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# Equity and inclusion in work-integrated learning: participation and outcomes for diverse student groups

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**ABSTRACT**

Universities support students in their transition to work and future career through programmes such as work-integrated learning (WIL). WIL engages students in authentic industry-based experiences and is considered valuable for preparedness for work, including professional socialisation and developing skills prioritised by graduate employers. Research shows, however, that access and participation in WIL is not equal among all student groups. This paper reports on the responses of over 151,000 recent graduates in an Australian-wide survey. It investigates participation in different types of WIL and its influence on self-perceptions of employability and the employment outcomes of graduates from different backgrounds. Findings show how access to diverse forms of WIL is not uniform, urging universities to carefully consider barriers and challenges for different student cohorts. Those that do access WIL largely experience significant positive outcomes, highlighting WIL's instrumental role in preparing students for future work. The paper highlights the need for tailored approaches to WIL that enable access and optimise outcomes for all students to best prepare them for career pathways.

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Work-integrated learning; internship; placement; equity; inclusion

## Introduction

As higher education (HE) institutions seek to better support graduate employability, there is significant focus on embedding career-focused and work-based pedagogies, including work-integrated learning (WIL) (Sachs et al., 2016). WIL engages students in authentic work practices within the curriculum and intends to improve job attainment (Di Meglio et al., 2022), perceived employability (Jackson & Dean, 2023), professional identity development (Trede, 2012) and preparedness for work and career (Smith et al., 2014; Wan et al., 2013). Although work placements are the most common form of WIL (Universities Australia, 2019), it comes in a variety of different forms which span virtual, on-campus, global

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and workplace experiences (Kay et al., 2019), each offering demonstrated benefits for HE students (Jackson & Dean, 2023).

Employability, equity, diversity and inclusion feature prominently as strategic priorities in HE, meaning all students should have similar exposure to employability-related initiatives within the curriculum. This includes known student equity groups, including those from regional/remote areas, who identify as Indigenous, are of low socioeconomic status (SES), have disabilities, or are from non-English-speaking backgrounds (NESB) (Dawkins, 1990). Despite the rhetoric of equity and inclusion, barriers inhibit student equity groups' access to WIL (Bowen, 2020; Lloyd et al., 2019), particularly workplace experiences (internships/placements/practicums) (Mackaway & Winchester-Seeto, 2018). Barriers can adversely affect employability and preparedness for work (Burke et al., 2020) and have prompted increasing attention to student participation and outcomes in WIL (Burke et al., 2020; Universities Australia et al., 2015). Inequalities also extend to international students who actively seek to participate in work-based WIL yet experience difficulties in sourcing opportunities relative to domestic peers (Gribble & McRae, 2017). The often less developed cultural and social capital among equity and international students, and lower career self-efficacy (Kitchen et al., 2021), amplifies their need to garner the benefits that WIL confers.

The importance of a purposeful, student-centred and inclusive approach to improving employability is widely supported (Thompson & Brewster, 2022), with many advocating for policy and practice that enables all students to participate in WIL (e.g. Andrewartha & Harvey, 2017). Given this, the study sought to investigate participation and outcomes in WIL among diverse cohorts using a national survey dataset of more than 150,000 Australian graduates. Three research questions were posed: (RQ1) to what extent do students of varying backgrounds participate in different types of WIL during university years, (RQ2) how do different types of WIL influence the employment outcomes of recent graduates of varying background; and (RQ3) how do WIL activities influence self-perceptions of employability among recent graduates of varying background?

This paper makes two important contributions. First, it addresses the lack of empirical evidence of participation in different types of WIL for students of varying backgrounds. Second, it provides important insights on the relative value of different forms of WIL on employment and employability outcomes for diverse student groups. In the context of widening participation, findings are critical for informing curriculum design, and institutional and national policy and practice to enable all students to meaningfully engage with industry and community during their studies.

## WIL and its impact on employment and employability

There is growing pressure from external stakeholders, including industry, government and professional bodies, to optimise graduate preparedness for work and post-graduation employment outcomes. In Australia, for example, measures have been introduced to link HE institutional funding to graduates' employment outcomes (Australian Government, 2019) and to students' engagement with industry, as part of the National Priorities and Industry Linkage Fund [NPILF] (Australian Government, 2020). The NPILF initiative highlights an emphasis on WIL for developing student employability, empowering individual graduates to effectively navigate complex labour markets and support

organisations – and the wider economy – in raising productivity and prosperity (Hurley et al., 2021). Indeed, WIL has become inextricably associated with student employability and is globally recognised as a key lever in resolving graduate skill gaps (e.g. Perusso & Wagenaar, 2022).

While recognising the complexities of employability, this paper focuses on the impact of WIL on employment outcomes and graduates' perceived employability. A range of labour force measures were embraced, including attaining full-time employment and perceptions of overqualification (employment in a role not fully utilising degree qualification, experience and skills). Research highlights that work-based WIL has enhanced graduate job attainment worldwide (Bilsland et al., 2019; Di Meglio et al., 2022) and can lead to quality, graduate-level employment (Hurley et al., 2021; Jackson & Collings, 2018). Different from employment, perceived employability indicates one's sense of their ability to attain work appropriate to one's qualification, knowledge and skills, and is shaped by personal and contextual factors, such as labour market conditions, background characteristics, and engagement in activities that build confidence and personal resources (see Petruzziello et al., 2023). Work-based WIL is important for enhancing perceived employability (Byrne, 2022; Jackson & Bridgstock, 2021) with students who participate in an internship reporting high levels of understanding, motivation and skills leading to greater confidence in their readiness for the workplace (Kapareliotis et al., 2019).

There is growing recognition of the importance of WIL beyond work-based models, enabling scale across all disciplines and to circumvent resource limitations and potentially address inequities in access (Dean et al., 2020; Kay et al., 2019). Other forms of WIL situated outside the workplace include industry projects (Kay et al., 2019), simulations (Smith et al., 2014) and student learning in international workspaces, known as global WIL (Green et al., 2019; Pinto & Pereira, 2019; Predovic et al., 2022). Although there is limited evidence of the effects of these alternative forms of WIL on employment outcomes, there is demonstrated benefits for perceived employability (Jackson & Bridgstock, 2021; Jackson & Dean, 2023).

## Equitable and inclusive WIL

There is strong support for WIL being available to all HE students (Basit et al., 2015). There is need for careful design and delivery that recognises students' various knowledge, skills, career aspirations and personal circumstances, and which does not exacerbate disadvantage (Mackaway et al., 2014). Several studies have examined barriers to equity students' participation in WIL and their difficulty in leveraging positive experiences and outcomes. A key challenge is difficulty in sourcing quality opportunities, often stemming from systemic prejudices about students' capabilities and motivations (Lloyd et al., 2019) that affect decisions exercised by workplace "gatekeepers" (Mackaway & Winchester-Seeto, 2018). Further, equity cohorts can struggle to balance work-based WIL with paid work and caring commitments and meet associated costs, such as travel and clothing (Peach et al., 2016). Consequently, these groups have reported disquietude for WIL, particularly around wellbeing and financial stress, with research urging greater workplace and institutional support (Grant-Smith et al., 2017; Lloyd et al., 2019).

