Placement quality has a greater impact on employability than placement structure or duration

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This paper addresses the question of the relative importance of work-integrated learning placement quality, structure (whether part-time or full-time), and duration (in weeks), for producing employability outcomes. Additionally, we explore whether the quality of those placements is more, less, or equally important than the structure and duration. Drawing on responses to questions in a survey from 2,313 participants, 1,316 of whom had no placement experience and 997 of whom had had a placement experience, as part of their university studies, we tested a series of related hypotheses. After controlling for prior work-experience, results show that the quality of the placement experience is a greater predictor of a variety of employability outcomes than either structure of the placement experience or its duration. Findings will inform curriculum designers, practicum supervisors, and those interested in the outcomes of higher education.

Keywords: Employability, work-integrated learning, impact of WIL, placement design, curriculum design.

Work-integrated learning (WIL) continues to be a focus for universities globally in an effort to address the perceived gap in graduate outcomes and claims that students are not adequately prepared for entry into work or career by the end of their undergraduate studies (Commonwealth of Australia - Productivity Commission, 2017). Placements that integrate theoretical learning with work experience are seen as one viable method for addressing this deficit.

While policy makers and higher education personnel espouse the value of higher education, the reality is that the currency and value of a degree for employability is diminishing (Ewan, 2016). Students, graduates and employers question the return on investment and employability outcomes of a university qualification (Australian Higher Education Industrial Association [AHEIA] & Price Waterhouse Coopers [PWC], 2016; Hagel, Brown, Mathew, Wooll, & Tsu, 2015; Hanson, 2016). Despite this skepticism, there is also the credence that the demand for higher education will increase as automation and innovation impact on required skills (Davies, Fidler, & Gorbis, 2011; McKinsey Global Institute, 2017).

Embedding WIL experiences in the curriculum is a resource intensive exercise with many inherent complexities (Clark, Rowe, Cantori, Bilgin, & Mukuria, 2016). Designing and implementing assessments in a WIL context presents considerable challenges for a university given it is multidimensional and requires teaching, facilitation, organizational and interpersonal expertise for successful execution (Bilgin, Rowe, & Clark, 2017). For practice-based experiences incorporating WIL to effectively prepare students for employment, student preparation, engagement and reflection is critical. This holistic approach ensures maximum benefit from the experience and is integral to successful outcomes (Billett, 2011). There is mounting evidence to support the benefits of providing WIL opportunities for students, with increasing pressure on universities to embrace WIL pedagogy

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and meet the requirements of the evidence-based and standards-focused framework overseeing the quality of, and outcomes from, higher education (Pham, Saito, Bao, & Chowdhury, 2018).

Evidence supports that WIL, where theoretical knowledge and real-world application is integrated, facilitates the preparation of graduates to navigate the uncertain labor market (Peach & Matthews, 2011). WIL enables the alignment of the actual work environment and students expectations, thereby impacting on an emerging professional identity (Cohen-Scali, 2003). A quality WIL curriculum provides holistic learning experiences for students where their future career aspirations are clarified, personal strengths on areas of strength and weakness are reflected upon, and a life-long learning approach to career development and work-readiness is promoted (Trede, 2012).

A large national study examining the impact of work-integrated learning on student work-readiness, was conducted in 2012 and reported in 2014 (Smith, Ferns, & Russell, 2014c). Various aspects of this work have been reported (Ferns, Smith, & Russell, 2014; Smith, Ferns, & Russell, 2014b; Smith et al., 2014c; Smith, Ferns, & Russell, 2016). As part of this study, a sample of students (N=3,000) were asked questions about the structure of placements (full-time, part-time, none) they had experienced as part of their university studies. This paper explores whether the quantity (number of weeks) or the structure (full-time, part-time) of placements influences the employability outcomes, and whether these influences are sufficiently substantial to warrant attention, in comparison to the documented influence of other factors that define placement quality (Smith, 2012; Smith et al., 2016). Thus, this paper reports on analyses of the impact on work-readiness measures, of the number of weeks of full-time versus the number of weeks of part-time, and, the quality of the placement experience. Given that previous work-experience may impact on students' skill development, or their work-readiness, the analyses reported here controlled for previous work-experience as a covariate (Kinash & Crane, 2015).

