Developing an institutional evaluation of the impact of work-integrated learning on employability and employment

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Student participation in work-integrated learning (WIL) is commonly held to enhance graduate employability and employment outcomes. Nevertheless, there exists significant research that questions the nature of this relationship. For many reasons, universities are unlikely to reduce their efforts and interest in WIL for students. However, for both quality assurance and quality improvement processes, it is important for institutions to evaluate the contribution of WIL to graduate employability and employment. Based on a critical review of the research literature, the rationale for an institutional proposal for the evaluation of the contribution of WIL to graduate employability and employment is developed and presented. The research literature suggests that the relationship between WIL and graduate outcomes is likely to be complex and context dependent. A methodology that others can adopt, adapt, or use as a stimulus for thinking, in their own unique institutional context is offered here.

Keywords: Work-integrated learning, employability, employment, evaluation

Graduate employability is now a key strategic concern for universities internationally (Divan & McBurney, 2016; Mason, Williams, Cranmer, & Guile, 2003; Stott, Zaitseva, & Cui, 2014). Many universities now include some form of work-integrated learning (WIL) experience in their curricula as a response aimed at enhancing graduate employability (Artess, Mellors-Bourne, & Hooley, 2017; Clarke, 2017). It has largely become an article of faith that WIL offers a range of benefits to students, including enhanced academic performance (Surridge, 2009), improved graduate employability (Wilton, 2012), and increased likelihood of employment (Artess et al., 2017). It is the latter two outcomes and the potential contribution made to them by WIL that are of primary interest here. Both for the purposes of establishing the efficacy, and the continuous improvement, of WIL activities, it is necessary to evaluate the impact of WIL (Rowe & Zegwaard, 2017), including on student employability (Harvey, 2001), and on graduate employment outcomes (Kirchmajer & Rowley, 2012).

In a recent large review of the published research on employability practices commissioned by the UK Higher Education Academy. Artess et al. (2017) found that 'employability' remains a contested concept, with many parties having their own definitions, arising from a range of political, theoretical, methodological and professional perspectives. They note that, "A key issue is how far employability is a distinct concept from employment. In other words, it is possible to be employable but still unemployed" (Artess et al., 2017, p. 10). Specifically for WIL-type experiences and their relationship to graduate employability and employment, the research literature reports mixed results.

This paper presents a critical review of the research literature that does not take as a given a direct causal link between student participation in WIL activities and improved graduate employability and employment outcomes. The relationship between WIL and academic outcomes is also considered, although it is not the principal focus here. Drawing on the research literature, and acknowledging differences in terminology used by different researchers, the rationale for an institutional proposal for

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our university (hereafter 'the University') for the evaluation of the contribution of WIL to graduate employability and employment is developed and presented.

LITERATURE REVIEW

WIL, Employability and Employment – A Critical Review

A topical literature search was undertaken by consulting key literature databases for higher education – the ProQuest Education database, the EBSCO Education Source database and the Education Resource Information Center (ERIC) database. The search phrases that were used linked WIL and employability outcomes, and, WIL and employment outcomes. The resultant articles had their reference lists inspected for other relevant articles, and the overall results were supplemented with additional searches via Google Scholar. Articles included in the review were those from the peer-reviewed literature or reports published by national representative bodies. Additionally, articles included in the review were those that provided a rationale for WIL evaluation and/or a method for WIL evaluation and/or results of a WIL evaluation. Themes were extracted from the identified articles, and grouped into the narrative that follows.

In a large investigation of UK business students from 38 UK higher education institutions that combined aspects their studies with four years of data tracking their early careers, Wilton (2012) found that the impact of a work placement was inconsistent, "apparently contributing to the greater achievement of graduate-level employment on one measure and not on another" (p. 168). In a survey of UK university graduates in 2009 and 2010 who were actively seeking work, Okay-Somerville and Scholarios (2017) collected data relating to employability development and employment outcomes. They found no significant association between students having any discipline-relevant work experience and self-assessed graduate employability or objective employment outcomes (job offer, employment status and employment quality). They noted that this finding was counter to the conventional wisdom and policy, but also noted emerging research supporting their contention that, "Work experience may enhance graduate employability indirectly by fostering more proactive career behaviours" (Okay-Somerville & Scholarios, 2017, p. 1285). As distinct from 'employment' (i.e., any form of work – full-time, part-time, casual), some researchers have observed no significant advantage in undergraduate work placements for protecting graduates from 'unemployment' (i.e., having no work of any kind) (Brooks & Youngson, 2016), although also noting the need to further examine the type of employment obtained, for example, in-discipline, professional, full-time. One of the largest published investigations into graduate employment outcomes drew on data from the Australian Graduate Destination Survey (GDS) (Jackson, 2014). For each of the 2011 and 2012 cohorts there were more than 28,000 respondents, and it was found that, "paid work experience during the final year of study did not record a significant effect on the chances of attaining a full-time job" (Jackson, 2014, p. 147). A more recent study using GDS data from 2014 did find a significant positive association between paid work in final year and graduate employment outcomes, but also noted that paid work in final year was related in complicated ways to student demographics (Pitman, Roberts, Bennett, & Richardson, 2017). It is acknowledged that paid work experience in final-year is not necessarily a good proxy variable for student participation in WIL activities.

