

# **Complex problem complex research design: researching the impact of WIL on employability**

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## **Abstract**

Work Integrated Learning (WIL) is internationally recognised as the intentional integration of theory and practice whereby students develop employability capabilities through simulated or work-based learning opportunities. It enables students to learn through experience in practical settings. The WIL agenda is gaining momentum as it is perceived as a mechanism for addressing increasing accountability measures facing the higher education sector and societal demands that the higher education experience prepare graduates for the dynamic global workforce.

This paper provides an overview of the research methodology employed in the national project: *Assessing the impact of WIL on student work-readiness*. The research which is funded by the Office of Learning and Teaching (OLT) and endorsed by The Australian Collaborative Education Network (ACEN) has been underway since late 2011. The overarching aim of this research was to provide an evidence base for judging the impact of WIL on graduates' readiness to commence work and guide university leaders in best practice and curricula investment. Fourteen universities have been involved in the project, providing coverage of a wide range of disciplines and different types of WIL. Data have been collected from students, graduates and employers thereby providing triangulated data sets from multiple stakeholders. The paper highlights preliminary findings emerging from the research and the impact on curriculum design and the student experience.

## **Introduction**

Australia has a rapidly expanding economy and is highly competitive in the global market. To sustain this level of productivity and respond to burgeoning skill requirements, a highly skilled and responsive work force is required. For strong economic growth and development, Australia needs to increase the proportion of its population with a university qualification (Australian Government, 2009). There is an increasing emphasis on 'human capital' as a

strategy for ensuring ongoing economic growth; enhanced knowledge acquisition; and appropriately motivated and skilled employees. In an era of profound change with the impact of emerging digital technologies; increased global mobility; and the advent of the knowledge economy; an appropriately accomplished population is pivotal (Barber, Donnelly, & Rizvi, 2013). Education and training providers are considered integral to ensuring Australians are equipped with the necessary capabilities to contribute effectively and efficiently in a global job market (Australian Department of Education, Science and Training, 2002).

Work integrated learning (WIL) is perceived by all stakeholders as a teaching and learning approach that instils workplace proficiencies in students and produces work ready graduates. WIL is increasingly being incorporated into higher education curricula with the intention of enhancing employability capabilities in graduates (Yorke & Knight, 2004), thereby addressing the skills shortage agenda and contributing to strong economic growth and sustainability (Precision Consultancy & Australia Department of Education, 2007). Work Integrated Learning (WIL) is internationally recognised as the intentional integration of theory and practice whereby students develop employability capabilities through simulated or work-based learning opportunities. It enables students to learn through experience in practical settings and apply knowledge and skills in a diverse range of contexts (Crebert, Bates, Bell, Patrick, & Cragolini, 2004a, 2004b; Little & Harvey, 2006). The overarching aim is to improve the employability of Australians thereby ensuring a buoyant economy (Skills Australia, 2010). Stakeholders including government, industry and students are demanding that the university curriculum includes authentic experiences that ultimately facilitate the work readiness of a student upon graduation (Cooper, Orrell, & Bowden, 2010; Hager & Holland, 2006).

WIL is a multi-faceted phenomenon where outcomes are unpredictable and context-dependent. Designing curriculum comprising a progressive, developmental assessment profile that supports the WIL philosophy is complex. Providing robust feedback to support students' incremental skill development is time-intensive and reliant on specific workplace expertise. The provision of experiential learning opportunities for students is resource intensive in terms of personnel time, associated costs, and skill development of practitioners. To justify allocating resources to the WIL agenda in an effort to produce suitably skilled graduates, evidence is required.

Instrumental to successful WIL are robust partnerships between educational institutions and community and industry entrepreneurs. van Rooijen (2011) posits that universities should be ‘a hybrid with society’ (p.6) to ensure the educational experience provides a blend of theoretical knowledge with authentic experiential opportunities thereby producing graduates who are adequately prepared for the world of work. Central to a holistic student experience that meets stakeholder expectations, are mutually beneficial relationships between industry organisations and higher education institutions (Ferns, 2012).