METHOD

Participants

Three-thousand three-hundred and thirty-six (3,336) students from nine Australian universities were surveyed. One thousand and twenty-three (1,023) did not complete the questions for the dependent variables. Thus, there were 2,313 useable (complete) results for the present study. Of these, 1,316 had had no placement experience and 997 had had a placement experience, as part of their university studies. When asked about the structure of their placement experience (full-time or part-time), of the 997 who had had a placement experience as part of their studies, 49 did not answer the question, 372 reported part-time only placements, 306 full-time only placements, and 270 said they had experienced both full-time and part-time placements.

The range of the number of weeks claimed by respondents was broad in each placement-type category (part-time only: 1-260 weeks; full-time only: 1-200 weeks; both: 1-240 weeks [part-time] and 1-224 weeks [full-time]) and because some were implausibly large, for the sake of this series of analyses, the number of weeks was capped at 13. The rationale for this was that students enrolled for longer tend to report a larger number of weeks of placement (whether part-time or full-time). The upper 95% confidence level for the mean number of weeks of full-time placements is 13 weeks; that of part-time placements is 9 weeks (based on enrolments 2008-2012). Although over 80% of the sample were enrolled in 2010, 2011, or 2012, in the context of educationally embedded placements, a cap that matched the standard length of a semester seemed a reasonable value since it included the highest value for the 95% confidence level for estimates of the mean number of weeks.

After applying the 13-week cap, there were 220 participants who had experienced part-time only, and 178 participants who had experienced full-time only placements. (Those respondents who had reported experiencing a mix of both full-time and part-time placements are not included in the analyses reported here, because the analyses focused on questions related to the specific impact on employability of either part-time (only) or full-time (only) placements). The full-time (only) variable has a mean of 5.8 weeks and a standard deviation of 3.6 weeks (with skew of .686 and kurtosis of -.750). The full-time (only) variable has a mean of 5.7 weeks and a standard deviation of 3.7 weeks (with skew of .502 and kurtosis of -1.024). Although not normally distributed, the analytic methods used in this paper are robust to moderate deviations from normality (ANOVA), or make no assumptions about the distributions of predictor variables (Field, 2009, p. 221). Where appropriate, bootstrapping was performed as well as non-bootstrapped analyses to verify the robustness of the tests (Field, 2009, p. 163).

The majority of these students (72%) are in the <20 through 30 age groups (21% are below 20 years of age; 51% are 20-30 years; 15% are aged 31-40 years; 8% are 41-50 years of age and the balance are over 51 years of age); they are predominantly female (68%), studying on-campus (71%) and studying full-time (73%). These sample attributes are broadly commensurate with the Australian student population generally (Universities Australia, 2018).

Procedure

A survey instrument containing items related to both the independent and dependent variables was designed and deployed using *SurveyMonkey* (SurveyMonkey, 2018). Along with measures of the main research variables there were a number of other measures taken including demographics and items related to discipline, the use of simulation and career-development learning, and other related matters. The relationship between the main research variables only is reported here – that is, between the curriculum factors and the employability factors. Ethical clearance for the study was granted by Griffith University and cascaded via participating universities' ethics committees. A link to the survey was made available to students in a wide range of disciplines via the communication channels organized through research partners in 14 Australian universities. The data upon which this paper is based were collected in a series of studies that were granted ethical clearance by Griffith University (GIH/01/12/HREC).

Measures

The survey asked questions about placement quality, amount of prior work experience, number of weeks of full-time or part-time placement respondents had participated in, a range of demographic factors, and a series of 45 items on work-readiness outcomes. Three items measured the independent variables related to amount of prior work experience (one item), number of weeks of full-time (one item) or part-time (one item) placement respondents had experienced (TABLE 1).

TABLE 1: List of items constitutive of the placement and work experience measures*

Construct	Item
Placement Experience**	2.2 Approximately how many weeks of full-time (37.5hours/week or more) placement** have you completed overall in your studies thus far?
	2.3 Approximately how many weeks of part-time (less than 37.5hours/week) placement** have you completed overall in your studies thus far?
Work Experience	3.7 Ignoring any "placements**" in a workplace, done as part of your studies, how much general work experience do you have (including part-time, full-time, volunteering and paid work)?
	** "Placement" means a real workplace experience that forms a part of your studies, for example: a practicum, work-placement, clinic (e.g., dental, veterinary, podiatry, physio with real clients whether the clinic is on or off campus), internship, fieldwork, etc.

* All item numbers refer to those used in the original survey.