Mason et al., (2003) reported that an observed immediate (six months after graduation) benefit in salary level and work responsibility from undertaking a work placement had disappeared after one-to-three years in employment. Wilton (2012) found that an immediate benefit in lower unemployment from undertaking a work placement reported in the literature was not apparent in the group of business and

management graduates who completed a UK national graduate survey four years after their graduation. Both authors speculated that any employability benefit accruing from work placements diminishes relatively quickly after graduation.

Clarke (2017) notes the universal focus on graduate employability in universities, and the equally universal response of embedding generic skills into degree programs, as well as the increasing prevalence of WIL, as actions to improve graduate employability. She notes that these responses alone do not sufficiently address the wide range of additional factors likely to influence graduate employability outcomes. Based on the literature, she proposes a model of graduate employability that includes a range of factors related to human capital (including WIL experiences), social capital, and individual behaviors. While her investigation is largely theoretical, a number of data-based investigations have identified a range of factors that influence employability outcomes, including factors that are likely to confound any apparent headline effect of WIL activities.

Divan and McBurney (2016) surveyed senior science students who had completed one of a number of optional career development activities (including an industrial placement year), as well as a 'control group' who had not completed any career development activities. Their survey included questions about students' career orientation. Although their survey response rate was relatively low, they noted that the control group had the highest percentage of students who did not intend to pursue a career in science, and that they were also the least decided in their career plans. Bridgstock (2009) suggests that such career uncertainty is likely to impact negatively on graduate career outcomes. If the most career-focused students self-select into WIL and other career development opportunities at university, it is likely that at least part of any improved careers outcomes for this group are due to their pre-existing career orientation.

While much literature on graduate employability initiatives focuses on 'supply side' factors (e.g., the knowledge, skills, abilities and other attributes of students, university career development activities), 'demand side' factors are also important. Artess et al., (2017) note that increasing graduates' employability will not necessarily lead to enhanced employment opportunities in a given graduate labor market with a fixed size and structure. For example, using national census data it has been shown that, in Australia, there are more engineering bachelor graduates than there are professional engineering job roles (Palmer, Tolson, Young, & Campbell, 2015). Harvey (2001) notes that agents in the external environment, such a recruiters, also play an important role in graduate employment outcomes, and that their actions cannot be assumed to be neutral or even rational. The views of employers regarding WIL (e.g., the value they place on recruits having WIL experience, whether graduates with WIL experience are perceived as having superior performance in the workplace.) are also important, but are beyond the scope of the work documented here.

It has been suggested that any positive association between WIL activities and graduate employability is in part due to work placements reproducing/mirroring existing graduate labor market inequalities – that is, that the students least able to participate in WIL are the same students who face systematic graduate labor market barriers. In their study of how science students managed their employability, Divan and McBurney (2016) found that 25% of students not completing an optional career development activity (including a WIL option) abstained due to personal reasons, including ill health, inability to extend the length of their studies, not being able to relocate, and financial constraints. If these factors were persistent, they may also impact on a student's opportunities in the labor market after graduation. Allen, Quinn, Hollingworth, and Rose (2013) interviewed 26 students from diverse backgrounds (based on race, gender, disability and class) who participated in a work placement in UK creative industries.

They sought to understand the placement experiences of the students and the influence that the placements had on the students' self-perception of their employability. They concluded that these work placements helped to perpetuate neoliberal constructions of the 'right'/employable creative worker, privileging resource-rich middle-class students, and contributed to student experiences of exclusion based on ethnicity and gender. Other research based on interviews with managers responsible for the recruitment of undergraduate industrial placement students indicated the presence of indirect discrimination on the basis of social groupings, including class, for students applying for placements (Wilton, 2014).

