

Work-integrated learning in Australasian tertiary paramedicine education: A cross-sectional survey

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In Australasia, paramedicine education has evolved significantly over the last two decades. Anecdotal evidence suggests diversity across and within work-integrated learning (WIL) in entry-to-practice programs; however, the true extent of paramedicine WIL remains unclear. This study aimed to provide a comprehensive overview of WIL practices in Australasian tertiary paramedicine programs. A cross-sectional survey conducted in May-June 2023 involved 20 universities offering entry-to-practice paramedicine programs. The results reveal significant variability in WIL activities, including duration, settings, educational aims, and assessment practices. Student cohorts attended 16 different health-related settings, with considerable heterogeneity in duration and aims. Four key educational aims were identified across all WIL activities. Assessment and supervision requirements varied throughout programs. These findings offer novel insights into WIL practices in Australasian paramedicine, providing a baseline for future initiatives and sector-wide benchmarking.

Keywords: Paramedicine, higher education, assessment, paramedic education, work-integrated learning.

Work-integrated learning (WIL) and its assessment are prominent features within curricula of paramedicine tertiary education programs in Australia and New Zealand. However, due to the variability of learning, assessments can be complex and must reflect the individual environments where the WIL occurs. While in other allied health professions programs in Australia such as physiotherapy (Dalton et al., 2011), occupational therapy (Allison & Turpin, 2004; Rodger et al., 2016) and speech pathology (McAllister, 2005) there has been substantial progress in developing WIL assessment instruments, research investigating both the diversity and the assessment of WIL in the context of paramedicine tertiary education appears uncommon. It remains unclear what WIL activities paramedicine students are undertaking and whether validated and reliable instruments are being employed to assess outcomes. However, anecdotal evidence suggests paramedicine WIL is most likely diverse, but the design and assessment may lack a strong pedagogical foundation (Johnson et al., 2021).

WIL is critical to health profession education (Universities Australia, 2019). WIL describes the connection and integration of theory and practice and supports essential skills acquisition. Furthermore, it allows students to engage with the profession, integrate into the workplace, develop resiliency, and develop a professional identity (Orrell, 2011; Sachs et al., 2017). As a pedagogical practice, WIL should be interconnected throughout curricula to afford students a greater understanding of the profession's requirements and facilitate scaffolding of learning to enhance student growth and reflective practice.

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While WIL is the terminology used most commonly in Australasia, internationally, multiple terms exist, including workplace learning (WPL), cooperative & work-integrated education (CWIE), work-based learning (WBL), or workplace-based learning (WPBL; Fergusson & van der Laan, 2021). These terms are often erroneously used interchangeably to describe the integration of discipline-specific theory with the application of knowledge in a practice-based setting; however, subtle differences exist between these pedagogical terms. The pedagogies linking work to theory are generally positioned in either work settings that integrate learning into the work environment or, alternatively, are positioned within learning environments, incorporating work into learning-focused curricula. WBL relates to learning that takes place in a work environment rather than a workplace; for example, professionals who use their work as a key component of their learning. WPL relates to learning that takes place in a specific workplace, for example, professionals looking at quality improvement initiatives through the development of knowledge, skills, or attitudes. In contrast, WIL and WPBL are more closely aligned with experiential learning and relate to learning by engaging students in learning experiences such as placements, or practicums. As Australasian paramedicine primarily uses experiential learning clinical placements, the term WIL will be used throughout this paper.

In 2017, 37% of all students enrolled in Australian university courses undertook a WIL activity, and 25% had multiple WIL activities (Universities Australia, 2019). A study on WIL highlighted placements with an employer as the most prominent activity and accounted for 42% of all activities, with students in health or education-related courses having the least diversity in WIL activities compared to other disciplines. However, there is a significant variation in WIL activities in disciplines outside of health or education. WIL activities such as projects, fieldwork, voluntary opportunities, and simulation play an important role in allowing students to contextualize learning by working on authentic activities that reflect the different aspects of the profession they are entering. It has been reported that employers now require graduates to have problem-solving, critical thinking, and communication skills in combination with academic success. Jackson and Bridgstock (2021) advocate embedding multiple WIL activities into a program as different activities reinforce different aspects of graduate employability.

Historically, paramedics were associated with only pre-hospital emergency medical care; however, in the last 20 years, paramedicine has evolved beyond being simply an emergency or transport service (Williams et al., 2021). Paramedics work in diverse settings, including emergency and primary and community healthcare, significantly contributing to the broader health system. While there are differences in paramedicine practice models globally, paramedicine education has moved to a tertiary (or post-secondary) education model in several countries, including the United Kingdom, New Zealand, South Africa and Australia, and paramedics in these countries are registered as health professionals or health practitioners (Health & Care Professions Council, 2023; Paramedic Council of New Zealand, 2021; Paramedicine Board of Australia, 2022).