Twenty items measured the independent variables which were related to features of the placements the students had experienced during their studies (authenticity of work done during placement – four items; assessment and learning activities designed to focus on integration of theory and practice during placement – ten items; supervision whilst on placement – two items; preparation prior to (two items), and debrief after (two items), placement) – for full details see Smith et al., (2014c). These measures are aggregated into and summarized in a single indicator of placement quality (TABLE 2).

Forty-five items measured the dependent variables – measuring various dimensions of work-place and professional skills and practices constitutive of employment-readiness. These were predominantly self-appraisal focused (43 items) with the stem "Please rate your ability to do each of the following…" covering a range of skills, cognitive abilities, and professional practices. Two items in the set had a different stem from the rest ("How confident are you that you are…") and these items dealt with readiness to commence work and ability to obtain work in the discipline being studied respectively. These measures are "scalar" – that is, the items have been factor analyzed into scales, and scale scores were calculated for each of the factors/scales. Confirmatory factor analysis suggested some minor modifications that further reduced the items for each scale, with the final item-scale clusters used in these analyses shown in TABLE 3. All scale scores were calculated using simple averaging for each participant (sum of scores across the items, divided by the number of items).

Thus, there are six dependent variables, each related to a different aspect of employability as follows:

- life-long learning;
- integration of theory and practice;
- overall work-readiness;
- informed decision-making;
- collaboration;
- professional practice and standards.

Details of the items constituting the dependent variable scales are in TABLE 3.

TABLE 2: List of items constitutive of the *placement quality* variable

Scale	Item	Item text
Authenticity (Item stem: In your most recent placement, how often did you:)	2.4.1.	undertake work relevant to the learning outcomes?
	2.4.2.	undertake work relevant to the goals of the organization you were placed in?
	2.4.3.	contribute worthwhile outcomes for the organization (such as a product, or change in practice or policy)?
	2.4.9.	work with responsibility or autonomy?
Integration in TLAs (Item stem: In your most recent placement, how often did you:)	2.4.4.	apply theories you had learned in class?
	2.4.5.	apply or develop skills you had learned in class?
	2.4.6.	critically evaluate theories you had learned in class?
	2.4.7.	critically evaluate workplace practices you observed or engaged in?
	2.4.8.	reflect on applying your discipline knowledge in the workplace?
Assessment aligned with integrative learning (Item Stem: …on average, how often were these skills assessed:)	2.5.1.	Your use of theory to justify practice decisions
	2.5.2.	Your professional practice competencies / skills
	2.5.3.	Your reflections on the experience
	2.5.4.	Your reflections on the practices you witnessed in the workplace
	2.5.5.	Your reflections on the applicability of discipline knowledge to practice
Supervision & preparation (Item Stem: During my placement/s…")	2.5.6.	I had regular contact with an academic supervisor from the university in order to discuss my learning whilst on placement
	2.5.7.	I had regular contact with a workplace supervisor from the placement organization in order to discuss my learning whilst on placement
	2.5.8.	I had a preparation program or resources that helped me prepare for the placement psychologically / emotionally
	2.5.9.	I had a preparation program or resources that helped me prepare for the placement to help me maximize my learning whilst on placement
	2.5.10.	I had time with my academic supervisor after the placement to reflect on my learning from placement
	2.5.11.	I had time with my academic supervisor after the placement to discuss my experiences on placement

Questions, Hypotheses and Analysis Strategies

The larger sample is partitionable into three sub-samples: those with no placement or WIL experience; those with part-time WIL experience only; and those with full-time placement experience only. The hypotheses following apply to each sub-sample, in turn. Since, in this paper, our concern is with the question whether the quantity (number of weeks) or the structure (full-time, part-time) of placements influences the outcomes (employability), sufficiently to warrant the attention of curriculum designers, compared with the known influence of other factors that define placement quality (Smith, 2012; Smith et al., 2016). Thus, in this paper, we explore hypotheses directly and only related to these questions. Because the work-experience people bring with them to their studies may influence their work-readiness, we conduct our analyses controlling for previous work experience.