Many researchers investigating the link between employability initiatives and graduate employment outcomes have noted the need for additional research to better understand the complex interactions between contributing factors and different types of employability outcomes (Jackson, 2014; Okay-Somerville & Scholarios, 2017; Rowe & Zegwaard, 2017). Having observed inconsistent results for business and management graduates, Wilton (2012) notes, "the data does suggest that more needs to be understood about the relationship between work placements and graduate outcomes before claims about their universally positive impact for all parties can be offered" (p. 619). The other driver for additional research is the need to understand local context. Reporting on the apparent positive impact of WIL on graduate employability at a particular Japanese university, Tanaka and Carlson (2012) cautioned, "it is important to mention that the data used for this estimation is of KSU students only, which may have certain selection bias. It would be advisable not to take the results for granted but to apply the same approach to your own data" (p. 12).

Taking a lead from the research literature above, a critical, evidence-based and context-sensitive approach to the evaluation of the contribution of WIL to graduate employability and employment is adopted. While academic outcomes are not the focus of this paper, improved academic performance has been observed to be associated with participation in WIL activities, often in conjunction with improved employability and employment outcomes, so academic outcomes are also briefly considered here for completeness.

Academic Outcomes

Surridge (2009) proposed that an observed significantly higher academic performance of accounting and finance students who had completed a work placement could be due to, "personality/motivation/attitude factors that predispose a student to undertake a placement … and these might be why placement students perform better, rather than anything to do with the placement itself" (p. 484). He further speculated that any such 'better marks' incidentally obtained by placement students might translate through to a higher final degree honors class, and that this credentialing/signaling could translate into improved graduate employment prospects, which might be retrospectively associated with/attributed to participation in a work placement as a student.

Brooks and Youngson (2016) noted Surridge's proposition, and found that students who completed a work placement in the third year of a four-year study program had a higher second year mean score than students who did not complete a placement. They also observed that placement students showed a greater academic improvement over their second year score by the end of their studies, compared to students that did not complete a work placement, and they attributed this improved academic performance to the work placement. They apparently didn't consider the possibility that more academically able students in second year might continue to outpace their peers in academic achievement through to the completion of their studies, regardless of participation in a work placement.

Tanaka and Matsutaka (2010) examined the relationship between academic performance, career education activities (including WIL) and a range of career outcomes, using the data from nearly 5500 students graduating from a Japanese university in 2008 and 2009. They found significant positive contributions to career outcomes from both participation in WIL (but not other career education activities) and from students' initial academic performance at university. They noted that the overall explanatory power of their modelling was low, indicating that many other factors probably also contribute significantly to graduate employment outcomes. They concluded that there was a benefit in students completing WIL, but they were not confident that participation in WIL was not merely a[nother] form of credentialing of already academically able students.

Employability Outcomes

An important starting point in developing an evaluation strategy is to have a clear definition of the concept under study. As noted in the literature, as a concept 'employability' is: contested (Artess et al., 2017; Bridgstock, 2009; Jollands, 2016); evolving (Artess et al., 2017; Stott et al., 2014); often weakly conceptualized (Stott et al., 2014); varies between disciplines (Mason et al., 2003); subject to questions about whether it can actually be measured, and if so, how (Jollands, 2016; Stott et al., 2014); defined and operationalized in widely varying ways (Mason et al., 2003); and, often reduced to simple, or even single measures (Harvey, 2001; Stott et al., 2014). Suggested employability definitions abound.

Bridgstock (2009) notes that those from commerce and government often have a narrow focus on initial graduate employment and/or industry economic interests, for example, "… skills required not only to gain employment, but also to progress within an enterprise so as to achieve one's potential and contribute successfully to enterprise strategic directions" (Australian Chamber of Commerce and Industry & Business Council of Australia, 2002, p. 3). There is a range of oft-cited and essentially interchangeable versions of employability which feature labor market success as the mark of achievement for the individual (McQuaid & Lindsay, 2005), for example, "A set of achievements – skills, understandings and personal attributes – that make individuals more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy" (Yorke & Knight, 2006, p.3). Other conceptions of employability imbue the student/graduate with a more active role – as an independent agent operating in an external environment, and involved in a process, rather than possessing specific characteristics or holding a particular position, for example, "… to be successful an individual must become a graduate, not just in the formal sense of being awarded a degree but in socially and biographically significant terms, whereby they act in ways that lead others to ascribe to them the identity of being a person worthy of being employed (i.e., in the kind of job generally considered appropriate to someone who has been highly educated)" (Holmes, 2013, p. 549).