The move to a tertiary entry-to-practice educational model saw a vast increase in student numbers, with 7,737 students enrolled in 17 accredited paramedicine programs throughout Australia during 2021 (Australian Government, 2022), subsequently putting pressure on the industry to accommodate WIL requirements (Devenish et al., 2019; Reid et al., 2019). In response to this influx of students and the evolving nature of paramedicine, WIL experiences expanded beyond solely jurisdictional ambulance service (JAS) placements. They now encompass non-traditional placements in primary and community healthcare, residential aged care, emergency departments, mental health services, as well as opportunities for outbound (international) mobility experiences (Delisle & Ebbs, 2019; Devenish et al., 2019; Ebbs et al., 2019; Johnson et al., 2021).

A 2014 study on paramedicine clinical placement in Australia found considerable variation in the duration and locations of the activities provided by the participating universities (O'Meara et al., 2014). Current anecdotal evidence suggests that many variations still exist between and within different university WIL models and student experiences. This includes WIL duration, location, scope, caseload volume and exposure, engagement and preparedness of supervisors, and the subjective assessment of students.

The importance of a research-informed curriculum in all university courses is well established and research-informed WIL curricula should be guided by those same principles (Zegwaard & Rowe, 2019). While some research exists on WIL in paramedicine, the overall body of evidence remains limited, and no recent studies have investigated the diversity, quality, duration, or assessment strategies of WIL in Australasian paramedicine.

Against this background, there is a need to gain a better understanding of WIL in entry-to-practice paramedicine programs. This involves identifying existing practices and exploring key qualities of WIL activities to inform the development of strategies relating to sustainability in WIL and validity and reliability in WIL assessments. This study aims to describe a national view of WIL in Australasian tertiary paramedicine programs.

METHODS

Research Paradigm and Study Design

The study used a cross-sectional survey design, and a pragmatic approach was adopted. Unlike other paradigms, a pragmatic paradigm focuses on what works in real-world practice and does not focus on assumptions about the nature of knowledge (Creswell & Creswell, 2017). The study was conducted as the first phase in a broader three-phase exploratory sequential mixed-methods study exploring WIL in Australasian paramedicine. The broader project aims to create a set of paramedicine-specific Entrustable Professional Activities (EPAs) to apply to the assessment of entry-to-practice paramedicine students undertaking WIL. A detailed exposition on EPAs is beyond the remit of the current paper, but in summary, unlike competencies that assess students performing set skills, EPAs are units of professional practice that convert, not replace, multiple competencies into clinical practice (ten Cate, 2013; ten Cate & Schumacher, 2022). To situate this study within the broader project and provide context for its specific aim, the first step in creating EPAs is to understand the current WIL activities undertaken by undergraduate paramedicine students. This ensures that any EPAs developed are appropriate for the WIL activities and the time spent on them. The subsequent two phases of the project will involve the development of paramedicine-specific EPAs and pilot testing of the EPAs to assess WIL.

Setting

The setting was the Australasian paramedicine tertiary education sector, which in the context of this paper refers to Australia and New Zealand. It consists of 20 universities, of which 18 offer undergraduate entry-to-practice programs, and the remaining two a post-graduate entry-to-practice program (Simpson et al., 2023). Program duration is variable, with most programs offering a 3-year degree program. However, two universities also offer 4-year dual paramedicine and nursing degree programs; one provides a 2-year fast-track program, and two offer a 1-year post-graduate qualification. All paramedicine programs are accredited or currently undergoing accreditation, through the Australian Health Practitioner Regulation Agency (AHPRA; Paramedicine Board of Australia, 2022) or the Te Kaunihera Manapou Paramedic Council (Paramedic Council of New Zealand, 2021). The

regulatory accreditation standards do not stipulate a mandated number of WIL hours or settings, instead they adopt an outcomes-based paradigm in which programs are only required to demonstrate sufficient diversity and duration in WIL in relation to producing graduates competent to engage successfully in an entry to practice level.

Participants and Eligibility

The participants were program leaders of the entry-to-practice paramedicine programs in Australia and New Zealand, participating on behalf of their universities. Programs were eligible to participate if they offered entry-to-practice paramedicine programs and were members of the Australasian Council of Paramedicine Deans, a national peak body representing the tertiary paramedicine academic sector (Simpson, 2019).

