the classroom to the workplace. Findings will inform development of principles for WIL design which maximise learning and outcomes across settings, and our broader understanding of ways to enhance transfer across classroom and workplace contexts. The study used a mixed-method and multi-institution design, gathering data from three disciplines in two countries to increase the potential for generalizable findings. An overview of relevant theoretical and empirical literature is provided, followed by an outline of the methodology, presentation of results and implications for practice and future research.

Background

Transfer – preparation for future learning

The transfer of skills and knowledge across different contexts is acknowledged as a complex area of learning theory which lacks empirical analysis (Hakel and Halpern 2005). There are many different theories on the process of transfer (Jackson and Hancock 2010). The more traditional ones are concerned with cognitive processing and outputs ‘transferred out’ of the original learning situation (Mestre 2005). Deemed narrow in their focus on repetition of prior knowledge (Schwartz et al. 2005), Boudy (1977) describes these as ‘replicative’ and ‘applicative’ knowing. As Schwartz and colleagues assert, they give little allowance for learners to revise and trial new ways to adapt earlier learning in the new context, particularly problematic for situations where students are more likely to ‘fail’.

Preparation for future learning (Bransford and Schwartz 1999) focuses on an individual's interpretation of, and response to, their context and ability to draw on prior learning as a building block for constructing new knowledge. It is concerned with developing 'seeds for new learning' (16) and that which is 'transferred in' to new learning situations. It focuses on developing learners who can make sense of, and interpret, new learning contexts in a way that enables them to connect with, and use their prior learning, successfully adapting skills and knowledge to novel circumstances. Schwartz et al. (2005) argued that notions of 'transferring out' and 'transferring in' are still important, in line with Broudy (1977) who emphasised the importance of accessing content knowledge in new learning situations. Importantly, prior learning does not always enhance new learning and may instead result in negative transfer (Bransford, Brown, and Cocking 1999), where future development is inhibited.

The new world-of-work is characterised by horizontal career progression, multiple job roles over an individual's lifetime, global mobility and portfolio working (Grant-Smith and McDonald 2018). Consequently, graduates, along with other workers, need to transfer skills and knowledge across an increasingly diverse range of contexts. Foundation for Young Australians (2016), however, asserts 'even in related fields with many common characteristics, moving between jobs can be challenging' (7). This supports Jackson and Hancock's (2010) assertion that HE should be proactive in facilitating transfer through purposive curricular design.

Transfer and the role of WIL

The transfer process cannot be separated from context (Engestrom and Kerosuo 2007), which incorporates both the original learning setting and the destination where students draw on their prior learning. WIL, the intersection of learning in classroom and workplace settings, provides a unique and significant opportunity for students to practice and 'learn' transfer in preparation for graduating to the workplace. There is wide acknowledgement that transfer is influenced by three factors: learner characteristics, learning program characteristics (source of learning) and workplace characteristics (application context) (Nafhuko et al. 2017). The following section reviews these three areas, relating the latter two to the WIL context.

Learner characteristics

Learner characteristics, such as students' propensity for risk, motivation for learning, self-confidence and cognitive ability are important for transfer (Burke and Hutchins 2007), along with personality. Of the Big Five personality dimensions, 'openness to experience', 'conscientiousness', 'extraversion', 'agreeableness' and

‘conscientiousness’ (Barrick and Mount 1991), the first three are considered to augment transfer (see Jackson, 2016). Jackson noted these combine to form a learner that is inquisitive, intelligent and confident, and one who perseveres, takes initiative, is systematic, and is achievement-oriented. Further influences include an individual’s self-efficacy and motivation for transfer, found to influence the rate of behaviour change in the transfer context (Huang, Ford, and Ryan 2017). Learners’ views on the relevance of training content will also affect their attitude to, and degree of, proactivity in the learning process. Engaging meaningfully with the content will increase the opportunity for transfer (Nafukho et al. 2017) and enhance knowledge retention and application in different contexts (Choi and Roulston 2015). While there has been valuable research exploring the role of learner characteristics, Baldwin, Ford and Blume (2018) urge for more. There also appears to be a dearth of literature on the influence of individual characteristics on the ability to transfer and further exploration is recommended (Jackson 2016). One might anticipate, for example, differences in student confidence to transfer for age and stage of study given varying levels of prior exposure to the work setting.

Learning program characteristics

In 2016, Jackson reviewed extant literature and empirically analysed the role of learning program characteristics for successful transfer. Characteristics included developing student understanding of theory that underpins the skills and knowledge being learned; clear use of analogies and examples from authentic situations; ensuring learners understand the value of the skills being taught and examples of their use in different workplaces and establishing outcomes which guide the learning experience (Cilliers and Tekian 2016). Collaborative and engaged learning with opportunities for feedback and practice were also deemed relevant, in addition to promoting reflection which encourages learners to consider differences between diverse learning contexts and the challenges these may pose. Interestingly, quality principles which underpin WIL (see Billett 2011; Smith 2012) clearly align to these learning program characteristics. While quality is deemed critical in WIL (Smith et al. 2019), an established framework has yet to emerge although fundamental principles include authentic learning, enabling students to visualise theoretical principles in a practical way and applying theory in a ‘safe’ environment focused on development and feedback (Holton, Bates, and Ruona 2000). Further, WIL clarifies the relevance of curricula content through workplace tasks or projects and enables students to observe and interact with industry professionals, illuminating professional standards, conduct, expectations and values (Jackson 2017).