Many institutional initiatives aiming to enhance student employability elaborate their definitions (implicit or explicit) of employability through a framework, model or similar device, which documents the elements purportedly contributing to graduate employability (Artess et al., 2017; Harvey, 2001; Holmes, 2013). Specific examples of such frameworks are plentiful in the literature (Artess et al., 2017; Australian Chamber of Commerce and Industry & Business Council of Australia, 2002; Bridgstock, 2009; Clarke, 2017; Harvey, 2001; Hillage & Pollard, 1998; Holmes, 2013; McQuaid & Lindsay, 2005; Yorke & Knight, 2006). Holmes (2013) notes that, "The very existence of such a plethora of lists and frameworks of such 'skills and attributes' should, one might think, cause some pause for thought…whilst there may be similarity at the level of *untechnical* discourse, we should exercise caution in assuming that this extends to the usage of such terms as *technical* concepts" (p. 543).

Drawing on sociological approaches, Harvey (2001) suggests that the process for 'operationalization' of the theoretical concept of employability into a measurable index is:

1. Define the theoretical concept.
2. Break it down into dimensions that cover the meaning of the concept.
3. Identify a range of indicators for each dimension.
4. Select one or more indicators for each dimension.
5. Design instruments to collect information on each indicator.
6. Decide whether to have a multi-dimensional set of indicators, an array of indices or a single index and, if appropriate, combine indicators into an index' (p 99).

At stage five (instrument design), they provide the following generic examples of possible 'employability instruments' – a survey of recent graduates' employment activity, an evaluation of graduates' abilities, and, a satisfaction survey of graduates in work.

Examples of purposefully designed employability instruments can be found in the literature. Savickas and Porfeli (2012) describe the development and validation of the Career Adapt-Abilities scale, including trialing of localized versions of the instrument in 13 countries. Analysis of data from an initial 45 item version of the instrument resulted in a more economical final survey containing 24 items which provides scores for the four proposed elements of student 'career adaptability' – concern, control, curiosity and confidence. The instrument was subsequently used in the UK as a measure of student employability (Wright & Frigerio, 2015). Okay-Somerville and Scholarios (2017) describe the use of a custom-designed employability instrument that included demographic information, control variables, and, a range of employability measures, including some elements drawn from other published instruments. The purpose of the instrument was to identify the predictors of objective graduate employment outcomes. Based on a literature review and the views of members of a project team, Smith, Ferns, Russell, and Cretchley (2014) describe the development of a 45 item survey that measures six 'employability dimensions' - collaboration, informed decision making, commencement readiness, lifelong learning, professional practice and standards, and integration of theory and practice. Jollands (2016) reports measuring the 'self-reported perceived sense of employability' of final-year chemical engineering students, including comparing the difference between students who had completed a conventional 12 week industry-based project, and those that completed a 'simulated' final-year engineering project. The instrument employed 35 of the 45 items from the survey by Smith et al., (2014) described above, however, the rationale for item inclusion was not provided.

Employment Outcomes

Many universities appear to dissociate their employability initiatives from actual student employment outcomes, emphasizing instead a 'human capital' perspective of employability (Clarke, 2017). Such an approach shifts the focus to matters of educational process, potentially providing points of marketing differentiation, and the results of which might be able to be cast in a more positive light than raw graduate employment statistics. However, "it is possible to be employable but still unemployed" (Artess et al., 2017, p. 10), and there is no doubt that the ability of students to successfully attain full-time employment in their chosen discipline is very important (Jackson, 2014). This is true both for students who may have gone into significant debt for their university education (Holmes, 2013), and for university courses as a publicly available success indicator (Kirchmajer & Rowley, 2012).

So, while 'employability' may be a complex construct, on the face of it, 'graduate employment status' would seem to be much simpler, but this is not necessarily the case. The *Beyond Graduation* 2014 report

from Graduate Careers Australia suggests that graduate employment increases over time between approximately six months and three years post course completion (Graduate Careers Australia, 2015). Using UK national 'First Destination' survey data, followed up with interviews of 192 graduates, Mason et al., (2003) found that, after controlling for a range of variables, students who completed a sandwich work placement were more likely to be in work, and more likely to be in a graduate-level occupation, six months after graduation, compared to graduates who did not complete a sandwich placement as a student. However, they found no significant difference in these occupational outcomes at a later time point one to three years post-graduation. Looking at the results for business and management graduates in the UK 'Class of '99' survey (completed by nearly 10,000 graduates across all disciplines four years after graduation), Wilton (2012) found no difference in unemployment levels between those that had and hadn't completed a work placement as a student, concluding that any initial employability benefit from a work placement is attenuated over time. These results suggest that the time at which 'graduate employment' is measured is significantly important.