TABLE 3: Listing of items for dependent variable employability measures

Scale (DVs)	Item	Item text (Item stem: "Please rate your ability to do each of the following:")
COLLABORATION	WR_1.10	make sure everyone feels heard in group discussions.
	WR_1.11	interact appropriately with people from different levels of management / leadership / seniority in a workplace.
	WR_1.13	interact effectively and respectfully with people from other cultures.
	WR_1.14	learn from and collaborate with people representing diverse backgrounds or viewpoints.
INFORMED DECISION MAKING	WR_1.5	appraise the quality of information I obtain e.g., from the web, from books or from other people.
	WR_1.6	use information and my professional or workplace knowledge to come to reasonable decisions and then act on these.
	WR_1.7	weigh up risks, evaluate alternatives, make predictions from data and apply evaluation criteria to options.
	WR_1.8	collect, analyze and organize information.
COMMENCEMENT-READINESS	WR_1.1	effectively seek work relevant to my studies.
	WR_1.44	overall work readiness confidence
	WR_1.45	able to obtain work relevant to studies
LIFELONG LEARNING	WR_1.37	identify the knowledge I lack / need to improve to be effective in the workplace.
	WR_1.38	identify the skills I lack / need to improve to be effective in the workplace.
PROFESSIONAL PRACTICE & STANDARDS	WR_1.19	recognize ethical practice in the workplace.
	WR_1.20	identify the standards of performance or practice expected in the workplace / my profession.
	WR_1.21	develop a personal code of values and ethics.
	WR_1.22	interpret and follow workplace procedures.
	WR_1.34	take responsibility and be accountable for my workplace or professional practice, actions and decisions.
INTEGRATION OF THEORY & PRACTICE	WR_1.25	judge the applicability of the knowledge gained in my studies to the workplace
	WR_1.26	apply knowledge and skills gained in my studies to the workplace.

The items and scales listed above are a refinement on the original reported in (Smith et al., 2014c) based on the results of further validation through confirmatory factor analysis, in which only the strongest members of the scales (those that most strongly loaded on the scale factor) were retained. For full details of the factor analysis and items for these scales see Smith et al., (2014c).

Is full-time placement experience better than part-time and are both/either better than no placement?

Hypothesis 1: Those with no WIL experience will have the lowest mean scores on the dependent variables / outcome measures, followed by those with part-time only WIL experience and those with full-time only experience will have highest mean outcome scores. The analysis method for testing hypothesis 1 was one-way ANOVA, with post-hoc multiple-group tests controlling for previous work-experience as a co-variate.

Does previous work-experience predict employability (part-time only)?

Hypothesis 2*:* In the sub-sample with no WIL experience, greater amounts of previous work-experience will predict greater scores on the outcome measures. The analysis strategy for this test was linear regression.

Does quantity predict employability (part-time only)?

Hypothesis 3: In the sub-sample with part-time only WIL experience, greater numbers of weeks of placement will predict greater scores on the outcome measures, even after controlling for previous work-experience. The analysis strategy for this test was linear regression.

Does placement quantity predict employability (full-time only)?

Hypothesis 4*:* In the sub-sample with full-time only WIL experience, greater numbers of weeks of placement will predict greater scores on the outcome measures, even after controlling for previous work-experience. The analysis strategy for this test was linear regression.

Does placement quality predict employability over-and-above quantity, controlling for previous work experience (part-time only)?

Hypothesis 5: In the sub-sample with part-time only WIL experience, greater levels of quality of placement design will predict greater scores on the outcome measures, even after controlling for numbers of weeks of placement and previous work-experience. The analysis strategy for this test was linear regression. Does quality predict employability over-and-above quantity, controlling for previous work experience (part-time only)?

Hypothesis 6*:* In the sub-sample with full-time only WIL experience, greater levels of quality of placement design will predict greater scores on the outcome measures, even after controlling for numbers of weeks of placement and previous work-experience. The analysis strategy for this test was linear regression.

RESULTS

Hypothesis 1

Mean scores on all six employability dependent variables (life-long learning - integration of theory and practice, overall work-readiness, informed decision-making, collaboration, professional practice and standards) were calculated for each of the independent conditions (no WIL placement experience, part-time only placement experience and full-time only placement experience) (Table 4).

TABLE 4: Means on employability variables by independent conditions

	No placements	PT only placements	FT only placements
life-long learning	4.15 *	4.29 *	4.25
integration of theory and practice	4.00 *	4.20 *	4.05
overall work-readiness	3.31 *	3.60 *	3.63 *
informed decision-making	4.05 *	4.18 *	4.06
collaboration	4.25 *	4.36 *	4.23
professional practice and standards	4.32	4.41 *	4.27 *

* Pair-wise comparisons are significant at p<.05 using robust ANOVA with boot strapping (boot strapping is used when variables are not normal and provide evidence for the robustness of the tests for the samples in the current study when bootstrapped results are the same as non-bootstrapped results).