Quality WIL also involves students developing learning goals and evidence criteria, through negotiation with workplace and academic coordinators, which guides their experience and enables future evaluation of performance (McNamara 2013). Collaboration through peer learning and networking can ease isolation (Peach, Gomez, and Ruinard 2013) and may catalyse higher levels of student engagement. Regular and constructive feedback underpins quality WIL (Smith 2012) and can be gathered from workplace supervisors, student peers, and academic coordinators (Peach, Ruinard, and Webb 2014). Reflection should be integral to learning activities and assessment design (Billett 2011; Smith 2012) and forms, along with preparation and feedback, a foundational pillar of quality WIL that differentiates it from extra-curricular work experience. It enables students to draw on, consider and reconcile learning across two settings (Billett 2011), encouraging them to directly consider challenges posed by transfer and strategies for managing it. Preparation should include encouraging learners to anticipate challenges they may face when transferring learning to new contexts (Cilliers and Tekian 2016).

Workplace characteristics

Learner perceptions of the application context will influence their ability to transfer skills and create knowledge. Jackson (2016) argued that establishing learning goals motivated students and aided transfer, in addition to regular quality feedback on performance, and adequate access to support from supervisors, mentors and peers. Also important were collaborative environments where WIL students can network with others in the work setting and a positive work culture which embraces change. Similarly, Lam and Muldner (2017) found targeted preparation for peer collaborative experiences enhanced learning transfer. Jackson also found participation in multiple work-related tasks and projects, rotation across different functional areas and opportunities to work autonomously combined to augment transfer. In summary, widely-accepted perceptions of quality WIL encompass learning transfer principles and the future assessment of potential WIL opportunities could include verifying the presence of these workplace features.

A particular challenge with transfer is that it is better facilitated if there is a clear understanding of the workplace climate where students will deploy existing, and create new knowledge and skills (de Rijdt et al. 2013). Here, preparation for WIL can target learning transfer by preparing students on organisational culture – particularly their openness to change – and support mechanisms available to assist students with skill application. This may be relatively easy in disciplines – such as Education and Nursing – where large numbers of students are entering relatively homogenous professional settings, but less so for others, such as Business, Information Technology and

Engineering, where work contexts can vary immensely by sector, industry, organisational size and vision. Nevertheless, immersed WIL provides an opportunity for student transfer of learning across classroom and workplace settings, enabling educators to gauge students' capacity for transfer and experimenting with design principles that enhance transfer.

Methodology

The study utilised a mixed-methods design to enable multiple perspectives, triangulation, enrichment and elaboration (Johnson, Onwuegbuzie, and Turner 2007). As a wide range of WIL models and structures exist (McRae and Johnston 2016), for the purpose of this study, WIL was limited to students undertaking a workplace-based experience as part of their university course.

Participants

Student participants ($N=151$) were recruited from undergraduate and postgraduate WIL programs within Australia (Western Australia $N=97$, New South Wales $N=7$) and New Zealand ($N=47$). Students from Business, Sociology and Sport/Recreation were selected to ensure a cross-disciplinary sample, and for convenience, related to the researchers' ability to recruit students within their institutions. The proportionately low number of students from the New South Wales university was attributed to survey timing and a change in staffing. Participants were halfway or more through their degree and had completed at least 100 hours of workplace-based WIL (typically unpaid) within the current or previous semester. Students' demographic characteristics are summarised in Table 1. Twenty-four WIL workplace supervisors ($F=17$, $M=7$) participated in semi-structured interviews. Five were based in the public sector, six in the private sector and 13 worked for not-for-profit organisations.

[Insert Table 1]

Procedures

Ethics approval was obtained from each university. Eligible students were invited to complete an anonymous, online survey via email or a link within their university's learning management system. Surveys were administered twice, approximately six months apart and to two different student cohorts, between November 2017 and June 2018. Semi-structured interviews were conducted with WIL workplace supervisors, either face-to-face or via phone, between February and June 2018. Survey and interview data were collected and analysed concurrently, rather than one method following and being informed by the other. An email invitation was sent to industry

contacts who supervised WIL students within the current year (by each university's research team member). Interviews were recorded and transcribed.

Measures

The student survey comprised items on demographic and study characteristics (see Table 1) and a range of open-ended and closed questions to address the three research objectives. Both multiple response formats and five-point Likert scales were used, the latter adopting a middle point of 'somewhat', rather than a neutral value. The survey instrument was pretested for content validity. To address the first research objective, the extent and type of transfer experienced during WIL, participants were asked 'do you feel you had sufficient opportunity to apply the skills and/or knowledge learnt at university during your WIL placement' and to describe 'an experience where you had successfully applied skills and/or knowledge learnt during your degree program in the workplace as part of WIL'. They were asked to provide detail on the context, the tasks they were completing and the skills and/or knowledge they drew on. To gauge the complexity of the transfer situation and its positioning on the 'near' to 'far' spectrum, students were asked to rate their familiarity with the tasks, setting and people they were working with at the time; the level of complexity of their activities and how challenging they found applying their skills/knowledge in the described experience. Further, students were asked 'how confident did you feel about transferring the skills and knowledge you learnt at university to a different context' prior to WIL.

To address the second research objective, determining inhibitors and facilitators of transfer, students were asked to consider: a) if and how they experienced difficulties connecting university learning with their workplace tasks during their transfer situation and what factors worsened or could have aided this connection; b) what made it harder and what assisted in them in applying their skills and knowledge in their described transfer situation; and c) what they felt prevented them from having sufficient opportunity to apply skills and/or knowledge learnt at university (if applicable). For the third research objective, identifying strategies for transfer, students were asked 'what do you think could have been done to provide you with more opportunity to apply skills and knowledge learnt at university', 'what workplace characteristics or interventions do you think would help you transfer skills and knowledge' and 'what interventions at university do you think would help you to transfer your skills and knowledge to the work setting'. Further, students were asked to identify activities – both within and outside university – that helped to build their confidence to transfer.