Examples of graduate employment status data collection can be found in the literature. In the UK, the Destinations of Leavers from Higher Education survey (DLHE – formerly known as the First Destination Survey) is a national survey of graduates approximately six months after they graduate, and includes data on respondent employment status. The DLHE (and its antecedent) is reported as a source of graduate employment data (Brooks & Youngson, 2016; Mason et al., 2003; Moores & Reddy, 2012). In Australia, the analogous survey was the Australian Graduate Survey (AGS), now replaced by the Graduate Outcomes Survey (GOS) in 2016. Large data sets from the undergraduate (Jackson, 2014) and the postgraduate (Jackson & Michelson, 2015) versions of the AGS have been used to identify predictors of graduate employment at the time of the respective surveys.

In the UK, the Class of '99 questionnaire project surveyed half of all graduates in all subject disciplines who completed their undergraduate education in 1999 at 38 UK higher education institutions four years after graduation in 2003. Another widely reported approach to gauging graduate employment levels is surveying graduates via post, online or via telephone (Mason et al., 2003; Moores & Reddy, 2012; Okay-Somerville & Scholarios, 2017; Tanaka & Matsutaka, 2010). Graduate employment surveys, whether indirect via national survey schemes, or direct from universities to their alumni, will include data of different types and detail, potentially addressing current employment status, employment fraction, salary, class/rank of role, job/career satisfaction, employment history, use of knowledge/skills from university studies, employer sector, employer size.

AN INSTITUTIONAL PROPOSAL FOR EVALUATION

It has been observed that qualitative research exploring students' perceptions of the value of work placement can yield positive results, even when, "the quantitative data suggests a more complex relationship between work placements, skills development and labour market outcomes" (Wilton, 2012, p. 603). In an overview of WIL activity at one university, Martin, Rees, Edwards, and Paku (2012) identified the need to validate qualitative research to confirm that intended outcomes are being achieved. In addition to self-reported perceptions of work readiness, objective measures such as actual graduate employment outcomes are also needed to more comprehensively assess the impact of WIL interventions (Rowe & Zegwaard, 2017). It is acknowledged that student success in the world of work is complex, multi-faceted concept, but also that, pragmatically, quantitative measures will continue to play an important part in the evaluation of graduate outcomes (Jackson & Bridgstock, 2018). Based on a critical review of the literature, the aim here is for evaluation approaches that are pragmatic, that are relevant for our institutional context, that will generate quantitative data that are repeatable, and that

will allow comparison and analysis of results using standard statistical methods.

In a report on the impact of higher education on graduate employability for the Higher Education Funding Council for England, Mason et al., (2003) note that the, "identification of the independent effects of employability skills formation in HE on graduates' labour market performance is highly sensitive to the choice and definition of the different measures involved and to model specifications" (p. 16). In the conclusion of their large review of the published research on employability practices for the UK Higher Education Academy, Artess et al., (2017) note that, "[higher education providers] will need to think carefully about how they are defining 'employability' and how this integrates with their wider mission" (p. 39). The implication is that the University should deliberately consider both its definition of employability, and about how it would measure employability-related outcomes. The University's current definition of employability is given in Schedule A of its Higher Education Courses Policy (Deakin University, 2016):

> "Employability means that students and graduates can discern, acquire, adapt and continually enhance the skills and attributes that make them more likely to find and create meaningful paid and unpaid work that benefits themselves, the workforce, the community and the economy" (p. 1).

Other than specifying that the course evaluation process requires, "evidence that graduates are successful as employable and engaged citizens" (Deakin University, 2016, p. 2), the related policy documentation provides no clear guidance regarding the 'official' dimensions of employability, nor indicates appropriate methods for measuring the level of graduate (or student) attainment of them.

As a way to pragmatically operationalize the generic institutional employability definition above, it is recommended that the University use a student survey instrument derived from the employability modeling exercise reported in Smith et al., (2014). The model and subsequent survey instrument developed were the result of a large-scale investigation into the impact of WIL on undergraduate employability in an Australian context, and the development process was compatible with that suggested by Harvey (2001) above. Hence, the basic survey instrument is well-matched to the setting under consideration here. The model reported by Smith et al., (2014) was based on 45 response items that were factored into six dimensions of work readiness. As a starting point, it is proposed to economize on the number of response items required by using the two items with the highest reported factor loading for each of the six dimensions (Smith et al., 2014, p. 29). Based on this, the initial employability survey instrument, including the item stems and five point response scales taken from Smith et al., (2014), would be as shown in Table 1.

TABLE 1: Proposed employability survey instrument.