With respect to specific challenges, students from regional and remote areas of Australia often move away from home to undertake HE and may struggle with reduced social networks, financial security and unfamiliar surroundings (Cook et al., 2022; Lewis et al., 2007). Indigenous student cohorts also warrant careful consideration when designing WIL (Mackaway et al., 2014) given the need for supervisors and co-workers to provide culturally safe workplace environments and demonstrate cultural competence as they mentor, guide and provide feedback to their students (Eady & Keen, 2021).

Students from a low SES background are more likely to engage in part-time work while attending HE, potentially impacting on their available time for study (including WIL) and adversely affecting their academic performance (Devlin & McKay, 2018). They may experience difficulties in accessing work-based WIL that is unpaid, with financial stress the most highly reported challenge due to loss of income and costs for transport and childcare (Grant-Smith et al., 2017). The requirement for students to self-source WIL opportunities creates further vulnerability for this group, privileging those with advanced social capital who can more easily leverage professional networks (Lloyd et al., 2019; Peach et al., 2016).

WIL is considered to support students with disability's transition to work (Bellman et al., 2014) and there is a recognised need to improve their access to work experience (Eckstein, 2022). However, participation in WIL is relatively low (Bell et al., 2021; Palmer et al., 2018) and those who do engage in work-based WIL face difficult decisions regarding disclosing their disabilities and experience high levels of apprehension around co-workers' understanding and the practical elements of work (Eckstein, 2022; Thompson & Brewster, 2022).

NESB students, including those classed as international, are highly motivated in seeking opportunities to enhance their employability (Kay et al., 2019; Pham et al., 2019; Thondhlana, 2020) and expect an industry experience when studying abroad (Ammigan & Jones, 2018). However, research shows that proportionately fewer international students participate in work-based WIL and often face numerous challenges during their experience (Jackson, 2017). Barriers to access include their ability to commute to remote locations, challenges around communication (Desai-Trilokekar et al., 2016) and potentially limited social capital to leverage networks for sourcing WIL opportunities. Suppressed experiences are often attributed to English language skills and limited understanding of local working contexts (Pham et al., 2019). Collectively, these barriers and challenges highlight the need for socialisation and tailored strategies for NESB students to enable success in WIL (Pham et al., 2019). Finally, gender bias presents as a challenge in WIL, with research demonstrating women in STEM internships experience a lack of gender neutrality within organisations and communication materials (Bowen, 2020) and discriminatory behaviours (Lloyd et al., 2019).

Inclusive WIL is a proactive, sustainable, and collaborative approach that minimises barriers and enables student access to quality WIL experiences while respecting individuality and life circumstances, preferences, capabilities, and expectations (Winchester-Seeto et al., 2015). Many (e.g. Grant-Smith et al., 2017; Mackaway et al., 2014; Sachs et al., 2016; Winchester-Seeto et al., 2015) have recommended strategies for inclusive WIL, such as being flexible and avoiding a "one size fits all" approach; embedding a variety of WIL models that consider context and learner needs; supporting students and industry/community partners through the stages before, during and after WIL; developing more accessible programmes and resources to increase participation across

cohorts; undertaking review and evaluation for improvement; and, cultivating an inclusive institutional culture that promotes WIL for all.

Specifically for Indigenous students, guiding principles also include investing in time for building understanding, relationships, and trust; intentionally engaging with any biases, assumptions and stereotypes to develop cultural safety; and providing professional development for WIL practitioners that focuses on Indigenous perspectives (Eady et al., 2022). However, all students benefit from core values such as reciprocity between mentor or supervisor and student, relevance and respect for Indigenous knowledge, and shared responsibility for creating a supportive learning environment where confidence, friendships and a sense of purpose can grow (Ward et al., 2022).

## Methodology

### *Participants*

The characteristics of the 151,048 Australian graduates who participated in this study are summarised in Table 1. Bachelor graduates include those completing an honours course, their degree incorporating a thesis component.

**Table 1.** Sample characteristics.

| | | 2020 ($n = 76,261$) | | 2021 ($n = 74,787$) | | Total ($n = 151,048$) | |
|---|---|---|---|---|---|---|---|
| Variable | Sub-groups | Count | % | Count | % | Count | % |
| Age | 0–24 years | 39,192 | 51.4 | 37,167 | 49.7 | 76,359 | 50.6 |
| | 25+ years | 37,069 | 48.6 | 37,620 | 50.3 | 74,689 | 49.4 |
| Gender | Male | 29,144 | 38.3 | 28,904 | 38.7 | 58,048 | 38.5 |
| | Female | 46,906 | 61.7 | 45,761 | 61.3 | 92,667 | 61.5 |
| Citizenship | Domestic | 57,656 | 75.6 | 54,956 | 73.5 | 112,612 | 74.6 |
| | International | 18,605 | 24.4 | 19,830 | 26.5 | 38,435 | 25.4 |
| Disability | No disabilities | 71,823 | 94.4 | 68,725 | 92.0 | 140,548 | 93.2 |
| | Disability | 4,293 | 5.6 | 6,008 | 8.0 | 10,301 | 6.8 |
| Socio-economic status | Low | 8,296 | 14.7 | 7,879 | 14.6 | 16,175 | 14.7 |
| | Medium | 27,913 | 49.3 | 26,600 | 49.4 | 54,513 | 49.4 |
| | High | 20,357 | 36.0 | 19,337 | 35.9 | 39,694 | 36.0 |
| Indigenous | Not Indigenous | 75533 | 99.0 | 74,031 | 99.0 | 149,564 | 99.0 |
| | Indigenous | 728 | 1.0 | 756 | 1.0 | 1,484 | 1.0 |
| NESB | Not NESB | 62828 | 82.4 | 60,547 | 81.0 | 123,375 | 81.7 |
| | NESB | 13433 | 17.6 | 14,240 | 19.0 | 27,673 | 18.3 |
| Regionality | Not regional/remote | 44639 | 58.5 | 43,928 | 58.7 | 88,567 | 58.6 |
| | Regional/remote | 31622 | 41.5 | 30,859 | 41.3 | 62,481 | 41.4 |
| Course level | Bachelor | 44,572 | 58.4 | 42,201 | 56.4 | 86,773 | 57.4 |
| | Postgraduate coursework | 27,492 | 36.0 | 28,541 | 38.2 | 56,033 | 37.1 |
| | Postgraduate research | 4,197 | 5.5 | 4,045 | 5.4 | 8,242 | 5.5 |
| Labour market status | Employed | 57,283 | 75.1 | 56,825 | 76.0 | 114,108 | 75.5 |
| | Unemployed | 12,630 | 16.6 | 12,252 | 16.4 | 24,882 | 16.5 |
| | Not in labour force | 6,348 | 8.3 | 5,710 | 7.6 | 12,058 | 8.0 |
| Discipline area | Natural/Physical Science | 7,128 | 9.3 | 6,728 | 9.0 | 13,856 | 9.2 |
| | Information Technology | 4,458 | 5.8 | 5,448 | 7.3 | 9,906 | 6.6 |
| | Engineering/related fields | 4,757 | 6.2 | 5,234 | 7.0 | 9,991 | 6.6 |
| | Architecture/Building | 1,892 | 2.5 | 1,974 | 2.6 | 3,866 | 2.6 |
| | Agriculture/Environment | 1,303 | 1.7 | 1,292 | 1.7 | 2,595 | 1.7 |
| | Health | 14,947 | 19.6 | 14,206 | 19.0 | 29,153 | 19.3 |
| | Education | 6,636 | 8.7 | 6,484 | 8.7 | 13,120 | 8.7 |
| | Management/Commerce | 13,843 | 18.2 | 13,705 | 18.3 | 27,548 | 18.2 |
| | Society/Culture | 16,358 | 21.5 | 15,426 | 20.6 | 31,784 | 21.0 |
| | Creative Arts | 4,906 | 6.4 | 4,269 | 5.7 | 9,175 | 6.1 |