Interview questions focused on the experiences and role of WIL supervisors in facilitating transfer. Participants were asked to identify examples of skills and knowledge transferred from university to the workplace, as well as challenges and barriers to transfer. Example questions included, ‘what types of skills/knowledge do you think are mostly being transferred’, ‘what do you see are some of the challenges/barriers to students transfer of knowledge and skills between different contexts’ and ‘what do you think can be done to overcome these challenges’.

Analysis

Quantitative analysis

To examine the nature and extent of transfer (research objective one), five-point Likert ratings were analysed using descriptive techniques and variations were examined for discipline, individual and/or study characteristics using one way Analysis of Variance (ANOVA). A multiple linear regression was conducted to explore determinants of the challenge experienced by students during the transfer process. Prior to analysis, common method variance was gauged using the Harman’s single factor test (Podsakoff, Mackenzie, and Podsakoff 2003). A three-factor solution emerged, accounting for 69% of variance, and the one-factor solution accounted for only 32%, alleviating concerns for common method bias. Measures of kurtosis and skewness were within the acceptable thresholds of 7 and 2 respectively (Curran, West, and Finch 1996), indicating normality among the variables. Analysis was conducted using SPSS version 24.0.

Qualitative analysis

The second (inhibitors and facilitators) and third (strategies) research objectives were examined using a combination of open-ended survey questions and interviews with workplace supervisors. Open-ended responses from the first cohort of surveyed students were coded inductively at an individual response level by one research team member using Excel, with prevalent and key themes summarised (Braun and Clarke 2006). A coding scheme and framework of themes were developed. To enhance rigour, the coding analysis was cross-checked by another research team member, with differences discussed until consensus was reached. The framework of themes developed in the first iteration was used to code the second cohort’s responses using a deductive approach. Again, the coding process was checked by another team member and individual responses revisited for any areas of difference. New themes identified in the second analysis, although few, were incorporated into the developed framework. This combined use of inductive and deductive analysis is considered rigorous (Fereday and Muir-Cochrane 2008).

Interview transcripts were thematically analysed, each member of the research team initially coding two of their own interview participants' transcriptions using an inductive approach. Emergent codes were shared, reviewed and discussed until consensus was reached. The developed framework of themes guided the remaining thematic analysis with any additional emergent themes incorporated into the framework. Each researcher shared their final framework of themes with data re-examined for any areas of difference. Identified themes were then interpreted in relation to the research questions. Examples of extract narratives are presented within the findings. Trustworthiness in the analysis was developed (see Merriam 1995) through conducting multiple analyses, gathering certain data over two time periods, and documenting and sharing (as needed) an audit trail of any arising issues.

Results and discussion

Student ability to transfer

This section presents perceptions of the nature of skills and knowledge students transfer during WIL, how confident they are to transfer, and how challenging they found it.

Nature of transfer

One hundred and nineteen students (79%) felt they had sufficient opportunity to apply the skills and/or knowledge learnt at university during their WIL experience. One way ANOVA ($\alpha=.05$) indicated no significant variations by discipline. Student narratives of experiences where they successfully applied skills/knowledge acquired during their degree, in the workplace, were diverse and rich. Proffered examples were largely 'near' (transfer between similar situations), with students being reasonably familiar with the tasks, setting and/or people they were working with. The vast majority described the transfer of discipline-specific skills and knowledge (e.g. use of software, application of learned theory or procedures) while only one-fifth focused on generic skills (e.g., communication, interpersonal skills, teamwork). Few drew on both in their example. In contrast, when asked to identify the types of skills and knowledge they thought students transferred, workplace supervisors mentioned some discipline-specific areas, but generic skills were common foci across all three WIL contexts. This difference could reflect supervisors' appreciation of the relative importance of generic capabilities, or a relative ease among students of transferring discipline-related skills and knowledge compared with generic skills. The latter is a potential concern given generic skills form key criteria for employers' evaluations of student preparedness for the workplace.

To gauge the extent to which this transfer was near or far, students rated their degree of familiarity with different aspects of the experience. Results indicated an average rating of 3.52 ($SD=1.15$) for familiarity with tasks; 3.32 ($SD=1.20$) for familiarity with the professional setting, and 2.93 ($SD=1.37$) for familiarity with their co-workers. The transfer experiences were therefore positioned more towards the ‘near’ than ‘far’ end of the spectrum. Cronbach alpha of .785 indicated the three items to be a reliable measure of whether transfer was near or far and a composite measure was computed. One way ANOVA reported a significant variation ($\alpha=.05$) in the familiarity composite for discipline, $F(2, 90)=6.13, p=.003$. Tukey post-hoc analysis revealed that Sociology students found their WIL experience significantly less familiar than both Business ($p=.005$) and Sport and Recreation ($p=.003$) students, aligning with conventional wisdom that securing relevant and meaningful work placements in the Humanities may be problematic, given its broad nature.

Confidence to transfer

Students’ confidence in being able to transfer skills and knowledge from university to a different context prior to WIL, produced an average rating of 3.26 ($SD=1.11$). One way ANOVA was conducted to analyse variations for individual and study characteristics ($\alpha=.05$), namely gender, age, residency, type of study (undergraduate/postgraduate), and discipline. Gender approached significance, $F(1,118)=3.70, p=.057$, in contrast to the absent gender effect reported in Jackson’s (2016) study of transfer among graduates. Males reported a higher mean (3.55, $SD=1.13$) than females (3.13, $SD=1.14$). There was also a significant variation for type of study, $F(1,118)=5.65, p=.019$. Aligning with conventional wisdom, postgraduates scored a relatively higher mean (3.66, $SD=1.03$) than undergraduates (3.12, $SD=1.17$), perhaps attributed to the potential for them to have had greater work and life experience.