Recruitment and Consent

Program directors from tertiary education programs offering paramedicine programs in Australasia were identified via the Australasian Council of Paramedicine Deans (Simpson, 2019). The identified program directors were approached via an introductory email and invited to respond to an anonymous online survey on behalf of their program.

A participant information sheet was attached to the introductory email. The participant information sheet outlined the study's aim, purpose, risks, and benefits, allowing participants to consider their involvement. A link to an anonymous survey and participant information sheet was attached to the email. Participation was anonymous to ensure universities were not identifiable. Implied consent was requested through the initial question of the Qualtrics survey.

Instrument Development

No existing validated survey instruments were found during a search of the literature; therefore, guided by survey development guidelines, a new survey instrument was created and tailored specifically to the aims and objectives of the study (Artino et al., 2014). Face and content validity of the instrument were tested by eight academics from various disciplines, including previous paramedicine program directors and WIL specialists. They were asked to comment on the relevance, clarity, and ambiguity of the questions. The final instrument consisted of matrix tables, multiple choice questions, and free text boxes to gather data on WIL in Australasian Paramedicine. Definitions were provided where necessary to promote consistency, such as program (the term adopted as a defined course of study leading to an academic degree, which could also be referred to as a course in some institutions) and unit (the term adopted for a semester of study that could also be referred to across Australia as a subject, topic, or in New Zealand, a paper). As the study aimed to collect only information relating to WIL practices and assessment strategies, no demographic data were collected.

Data Variables

The survey instrument focused on collecting the following data variables:

- Program duration
- Compulsory nature of any WIL activity
- The setting of WIL activities
- The duration of WIL activities
- The educational aim of WIL activities

- The assessment requirements of WIL activities
- Who was responsible for the assessment of WIL
- The role of the supervisor in the evaluation of students
- The theoretical models used to assess WIL activities

Data Collection

Anonymous data were collected using the Qualtrics® survey platform over an eight-week period, commencing 5th April 2023 until 29th May 2023. Bi-weekly reminder emails were sent to increase participation awareness and response rates.

Data Analysis

All data were downloaded from Qualtrics into Excel and in line with the aim of the study, descriptive statistical analyses were used to summarize categorical data. Categorical variables reported frequencies and were expressed as numbers, percentages and mean (standard deviation) or median (interquartile range), as appropriate.

A 7-step qualitative content analysis (CA) (prepare the data, define the unit of analysis, develop categories, add categories or adhere to a pre-defined set of categories, code text, assess coding consistency, draw conclusions, report your methods and findings) was conducted on the open response free text data. CA has been defined as a research method for the subjective interpretation of the content of text data and is often used when the researcher wants a higher level of description rather than an abstract interpretation of the data (Vaismoradi et al., 2016). Several strategies to ensure the accuracy, reliability and rigor of the study were adhered to. To ensure the research was sufficiently reliable, reproducible, and transparent, the Checklist for Reporting of Survey Studies (CROSS) was used to report this study (Sharma et al., 2021). Critical reflection was employed to examine and address potential bias. The lead researcher prepared a reflexive statement to provide accountability and context. The research methods, data collection, and analysis processes were planned, discussed, and described throughout the study. The study's findings were presented in a clear and detailed manner to improve transferability.

Ethical Considerations

This study received approval from the Western Sydney University Human Research Ethics Committee in March 2023 (Approval Number H15301).

Reflexivity and Author Positionality

All the authors (LCT, PS, LT, MH) have extensive experience in education, research, and clinical practice. Three of the authors are paramedicine academics who are engaged in teaching paramedic students and would be classified as insider researchers (Jamieson et al., 2023; Olmos-Vega et al., 2023). The remaining author is a pediatric intensivist, academic educator, and an outsider to the research context; they had no prior contact with the participants or paramedicine. LCT was the primary investigator in this study. As a paramedic academic and a university course coordinator, the project was borne out of personal experiences and observations as both a paramedic and an academic working in paramedicine programs. Survey questions were constructed based on the authors' experience of WIL in entry to practice in Australasian paramedicine. The research team brought together varied experiences in the field of paramedicine, education, and research, encompassing various roles and

different career stages. This diversity cultivated reflexivity during the study. Reflective journals were utilized, and potential biases were discussed and acknowledged throughout each stage of the research.

RESULTS

At the time of data collection, there were 20 tertiary institutions offering paramedicine entry-to-practice education programs within Australasia, of which 12 (60%) participated and provided data relating to their programs. In total, respondents represented 44 individual student cohorts, defined as a group of students enrolled in the same profession-specific program but spread across multiple universities and in different years of study.