These results partially support the hypothesis. They show that placement is better than no placement experience, but they do not support the tiered or escalating aspect of the hypothesis – that the part-time condition is better than no placement and that the full-time condition is better than the part-time condition, except for the overall work-readiness variable (where the hypothesis is fully supported).

Hypothesis 2 – work-experience predicts outcomes in the no-placement condition

Regression analysis indicates that the hypothesis is supported for all outcome variables (TABLE 5); prior work-experience is a predictor of the outcome variables in the no placement subsample.

TABLE 5: Regression analyses for hypothesis 2 (no placement; work experience as the predictor)

	Model				Coefficients			
	F	*df*	*p*	*Adj* R^2	*b*	β	*t*	*p*
life-long learning	12.962	1, 1314	.000	.009	.059	.099	3.600	.000
integration of theory and practice	21.097	1, 1314	.000	.015	.075	.126	4.593	.000
overall work-readiness	35.104	1, 1314	.000	.025	.126	.161	5.925	.000
informed decision-making	74.157	1, 1314	.000	.053	.106	.231	8.611	.000
collaboration	17.236	1, 1314	.000	.012	.053	.114	4.152	.000
professional practice and standards	44.586	1, 1314	.000	.032	.080	.181	6.677	.000

Review of the standardized coefficients (β s) shows that the impact of previous work-experience is greatest (in the no-placement group) for informed decision-making, followed by professional practice and standards and overall work-readiness, and weakest for life-long learning (self-appraisal). This has face validity since it would be expected that work-experience in the absence of placement will develop the practical and overall confidence dimensions mainly, and that it is the placement condition that provides the unique and specific opportunity to apply theory to practice (measured by the integration variable).

Hypothesis 3 – greater numbers of weeks of placement will predict greater scores on the outcome measures in the sub-sample with part-time only WIL experience, after controlling for previous work-experience

Regression analysis indicates that the hypothesis is *not* supported for any outcome variables (TABLE 6); in the sub-sample with part-time only placement experience, the number of weeks of placement does not predict outcomes after controlling for prior work experience.

Review of the standardized coefficients (β s) shows that (in the part-time only group) the only outcome for which the *number of placement weeks* makes a significant contribution (at p<.05) is *life-long learning (self-appraisal)*. The adjusted R^2 for this model is (as are the others) very small (2.4% of variance in the DV explained by the model). For *overall work-readiness* the *number of placements weeks* approaches significance (at p=.05) but results in situations such as this, where multiple tests are conducted, are subject to Type I error, and so the threshold for significance should be lowered (e.g., to p<.01). In the present case, were this to be done, none of the models in TABLE 6 would have attained significance – although that for *informed-decision-making* would have approached significance, but the main predictor of consequence in that case was *work experience*, not *number of weeks of (part-time) placement*.

TABLE 6: Regression analyses for hypothesis 3 (part-time only placement**)**

	Model					Coefficients			
	F	*df*	*p*	*Adj* R^2	*IV**	*b*	β	*t*	*p*
life-long learning	3.747	2, 217	.025	.024	Wexp	.063	.110	1.648	.101
					PLWks	.028	.147	2.206	.028
integration of theory	2.361	2, 217	.097	.012	Wexp	.082	.142	2.117	.035
& practice					PLWks	.007	.035	.516	.607
overall work-readiness	4.108	2, 217	.018	.028	Wexp	.102	.140	2.106	.036
					PLWks	.032	.131	1.971	.050
informed decision-	4.633	2, 217	.032	.011	Wexp	.096	.202	3.044	.003
making					PLWks	.000	.000	.006	.995
collaboration	1.483	2, 217	.229	.004	Wexp	.020	.042	.623	.534
					PLWks	.018	.109	1.613	.108
professional practice	1.523	2, 217	.220	.005	Wexp	.048	.111	1.645	.111
& standards					PLWks	.006	.041	.605	.546

*Wexp=Work experience; PLWks=Number of weeks of placement

Hypothesis 4 – greater numbers of weeks of placement will predict greater scores on the outcome measures in the sub-sample with full-time only WIL experience, after controlling for previous work-experience

Regression analysis indicates that the hypothesis is not supported for any outcome variables (TABLE 7). Review of the standardized coefficients (β s) and model F-tests indicates that Hypothesis 4 is not supported for any of the outcome variables (the p values are all > .05); in the sub-sample with full-time only placement experience, the number of weeks of placement did not predict outcomes after controlling for prior work experience.