## Procedures

The Graduate Outcomes Survey (GOS) is commissioned by the Australian government and administered bi-annually online by the Social Research Centre (SRC). It gathers data on the labour force outcomes of graduates from 41 universities, four-to-six months post-course completion. Data were collected from 122,530 graduates in 2020 and 127,827 graduates in 2021, with respective response rates of 42.3% and 40.4% (SRC, 2020, 2021). Five WIL/employability-related items are sponsored by the Australian Collaborative Education Network (ACEN), the professional association for WIL in Australia. This study draws on graduate responses from the 30 universities which opted to include ACEN items in their GOS in 2020 ($n = 76{,}261$), and 31 in 2021 ($n = 74{,}787$). Ethics declaration was obtained through the lead author's institution, graduate participant consent provided at the time of completing the national survey.

## Measures

Graduates' personal/study-related characteristics were populated in the GOS using government course completion data. Equity groups were: *with disabilities*; *Indigenous* (self-identifying as Aboriginal and/or Torres Strait Islander descent); *NESB* (language other than English at permanent home residence); *SES* (low/medium/high) and *regional/remote*, both determined by residential postcode. Also explored were *gender*, *mature-age* (graduates aged 25 years/above at commencement of study) and *citizenship* (domestic/international at enrolment). Regarding WIL, ACEN asks graduates if they participated in work-based (internship/placement/practicum), non-workplace (classroom or virtual project/consultancy), and/or global (industry study tour/international internship) WIL.

Reported labour market outcomes were *full-time employment* (proportion of graduates who attained full-time employment [35 h/weekly] of those available for full-time work) and *perceived overqualification* (five-point scale, strongly disagree[1], strongly agree[5]) using Maynard et al.'s (2006) eight-item Scale of Perceived Qualification. SRC classifies graduates as perceiving themselves as overqualified in their current role, or not, using an average score.

For employability, graduates rate (not at all[1], very well[4], unsure option) "overall, how well did your qualification prepare you for your job". Further, graduates who undertook WIL complete ACEN's four items adapted from Berntson and Marklund's (2007) self-perceived employability measures (five-point scale, strongly disagree[1], strongly agree [5]) on whether WIL improved their performance in: "my professional capabilities for improved job prospects", "my awareness of other organisations where I could work", "my appeal in the labour market", and "my contact network for improved job prospects".

## Analysis

Analysis was conducted in SPSS 26.0. Graduate samples for 2020/2021 were merged given similarities in participation and employment rates, and to optimise group sample sizes for comparative analysis. For RQ1, counts/percentages for participation in different types of WIL were computed for all graduates (domestic/international) and groups according to background characteristics. Pearson Chi-square test ($\alpha = .05$) identified significant

differences in participation within groups (e.g. regional vs non-regional). The sensitivity of Chi-square tests to large samples is acknowledged, increased power leading to *p*-values quickly approaching zero (Lin et al., 2013). Analysis was conducted at all course levels, and Bachelor only.

RQ2 examined the influence of WIL on full-time employment and perceived overqualification for domestic Bachelor graduates in full-time roles (as per national GOS reporting) other than comparisons by citizenship. Pearson Chi-Square tests identified significant differences between the outcomes of those that engaged in WIL, and those that had not, for each background group. Significant differences were examined for both females and males.

Regarding the impact of WIL on employability (RQ3), the proportion of domestic Bachelor graduates from each group who had rated well/very well for how WIL prepared them for their full-time role was computed. Again, Pearson Chi-Square tests identified significant differences between those completing WIL, or not. Multivariate Analysis of Variance (MANOVA) explored variations in perceived employability across the different groups who had completed WIL. Given purported differences in the impact of WIL by citizenship, MANOVA was conducted for domestic Bachelor graduates, followed by a separate MANOVA for all graduates to examine any differences by citizenship. Skewness and kurtosis were within +/ − 3 and 10 respectively (Kline, 1998), indicating normality for the perceived employability measures.

## Results

### *Participation in WIL by background characteristics*

Tables 2 and 3 summarise Bachelor and all course level graduates' (domestic/international) participation in each type of WIL for different groups, respectively. Significant differences ($\alpha = .05$) within each group are emboldened for each form of WIL. For SES, both low and medium groups are compared against high SES. Significant results for gender are marked against graduates that identified as female (compared to males).

Results show greater participation in WIL among females, at Bachelor and all course levels, particularly for work-based WIL. International graduates (Bachelor and all levels) participated more in WIL than their domestic counterparts, although proportionately less took part in work-based WIL. Those of mature age while studying participated significantly less in all types of WIL than younger graduates for all course levels, differences were of a lesser magnitude for Bachelor graduates, and significantly more (albeit marginally) participated in work-based WIL. Only a slightly lower proportion of graduates with disabilities from all course levels participated in any form of WIL, compared to those without disabilities. In contrast, Table 3 shows that at Bachelor level, significantly less graduates with disabilities participated in work-based and global WIL.

There were consistent findings for graduates of low/medium SES, both participating significantly more in work-based and non-workplace WIL (and WIL overall), and less in global WIL than the high SES group, at Bachelor and all course levels. Interestingly, there were no significant differences in WIL participation for Indigenous/non-Indigenous graduates, although the small proportion of Indigenous respondents is worth noting. NESB and regional graduates reported, across all and Bachelor levels, greater participation