All participants reported that WIL activities were a compulsory component, although one program offered an exemption to WIL activities for students who were updating their qualifications from a Diploma level to a Bachelor level (conversion students). Compulsory WIL activities were assessed in ten universities; however, two universities reported that compulsory WIL activities were not assessed. Five participants reported that all WIL activities were embedded within an exclusive WIL unit, defined in this study as a unit that was dedicated to WIL only and where no other learning material was taught, while the remaining seven reported that WIL activities were included in units that contained additional learning activities.

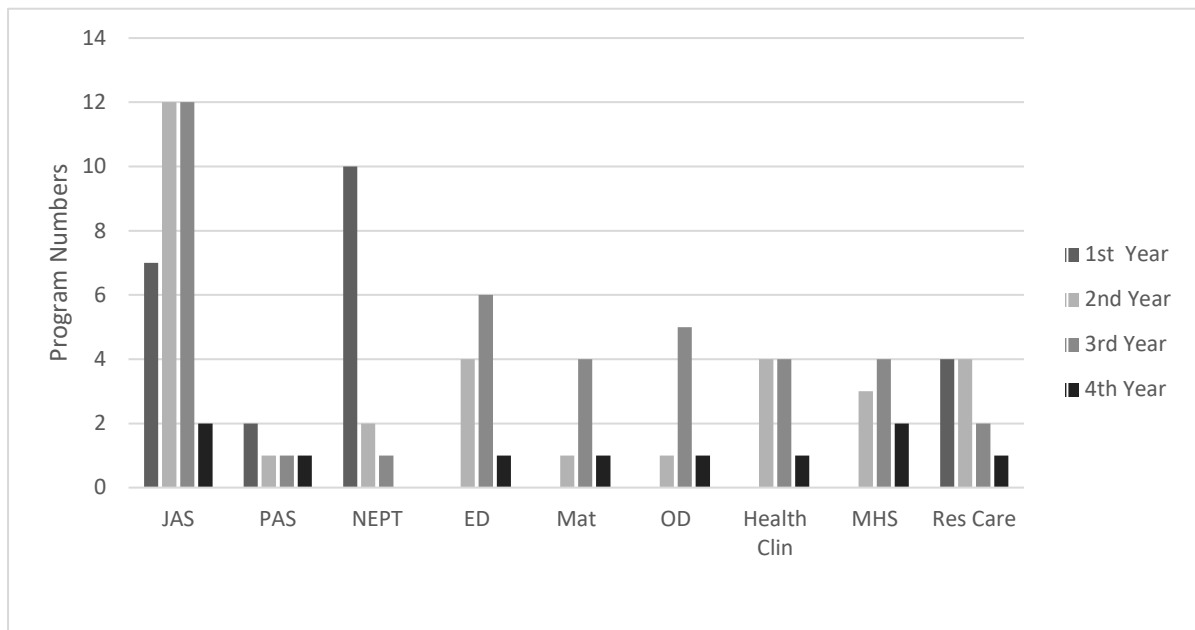
The Breadth and Diversity of Work-Integrated Learning

There was a diverse range of WIL settings throughout all programs, including JAS, residential care facilities, on-campus simulated activities, emergency department (ED), and non-emergency patient transport services (NEPTS).

Students from all universities and across all year levels attended WIL activities except conversion students noted above; 16 health-related settings were identified. Simulation activities and community activities, such as health promotion events like 'Restart a Heart' day, which were also reported as included in embedded WIL. Second and third-year cohorts had the most diversity in settings and activities.

The most common setting for WIL across all student cohorts was Jurisdictional Ambulance Service (JAS). NEPTS and simulated activities were highest for first-year cohorts. Non-traditional settings, such as ED, healthcare clinics, residential care facilities and mental health services (MHS), were the next most common settings for second, third, and fourth-year cohorts. International placements with either international ambulance service, international non-ambulance service or international non-government organization (NGO) were also a feature for second, third, and fourth-year students. Figure 1 contains a summary of WIL settings by year cohorts.

FIGURE 1: Work-integrated learning settings undertaken during entry to practice tertiary paramedicine programs.