Work readiness dimension	**Item**
Please rate your ability to do each of the following: Very poor / Poor / Don't know / Good / Very Good	
Collaboration	1. Interact effectively and respectfully with people from other cultures. 2. Learn from and collaborate with people representing diverse backgrounds or viewpoints.
Informed decision making	3. Use information and my professional or workplace knowledge to come to reasonable decisions and then act on these. 4. Weigh up risks, evaluate alternatives, make predictions from data and apply evaluation criteria to options.
Lifelong learning	5. Identify the knowledge I lack / need to improve to be effective in the workplace. 6. Identify the skills I lack / need to improve to be effective in the workplace.
Professional practice & standards	7. Recognize ethical practice in the workplace. 8. Identify the standards of performance or practice expected in the workplace / my profession.
Integration of theory & practice	9. Judge the applicability of the knowledge gained in my studies to the workplace, 10. Apply knowledge and skills gained in my studies to the workplace.
How confident are you that you are: Not at all / Slightly / Somewhat / Quite / Very	
Commencement readiness	11. Ready to commence work in your field or discipline. 12. Able to obtain work relevant to your studies.

The scores for the 12 items could be recorded individually. Alternatively, as the original factor loadings for each of the component items in the work readiness dimension pairs above were virtually identical, a score for each of the six work readiness dimensions could be derived by averaging the scores for its two component items. In the longer term, the University should conduct its own validation of the survey instrument for potential contextual refinement. Scenarios for the use of such an employability survey include:

- getting students to complete the instrument prior to, and after, their WIL experience(s), and observing any development in scores;
- getting students who complete different types of WIL experience(s), potentially including none, to complete the instrument, and observing any between-group differences in scores – see also the note below regarding quality of WIL experience;
- investigating the demographic, discipline, environmental and others factors that might influence the scores achieved by students; and,

- assessing the relationship between an individual's employability scores, and their later graduate employment outcomes.

Some of the survey items refer to student capacities to operate in 'the workplace'. If a student has no prior WIL or workplace experience, they may inaccurately estimate (and particularly overestimate) their employability capacity – the Dunning Kruger effect (Smith et al., 2014). Evaluation scenarios involving students with no WIL experience should consider their responses with due care. An alternative scenario to the first one above is a post-then-pre evaluation, where students assess their initial employability after they complete their WIL placement, such that they might make a more realistic assessment of the initial employability capacity (Rockwell & Kohn, 1989).

As a measure of graduate employment, it is recommended that the University use the data from the relevant national graduate survey – currently the Graduate Outcomes Survey (GOS). Pragmatically, the results of the GOS are readily available, and are used to compile public league tables of university graduate employment outcomes, so are already a key indicator. For the highest quality data from the graduate survey, the University needs to encourage graduating students to complete the GOS. The employment data thus obtained are useful for internal university program reporting requirements, but for the task here, their best use is as a dependent variable for respondents, for which the identity and influence of as many independent variables as possible are sought. Here, the essential independent variable is a student's participation (or not) in WIL activities. Smith et al., (2014) note that quality of the student WIL experience may be an important influence on employability-related outcomes. A binary WIL participation variable could be expanded into a categorical variable that encompasses different classes of WIL experiences, and potentially into a pseudo-ordinal variable, if a ranking of the 'quality' of different classes of WIL experiences can be established/agreed. Based on the literature examined above, other potentially important independent variables to include in any such analysis are:

- prior academic performance – e.g., grade point average or similar;
- discipline area – e.g., program of study, major, faculty;
- gender;
- age;
- disability status;
- nationality; and,
- socio-economic status.

These data are directly available in, or can be derived from, individual student information records held by the University, and can be matched to the corresponding student responses provided in the Graduate Outcomes Survey/Australian Graduate Survey

Some authors report pair-wise comparisons of the association between participation in WIL (or not) and graduate employment status (i.e., completed internship: yes/no versus in full-time work: yes/no). These results may be presented as counts and/or proportions, and may include measures of association (such as Pearson correlation coefficient) and/or statistical tests of differences in proportions (such as the chi-squared test of equality of proportions) (Brooks & Youngson, 2016; Mason et al., 2003; Wilton, 2012). Where data for multiple independent variables are known, regression analysis allows a model to be developed that describes the relationship between the independent variables (including WIL participation status) and graduate employment status. Associated tests can determine the degree of inter-correlation between the independent variables, explanatory power of the model, and overall quality of the model. The use of linear regression is reported (Tanaka & Matsutaka, 2010). However,

for a binary dependent variable (i.e., employed or unemployed) binary logistic regression would normally be considered the appropriate regression method (Jackson, 2014; Jackson & Michelson, 2015). Where additional categories of employment status are known, multinomial logistic regression can be used (Pitman et al., 2017).