TABLE 7: Regression analyses for hypothesis 4 (full-time only placement)

	Model					Coefficients			
	F	*df*	*p*	*Adj R²*	*IV**	*b*	*β*	*t*	*p*
life-long learning	.225	2, 175	.799	.000	Wexp	.021	.039	.513	.609
					PLWks	-.007	-.040	-.516	.606
integration of theory	1.571	2, 175	.211	.006	Wexp	.065	.120	1.572	.118
& practice					PLWks	.007	.040	.531	.596
overall work-readiness	.524	2, 175	.593	.000	Wexp	.047	.068	.887	.376
					PLWks	.006	.027	.346	.730
informed decision-making	2.503	2, 175	.085	.017	Wexp	.045	.102	1.346	.180
					PLWks	.017	.115	1.522	.130
collaboration	2.459	2, 175	.088	.016	Wexp	-.062	-.139	-1.837	.068
					PLWks	.017	.117	1.547	.124
professional practice	1.772	2, 175	.173	.009	Wexp	.008	.018	.238	.812
& standards					PLWks	.020	.137	1.796	.074

*Wexp=Work experience; PLWks=Number of weeks of placement

Hypothesis 5 – greater levels of placement quality will predict greater scores on the outcome measures (in the part-time only sub-sample), after controlling for number of weeks of placement and previous work-experience.

Regression analysis indicates that the hypothesis *is supported* for all outcome variables (TABLE 8).

Regression analysis shows clearly that when the *placement quality* variable is included in the prediction model the model accounts for much more of the variance in the outcome variables (ranging from 9% to 19%). Examination of the beta-weights shows that the impact of placement quality on the outcome variables is from 1.4 to 7.4 times bigger than that of previous work experience, and 1.8 to 38.3 times bigger than that of the number of (part-time) placement weeks (TABLE 8). Thus, the hypothesis is supported: even after controlling for previous work experience, the quality of placement is more important than the number of (part-time) weeks of placement. One notable exception is informed-decision making in which case previous work experience is a significant unique contributor to the outcome, however, in this case, the *beta* weight (β = .201) – a standardized measure of relative contribution to the outcome that allows comparison *between* independent variables – is almost smaller by a factor of 50% than that of the placement quality measure (β = .282). Another notable case is life-long learning (self-appraisal*)* where the number of weeks approaches significance (at p<.01), however, even in this case, the *beta* weight (β = .154) is almost half that of the placement quality measure (β = *.273)*.

TABLE 8: Regression analyses for hypothesis 5 (part-time only placement)

	Model					Coefficients			
	F	*df*	*p*	*Adj R²*	*IV***	*b*	*β*	*t*	*p*
life-long learning	8.721	3, 216	.000	.096	Wexp	.062	.109	1.693	.092
					PLWks	.030	.154	2.396	.017
					PQ	.170	.273	4.252	.000*
integration of theory & practice	17.392	3, 216	.000	.183	Wexp	.081	.140	2.299	.022
					PLWks	.009	.045	.736	.462
					PQ	.261	.416	6.817	.000*
overall work-readiness	17.981	3, 216	.000	.189	Wexp	.101	.139	2.277	.024
					PLWks	.035	.141	2.322	.021
					PQ	.320	.404	6.640	.000*
informed decision-making	9.831	3, 216	.000	.108	Wexp	.096	.201	3.151	.002*
					PLWks	.001	.007	.115	.908
					PQ	.146	.282	4.409	.000*
collaboration	8.481	3, 216	.000	.093	Wexp	.020	041	.633	.528
					PLWks	.019	116	1.806	.072
					PQ	.160	303	4.710	.000*
professional practice & standards	8.948	3, 216	.000	.098	Wexp	.048	.110	1.707	.089
					PLWks	.007	.049	.756	.451
					PQ	.147	.311	4.846	.000*

* Indicates significant results at the level of p<.01

**Wexp=Work experience; PLWks=Number of weeks of placement; PQ=Placement Quality

Hypothesis 6 – greater levels of placement quality will predict greater scores on the outcome measures (in the sub-sample with full-time only WIL experience), after controlling for numbers of (full-time) weeks of placement and previous work-experience.

Regression analysis indicates that the hypothesis *is* supported for all outcome variables

TABLE 9 shows the results of regression analyses that test hypothesis 6. These results support the claim that (at the p<.01 level of significance, to control for Type I error) neither previous work experience nor the number of weeks of (full-time) placement contribute to the outcome variables uniquely and that the only variable out of the three that does is placement quality. Thus, the hypothesis is supported: even after controlling for previous work experience, the quality of placement is more important than the number of (full-time) weeks of placement.