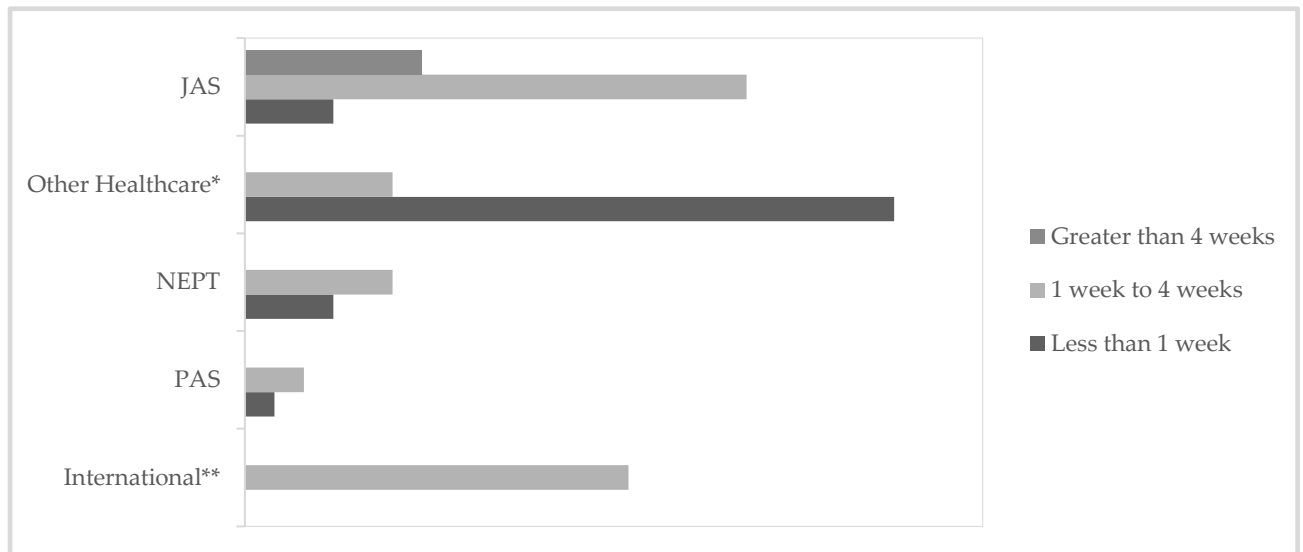


Note. JAS=Jurisdictional ambulance service, NEPT =non-emergency patient transport, PAS =Private ambulance sector, ED =Emergency department, Mat = Maternity, OD = Operating department, MHS =mental healthcare services, Res Care = residential care facilities

Duration of Work-Integrated Learning

Placement with a JAS was undertaken by all students' cohorts. However, there was significant variation in the duration of placement (from one day to greater than four weeks). In JAS, the duration of placement increased in line with progression through the program. The majority of cohorts who undertook a JAS placement attended between one to four weeks duration, whereas in non-traditional settings, attendance was usually less than one week for the majority of the cohorts (Figure 2).

FIGURE 2: Duration of work-integrated learning undertaken during entry to practice tertiary paramedicine programs.



Note. JAS=Jurisdictional ambulance service, NEPT =non-emergency patient transport, PAS =Private ambulance sector.

*Other Healthcare includes – emergency department, operating department, mental healthcare services, healthcare & residential care facilities **International includes -international ambulance service, international non-ambulance service (primary or community healthcare) & international non-government organization.

Educational Aims of Work-Integrated Learning

Free text responses about the educational aim of WIL were obtained from ten participants. Four main categories were identified: (a) technical skills development, (b) non-technical skill development, (c) observation and (d) communication.

In ambulance-based activities (JAS, PAS, NEPT), developing technical skills such as patient assessment, history taking, vital sign acquisition and communication skills were key features in all responses. While many programs mentioned developing non-technical skills (NTS) as an educational goal, the responses lacked specificity regarding these skills. Interestingly, communication was frequently listed separately from NTS development. One program highlighted increasing the level of independence of students as an educational aim. Conversely, in settings other than traditional ambulance settings, the main themes identified were primarily observation and communication. One program highlighted interprofessional learning as an aim in non-traditional settings. No programs explicitly mentioned the development of professional attributes or capabilities in either traditional or non-traditional settings.

Programmatic Assessment of Work-Integrated Learning

There was variation in the assessment of students undertaking WIL activities; this included the assessment type and documentation used and how the workplace supervisors contributed to the educational assessment of students. Of the twelve participants, ten provided information about the assessment documentation during WIL. Table 1 contains a summary of assessment documentation used by programs.

TABLE 1: Assessment documentation used during work-integrated learning in entry-to-practice tertiary paramedicine programs.