**Table 2.** Participation in WIL (Bachelor graduates).

| | | Any WIL | | Work-based | | Non-workplace | | Global | | No WIL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | % | Count | % | Count | % | Count | % | Count | % | Count |
| Gender | Male | 52.4 | 16739 | 41.2 | 13170 | 14.4 | 4604 | 7.1 | 2252 | 47.6 | 15192 |
| | Female | **58.2*** | 31852 | **47.9*** | 26218 | **16.1*** | 8811 | **8.4*** | 4603 | **41.8*** | 22832 |
| Citizenship | Domestic | 55.7 | 40407 | 46.1 | 33433 | 14.5 | 10510 | 7.7 | 5577 | 44.3 | 32072 |
| | International | **57.8*** | 8260 | **42.1*** | 6020 | **20.5*** | 2932 | **9.0*** | 1292 | **42.2*** | 6033 |
| Mature-age | 24/under | 56.5 | 35379 | 45.1 | 28240 | 16.2 | 10165 | 8.5 | 5336 | 43.5 | 27204 |
| | 25/over | **54.9*** | 13288 | **46.4*** | 11213 | **13.5*** | 3277 | **6.3*** | 1533 | **45.1*** | 10902 |
| Disability | No disabilities | 56.4 | 44865 | 45.7 | 36363 | 15.5 | 12336 | 8.0 | 6355 | 43.6 | 34746 |
| | Disability | **52.9*** | 3759 | **43.0*** | 3051 | 15.4 | 1094 | **7.1*** | 505 | **47.1*** | 3341 |
| SES | Low | **56.8*** | 6512 | **47.5*** | 5441 | **15.3*** | 1756 | **6.2*** | 711 | **43.2*** | 4947 |
| | Medium | **56.7*** | 20768 | **47.3*** | 17315 | **14.8*** | 5402 | **7.5*** | 2760 | **43.3*** | 15830 |
| | High | 54.2 | 12940 | 44.1 | 10530 | 13.9 | 3317 | 8.7 | 2081 | 45.8 | 10937 |
| Indigenous | Non-indigenous | 56.1 | 48122 | 45.5 | 38986 | 15.5 | 13301 | 7.9 | 6796 | 43.9 | 37643 |
| | Indigenous | 54.1 | 545 | 46.3 | 467 | 14.0 | 141 | 7.2 | 73 | 45.9 | 463 |
| NESB | ESB | 55.6 | 42162 | 45.6 | 34588 | 14.8 | 11213 | 7.8 | 5890 | 44.4 | 33692 |
| | NESB | **59.6*** | 6505 | **44.6*** | 4865 | **20.4*** | 2229 | **9.0*** | 979 | **40.4*** | 4414 |
| Regionality | Non-regional | 55.4 | 31957 | 45.5 | 26270 | 14.5 | 8396 | 7.7 | 4440 | 44.6 | 25779 |
| | Regional | **57.5*** | 16710 | 45.4 | 13183 | **17.4*** | 5046 | **8.4*** | 2429 | **42.5*** | 12327 |
| All graduates | | 56.1 | 48667 | 45.5 | 39453 | 15.5 | 13442 | 7.9 | 6869 | 43.9 | 38106 |

*$p < .05$.

**Table 3.** Participation in WIL (all course levels).

| | | Any WIL | | Work-based | | Non-workplace | | Global | | No WIL | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | % | Count | % | Count | % | Count | % | Count | % | Count |
| Gender | Male | 47.7 | 27,665 | 35.5 | 20,605 | 15.0 | 8,691 | 6.6 | 3,822 | 52.3 | 30,383 |
| | Female | **52.8*** | 48,942 | **42.3*** | 39,228 | **15.9*** | 14,301 | **6.9*** | 6,433 | **47.2*** | 43,725 |
| Citizenship | Domestic | 49.7 | 55,933 | 40.8 | 45,933 | 13.1 | 14,753 | 6.3 | 7,105 | 50.3 | 56,679 |
| | International | **54.2*** | 20,818 | **36.5*** | 14,010 | **21.6*** | 8,287 | **8.2*** | 3,170 | **45.8*** | 17,617 |
| Mature-age | 24/under | 56.7 | 43,274 | 44.7 | 34,123 | 17.0 | 12,988 | 8.3 | 6,368 | 43.3 | 33,085 |
| | 25/over | **44.8*** | 33,477 | **34.6*** | 25,820 | **13.5*** | 10,052 | **5.2*** | 3,907 | **55.2*** | 41,212 |
| Disability | No disabilities | **50.9*** | 71,537 | 39.7 | 55,774 | 15.3 | 21,485 | 6.8 | 9,607 | **49.1*** | 69,011 |
| | Disability | 49.7 | 5,119 | 39.8 | 4,100 | 14.8 | 1,523 | 6.3 | 654 | 50.3 | 5,182 |
| SES | Low | **52.3*** | 8,454 | **43.5*** | 7,044 | **14.1*** | 2,276 | **5.2*** | 847 | **47.7*** | 7,721 |
| | Medium | **51.3*** | 27,968 | **42.5*** | 23,182 | **13.4*** | 7,319 | **6.2*** | 3,379 | **48.7*** | 26,545 |
| | High | 47.7 | 18,956 | 38.5 | 15,278 | 12.7 | 5,023 | 7.0 | 2,784 | 52.2 | 20,738 |
| Indigenous | Non-indigenous | 50.8 | 76,032 | 39.7 | 59,349 | 15.3 | 22,837 | 6.8 | 10,187 | 49.2 | 73,532 |
| | Indigenous | 48.5 | 719 | 40.0 | 594 | 13.7 | 203 | 5.9 | 88 | 51.5 | 765 |
| NESB | ESB | 49.9 | 61,619 | 40.2 | 49,571 | 14.0 | 17,248 | 6.5 | 7,966 | 50.1 | 61,756 |
| | NESB | **54.7*** | 15,132 | **37.5*** | 10,372 | **20.9*** | 5,792 | **8.3*** | 2,309 | **45.3*** | 12,541 |
| Regionality | Non-regional | 49.8 | 44,065 | 40.7 | 36,028 | 13.2 | 11,694 | 6.4 | 5,648 | 50.2 | 44,502 |
| | Regional | **52.3*** | 32,686 | **38.3*** | 23,915 | **18.2*** | 11,346 | **7.4*** | 4,627 | **47.7*** | 29,795 |
| All graduates | | 50.8 | 76,751 | 39.7 | 59,943 | 15.3 | 23,040 | 6.8 | 10,275 | 49.2 | 74,297 |

*$p < .05$.

in non-workplace and global WIL, culminating in higher levels for WIL overall. While NESB graduates observed significantly less participation in work-based WIL at Bachelor and all course levels, this was not the case for regional graduates at Bachelor level (although evident across all courses).

### *Impact on full-time employment*

Table 4 summarises the impact of WIL on the full-time employment outcomes of Bachelor graduates by background group. Significant differences are indicated only for the group of interest (i.e. regional graduates, not metro-based) and show the proportion who secured full-time work who completed that type of WIL, compared with those that did not complete WIL. Results are only presented for low SES, compared to high SES, and data are included for both males and females. Given the breadth of the findings, only significant results for each type of WIL (rather than any WIL) are discussed below, noting earlier caveats regarding Chi-square measures and large samples. Results for all domestic Bachelor graduates are presented for reference.

Generally, positive effects of work-based WIL were observed, mixed effects for global WIL and negative effects for non-workplace WIL on full-time employment. This discussion, however, is focused on the impact of different WIL types on individual groups. Regarding regionality, work-based WIL had a positive effect on full-time employment, exceeding a 10-percentage point difference. Of less magnitude, global WIL reported a positive impact, while completing non-workplace WIL was associated with marginally lower full-time employment rates. Only marginal effects were reported for Indigenous graduates, other than work-based WIL which recorded a positive impact. In contrast, a large positive effect was recorded for work-based WIL for graduates with disabilities and, to a lesser extent, global WIL. Interestingly, a negative effect was evident for non-workplace WIL for graduates with disabilities, along with NESB, and low SES graduates (although none were significant). A further effect for NESB graduates was the positive impact of work-based WIL. The benefits of work-based WIL were also evident for low SES graduates, as well as global WIL.

Positive effects were recorded for males and females for work-based WIL and global WIL. Interestingly, a negative effect on full-time employment was reported among males engaging in non-workplace WIL. Both international and mature-age graduates reported a positive effect for work-based WIL and negative for non-workplace.

### *Impact on perceived overqualification*

Table 5 presents the impact of WIL on perceived overqualification among domestic Bachelor graduates in full-time roles (other than citizenship where international graduate data are examined). Again, only significant differences are discussed, and data compares proportions of graduates engaged in WIL who considered themselves as overqualified, compared to those not undertaking WIL, within the different groups. The large percentage differences in perceived overqualification between those completing any form of WIL, or not, were striking, although less so for Indigenous and international graduates.