TABLE 9: Regression analyses for hypothesis 6 (full-time only placement)

	Model					Coefficients			
	F	*df*	*p*	*AdjR²*	*IV***	*b*	*β*	*t*	*p*
life-long learning	6.947	3, 174	.000	.092	Wexp	.008	014	.195	.846
					PLWks	-.007	-041	-.567	.571
					PQ	.195	324	4.510	.000*
integration of theory & practice	13.093	3, 174	.000	.170	Wexp	.048	.088	1.261	.209
					PLWks	.007	.038	.550	.583
					PQ	.251	.409	5.960	.000*
overall work-readiness	8.951	3, 174	.000	.119	Wexp	.028	.040	.559	.577
					PLWks	.006	.025	.344	.732
					PQ	.275	.359	5.065	.000*
informed decision-making	9.151	3, 174	.000	.121	Wexp	.034	.076	1.064	.289
					PLWks	.017	.114	1.586	.114
					PQ	.165	.330	4.674	.000*
collaboration	5.089	3, 174	.002	.065	Wexp	-.070	-.157	-2.120	.035
					PLWks	.017	.116	1.570	.118
					PQ	.115	.232	3.177	.002*
professional practice & standards	11.695	3, 174	.000	.153	Wexp	-.005	-.012	-.167	.868
					PLWks	.019	.135	1.915	.057
					PQ	.190	.386	5.562	.000*

* Indicates significant results at the level of p<.01

** Wexp=Work experience; PLWks=Number of weeks of placement; PQ=Placement Quality

DISCUSSION

The observation that the quality of placement variable is a much stronger predictor of the outcome variables than quantity of prior work experience or quantity (measured in weeks) of placement experience (whether full-time or part-time) is a significant one, for it tells those responsible for supporting the development of students' employability skills that the quality of the experience is more important than either structure (part-time / full-time) or duration (number of weeks). The argument has been made elsewhere that explicates the curriculum design dimensions that ought to be attended to if designers want to make WIL placements that are effective in producing the employability outcomes that are typically espoused for such curricula (Smith et al., 2016). The aspects of curriculum identified in this study that count in ensuring a high-quality experience for placement students and in achieving employability outcomes are:

- *Authenticity* of the work done during placement
- *Preparation* for placement both academically and personally
- *Debrief* after placement (or placement episodes) that focus on learning
- *Supervision* during placement
- A focus on *integration* of theory and practice through
    - assessments and
    - activities *in situ*.

These are the dimensions of placement curriculum design that are used to define the *placement quality* (or PQ) variable. Combined scores across these dimensions are calculated and an aggregate average score is calculated to create the new variable, PQ. Thus, PQ is a continuous variable, but its quartile cut-off values are used to create a four-category nominal variable representing overall placement

quality. The cases are each classified into one of the four PQ categories, according to their individual combined score on placement quality – with four bands created:

- < 25 percentile (PQ <25P)
- 25-50th percentile (PQ 25P-50P)
- 50-75th percentile (PQ 50P-75P)
- >75th percentile (PQ >75P)

FIGURE 1: shows the impact of placement quality, by plotting the mean scores on each outcome variable for the levels: *no placement*, and placement quality in the *low quartile*, in the *sub-median quartile*, in the *supra-median quartile* and in the *high quartile*.