	Attendance record	Daily supervisor report	Weekly supervisor report	End of placement supervisor report	Self-reflection	Case Log	Case Report	Other
Jurisdictional Ambulance Service	10	2	1	7	10	6	5	2
Private Ambulance sector	2			2	2	2	1	
Non- Emergency Patient- Transport Service	7	2		4	7	2		1
Other Healthcare*	2		1	1	3	1	1	
International**	3			2	3	1	1	
Other	6	1		1	5	1	1	2

Note. *Other Healthcare includes – emergency department, operating department, mental healthcare services, healthcare & residential care facilities **International includes -international ambulance service, international non-ambulance service (primary or community healthcare) & international non-government organization.

Supervisor Contribution to the Assessment of Work-Integrated Learning

Free text responses about the role of the supervisor in assessment were obtained from ten participants. The role of the supervisor demonstrated variability across universities. Four participants reported that the WIL supervisor was responsible for a performance review of the student; two reported supervision was only to confirm attendance hours; one reported that the supervisor's role was to engage students in self-reflection activities. In contrast, four participants reported that the WIL supervisor was not responsible for assessing students, and students were only assessed in simulated WIL activities by academic staff who had received training in assessment. Two participants stated that a lack of a standardized approach and concerns about power imbalances, the quality of supervisors, and the lack of training for supervisors were contributing factors in not assessing students undertaking WIL.

Theoretical or Pedagogical Frameworks for Work-Integrated Learning

Ten participants provided information about the theoretical or pedagogical models underpinning the assessment of WIL. Participants were presented with six theoretical frameworks, with additional options to select "no," "unsure", or add more frameworks as needed. Two universities used a combination of Miller's prism of clinical competence (Miller, 1990), Can-MEDS framework (Bandiera et al., 2006), and Bloom's taxonomy (Krathwohl, 2002); one university used Bloom's taxonomy; one university used Dreyfus' developmental framework (Dreyfus & Dreyfus, 2005); two universities were unsure of the theoretical or pedagogical models used in the assessment of students undertaking WIL; three universities did not use any of the educational models specified in the survey for assessing

students on WIL, and did not provide details of any other education models used. One participant stated that the combination of models listed was documented but poorly applied in practice.

DISCUSSION

This descriptive cross-sectional survey provides a novel overview of WIL activities in Australasian entry-to-practice paramedicine programs. The results of this study reveal notable diversity in how WIL activities are implemented, with significant heterogeneity in structure, duration, educational aims, supervisor roles, and assessment requirements. These results are consistent with many other AHPRA-accredited health programs, with inconsistent requirements regarding duration, assessment, supervision and educational outcomes highlighted in a report on accreditation standards for WIL (Penman et al., 2023).

First, results revealed a range of WIL activities throughout entry to practice paramedicine programs, with the majority of these being industry-based placement such as JAS or other healthcare-related placements, consistent with a Universities Australia report highlighting that industry placement activities were the most common activities in Australian tertiary education (Universities Australia, 2019). Kaider et al. (2017) suggest that industry-based placements have the highest levels of authenticity and proximity which should be a critical consideration in the development and implementation of WIL activities. Authenticity is defined as “how closely a task resembles professional level challenges”, and proximity is defined as “how closely the context resembles a professional environment” (Oliver, 2015, pp. 61-62). One key factor to be considered in the results is the current dependence on JAS-based placements; while these are authentic placements, there is a need to diversify activities to reflect the true diversity of paramedicine.

Furthermore, the Paramedicine Board of Australia accreditation standards require programs to demonstrate that paramedicine students engage in WIL reflective of the profession (Paramedicine Board of Australia, 2020). While the results demonstrate diversity and variability in activities, they also highlight the duration of WIL in areas not traditionally seen as being paramedic-focused is often limited to several days. WIL activities should provide opportunities for students to apply knowledge, demonstrate learning, connect with the profession, integrate into the workplace, and develop resiliency (Sachs et al., 2017; Tertiary Education Quality and Standards Agency, 2022). Effective learning requires deliberate engagement, and learning is not an automatic result of attendance (Ajjawi et al., 2020; Moore, 2010). Smith et al. (2019) highlighted that the quality of WIL activities was more significant than quantity, structure, or duration in improving student employability. While limited duration does not always equate to poor quality, reviewing the educational aims of WIL in non-traditional settings in this study raised concerns. The specified aims of the non-traditional WIL activities consistently lacked the opportunity for students to consolidate theoretical learning through practice application. Consequently, these brief experiences may offer little educational benefit for the students and limited value for the host workplace, impacting the activity's overall quality and authenticity. Quality assurance in WIL has been well documented in literature over the past decade (Bradley et al., 2008; Patrick et al., 2008; Sachs et al., 2017; Winchester-Seeto, 2019). More recently, a framework was developed by Campbell and Pretti (2023) highlighting four domains of practice to improve the quality of WIL, including student experience, curriculum design, institutional requirements and stakeholder engagement. The results demonstrate that the educational aim of these non-traditional activities is not aligned with these four domains or effective learning practices.