It is an expectation globally that a university education provides evidence of the attainment of generic capabilities through the inclusion of outcomes in curriculum which explicitly address the employability agenda. Accountability requirements mandate that assessment profiles provide evidence of the students’ achievement of outcomes for all stakeholders (Ewan, 2009). Currently, there is little systematic evidence to substantiate: the achievement of specific outcomes for graduates and the impact on their career paths from placement or non-placement WIL (Smith et al., 2009); expected academic standards (Coates, 2010) associated with WIL; and best practice in WIL. This paper provides an overview of a two year research project that sought to investigate and substantiate the impact of WIL. The research outcomes will be of significant value to government, industry, educational institutions, community organizations, and students. It has the potential to inform innovations for economic growth and global productivity. Future government and institutional initiatives are contingent on the findings of this intensive investigation. Furthermore, the research outcomes will give the Australian higher education community and government decision-makers a world-leading, multi-disciplinary, evidence-base upon which to draw in decision-making about WIL practices in Australian higher education institutions.

### **Overview of the Project**

The overarching aim of this research was to provide an evidence base for judging the impact of WIL on graduates’ readiness to commence work. The definition of WIL includes but goes beyond placement-based activities in an effort to capture the diverse spectrum of experiential learning that progresses the acquisition of generic skills. For the purposes of this project, WIL is defined as ‘an umbrella term used for a range of approaches and strategies that integrate theory with the practice of work within a purposefully designed curriculum’ (Patrick, Peach & Pocknee, 2009. p iv).

Due to the highly complex nature of WIL, the sequencing and development of data gathering instruments were designed in a collaborative and consultative way with the project team. The project team comprised of three lead universities and eleven partner institutions. While the large number of project team members presented some challenges, a prominent strength was the diverse perspectives gleaned during project team discussions, culminating in robust data collection strategies. To achieve the core outcome, two prior grounds needed to be established: a conceptualisation of WIL that could be operationalized for measurement and applied equally validly across disciplines and types of WIL; and a conceptualisation of work-readiness that, similarly, is applicable across disciplines. The validation of appropriate measures of these two constructs was a key aim of the project and fundamental to determining the impact of WIL on work-readiness in a wide variety of disciplines and across a wide range of universities and types of WIL. The knowledge generated about the relationship between WIL and work-readiness will provide a multi-disciplinary evidence base for the impact of WIL on employment-readiness outcomes and guide university leaders in best practice and curricula investment. Given the vested interest of educational leaders, employers, community groups, students, parents, and teaching staff; input was sourced from a range of stakeholders to ensure findings were founded on rigorous and reliable data sets.

The research project was funded by the Office of Learning and Teaching (OLT) which is part of the Department of Education in the Australian Government. Funding for the two year project was approved in July 2011 with the contractual agreement signed in September of that year. At the time of scripting this paper, the final report and project deliverables are yet to be submitted with a due date scheduled for 20th April 2014.

### **Research Methodology**

The work was conducted in four phases:

1. The conceptual work was established for WIL and work-readiness measures simultaneously, by drawing on existing literature, conducting focus groups, and piloting and validating measures and instrumentation;
2. multi-disciplinary and multi-university studies were devised and administered which compared the impact of WIL on work-readiness across a range of manifestations of WIL including (a) intra-placement studies for focused analysis of the impact on “hothouse” intensive placement-based WIL on work-readiness, and (b) alternatives

that meet certain WIL characteristics (such as simulations, university-based projects, and role-plays);

3. a post-graduation follow-up with graduates to ascertain post-study views on their programs' contributions to work-readiness; and
4. qualitative and quantitative data collected from employers by means of a series of interviews and administration of a survey which was designed on the basis of feedback from the interviews with employers.

### **Research questions**

The research questions addressed in the research project were:

1. What are the essential characteristics of WIL (e.g. authenticity, experiential learning) and how can these be measured validly across all types of WIL, whether placement-based or not?
2. How should "work readiness" be conceptualised and how can it be measured in ways that can be validly applied in all disciplines and be used as a basis for National Standards for Quality Assurance?
3. What impact does WIL have on work-readiness across a range of WIL types, including alternatives to placement WIL, and in a range of disciplines?

### **Project Deliverables**

The project deliverables as outlined in the original project proposal include:

1. Literature Review: different models of WIL; essential and relevant characteristics of WIL
2. Conceptualisation framework synthesising and summarising the results of the literature review into a clear articulation of the essential characteristics of WIL
3. Validation report detailing the method and results of validation studies
4. Validated multi-dimensional measures/indicators that capture the essence of WIL across manifestations (including non-placement types)
5. Literature Review: conceptualisation of work-readiness
6. Validated multi-dimensional measures/indicators employment-readiness – covering a comprehensive range of attributes that constitute employment-readiness across a range of disciplines

7. Empirically founded Guidelines for National Standards for Work-readiness
8. Inclusive Report outlining the findings from each of the suite of studies
9. A recommendations summary based on the findings which provides a framework for university leaders considering future commitments to WIL where work-readiness is a target outcome
10. Good Practice Advisory guides on curriculum design based on findings

Given the complex and multi-faceted nature of this research project, the Project Team ascertained that a reference group should comprise diverse and high-profile scholars in the field of experiential learning. A combination of national, international, academic, and professional colleagues formed the reference group. Organisations represented on the Reference Group included educational institutions, professional associations, and graduate employer groups. The Reference Group was consulted regularly throughout the project for feedback on the research design and instrument development. A prominent colleague was appointed as the External Evaluator in the early phase of the project.