Table 2 presents university-based activities that students identified as helping to build their confidence to transfer. Many valued authentic and practical learning and assessment tasks and activities, including industry-based software that enabled them to apply theoretical concepts. Several commented on the need for greater integration between work and university settings, helping them to understand the process of applying theories in real-life contexts, and a broader understanding of how skills can be employed in different contexts. Increased industry engagement through guest lectures, field trips, and industry-driven projects provided greater insight into contemporary work and different industries and gave them access to real-life data and/or established professionals.

Case studies were widely advocated, with one student suggesting ‘scenarios of real workplace decision-making that outlines how convoluted (not straight line) it sometimes is’ [S133]. One student commented on the value of, ‘assignments that replicated real-world tasks and needed application of learning’ [S41]. Group-based activities were mentioned frequently with students acknowledging the benefits of collaborative assignments, communication and working with diverse members. This importance of group work and authentic tasks/projects resonate with literature documenting the importance of applied (Burke and Hutchins 2007) and collaborative learning in the classroom to aid transfer between different contexts (Hakel and Halpern 2005). Communication (verbal and written) was also mentioned broadly, e.g. with lecturers, peers and during the application process for securing a WIL opportunity. Interestingly, only a handful of students specifically cited reflective activities as important, although students noted the benefit of developing portfolios and writing job applications for evaluating and articulating transfer.

[Insert Table 2]

Experiences/activities outside university were also considered to build confidence in transfer (see Table 2). Paid work was particularly important; benefits included practising skills in socialising, holding conversations, basic leadership skills, effective communication and working with others, as well as more technical skills, such as using Excel and data entry. One student stated, ‘working in various roles has helped me amass a wealth of knowledge for different working environments and has prepared me for any role that I wish to apply for’ [S126], and another, ‘university is great, however, nothing compares to real like experience. I could complete a whole degree and still be none the wiser until I have started work’ [S127]. Volunteering also appeared beneficial, in particular networking and developing relationships with diverse people. Certainly, the value of industry engagement was resounding, important not only for transfer but also student work-readiness more broadly (Smith et al. 2014).

Challenge posed by transfer

Students rated the level of complexity of their activities and how challenging they found applying their skills/knowledge in this instance. The average rating for complexity was 3.03 ($SD=1.11$) and 3.73 ($SD=1.17$) for challenge. That students found the transfer of theoretical concepts taught at university demanding during their WIL experience, aligned with Veillard (2012) who noted similar difficulties among French higher education students undertaking WIL. To better understand how transfer varied among students, multiple linear regression was conducted on the perceived level of challenge with predictor variables of discipline, confidence prior to WIL,

complexity of tasks and whether the transfer was near or far (familiarity composite). Sociology was assigned the base variable for discipline. Bivariate correlations did not exceed .200 and there were no inflated standard errors, suggesting multicollinearity was not present. The Durbin-Watson test statistic of 2.23 suggested first order linear auto-correlation was absent (Cellini et al. 2012) and there were no standardised residuals outside the accepted threshold of ± 3 . The results of the linear regression in Table 3 indicated the model was significant, $F(5, 85)=8.55$, $p<.001$, and of reasonable fit with an adjusted R^2 of .30. The regression coefficients show the expected change in perceived challenge for each independent variable, holding other variables in the model constant.

[Insert Table 3]

Complexity of activity was significant, aligning with Leberman et al. (2006) who found the more complex the students' assigned tasks, the more challenging they found it to transfer skills and knowledge. Interestingly, whether the transfer was considered near or far did not affect the perceived level of challenge, contravening Leberman and colleagues' study where the less familiar students were with tasks, the more difficult it was to transfer. Student confidence in their ability to transfer was also not reported as a significant predictor of perceived challenge.

Barriers to transfer

Data were gathered from both students and workplace supervisors to explore barriers to transfer. These data produced the following themes.

Lack of opportunity

Many students attributed their inability to transfer skills and knowledge to lack of opportunity. Reasons included assigned tasks lacked the scope, depth and challenge to enable students to draw on/apply theoretical content learned at university. For example, highly administrative tasks made it difficult to apply even the most basic theories and conceptual frameworks. Some had not learned relevant theories at university, e.g. due to not completing certain units or because placements were unrelated to course content. Finally, attending the workplace one day per week was noted by one student as inhibiting the flow of work and the opportunity for transfer. Supervisors noted that unclear expectations - among both themselves and their students - regarding what the WIL experience entailed, hampered student learning and their opportunity to transfer. Further, they felt shorter placements provided less opportunities for transfer.

Resistance and inadequate workplace support

Some students felt there was a lack of support in the workplace and they found that asking questions was discouraged. Specifically, there was resistance in the workplace for suggesting new ways of doing things as they contravened the norm, 'I felt confronted when I suggested solutions that I have learnt are the best and they weren't taken on board or when they were different to what was the norm there' [S100]. Some were fearful of making mistakes, and others felt poorly equipped to manage interpersonal situations 'dealing with people is not always as simple as applying behavioural theory to reduce conflicts or tension' [S54]; 'dealing with negative behaviour and comments is something you can't necessarily learn or be exposed to at university it just happens throughout life and that's when you learn how to deal with it' [S99]. Some felt insufficiently informed to apply theoretical knowledge in the workplace because co-workers and supervisors were too busy to train them. In contrast, some supervisors felt that students' lack of confidence was a key barrier, affecting their willingness to ask questions, contribute ideas or use initiative. Some workplace supervisors felt students did not optimize their learning due to inadequate preparation for their workplace experience, specifically a lack of visualization and anticipation of the skills and knowledge they would be applying and why.