In addition, simulation was highlighted as being an integral component of WIL in the study; this is consistent with a Universities Australia report that highlighted 12.9% of WIL in Australian universities were simulation activities (Universities Australia, 2019). Simulation is widely accepted as a teaching method to aid health professionals develop knowledge, skills, behaviors and attitudes in a low-risk environment while also providing the chance to practice situations that are not routinely seen in practice (Chernikova et al., 2020). Although simulations were reported in this study, it is unclear how simulations were undertaken and if they could be classified as simulated WIL. To be considered WIL, the task must have engagement from three key stakeholders - the educational institution, the student and the workplace (Zegwaard et al., 2023). Wood et al. (2020) suggest a definition of simulated WIL as “an immersive WIL experience in a context created to emulate the functions of a workplace with input by the workplace/community, educational institution, and the student” (p. 333). Without industry involvement, simulation cannot be classified as simulated WIL, but would simply be an opportunity for students to practice or enhance technical skill acquisition.

The survey further revealed four key aims of WIL – observation, communication, technical skills development, and non-technical skills development. While observational WIL may be seen as beneficial in certain situations, in their authenticity-proximity framework, Kaider et al. (2017) suggest that observation is a low-authenticity activity and should be classified as an introductory WIL activity for first-year students only. Technical skill development and skill competency have historically been at the core of paramedic education, and these results highlighted that skills competency was still a focus of paramedicine WIL. While it can be argued skills competency is necessary to ensure patient safety, only a small percentage of adverse patient events is usually attributed to technical skills error (Uramatsu et al., 2017). WIL should allow students to build and develop their NTS, such as metacognition, critical thinking, leadership, professionalism, and interpersonal skills. The results of the survey show that communication was an aim of most WIL activities, consistent with a recent study highlighting that communication was an essential NTS in paramedicine (Bennett & Williams, 2022). However, the results illustrate that many other higher-order NTS appear to be overlooked. The importance of NTS development in healthcare is supported by a large body of literature, which reinforces that NTS are a vital component in healthcare education to improve patient safety, with a report highlighting that 44% of adverse medical events were attributed to a failure of NTS (Uramatsu et al., 2017). NTS, such as professional ethics and professional identity formation, has been highlighted in recent literature as being more valued for developing versatile graduates than technical skill development (Tomlinson & Jackson, 2021).

Several issues relating to the assessment of students undertaking WIL are apparent from the data. A concern highlighted in the results was the lack of assessment of students undertaking WIL due to concerns about the quality of supervisors with regard to training, subjectivity, reliability, power imbalances and leniency bias. This aligns with previous research which highlighted that academic institutions tend to devalue the role of the supervisors and may exclude the supervisor summative assessment (Ajjawi et al., 2020; Ferns & Zegwaard, 2014; Jackson, 2018). While power imbalances and high-stakes assessments in WIL can undermine a safe learning environment, educators can address these issues by designing assessments that minimize perceived threats and support a positive learning culture (Brentnall et al., 2023). Research suggests that the argument for diminishing the supervisors' assessment disregards the benefits of benchmarking performance against industry standards and expectations. Ferns and Zegwaard (2014) suggest that workplace supervisors are in a better position to evaluate students' performance as they observe students over an extended period of time and in settings that may be cognitively challenging, in comparison to academic staff who undertake the assessment in simulated settings when students are forewarned of the assessment. Recent literature

suggests the integration of multiple perspectives to provide a shared consensus is a potential solution (Ajjawi et al., 2020; Ferns & Zegwaard, 2014; Jackson, 2018).

Finally, the data shows the most common assessment methods were attendance records, placement reports, and student self-reflection. However, the assessment of WIL was not tailored to a specific context or activity and appeared to be identical regardless of the location, activity, or progression of students. Several authors suggest that the assessment of WIL needs to consider four crucial components: 1) does it involve tasks that reflect actual practice? 2) does it pose a cognitive challenge that stimulates critical thinking? 3) does it encourage student reflexivity? and 4) does it allow students to evaluate their own performance? (Ajjawi et al., 2020; Ferns & Zegwaard, 2014). Similar to the design of WIL activities, assessment needs a considered approach to reflect the intricacies of the workplace and include industry stakeholders and students in the assessment process (Ajjawi et al., 2020; Boud et al., 2020). Assessment which is driven only by the needs of the educational institution or regulatory governance demands may lead to the assessment being treated as unauthentic and simply a 'tick box' exercise for workplace supervisors and students. Incorporating constructive alignment is essential in crafting effective WIL assessments, as it ensures that assessments and feedback are directly linked to desired learning outcomes and performance standards (Brentnall et al., 2023). Assessment design for WIL should focus on both pedagogical and practical issues, including the type of activity, which facets of learning are being assessed, the summative or formative nature of the assessment, what evidence is deemed valid, the type and length of WIL, the timing in relation to students' progression and the supervisor's involvement.