Work-based WIL recorded large, positive effects for every group. Regional graduates and those with disabilities who completed both work-based and non-workplace WIL reported significantly lower levels of perceived overqualification, echoed among

**Table 4.** Impact of WIL on full-time employment (domestic Bachelor graduates).

| | | | Any WIL | Work-based | | Non-workplace | | Global | | No WIL |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Yes | No | Yes | No | Yes | No | |
| Regionality | Regional | % | 75.8* | 77.7* | 67.2 | 70.8 | 73.1 | 75.2* | 72.5 | 68 |
| | | Count | 4,634 | 4,099 | 3,208 | 1037 | 6,270 | 620 | 6,687 | 2,673 |
| | Non-regional | % | 69.6 | 71.7 | 61.9 | 64.5 | 67.1 | 70.6 | 71.7 | 62.5 |
| | | Count | 16,110 | 13,851 | 12,331 | 3725 | 22,457 | 2322 | 23,860 | 10,072 |
| Indigenous | Indigenous | % | 78.4* | 78.6* | 72.3 | 74.8 | 75.5 | 77.2 | 75.3 | 71.5 |
| | | Count | 319 | 276 | 261 | 83 | 454 | 44 | 493 | 218 |
| | Non-indigenous | % | 70.8 | 72.9 | 62.8 | 65.6 | 68.2 | 71.4 | 67.5 | 63.5 |
| | | Count | 20,425 | 17,674 | 15,278 | 4679 | 28,273 | 2898 | 30,054 | 12,527 |
| Disability | Disability | % | 61.9* | 64.4* | 51.6 | 56.2 | 58.2 | 64.4* | 57.3 | 52.1 |
| | | Count | 1,466 | 1,269 | 1,075 | 363 | 1981 | 201 | 2,143 | 878 |
| | No disabilities | % | 71.7 | 73.8 | 64 | 66.7 | 69.2 | 72.1 | 68.6 | 64.7 |
| | | Count | 19,273 | 16,677 | 14,459 | 4398 | 26,738 | 2739 | 28,397 | 11,863 |
| NESB | NESB | % | 52.8* | 55.2* | 45.7 | 45.1 | 51.7 | 47.7 | 50.9 | 47 |
| | | Count | 417 | 364 | 275 | 92 | 547 | 42 | 597 | 222 |
| | ESB | % | 71.4 | 73.5 | 63.3 | 66.4 | 68.8 | 72 | 68.1 | 64 |
| | | Count | 20,327 | 17,586 | 15,264 | 4670 | 28,180 | 2900 | 29,950 | 12,523 |
| SES | Low | % | 68.9* | 71.2* | 59.8 | 63.8 | 65.9 | 69.7* | 65.3 | 60.6 |
| | | Count | 3,266 | 2,850 | 2,312 | 774 | 7,388 | 365 | 4,797 | 1,896 |
| | High | % | 72.4 | 74.5 | 65 | 67.4 | 70 | 73.8 | 69.1 | 65.6 |
| | | Count | 6,762 | 5,772 | 5,346 | 1524 | 9,594 | 1126 | 9,992 | 4,356 |
| Gender | Female | % | 71.2* | 73.0* | 63.4 | 67.5 | 68.6 | 71.8* | 68.1 | 64 |
| | | Count | 13,408 | 11,715 | 9,065 | 3211 | 17,569 | 2003 | 18,777 | 7,372 |
| | Male | % | 70.5 | 73.0* | 62.4 | 62.6* | 67.9 | 71.0* | 66.9 | 63.1 |
| | | Count | 7,320 | 6,221 | 6,459 | 1544 | 11,136 | 936 | 11,744 | 5,360 |
| Citizenship | International | % | 44.3* | 46.7* | 37.9 | 38.9* | 43 | 43.4 | 42.0 | 38.7 |
| | | Count | 2,244 | 1,841 | 1,601 | 627 | 2,815 | 315 | 3,127 | 1,198 |
| | Domestic | % | 70.9 | 73 | 62.9 | 65.8 | 68.3 | 71.5 | 67.6 | 63.6 |
| | | Count | 20,744 | 17,950 | 15,539 | 4762 | 28,727 | 2942 | 30,547 | 12,745 |
| Mature-age | 25/over | % | 72.3 | 73.4* | 70.7 | 67.8* | 72.6 | 71.4 | 72 | 71.5 |
| | | Count | 5,918 | 5,111 | 5,601 | 1279 | 9,433 | 680 | 10,032 | 4,794 |
| | 24/under | % | 70.4 | 72.9 | 59.2 | 65.1 | 66.4 | 71.5 | 65.7 | 59.6 |
| | | Count | 14,826 | 12,839 | 9,938 | 3483 | 19,294 | 2262 | 20,515 | 7,951 |
| All domestic graduates | | % | 70.9* | 73.0* | 62.9 | 65.8* | 68.3 | 71.5* | 67.6 | 63.6* |
| | | Count | 20,744 | 17,950 | 15,539 | 4762 | 28,727 | 2942 | 3,0547 | 12,745 |

*$p < .05$.