Complexity of the application context

Diversity and ambiguity in the application context made it difficult for some students to apply theory. Students were sometimes not familiar or experienced in completing assigned tasks and were used to detailed guidance, such as for university assignments. Sometimes they found only broad theoretical principles applied to their tasks and had to adjust continually to new situations. Critical thinking and problem solving skills were recognised as necessary to cope with variability: 'the real world is not written out in a text book, things change and move and appear in many unusual ways' [S133]. Adjusting to new work environments was challenging, 'adjusting to the new culture and people and structures as well as being thrown into a major project made the first few months tough' [S106]. Some, particularly international students, found the use of jargon problematic. Deadlines and workplace pace also posed an issue, 'a situation such as hearing during a meeting a particular approach to delivery, and making the connection to my learning later on after the direction has been decided' [S133]. These complexities, combined with a lack of familiarity with systems and software, created difficulties in drawing on existing knowledge and completing tasks in the required timeframe. Few students cited memory and recall of theory as a barrier.

Disconnection between university curricula and reality

Students commented on the misalignment between university learning and workplace practice, 'I think university paints a vision of business that is disconnected with reality. They express a perfect world without considering what actually occurs and how things are actually applied' [S37]. Some found what was taught at university to be very different at work and gave specific examples, including outdated content. Others found taught skills were more tailored to basic application or bespoke settings, rather than large scale, commercial environments. One student commented that academic writing learnt at university was not suited to the workplace, while others lamented the lack of practical examples during university classes. Alignment of university curriculum with students experience in the workplace was also viewed as problematic by supervisors. In some cases, workplace tasks were completely new to students: 'lack of understanding about industry, so a lack of familiarity about real life and real problems' (W3) and 'I kind of feel like there's a bit of a disconnect at the moment because what we were needing from the students, she didn't appear to be getting in the classroom' (W10). Interestingly, some supervisors admitted they had no idea what students were learning at university and how this might relate to workplace activities.

Strategies to enhance transfer during WIL

Students acknowledged the value of WIL for enhancing their ability to transfer. Immersed WIL was seen to improve communication skills, as well as students' familiarity with the industry (application) context. Increased confidence (e.g. 'I definitely feel more confident/empowered to embrace the working world out there' [S108]) and reduced anxiety regarding transitioning to the workforce were also mentioned. Very few students commented on their WIL experience not aiding transfer yet many acknowledged they had much to learn in terms of applying skills and knowledge in new contexts. For example, 'although I strongly believe this work experience to be highly valuable, it's almost like going back to square one, e.g. starting over with different company policies and procedures, the way things may be done differently' [S212].

A range of WIL design principles and considerations emerged to optimise the transfer of skills and knowledge to the workplace. First, students highlighted the need for improved pre-placement preparation and counselling to help them understand what to expect in the workplace. One noted this could involve industry, 'a program that instigates dialogue with industry professionals to understand their wants and desires for interns and what skills are necessary to prepare before the first attendance' [S94]. Second, students advocated more rigorous screening

processes to ensure they are assigned to meaningful and suitably scoped placements with appropriate levels of challenge, relevance to the course of study, opportunity for autonomy, and sufficient time for completing targeted tasks/projects. Supervisors also acknowledged that workplace tasks and experiences should be relevant and matched to student interests.

Third, students advocated for strong support from workplace supervisors, especially on guidance and coaching on applying theoretical concepts, what to do if things were not going well, and clear expectations of the type and standard of work to be produced. One student commented, 'I should have been more confident about raising my concerns with my mentor at the placement and should have asked for more challenging work' [S4]. In most cases, workplace supervisors considered they had a key role in facilitating transfer and this was often seen as a shared responsibility, one stated 'the workplace supervisor ensures that students are reinforcing their learning, but the reality is that the student has a better understanding about what they know, what they're learning at university ... if there's no student driving it, then it's probably not going to happen' (W3). The role of quality supervision and training resonates with extant literature (Chiaburu, Van Dam, and Hutchins 2010; Govaerts, Kyndt, and Dochy 2018), spanning better communication with WIL academics, sufficient time and resources to mentor students, detailed and timely feedback, and training that gives insight into why work was completed in a particular way, as well as the use of systems and technology.

Fourth, workplace supervisor familiarity with students' coursework was considered highly important by the supervisors themselves. One supervisor mentioned 'we do try to target work to things that we know that they've already learnt in the course' (W18), and another stated, 'we try and make projects that are broad enough so that if they do identify skills and things that they're learning that they're interested in that relates to the project' (W20). These findings affirm the importance of supervisors in developing a better understanding of institution-based learning (Davids et al. 2017) and how this may relate (or not) to workplace activities. Supervisors often tried to find out first what students already knew. For example, 'first we asked whether the student had learnt about the standard then showed them why we're doing what we're doing in accordance with the standard' (W1). Another shared a similar strategy by asking their student, 'what kinds of literature and research she had undertaken before she had started the placement...to help her see the overlap between university research...and the kind of research that we were doing' (W19). Supervisors also felt that asking questions was a key strategy for prompting transfer: 'Instead of giving them the answer, I went back to the concepts, and helped them realise where the answer is ...

So it was more like, ‘Do you remember that concept that you learned? What was said? What do you remember about that particular concept?’ And then try and figure out where they can’t make the connection, and just help them get that connection. That way ... works best because they’ll never forget the thing, it’s more like they’ve discovered it on their own, more than they have been taught how to do it’ (W8).