### **Data Collection and analysis**

The research design comprised five distinct studies, each undertaken progressively. While the studies were discrete elements of the research, each subsequent study was informed by the previous studies. Ethics approval was granted in February 2012.

#### **1. Cross-sectional study (institutional study)**

The cross-sectional study focused on mapping the range of students' curriculum experiences, validating measures of work-integrated learning and employability, and establishing (proxy longitudinal) baseline data for the development of employability over the degree across different year cohorts. Following extensive consultation with the project team and a thorough review of contemporary and relevant literature, an online survey was developed. The 45 item survey used a Likert 5-point scale to collect responses on the quality of the WIL experience and employability outcomes. Information such as gender, age group, mode of study, and name of qualification was also included. Results allowed the estimation of the differential impact of WIL on a range of skill and knowledge areas and generated a multi-dimensional framework for measuring employment-readiness. The survey was administered to participants from first through final year studies in those partner universities at which the relevant institutional executive manager approved institutional participation in the Study.

Students were invited to contribute information about their work readiness and their studies, in a broadcast email sent by the participating university. There were 3336 responses from the thirteen participating universities. Data was analysed using exploratory factor analysis and structural equation modelling.

## **2. Proxy-longitudinal study (subject survey)**

This study was intended to garner perceptions of work-readiness and of the impact of WIL activities among students in a targeted selection of degree programs in the participating universities. Students studying in diverse degree programs at the project's partner universities were invited to participate. Project partners identified targeted subjects in collaboration with the Lead team. A convenience sample of subjects were selected in each university on the basis that the students would be almost completing a placement at the time of the survey, and, where possible, these were matched with subjects in the same field of education in other institutions the program of study did not include a placement. The project representative from the partner institution consulted with the relevant subject coordinator to promote the research to students enrolled in the subject and invite them to complete an online survey.

1499 responses were collected across nine institutions. Two open-ended questions: *What were the best aspects of your placement?* and *How could you placement experience have been improved?* provided rich qualitative data which strengthened and consolidated the findings from the quantitative studies. Employment-readiness was operationalized with 18 self-reported items that asked participants to indicate their level of ability in a range of skill and knowledge areas at three stages: start of program of study; start of current semester and now. The skill and knowledge areas were those ascertained in the conceptual phase of the research project through extensive consultation and review of the literature. The measures factored into 2 broad factors (skills for work and career-development). Analysis incorporated factor analysis, comparison tests, and some structural equation modelling.

## **3. Alumni Interview Study**

This study involved telephone interviews to gather the perceptions of recent graduates on the impact of WIL experiences on their employability capabilities. A sample of 10 graduates from a selection of programs at the Project Leads' universities were interviewed. The telephone interviews which were approximately 15 minutes in duration were designed to identify the most significant impacts of WIL placements which they perceived to enhance

their work-readiness. Interviews were recorded with the participants' consent. Audio recordings were transcribed, the data was anonymized and thematic analysis undertaken.

#### **4. Employer Interview Study**

Telephone interviews were undertaken with employer representatives in an effort to glean the employer's perspective on the value of WIL placements in preparing students for the workplace. The interview also explored the reasons why employers did or did not accept students on WIL placements and if so, how the experience could be improved for both the host organization and the students. Participants were recruited through the lead universities' contacts by identifying employers who frequently host students on WIL placements. Thirteen employers were invited and subsequently took part in an interview. The employers belonged to diverse organisations, covering seven different discipline areas. Audio recordings were transcribed, the data was anonymized and thematic analysis undertaken.