Implications and Recommendations

The results presented herein suggest that WIL in entry-to-practice paramedicine programs is diverse. A key area emerging from the current results is the need to strengthen the academic rigor of WIL assessment. Our results failed to identify convincing evidence that the current assessment of WIL in paramedicine tertiary education is evidence-based and pedagogically sound. These findings have implications for the paramedicine profession, paramedic educators, educational institutions, students, accrediting bodies, and other healthcare educators. Our study may inform curriculum development and influence those tasked with the conceptualization and development of WIL and its assessment in healthcare education.

We recommend paramedicine tertiary programs undertake an evaluation process to ensure all activities offer educational value and a positive student learning experience. WIL helps develop versatile graduates and is a vital component in increasing employability. However, like other areas of curriculum design, it is integral that the design of WIL activities is research and theory-informed, constructively aligned to a clear program-wide educational philosophy, and considerate of the student experience, stakeholder input, and institutional and regulatory requirements.

It is recommended paramedicine programs review the academic rigor of assessment in WIL to ensure they are pedagogically focused and constructively aligned. Proactive steps should be taken to develop assessments that measure and record student progress and growth, involving both students and industry in the design process, rather than using assessment to fulfill administrative requirements. It is vital to develop assessment instruments that reflect the profession's distinctiveness. We recommend considering assessment frameworks such as EPAs, which evaluate students based on workplace-relevant tasks and clinical decision-making. EPAs are essential tasks that healthcare professionals need

to perform independently and can be designed to ensure graduate paramedics are prepared for the demands of the profession.

Collaboration between universities, students, and stakeholders in the design of WIL activities will ensure a more effective and meaningful WIL experience for paramedicine students. Additionally, benchmarking practices across universities can help identify best practices, promoting consistency and high quality in WIL programs. Conducting a quality assessment of current WIL activities will provide insights into their effectiveness and identify areas for improvement. Further research is essential to explore the elements of effective WIL in paramedicine. Understanding the key factors contributing to successful WIL experiences will enable educational institutions to refine their programs and better prepare students for professional roles. By implementing these recommendations, universities can enhance educational outcomes for paramedicine students and ultimately improve the quality of patient care.

Limitations

The authors acknowledge this survey has limitations that should be considered when interpreting the results. Firstly, not all participants provided responses to all questions in the survey, which could impact the generalizability of the results. For pragmatic reasons, we asked participants to provide only a general aim of the WIL activity rather than individual learning outcomes for each activity. Furthermore, we asked only questions relating to the quantity and characteristics of activities and did not explicitly investigate the quality of WIL activities. Additionally, we did not ask the participants to provide a sequence of their WIL activities, only the year the activity occurred; therefore, if multiple events occurred in one year, we were unable to ascertain their sequence. This may have provided further insight into the scaffolding of learning. Finally, 40% of programs eligible to respond did not do so, creating a risk that important data with the potential to change the results was not collected. However, the programs that did engage spanned multiple states and degree structures, so in all likelihood, they provide a relatively accurate snapshot of the broader sector.

CONCLUSION

This study delivers insight into the diversity of WIL in Australasian entry to practice paramedicine programs. There appears to be significant heterogeneity in activities, educational aims, supervision, and assessment requirements. These data suggest there needs to be a more standardized and thoughtful approach to WIL design, a greater level of academic rigor, and an intentional design of assessment tasks for students undertaking WIL. Further research is required to explore the elements of effective WIL design and assessment strategies that consider the unique context of paramedicine. An opportunity exists for educational institutions and program directors to collaborate and work with industry stakeholders, student groups and regulatory bodies to establish best practices in the design and assessment of WIL in Australasian paramedicine.

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About the Journal

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

In this Journal, WIL is defined as:

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

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

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

The Journal is financially supported by the Work-Integrated Learning New Zealand (WILNZ; www.wilnz.nz), and the University of Waikato, New Zealand.

Types of Manuscripts Sought by the Journal

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

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

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

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

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Reference

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