CONCLUSION

It is planned in the near future to complete an analysis of the impact of student participation in WIL activities on graduate employment outcomes in one faculty, using existing GDS data and matching student records. In the longer-term it is planned to use the proposed employability survey instrument to undertake an investigation of the association between WIL and employability, as conceived/captured by the survey instrument.

Despite much anecdote and received wisdom about, and evaluation of perceptions of, the value of WIL, there is significant research that questions aspects of the relationship between student participation in WIL activities, and graduate employability and employment outcomes. It is hoped that bringing together some of this research contributes to a more nuanced literature on the value of WIL. Drawing on the research literature with a critical eye, including those investigations documenting large-scale investigations in an Australian context, the rationale for an institutional proposal for the evaluation of the contribution of WIL to graduate employability and employment is developed and presented. Pragmatically, the use of existing validated approaches is proposed, with the caution that contextual factors always need to be considered in the interpretation of results. While the focus here has been the relationship between WIL and employability and employment, the research literature suggests that the relationship between WIL and graduate outcomes is likely to be complex and context dependent, hence it is recommended that other student demographic information be included in any analyses. A methodology that others can adopt as is, adapt to suit their own purposes, or use as a stimulus for thinking, in their own unique institutional context is offered here.

Many other benefits are attributed to WIL, and there is currently significant competitive marketing pressure to incorporate WIL activities into university study programs, so institutions are unlikely to reduce their involvement in WIL. However, given the effort and cost of participation in WIL for all parties – institutions, students and industry – and the likely contextual nature of the links between WIL participation and graduate outcomes, for both quality assurance and quality improvement processes, it is important for institutions to conduct their own evaluations of the impact of WIL. As WIL moves from a specialized student activity, to a generally available option, to being a universal expectation in university study, any expected differential benefit/impact is likely to diminish. In such a situation the need for institutions, students and industry to understand the benefits of WIL and how to optimize WIL's value for graduate outcomes will be paramount.

REFERENCES

Allen, K., Quinn, J., Hollingworth, S., & Rose, A. (2013). Becoming employable students and 'ideal' creative workers: exclusion and inequality in higher education work placements. *British Journal of Sociology of Education, 34*(3), 431-452. doi:10.1080/01425692.2012.714249

Artess, J., Mellors-Bourne, R., & Hooley, T. (2017). *Employability: A review of the literature 2012-2016*. York, UK: Higher Education Academy.

Australian Chamber of Commerce and Industry, & Business Council of Australia. (2002). *Employability skills for the future*. Canberra, Australia: Department of Education, Science and Training.

Bridgstock, R. (2009). The graduate attributes we've overlooked: Enhancing graduate employability through career management skills. *Higher Education Research & Development, 28*(1), 31-44. doi:10.1080/07294360802444347

Brooks, R., & Youngson, P. L. (2016). Undergraduate work placements: an analysis of the effects on career progression. *Studies in Higher Education, 41*(9), 1563-1578. doi:10.1080/03075079.2014.988702

Clarke, M. (2017). Rethinking graduate employability: The role of capital, individual attributes and context. *Studies in Higher Education*, 1-15. doi:10.1080/03075079.2017.1294152

Deakin University. (2016). *Higher education courses policy*. Retrieved from https://policy.deakin.edu.au/document/view-current.php?id=131

Divan, A., & McBurney, S. (2016). Understanding how students manage their employability. *New Directions in the Teaching of Physical Sciences, 11*(1), 1-10.

Graduate Careers Australia. (2015). *Beyond Graduation 2014*. Melbourne, Australia: Graduate Careers Australia.

Harvey, L. (2001). Defining and measuring employability. *Quality in Higher Education, 7*(2), 97-109. doi:10.1080/13538320120059990

Hillage, J., & Pollard, E. (1998). *Employability: Developing a framework for policy analysis*. London, UK: Department for Education and Employment.

Holmes, L. (2013). Competing perspectives on graduate employability: possession, position or process? *Studies in Higher Education, 38*(4), 538-554. doi:10.1080/03075079.2011.587140

Jackson, D. (2014). Factors influencing job attainment in recent bachelor graduates: Evidence from Australia. *Higher Education, 68*(1), 135-153. doi:10.1007/s10734-013-9696-7

Jackson, D., & Bridgstock, R. (2018). Evidencing student success in the contemporary world-of-work: Renewing our thinking. *Higher Education Research & Development, 37*(5), 984-998. doi:10.1080/07294360.2018.1469603

Jackson, D., & Michelson, G. (2015). Factors influencing the employment of Australian PhD graduates. *Studies in Higher Education, 40*(9), 1660-1678. doi:10.1080/03075079.2014.899344

Jollands, M. (2016, 28-30 September). *A non-placement authentic simulated work integrated learning project for final year students.* Paper presented at the Australian Conference on Science and Mathematics Education, Brisbane, Australia.