**Table 5.** Impact of WIL on perceived overqualification (domestic Bachelor graduates).

| | | | Any WIL | Work-based | | Non-workplace | | Global | | No WIL |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Yes | No | Yes | No | Yes | No | |
| Regionality | Regional | % | 21.9* | 20.0* | 35.8 | 22.7* | 27.6 | 24.1 | 27.2 | 35.6 |
| | | Count | 1,013 | 818 | 1,147 | 235 | 1,730 | 149 | 1816 | 952 |
| | Non-regional | % | 24.2 | 22.1 | 37.7 | 27.4 | 29.8 | 26.8 | 29.7 | 37.9 |
| | | Count | 3,882 | 3,053 | 4,643 | 1,019 | 6,677 | 620 | 7,076 | 3,814 |
| Indigenous | Indigenous | % | 21.0 | 18.1* | 28.4 | 21.7 | 23.3 | 15.9 | 23.7 | 26.1 |
| | | Count | 67 | 50 | 74 | 18 | 106 | 7 | 117 | 57 |
| | Non-indigenous | % | 23.7 | 21.7 | 37.5 | 26.5 | 29.4 | 26.4 | 29.3 | 37.7 |
| | | Count | 4,828 | 3,821 | 5,716 | 1,236 | 8,301 | 762 | 8,775 | 4,709 |
| Disability | Disability | % | 24.7* | 23.2* | 39.3 | 23.4* | 31.9 | 30.3 | 30.6 | 40.4 |
| | | Count | 361 | 293 | 422 | 85 | 630 | 61 | 654 | 354 |
| | No disabilities | % | 23.6 | 21.5 | 37.2 | 26.6 | 29.1 | 25.9 | 29.1 | 37.3 |
| | | Count | 4,531 | 3,576 | 5,367 | 1,168 | 7,775 | 706 | 8,237 | 4,412 |
| NESB | NESB | % | 19.3* | 17.6* | 37.5 | 19.8 | 27.2 | 16.7 | 26.8 | 39.1 |
| | | Count | 80 | 64 | 102 | 18 | 148 | 7 | 159 | 86 |
| | ESB | % | 23.7 | 21.7 | 37.3 | 26.5 | 29.4 | 26.4 | 29.2 | 37.4 |
| | | Count | 4,815 | 3,807 | 5,688 | 1,236 | 8,259 | 762 | 8,733 | 4,680 |
| SES | Low | % | 23.3* | 21.1* | 38.2 | 27.5 | 29.0 | 26.1 | 29.0 | 38.1 |
| | | Count | 760 | 601 | 881 | 212 | 1,270 | 95 | 1,387 | 722 |
| | High | % | 23.5 | 21.8 | 35.3 | 24.9 | 28.8 | 25.0 | 28.6 | 35.7 |
| | | Count | 1,587 | 1,256 | 1,881 | 380 | 2,757 | 281 | 2,856 | 1,550 |
| Gender | Female | % | 22.4* | 20.3* | 37.8 | 24.5* | 28.6 | 24.9* | 28.3 | 38.1 |
| | | Count | 2,993 | 2,378 | 3,416 | 787 | 5,007 | 497 | 5,297 | 2,801 |
| | Male | % | 26.0* | 24.0* | 36.8 | 30.1 | 30.6 | 29.0 | 30.6 | 36.7 |
| | | Count | 1,896 | 1,489 | 2,369 | 464 | 3,394 | 270 | 3,588 | 1,962 |
| Citizenship | International | % | 29.2* | 27.3* | 34.5 | 35.3* | 29.6 | 27.0 | 31.0 | 33.4 |
| | | Count | 652 | 500 | 550 | 221 | 829 | 85 | 965 | 398 |
| | Domestic | % | 23.7 | 21.6 | 37.3 | 26.4 | 29.3 | 26.2 | 29.2 | 37.5 |
| | | Count | 4,895 | 3,871 | 5,790 | 1,254 | 8,407 | 769 | 8,892 | 4,766 |
| Mature-age | 25/over | % | 24.6* | 22.6* | 38.4 | 26.8* | 31.4 | 27.4* | 31.1 | 38.6 |
| | | Count | 1,451 | 1153 | 2,146 | 342 | 2,957 | 186 | 3,113 | 1,848 |
| | 24/under | % | 23.3 | 21.2 | 36.8 | 26.2 | 28.3 | 25.9 | 28.2 | 36.8 |
| | | Count | 3,444 | 2,718 | 3,644 | 912 | 5,450 | 583 | 2,718 | 2,918 |
| All domestic graduates | | % | 23.7* | 21.6* | 37.3 | 26.4* | 29.3 | 26.2* | 29.2 | 37.5 |
| | | Count | 4,895 | 3,871 | 5,790 | 1,254 | 8,407 | 769 | 8,892 | 4,766 |

*$p < .05$.

mature-age graduates who also reported a positive effect for global WIL. There were significant positive effects recorded for all types of WIL for females while a positive effect was reported for work-based WIL only among males. Significantly fewer international graduates considered themselves overqualified if they had participated in work-based WIL yet they reported a negative effect from non-workplace WIL.

## *Impact on perceived preparedness for future work*

Table 6 summarises the impact of WIL on the extent to which domestic Bachelor graduates felt well or very well prepared for their current, full-time employment by background group. For regional, Indigenous, low SES, female, male and mature-age graduates, there was a significant, positive impact on preparedness for each type of WIL. Similarly positive results were observed for graduates with disabilities, although only for work-based and non-workplace WIL. The strong impact of WIL was only apparent for work-based WIL among NESB graduates. Finally, results for international graduates affirmed the value of work-based and global WIL, but not non-workplace.

**Table 6.** Impact of WIL on preparedness for work (domestic Bachelor graduates).

| | | | Any WIL | Work-based | | Non-workplace | | Global | | No WIL |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Yes | No | Yes | No | Yes | No | |
| Regionality | Regional | % | 82.7* | 83.8* | 70.8 | 82.7* | 77.4 | 84.3* | 77.5 | 70.2 |
| | | Count | 3,827 | 3,431 | 2,269 | 857 | 4,843 | 522 | 5,178 | 1,873 |
| | Non-regional | % | 82.1 | 83.5 | 69.2 | 81.3 | 76 | 82.6 | 76.2 | 68.2 |
| | | Count | 13,215 | 11,555 | 8,520 | 3,024 | 17,051 | 1,916 | 18,159 | 6,860 |
| Indigenous | Indigenous | % | 81.5* | 81.9* | 72 | 85.5* | 75.6 | 90.9* | 75.9 | 70.6 |
| | | Count | 260 | 226 | 188 | 71 | 343 | 40 | 374 | 154 |
| | Non-indigenous | % | 82.3 | 83.6 | 69.5 | 81.5 | 76.3 | 82.8 | 76.5 | 68.6 |
| | | Count | 16,782 | 14,760 | 10,601 | 3,810 | 21,551 | 2,398 | 22,963 | 8,579 |
| Disability | Disability | % | 80.3* | 81.6* | 65.2 | 80.7* | 72.8 | 79.5 | 73.6 | 63.7 |
| | | Count | 1174 | 1,033 | 698 | 293 | 1,438 | 159 | 1572 | 557 |
| | No disabilities | % | 82.4 | 83.8 | 69.9 | 81.7 | 76.6 | 83.2 | 76.7 | 69 |
| | | Count | 15,864 | 13,950 | 10,086 | 3,587 | 20,449 | 2,277 | 21,759 | 8,172 |
| NESB | NESB | % | 88.2* | 90.1* | 74.5 | 84.8 | 83.2 | 88.1 | 83.1 | 74.3 |
| | | Count | 368 | 328 | 205 | 78 | 455 | 37 | 496 | 165 |
| | ESB | % | 82.1 | 83.5 | 69.5 | 81.5 | 76.2 | 82.9 | 76.4 | 68.5 |
| | | Count | 16,674 | 14,658 | 10,584 | 3,803 | 21,439 | 2,401 | 22,841 | 8,568 |
| SES | Low | % | 81.5* | 82.4* | 70.5 | 79.9* | 76.5 | 84.9* | 76.5 | 69.4 |
| | | Count | 2659 | 2,347 | 1,625 | 617 | 3,355 | 310 | 3,662 | 1,313 |
| | High | % | 82.7 | 84.2 | 70 | 81.3 | 76.8 | 82.7 | 76.8 | 69.2 |
| | | Count | 5,580 | 4,852 | 3,738 | 1,236 | 7,354 | 930 | 7,660 | 3,010 |
| Gender | Female | % | 83.8* | 85.1* | 70.5 | 83.0* | 77.9 | 84.3* | 78.1 | 69.5 |
| | | Count | 11,213 | 9,947 | 6,382 | 2,662 | 13,667 | 1,686 | 14,643 | 5,116 |
| | Male | % | 79.5* | 80.8* | 68.2 | 78.6* | 73.8 | 80.1* | 74.0 | 67.5* |
| | | Count | 5814 | 5,026 | 4,400 | 1,212 | 8,214 | 749 | 8,677 | 3,612 |
| Citizenship | International | % | 84.2* | 85.6* | 75 | 80.6 | 80.7 | 87.2* | 80.0 | 74.0 |
| | | Count | 1,882 | 1,569 | 1,197 | 504 | 2,262 | 272 | 2,494 | 884 |
| | Domestic | % | 82.3 | 83.6 | 69.5 | 81.6 | 76.3 | 83 | 76.5 | 68.6 |
| | | Count | 17,042 | 14,986 | 10,789 | 3,881 | 21,894 | 2,438 | 23,337 | 8,733 |
| Mature-age | 25/over | % | 81.2* | 82.7* | 66.7 | 80.2* | 73.6 | 81.3* | 73.9 | 65.9 |
| | | Count | 4,794 | 4,220 | 3,726 | 1,023 | 6,923 | 551 | 7,395 | 3,152 |
| | 24/under | % | 82.7 | 84 | 71.1 | 82.1 | 77.7 | 83.5 | 77.8 | 70.3 |
| | | Count | 12,248 | 10,766 | 7,063 | 2,858 | 14,971 | 1,887 | 15,942 | 5,581 |
| All domestic graduates | | % | 82.3* | 83.6* | 69.5 | 81.6* | 76.3 | 83.0* | 76.5 | 68.6 |
| | | Count | 17,042 | 14,986 | 10,789 | 3,881 | 21,894 | 2,438 | 23,337 | 8,733 |

*$p < .05$.