Fifth, creating collaborative workplace environments with access to a support network was considered important, aligning with the findings of Davids et al. (2017). One student commented: ‘workplace peers helped to transfer my skills and bring out ideas and creative ability to push me further’ [S99]. Supervisors felt that having students onsite and working alongside colleagues helped to develop rapport, so they are comfortable and confident to voice opinions. One noted, ‘having an environment where they feel confident to share their ideas is important’ (W15). Sixth, students highlighted the importance of their own proactivity during WIL through online research, being organised, commitment to completing tasks, self-direction, asking questions and problem solving. One student stated, ‘I just used my instinct as these skills were needed rapidly and without warning’ [S100]. An interesting insight was how students felt their personal drive, desire to learn and persistence aided transfer, with one describing this as ‘commitment to succeed in the industry and excitement for the future’ [S19]. While students did not overtly acknowledge the importance of confidence, it was clearly considered pivotal by workplace supervisors. They felt as students became more confident during the placement, their willingness to share ideas/perspectives increased, and in doing so transferred knowledge learnt at university. This could be prompted by, ‘asking for ideas ... from our perspective, they do have some really good ideas. So, taking time to give them that opportunity will help with their confidence’ (W15). Finally, supervisors noted the value in offering core, and lengthier, WIL opportunities in degree programs.

Implications

Findings broadly indicate that while students clearly practice transfer during WIL, this is often near and largely related to discipline-specific skills. Given the importance of generic skills to employers of graduates, attention to encouraging their transfer across contexts appears important. Increasing students’ confidence in their ability to transfer, particularly among undergraduates and females, is fundamental to encouraging students to share ideas and draw on their acquired knowledge during their workplace experiences. While WIL emerged as a key facilitator of transfer - enabling students to foster networks, experience, skills, and confidence in their ability to transfer – it is often embedded in the later stages of degree programs, highlighting the importance of other university-based

and external activities for developing student ability to transfer. Ideally, students will be taught how to apply relevant knowledge and skills prior to attending WIL (Davids et al. 2017) yet this is not always possible for broad disciplines, such as Business. Encouraging self-directedness among students during WIL emerged as important, and fostering this in earlier stages of study through student-centred learning may aid transfer. Infusing industry engagement into the curriculum also featured strongly, helping to address the ongoing disconnection between industry-required, future-oriented capabilities and tertiary education (Sin and Amaral 2017). Embedding opportunities for students to engage with industry early in their studies may enhance student confidence prior to WIL and dilute the complexities of the workplace, quickening adjustment to the professional context and enhancing student learning outcomes.

Findings suggest that WIL needs to be carefully designed to augment transfer. Good student-placement fit is critical and may be achieved by better supporting and counselling students and staff responsible for sourcing and evaluating WIL opportunities. Selecting placements that afford students the opportunity to practice transferring theoretical and practical knowledge, particularly of a far nature, is important. Design that encourages responsibility and autonomy (Davids et al. 2017) will heighten students' sense of purpose in learning and motivate them to transfer (Holton, Chen, and Naquin 2003). Assigned work should be suitably challenging to enhance student learning outcomes (Jackson 2017), yet clearly work that is too complex may inhibit transfer. Alignment with course content is critical for enhancing student outcomes, as complex work that relates to theoretical concepts taught at university appears more tolerable for transfer purposes. Emphasising accountability and the value of actively critiquing one's own behaviour and performance during WIL could be developed through embedded reflective activities (prior to and during WIL) and building confidence in the application of skills and knowledge in practical settings (Coulson and Harvey 2013). Immersing students in a collaborative working environment where they engage with and learn effectively from their co-workers is also important. This, however, has implications for the growing interest in virtual WIL which is often better suited to micro- and smaller businesses who operate from home or co-working spaces. Finally, processes and resources must be in place for workplace supervisors to adequately guide and support their placement students, particularly with more complex tasks and those unrelated to students' course of study. Collaborative effort among industry and educators is needed to upskill supervisors for the purposes of WIL, building on the valuable work undertaken in this area (for example, Trede, Sutton, and Maxwell 2016).

The study also highlighted the importance of volunteering and paid work as increasing student confidence in transfer. Educators need to develop ways to explicitly complement and strengthen the learning achieved collectively through WIL, institution-based learning and extra-curricular activities. This may involve reflective pieces as part of e-portfolios or other activities which target the development and articulation of skills and their transfer across contexts, commencing early during study and mandated for course completion. Incorporating industry-education collaboration in designing and delivering these curricular and co-curricular offerings is the ideal, yet must be sustainable and scalable in the context of lean economies and resource constraints in the tertiary education sector.

Concluding remarks

Given growing labour market demands for flexible graduates that can operate across a variety of work contexts, transfer can no longer simply be assumed. Findings highlighted the important role of WIL, self-directed learning, paid work and volunteering in augmenting transfer, emphasising the importance of educators taking a holistic approach to developing students' transfer ability and carefully considering the design and integration of curricular, co-curricular and extra-curricular activities. The present study provides a valuable contribution to our somewhat limited understanding of skill and knowledge transfer among tertiary students transitioning from the classroom to work, addressing a dearth of empirical exploration, and providing a foundation for future research. Findings indicate that HE students are somewhat confident in their ability to transfer skills and knowledge, yet WIL can potentially add value in a number of ways when thoughtfully designed. In this vein, a number of strategies for enhancing transfer are offered, specific to WIL and beyond.

As with all studies, there are limitations. The sample size is not considerable, yet sufficient for the quantitative techniques employed and the volume of qualitative data provides a rich picture of student transfer experiences during WIL and its determining factors. While the narratives offer insights into near or simple transfer from university to the workplace, further research is needed on experiences of complex and far transfer. Further, WIL provides a valuable opportunity for the two-way process of transfer of learning, that being from the university to classroom and the workplace to the classroom. While this paper is limited to the former, there is considerable potential for the latter through collective, post-WIL activities in the classroom setting where students are given the time and encouragement to critically reflect and make meaning of their workplace experiences. Beyond WIL, it is imperative that educators recognise the value of activities (in and outside of university) for developing

students' ability to transfer skills and knowledge. Further research is needed on how such activities – particularly paid work and volunteering - contribute to, and complement, student learning and their ability to transfer.