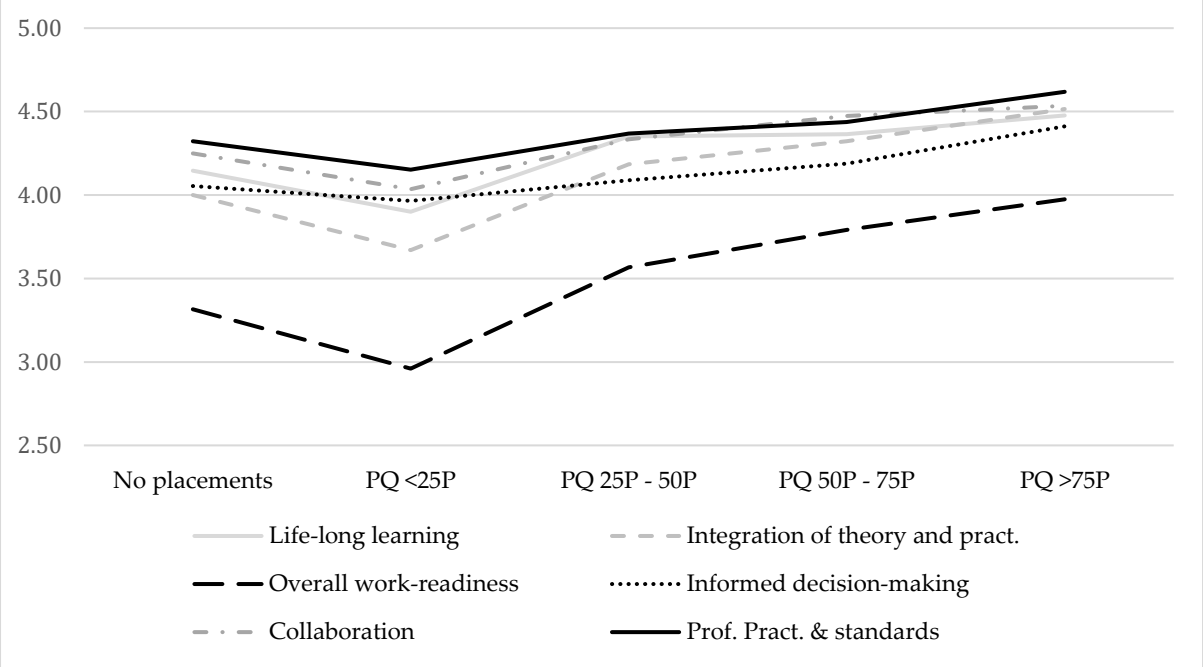

FIGURE 1: Mean scores on outcome variables for each level of placement quality, and "no placement"

Of interest is the general form of all the curves in the chart – a "tick" or "check mark". As discussed elsewhere (Smith, Ferns, & Russell, 2014a, p. 30) this is indicative of the Dunning-Kruger effect (Kruger & Dunning, 1999) whereby respondents who have never had placement experiences of any kind over-estimate their abilities. Respondents in the *no placement* condition rate their abilities higher than those in the lowest quality WIL and about equal with those in the sub-median level of *placement quality*. Once way of reading this is that all WIL experiences can act as a "leveler", that is it has a 'humbling' effect on participants that causes or requires a re-calibration of their self-appraisals of their skill and knowledge levels. They may embark on WIL thinking they are capable, but the experience shows them that their initial self-evaluation was an over-estimation. These results can also be interpreted as showing that the higher the quality of the WIL placement experience, the better the students are at *both* the skills being measured *and* their self-appraisal of their abilities.

Given that WIL experiences undertaken in the workplace are reliant on social interactions and unpredictable dynamics, student outcomes are variable. Assuring quality in this capricious

environment is challenging. Substantial empirical evidence exists which substantiates the value of WIL in building the capacity of students for work-readiness (Smith et al., 2014c). This study conducted by Smith et al., (2016) also highlighted important quality elements of a WIL curriculum. However, simply providing a work-based experience for students cannot presume heightened work-readiness (Doel, 2009). This study has established that students' perceptions of the quality of the work placement has greater impact on the development of employability skills than the duration or structure. Of course, as with every study, this one has its limitations. One of those is that the study was based on numerical data and numerical methods. It is possible that this same question of the relative importance to the development of student employability from different amounts of part-time or full-time placements and of different placement qualities, could be conducted using other methods, such as case studies, observational studies, or interview studies. Another limitation is the use of student self-ratings of employability dimensions (see TABLE 3 and discussion of Figure 1).

Further, partnerships between universities and industry, where personnel, resources and expertise are shared, are pivotal to achieving educational outcomes sought by all stakeholders (Tran, 2016). Government, industry, and the business community have embraced the concept of embedding Work-integrated Learning (WIL) in curriculum as a strategy for enhancing graduate employability (Rowe & Zegwaard, 2017). Partnerships are at the core of WIL and are essential for realizing the many benefits of a WIL curriculum. However, industry partners frequently lament the inflexibility of university practices and their inability to accommodate the needs and resourcing capability of industry to support students on WIL placements (Commonwealth of Australia - Department of the Prime Minister and Cabinet, 2015; Withers, Gupta, Curtis, & Larkins, 2015). This research provides the evidence that flexibility in providing WIL placements, while meeting the needs of industry partners, does not compromise the value-add for students' employability outcomes.

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