**Table 7.** MANOVA and univariate analysis – impact of WIL on aspects of perceived employability.

| Group and measure | Wilks λ | df | Error df | F | *p* |
|---|---|---|---|---|---|
| Regional | .998 | 4 | 39,890 | 22.276 | <.001 |
| Contact network improved job prospects | | 1 | 39,893 | 33.776 | <.001 |
| Indigenous | 1.000 | 4 | 39,890 | 3.465 | .008 |
| Contact network improved job prospects | | 1 | 39,893 | 9.130 | .003 |
| Disability | .999 | 4 | 39,876 | 5.661 | <.001 |
| Appeal in labour market | | 1 | 39,879 | 10.638 | <.001 |
| Contact network improved job prospects | | 1 | 39,879 | 16.059 | <.001 |
| Awareness of other organisations for work | | 1 | 39,879 | 16.748 | <.001 |
| Professional capabilities for improved job prospects | | 1 | 39,879 | 16.245 | <.001 |
| NESB | 1.000 | 4 | 39,890 | 4.749 | <.001 |
| SES | .997 | 8 | 79,036 | 12.603 | <.001 |
| Appeal in labour market | | 2 | 39,521 | 26.321 | <.001 |
| Gender | .994 | 4 | 39,847 | 57.309 | <.001 |
| Appeal in labour market | | 1 | 39,850 | 121.467 | <.001 |
| Mature-age | .998 | 4 | 39,890 | 22.980 | <.001 |
| Awareness of other organisations for work | | 1 | 39,893 | 49.623 | <.001 |
| Professional capabilities for improved job prospects | | 1 | 39,893 | 15.932 | <.001 |
| Citizenship | .997 | 4 | 48,020 | 34.611 | <.001 |
| Awareness of other organisations for work | | 1 | 48,023 | 6.494 | .011 |
| Professional capabilities for improved job prospects | | 1 | 48,023 | 91.015 | <.001 |

### *Impact on perceived employability*

Table 7 presents the MANOVA ($\alpha = .05$) results for the four perceived employability items for domestic Bachelor graduates only. A separate MANOVA for all graduates was conducted to examine any differences by citizenship. Univariate analysis results, with a Bonferroni correction ($\alpha = .013$), for each significant MANOVA are also presented within Table 7. MANOVA results report a significant variation for both regionality and Indigeneity with univariate analysis indicating that both regional and Indigenous graduates assigned, on average, a higher rating for WIL improving their contact network than non-regional and non-Indigenous graduates respectively. A significant MANOVA was also reported for graduates with disabilities and univariate analysis revealed significant variations for the four measures of perceived employability, those with disabilities scoring lower mean ratings for all. Despite the significant MANOVA for NESB graduates, there were no significant univariate results. MANOVA for SES produced a significant result and with variations for labour market appeal. Tukey post-hoc analysis showed medium and high SES graduates reported significantly higher ratings than low SES. The significant MANOVA for gender revealed significantly higher mean ratings for labour market appeal among males in the univariate analysis. Univariate results associated with the significant MANOVA for both mature-age and international graduates showed they reported a lower mean rating for WIL. This suggests they have a developing awareness of other organisations for work purposes, and professional capabilities for improved job prospects, compared with their younger and domestic counterparts, respectively.

## Discussion and implications

Relatively lower engagement among undergraduates with disabilities provides some support for concerns that students with disabilities face significant challenges in accessing work-based WIL at university (Eckstein, 2022; Thompson & Brewster, 2022). Emergent

research is suggesting that while students are often keen to participate, they are concerned with declaring their disabilities and the level of support they may receive in the workplace (e.g. Dollinger et al., 2022). While there are policies that determine the rights of these students (Australian Government, 2005) and continued reports of shortcomings for supporting them (Boye, 2021; Rillotta et al., 2021), there are limited solutions to these issues for students with disabilities. Findings verify the need for more inclusive and accessible work-based WIL design strategies to support students with disabilities (Andrewartha & Harvey, 2017; Mackaway et al., 2014), including working with industry partners to enhance stakeholder understanding of the personal resources and insights these students can bring to the workplace (Mackaway & Winchester-Seeto, 2018).

While it might be expected that less regional/remote students would have engaged in work-based WIL, given the geographical and social capital barriers to participation (Lewis et al., 2007), this held true for all course levels but not for Bachelor graduates only. The marginal differences in participation rates for Indigenous graduates compared to non-Indigenous was also reassuring, although the small sample size calls for further investigation. This is particularly important given the focus on boosting Indigenous enrolments in HE and considering Indigenous values in WIL design (Eady et al., 2022; Mackaway et al., 2014; Ward et al., 2022).

That low SES students participated in more work-based WIL than their more advantaged peers is a positive yet unexpected finding, given earlier evidence of difficulties in accessing WIL (e.g. Lloyd et al., 2019) and wider evidence of class-based discrimination in HE (Cadenas et al., 2022). Results may reflect interventions to better support these students with practical measures, such as brokering services linking students with local industry networks (Jackson et al., 2017), initiatives to build their professional connections (Schonell & Macklin, 2019), and scholarships/bursaries for financial assistance (Hoskyn et al., 2020). Low SES students' lesser participation in global WIL challenges the sector to find more ways to enable them to experience such activities, such as capitalising on programmes and initiatives made available through the Australian Strategy for International Education (Australian Government, 2021).

Mature-age students' reduced participation in all types of WIL compared to their younger counterparts is perhaps unsurprising given that they are likely to have previously engaged with industry/professions and accrued relevant work experience, therefore possibly placing less value on WIL. That slightly more mature-age Bachelor graduates took part in work-based WIL is interesting, given many have paid employment and family responsibilities while at university (Mallman & Lee, 2016; Stone & O'shea, 2013). Relatively higher participation rates among females in work-based WIL contradicts expectations that their engagement may be inhibited by gendered family obligations (Wolfgram et al., 2021).

Aligning with earlier evidence of barriers to accessing WIL (Jackson, 2016), significantly fewer NESB and international graduates took part in work-based WIL. This is problematic given international students are motivated to undertake work-based WIL, often selecting their host country based on access to relevant work experience (Gribble, 2014). Imbalances in the demand and supply of their work-based WIL opportunities aligns with reported reluctance among WIL hosts to engage with international students due to concerns with communication and cultural immersion (Gribble & McRae, 2017). This may possibly prompt HE institutions to instead channel international students into virtual/on-campus WIL offerings as an alternative. Employer bias needs redressing to meet not

only the personal aspirations of international students but also given the wider importance of international education for generating revenue and bridging talent shortages (Australian Government, 2021; Gribble, 2014).