References

- Analoui, F. (1993). *Training and transfer of learning*. Nevada, US: Avebury.
- Baldwin, T., & Ford, J. (1988). Transfer of training: A review and directions for future research. *Personnel Psychology*, 41(1), 63–105.
- Baldwin, T., Ford, K., & Blume, B (2017). The state of transfer of training research: moving toward more consumer-centric inquiry. *Human Resource Development Quarterly*, 28(1), 17-28.
- Barnett, S., & Ceci, S. (2002). When and where do we apply what we learn? A taxonomy for far transfer. *Psychological Bulletin*, 128(4), 612–637.
- Barrick, M., & Mount, M. (1991). The big five personality dimensions and job performance: a meta-analysis. *Personnel psychology*, 44(1), 1-26.
- Beach, K. (1999). Consequential transitions: A sociocultural expedition beyond transferring education. *Review of Research in Education*, 24(1), 101–39.
- Billett, S. (2011). *Curriculum and pedagogical bases for effectively integrating practice-based experiences – Final report*. Strawberry Hills, NSW: Australian Learning and Teaching Council.
- Bransford, J., & Schwartz, D. (1999). *Rethinking transfer: A simple proposal with multiple implications*. Thousand Oaks, CA: Sage Publications.
- Bransford, J., Brown, A., & Cocking, R. (1999). *How people learn: Brain, mind, experience and school*. Washington, DC: National Academy Press.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101.
- Broudy, H. (1977). Types of knowledge and purposes of education. In R. Anderson, R. Spiro, & W. Montague (Eds.), *Schooling and the acquisition of knowledge* (pp. 1-17). Hillsdale, NJ: Erlbaum.
- Burke, L., & Hutchins, H. (2007). Training transfer: An integrative literature review. *Human Resource Development Review*, 6(3), 263–296.
- Chiaburu, D., van Dam, K., & Hutchins, H. (2010). Social Support in the workplace and training transfer: A longitudinal analysis. *International Journal of Selection and Assessment*, 18(2): 187–200.
- Choi, M. & Roulston, K. (2015). Learning transfer in practice: A qualitative study of medical professionals' perspectives. *Human Resource Development Quarterly*, 26(3), 249-273.
- Cilliers, F., & Tekian, A. (2016). Effective faculty development in an institutional context: Designing for transfer. *Journal of Graduate Medical Education*, 8(2), 145-149.

- Committee for Economic Development of Australia (2015). *Australia's future workforce?* Melbourne, VIC: CEDA.
- Coulson, D., & Harvey, M. (2013). Scaffolding student reflection for experience-based learning: A framework. *Teaching in Higher Education*, 18(4), 401-413.
- Curran, P., West, S. & Finch, J. (1996). The robustness of test statistics to non-normality and specification error in confirmatory factor analysis. *Psychological Methods*, 1(1), 16–29.
- Dauids, A., Van den Bossche, P., Gijbels, D., & Garrido, M. (2017). The impact of individual, educational, and workplace factors on the transfer of school-based learning into the workplace. *Vocations and Learning*, 10(3), 275-306.
- de Rijdt, C., Stes, A., van der Vleuten, C., & Dochy, F. (2013). Influencing variables and moderators of transfer of learning to the workplace within staff development in HE. *Educational Research Review*, 8, 48–74.
- Deloitte (2017). *Soft skills for business success*. Sydney, NSW: Deloitte.
- Engestrom Y, & Kerosuo, H. (2007). From workplace learning to inter-organizational learning and back: The contribution of activity theory. *Journal of Workplace Learning*, 19(6), 336–42.
- Fereday, J., & Muir-Cochrane, E. (2008). Demonstrating rigor using thematic analysis. *International Journal of Qualitative Methods*, 5(1), 80–92.
- Foundation for Young Australians (2016). *The new work mindset: 7 new job clusters to help young people to navigate the new work order*. Melbourne, VIC: FYA.
- Govaerts, N., Kyndt, E., & Dochy, F. (2018). The influence of specific supervisor support types on transfer of training: Examining the mediating effect of training retention. *Vocations and Learning*, 11(2), 265-288.
- Grant-Smith, D., & McDonald, P. (2018). Planning to work for free: Building the graduate employability of planners through unpaid work. *Journal of Youth Studies*, 21(2), 161-177.
- Hakel, M., & Halpern, D. (2005). How far can transfer go: Making transfer happen across physical, temporal and conceptual space. In J. Mestre (Ed.), *Transfer of learning from a modern multidisciplinary perspective*, (pp. 357-370). Greenwich, CT: Information Age Publishing.
- Holton, E., R. Bates, & Ruona, W. (2000). Development of a generalized learning transfer system inventory. *Human Resource Development Quarterly*, 11(4), 333–360.
- Holton, E., Chen, H., and Naquin, S. (2003). An examination of learning transfer system characteristics across organizational settings. *Human Resource Development Quarterly*, 14(4), 459–482.