Kirchmajer, L., & Rowley, S. (2012). *Industry engagement and graduate skills: A report on tertiary courses in interactive media and computer games*. Canberra, Australia: Interactive Skills Integration Scheme.

Martin, A., Rees, M., Edwards, M., & Paku, L. K. (2012). An organization overview of pedagogical practice in work-integrated education. *Asia-Pacific Journal of Cooperative Education, 13*(1), 23-37.

Mason, G., Williams, G., Cranmer, S., & Guile, D. (2003). *How much does higher education enhance the employability of graduates?* London, UK: Higher Education Funding Council for England.

McQuaid, R. W., & Lindsay, C. (2005). The concept of employability. *Urban Studies, 42*(2), 197-219. doi:10.1080/0042098042000316100

Moores, E., & Reddy, P. (2012). No regrets? Measuring the career benefits of a psychology placement year. *Assessment & Evaluation in Higher Education, 37*(5), 535-554. doi:10.1080/02602938.2011.553668

Okay-Somerville, B., & Scholarios, D. (2017). Position, possession or process? Understanding objective and subjective employability during university-to-work transitions. *Studies in Higher Education, 42*(7), 1275-1291. doi:10.1080/03075079.2015.1091813

Palmer, S., Tolson, M., Young, K., & Campbell, M. (2015). The relationship between engineering bachelor qualifications and occupational status in Australia. *Australasian Journal of Engineering Education, 20*(2), 103-112. doi:10.1080/22054952.2015.1092666

Pitman, T., Roberts, L., Bennett, D., & Richardson, S. (2017). An Australian study of graduate outcomes for disadvantaged students. *Journal of Further and Higher Education*, 1-13. doi:10.1080/0309877X.2017.1349895

Rockwell, S. K., & Kohn, H. (1989). Post-then-pre evaluation. *Journal of Extension, 27*(2), 19-21.

Rowe, A. D., & Zegwaard, K. E. (2017). Developing graduate employability skills and attributes: Curriculum enhancement through work-integrated learning. *Asia-Pacific Journal of Cooperative Education, 18*(12), 153-165.

Savickas, M. L., & Porfeli, E. J. (2012). Career adapt-abilities scale: Construction, reliability, and measurement equivalence across 13 countries. *Journal of Vocational Behavior, 80*(3), 661-673. doi:http://dx.doi.org/10.1016/j.jvb.2012.01.011

Smith, C., Ferns, S., Russell, L., & Cretchley, P. (2014). *The impact of work integrated learning on student work-readiness*. NSW, Australia: Department of Education, Office for Learning and Teaching.

Stott, T., Zaitseva, E., & Cui, V. (2014). Stepping back to move forward? Exploring outdoor education students' fresher and graduate identities and their impact on employment destinations. *Studies in Higher Education, 39*(5), 711-733. doi:10.1080/03075079.2012.743116

Surridge, I. (2009). Accounting and finance degrees: Is the academic performance of placement students better? *Accounting Education, 18*(4-5), 471-485. doi:10.1080/09639280802008498

Tanaka, Y., & Carlson, K. (2012). An international comparison of the effect of work-integrated learning on academic performance: A statistical evaluation of WIL in Japan and Hong Kong. *Asia-Pacific Journal of Cooperative Education, 13*(2), 77-88.

Tanaka, Y., & Matsutaka, M. (2010, 2-5 February). *Assessing the effects of work-integrated learning on academic performance and employment outcome: The statistical analysis based on the KSU students' data.* Paper presented at the WACE International Conference, Hong Kong.

Wilton, N. (2012). The impact of work placements on skills development and career outcomes for business and management graduates. *Studies in Higher Education, 37*(5), 603-620. doi:10.1080/03075079.2010.532548

Wilton, N. (2014). Employability is in the eye of the beholder: Employer decision-making in the recruitment of work placement students. *Higher Education, Skills and Work-Based Learning, 4*(3), 242-255. doi:10.1108/HESWBL-07-2014-0027

Wright, T., & Frigerio, G. (2015). *The career adapt-ability pilots project*. York, UK: Higher Education Academy.

Yorke, M., & Knight, P. (2006). *Embedding employability into the curriculum*. York, UK: Higher Education Academy.