#### **5. Employer Survey Study**

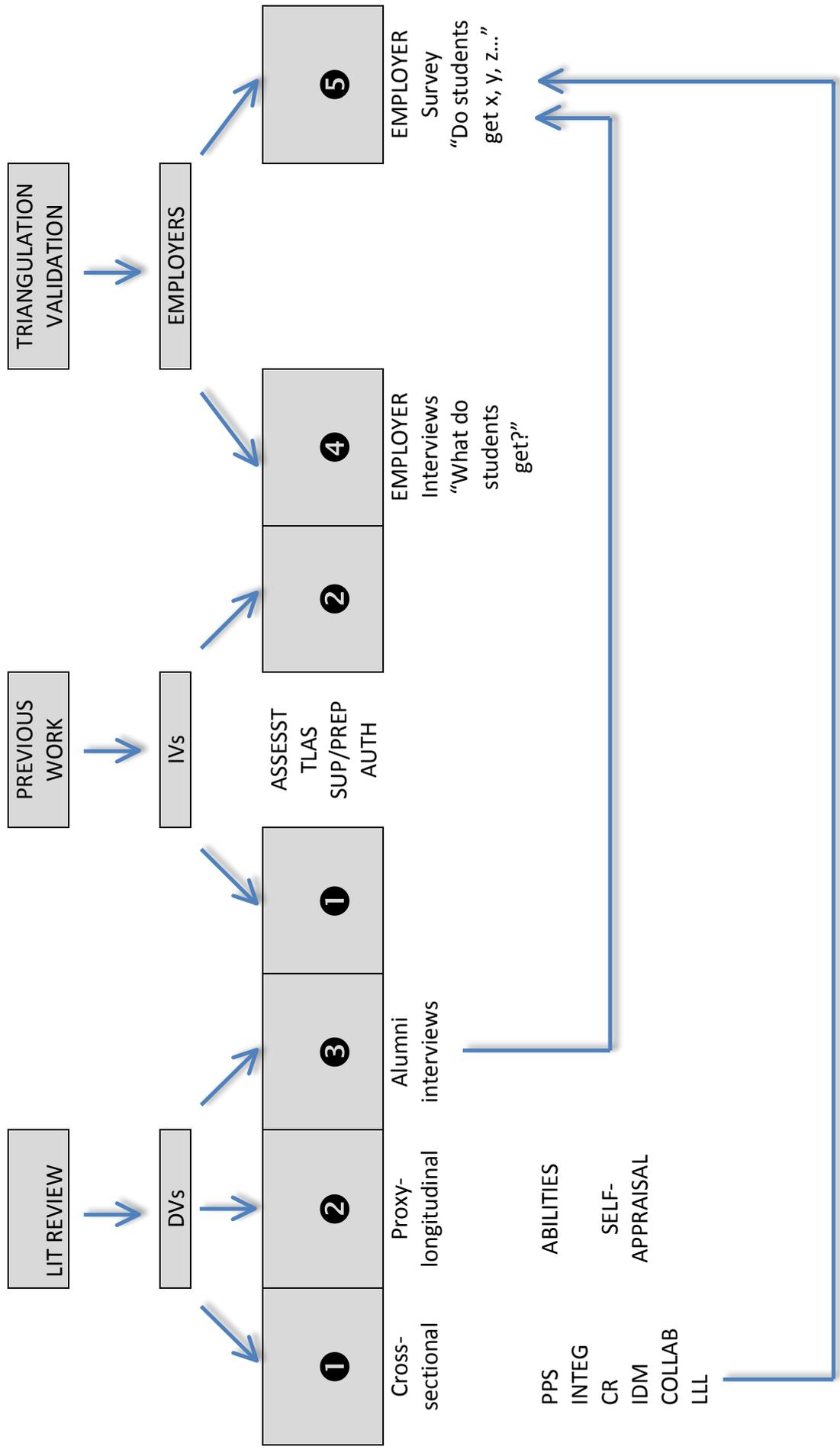
Using feedback gathered from employers in the Employer Interview Study, a survey was designed to administer to a broad spectrum of employers who offer WIL placement to students. The survey built on data gathered in the interviews by collating employers' views on the impact of WIL placement on students' employment readiness in greater depth. Employer representatives were sourced from employer databases at the Lead institutions. A total of 163 employers from 31 industries responded to the survey. The instrument took the form of a brief on-line survey comprising 10 quantitative questions and two open-ended questions. Data was de-identified and analysed descriptively and thematically.

#### **Connecting project component**

In an endeavor to explore the multifarious and unpredictable nature of WIL and gather evidence to substantiate its impact on student work-readiness, a carefully sequenced, complex research design was required. Figure 1 below provides a visual representation of the synergies between the five studies and how findings from preceding studies informed subsequent studies.