- Huang, J., Ford, J., & Ryan, A. (2017). Ignored no more: Within-person variability enables better understanding of training transfer. *Personnel Psychology*, 70(3), 557-596.
- Jackson, D., & Hancock, P. (2010). Developing non-technical skills in undergraduate degrees in business and their transfer to the workplace. *Education Research and Perspectives*, 37(1), 52-84.
- Jackson, D. (2016). Modelling graduate skill transfer from university to the workplace. *Journal of Education and Work*, 29(2), 199-231.
- Jackson, D. (2017). Developing pre-professional identity in undergraduates through work-integrated learning. *Higher Education*, 74(5), 833-853.
- Jackson, D. (2018). Evaluating the capabilities associated with professional identity: Comparing the perspectives of work-integrated learning students and their workplace supervisors. *Vocations and Learning*, doi: [10.1007/s12186-018-9207-1](https://doi.org/10.1007/s12186-018-9207-1)
- Johnson, R., Onwuegbuzie, A., & Turner, L. (2007). Towards a definition of mixed methods research. *Journal of Mixed Methods Research*, 1(2), 112-133.
- Kay, J., Ferns, S., Russell, L., & Smith, J. (2019). The emerging future: Innovative models of work integrated learning. *International Journal of Work Integrated Learning*.
- Kirwan, C., & Birchall, D. (2006). Transfer of learning from management development programmes: Testing the Holton model. *International Journal of Training and Development*, 10(4), 252-268.
- Lam, R., & Muldner, K. (2017). Manipulating cognitive engagement in preparation-to-collaborate tasks and the effects on learning. *Learning and Instruction*, 52(1), 90-101.
- Leberman, S., McDonald, L., & Doyle, S. (2006). *The transfer of learning: Participants' perspectives of adult education and training*. Aldershot, UK: Gower Publishing.
- McNamara, J. (2013). The challenge of assessing professional competence in work integrated learning. *Assessment and Evaluation in Higher Education*, 38(2), 183-197.
- McRae, N., & Johnston, N. (2016). The development of a proposed global work-integrated learning framework. *Asia-Pacific Journal of Cooperative Education*, 17(4), 337-348.
- Merriam, S. (1995). What can you tell from an N of 1: Issues of validity and reliability in qualitative research. *PAACE Journal of Lifelong Learning*, 4, 50-60.
- Mestre, J. (2005). *Transfer of learning from a modern multidisciplinary perspective*. Greenwich, CT: Information Age Publishing.

- Nafukho, F., Alfred, M., Chakraborty, M., Johnson, M., & Cherrstrom, C. (2017). Predicting workplace transfer of learning: A study of adult learners enrolled in a continuing professional education training program. *European Journal of training and Development*, 41(4), 327-353.
- Norusis, M. (2008). *SPSS statistics 17.0 statistical procedures companion*. Upper Saddle River, NJ: Prentice-Hall.
- Peach, D., Gomez, R., & Ruinard, E. (2013). Reconstructing places and spaces in blended WIL. In S. Frielick et al. (Eds.), *Proceedings from the 36th HERDSA Conference* (pp. 336-345). Auckland, NZ: AUT University.
- Peach, D., Ruinard, E., & Webb, F. (2014). Feedback on student performance in the workplace: The role of workplace supervisors. *Asia-Pacific Journal of Cooperative Education*, 15(3), 241-252.
- Podsakoff, P., MacKenzie, S., Lee, J., & Podsakoff, N. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879-903.
- Schwartz, D., Bransford, J., & Sears, D. (2005). Efficiency and innovation in transfer. In J. Mestre (Ed.), *Transfer of learning from a modern multidisciplinary perspective* (pp. 1-51). Greenwich, CT: Information Age.
- Sin, C., & Amaral, A. (2017). Academics' and employers' perceptions about responsibilities for employability and their initiatives towards its development. *Higher Education*, 73(1), 97-111.
- Smith, C. (2012). Evaluating the quality of work-integrated learning curricula: A comprehensive framework. *Higher Education Research and Development*, 31(2), 247-262.
- Smith, C., Ferns, S., & Russell, L. (2014). *The impact of work-integrated learning on student work-readiness*. Sydney, NSW: Office for Learning and Teaching.
- Smith, C., Ferns, S., & Russell, L. (2019). Placement quality has a greater impact on employability than structure or placement duration. *International Journal of Work Integrated Learning*, 20(1), 15-29.
- Trede, F., Sutton, K., and Maxwell, D. (2016). *Get engaged! Growing WPL through a workplace supervisor capacity building module*. Melbourne, VIC: Australian Collaborative Education Network.
- Veillard, L. (2012). Transfer of learning as a specific case of transition between learning contexts in a French work-integrated learning programme. *Vocations and Learning*, 5(3), 251-276.

Table 1 Sample demographics – student survey (N=151)

Variable	Subgroup	Valid %
Age	Less than 21 years	18
	22 to 29 years	58
	30 to 39 years	16
	40 years and above	8
Gender	Male	34
	Female	66
Residency	Domestic	66
	International	34
Level of study	Undergraduate	74
	Postgraduate	26
Discipline	Business	82
	Sport and Recreation	13
	Sociology	5
Hours on placement	100 to 150	56
	150 to 299	11
	More than 300	33

Table 2 Student perspectives on activities which develop confidence in skills and knowledge transfer (N=137)

University activities	Frequency	Outside university activities	Frequency
Immersed WIL	60	Paid work	97
Group work and communication	36	Volunteering	58
Authentic tasks and projects	20	Networking events	10
Oral presentation	17	Sports and community-based activities	7
Industry engagement	12	Mentoring	4
Discipline-based knowledge and reasoning activities	10	Participation in other training and development	5
Exchange, competition, volunteering and clubs	7	Travel	3
Reflective activities	5	Research on industry/sector and roles	2
Research	4		
Lecturers with real-life practice	4		
Skills development programs	4		

Table 3 Regression analysis for challenge with transferring skills and knowledge

Variable	Unstandardised regression coefficient (<i>B</i>)	Standard error	Standardised regression coefficient (β)	<i>p</i> -value
Constant	2.70	0.58		.000
Complexity of tasks	0.58	0.10	0.55	.000*
Confidence prior to WIL	-0.07	0.09	-0.07	.429
Familiarity composite (near/far)	-0.16	0.11	-0.14	.149
Sport and Recreation	-0.10	0.59	-0.03	.861
Business	0.05	0.50	0.02	.923
R^2	.34			
Adjusted R^2	.30			

* $p < .01$