Findings broadly resonate with earlier studies on the robust influence of work-based WIL on job attainment after graduation (Bilsland et al., 2019; Di Meglio et al., 2022) with a significant impact on all Bachelor groups, particularly low SES, NESB, regional and those with disabilities. This highlights the potential gains for groups who may have less developed cultural and social capital, benefitting from the networking and professional socialisation opportunities which work-based WIL can offer. The strong employment gains among females participating in work-based WIL potentially highlights the significance of sustained work-based experiences in response to calls to improve their transition to work (Bradley & Waller, 2018). Findings also resonate with earlier research that work-based WIL can lessen perceptions of overqualification and increase the chances of entering quality, graduate-level employment (e.g. Jackson & Collings, 2018). This was evident for all groups, highlighting the value of embedding work-based experiences in HE curriculum to improve employment prospects among diverse cohorts.

Taking part in non-workplace WIL did not improve full-time employment rates and appeared to have adverse effects for mature-age and international graduates. This leads to questioning why and encourages universities to reflect on how this may be manifested in their own non-workplace WIL offerings. Jackson and Dean (2023) report that while non-workplace WIL has benefits for employability skill development, graduates generally place less value on it compared to work-based WIL opportunities. They surmise that this could relate to students' perceptions that it is less recognised, visible or valued by employers, or that such activities require greater reflection to understand learning and acquired benefits. Clearly, greater efforts to develop students' awareness and communication of knowledge and skills in non-workplace WIL is recommended. More positively, while the impact of non-workplace WIL on perceived overqualification was less striking than work-based WIL, benefits were evident for regional, female and mature-age graduates, and those with disabilities. On-campus and virtual WIL could therefore be instilling confidence and building capital resources among participating students to support their transition to quality employment. This was not, however, the case for international graduates who reported a negative effect on perceived overqualification, warranting further investigation.

The impact of global WIL on full-time employment was also less convincing than work-based WIL, although the positive effects reported among regional, low SES, female, and male Bachelor graduates, and those with disabilities suggest these experiences clearly benefit certain groups. It was less impactful for overqualification, possibly suggesting that international internships (or similar) are less effective in signalling relevant capabilities and experience during recruitment processes into degree-relevant roles, compared to work-based experiences in Australia. Further exploration may support additional resourcing to further build, secure and maintain global WIL experiences for certain student groups and investigate ways to improve the experience for others.

As well as enhancing employment outcomes, WIL positively impacted on perceived preparedness for work. Again, work-based WIL was the stand-out performer with clear gains for all groups, an overwhelming testament to its instrumental role in developing

highly valued, future-oriented skills and building student confidence for their transition to work (see Di Meglio et al., 2022; Universities Australia, 2019). Although to a lesser extent, both non-workplace and global WIL also enhanced the sense of preparedness among different groups, illuminating the need for universities to design and facilitate diverse forms of industry engagement over the course of all students' degree of study.

WIL was particularly powerful for improving the contact networks of Indigenous and regional graduates, concurring with research on Indigenous WIL where students report the benefits of connecting with community partners (Eady et al., 2022; Eady & Keen, 2021). The less positive findings for dimensions of perceived employability among the other groups are, however, concerning and highlight a clear need to review WIL design. For example, those with disabilities attributing less value to WIL for improving labour market appeal, contact networks, awareness of other organisations for work, and professional capabilities than able-bodied graduates, validates calls for WIL design that increases awareness, networking, and self-efficacy in preparedness for employability for all students (Grant-Smith et al., 2017; Kitchen et al., 2021; Lloyd et al., 2019; Mackaway & Winchester-Seeto, 2018). Similarly, WIL being considered to enhance labour market appeal more among medium and high SES students accentuates the need to break down barriers for low SES students (Bowen, 2020; Lloyd et al., 2019) and explore design that bolsters low SES students' confidence and achievements. International graduates' lesser purported value for WIL compared to domestic graduates is also notable and aligns with reported barriers to their learning during WIL (see Jackson, 2017), challenging HE institutions to find ways to better support international students in HE.

## Conclusion

This paper presents data collected in 2020 and 2021 on various student groups' participation in different types of WIL, and the impact on employment outcomes and aspects of perceived employability. A key message is the assurance that investment by Australian universities in industry partnerships and resourcing, designing and implementing WIL is worthwhile, and is making a positive impact on graduate employability and employment outcomes nationally, at least at the Bachelor level. This research both confirms and adds to the growing body of global empirical evidence that WIL can better prepare students for future work and can lead to improved employment prospects in the short-term. With an equity and inclusion lens, the study clarifies disparities in participation in different types of WIL across diverse cohorts. While the rather mixed results are not alarming, they support concerns for equitable access to WIL and highlight that more is needed to ensure all students are able to participate, particularly in the workplace. Findings highlight areas where barriers need to be minimised, and for whom, and where focus and resourcing need to be strengthened, such as developing stakeholder recognition of the strengths of international and NESB students in the workplace and the need to welcome and cater to the needs of students with disabilities.

The study also provides important insights on which students are leveraging benefits, or not. Broadly, findings show the transformational impact of WIL for students that can participate, particularly in terms of feeling prepared for work and entering quality employment post-graduation. There is, however, a clear need to consider ways to personalise WIL and to strengthen design and pedagogies to optimise

outcomes for different stakeholder groups, for building confidence in aspects of one's own employability and job attainment in the short-term. The gains among the specified groups illuminate the need to ensure ease of access, particularly among those whose participation was proven to be relatively low, and institutions striving to create holistic and tailored WIL experiences that benefit all.

As the sector moves forward towards more purposeful, student-centred, and inclusive approaches to improving employability (Thompson & Brewster, 2022), the findings point to considering ways in which WIL can be created and sustained for different student groups, and how educators can collaborate with industry partners to design and implement inclusive WIL that supports diverse needs. This could be addressed through advocating for students as partners, working more closely with industry to ensure the relevance of curriculum, and actively evaluating programmes and initiatives for quality improvement. Also important is the need for university educators and researchers to design, implement and evaluate systems to improve the outcomes for these students. Gathering more data over time to inform resourcing and support will enable all students to engage with industry during their studies and prepare them for future work and careers.

As with most research, there are limitations. The study is confined to measures within the GOS, and the timing of the survey data (four to six months post-graduation) may not give an accurate representation of labour market achievement and allow for the impact of WIL over time. The large sample provides the opportunity to generalise findings, at least within the Australian context, yet increases statistical power for certain analyses which can overemphasise the significance of results. Further, selection bias should be acknowledged with graduates who had a positive WIL experience perhaps more likely to complete the ACEN-sponsored items, potentially skewing the impact on employment outcomes. The study's findings identified some directions for future research, including working with industry partners to enhance stakeholder understanding and insights of what students with disabilities bring to the workplace, considerations of Indigenous values in future WIL design, and identifying ways to improve international students' access to work-based WIL. Further, the study highlights the need to build on these findings and further investigate employer and graduate perceptions, possibly through qualitative inquiry, of the influence of different forms of WIL on diverse groups during recruitment processes.

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