Mirroring DVs for validation (PPS, INTEG, CR, COLLAB, IDM)  
Resilience and self-awareness of capability development

Figure 1.



PPS=Professional practice and standards; INTEG= Integration; CR=Commencement-readiness; IDM=Informed decision-making in context; COLLAB=Collaboration; LLL=Lifelong learning; ASSESST=Assessment focused on integrative learning; TLAs=Teaching and learning activities in situ focused on integrative learning; SUP/PREP=Induction, supervision, and debrief; AUTH=Authenticity

## **Preliminary Findings**

Following an extensive literature review; discussion and collaboration with partner university representatives; consultation with the reference group; and triangulation of alumni interview data to validate literature-based conceptions of employability; the lead team determined the definition of employability or work-readiness as a multi-dimensional construct incorporating:

- Professional practice and standards
- Integration of theory and practice
- Lifelong learning
- Collaboration
- Informed decision making
- General commencement-readiness (confidence to start a job in the discipline)

The research findings categorically confirm that WIL placements do have an impact on student work-readiness and contribute to employability capabilities, as do simulated activities. While the impact of placement exceeds that of simulation, the data exposed several key elements of the WIL placement experience that were fundamental to quality student outcomes. Furthermore, from the evidence it emerges that the student experience is enhanced when WIL is embedded and scaffolded across the curriculum both vertically and horizontally. While these overarching findings may not surprise WIL practitioners, the key factors that need to be considered in curriculum design and the student experience that emerged provide direction and guidance for developing and implementing WIL experiences. Consistent with previous findings (Smith, & Worsfold, 2013a; Smith, 2012) the key factors that contribute to quality outcomes are:

- Authenticity of the placement or WIL activity
- Preparation and induction processes for both students and hosts
- Access to and quality of supervision throughout the WIL activity (both from host organisation and institution) to optimise the student learning experience and skill development
- Alignment of WIL activity and assessments to WIL-appropriate learning outcomes with scaffolded skill development and robust feedback
- A facilitated debriefing session for students that enables reflection on the experience and an opportunity to consider areas of strength and areas for further development.

Figure 2 below provides a visual image highlighting the relationship between variables emerging from the range of data collated and analysed.

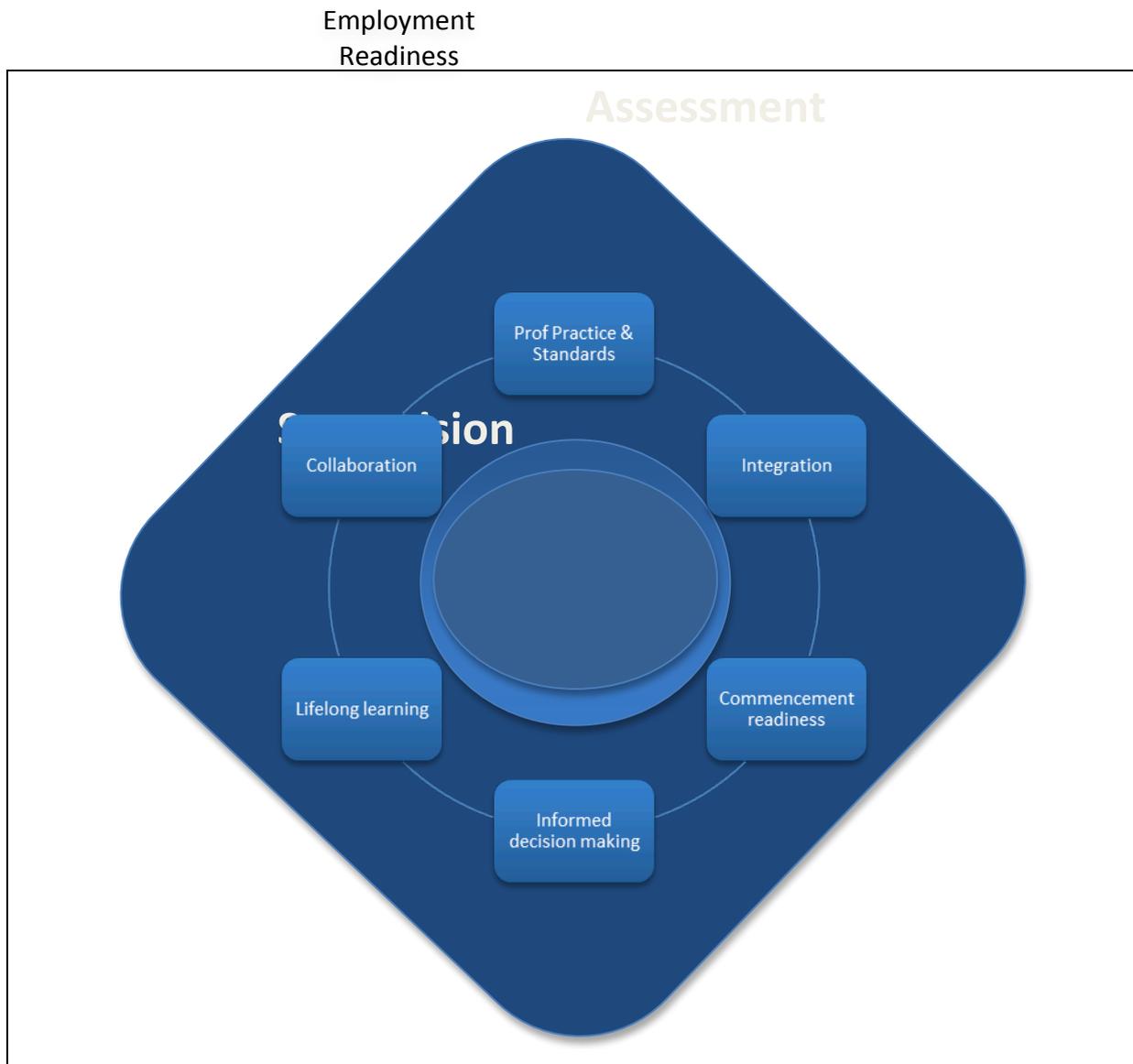


Figure 2: Schematic of the system of relationships among variables

Central to authenticity is the integration of theory and practice where learning is evidenced by student performance in scenarios that replicate workplace scenarios (Shavelson, Klein, & Benjamin, 2009). The tasks are either replicas of or analogous to the kinds of problems faced by adult citizens and consumers or professionals in the field" (Wiggins, 1993, p. 229). This research project ascertained that the authenticity of the WIL experience is integral to the impact on learning and the acquisition of employability skills.

#### *Preparation and induction*

To garner optimal outcomes from the WIL experiences, it is essential to adequately prepare students to ensure they are equipped to confront the challenges evident in real world scenarios and maximise the benefits of working in a professional context.

#### *Quality of supervision*

Feedback and support is pivotal to a positive learning experience for students. Constructive and meaningful feedback on performance assists students in determining strengths and where improvement is required. This enhances their ability to reflect on their own performance thereby directly impacting on life-long learning and long term career development. Feedback from both the educational institution supervisor and workplace mentor are essential.

#### *Aligned curriculum*

The notion of constructive alignment of learning outcomes with learning experiences and assessment profiles is central to a quality educative experience (Biggs, 1996; Smith, 2008). Biggs and Tang (2011) attest that assessments that fail to address learning outcomes cause confusion in determining what should be learnt. It is therefore imperative that 'assessment comprises an authentic representation of the intended learning outcomes' (Biggs & Tang, p. 191). Accordingly, in a WIL learning environment, assessment should be focused on representations of the learning objectives of the WIL subject or unit (Smith, n.d). These might be performances, reflections on the experience, or the integration of theory and practice, depending on what the learning objectives are (skill or practice validation, having the experience, or applying knowledge in context, respectively). Where the learning objectives target the achievement of employability capabilities, then the assessment should focus on these; 'In doing so, it is expected that there will be a closer alignment between the academic curricula and the students' employability capabilities' (Ferns & Moore, 2012. p.208).

### *Debriefing*

Consistent with Billett's observations (Billet, 2009), debriefing with students following a WIL placement experience is pedagogically valuable. Debrief allows for facilitated reflection on the experience and the learning that it has afforded.

### Employer feedback

Data gathered from employers' revealed placement has an impact on work-readiness, in particular on:

- Self-awareness of abilities
- Application of theory in practice
- Professional communication
- Commitment to and interest in the job
- Adherence to protocols, standards of dress etc.

Furthermore, employers who provide feedback to students on their learning and performance in the workplace are more likely than those who do not, to perceive students to be work-ready.

Feedback from employers highlighted the importance of collaboration between stakeholders. Employers perceived critical elements of a collaborative partnership model to be clear expectations of host organisations (Levin, Bok & Evans, 2010); clearly defined communication mechanisms (Winchester-Seeto, Rowe, & Mackaway, 2013); and clearly defined expectations for students. Fleming and Hickey, 2013 identify efficiency, legitimacy and synergy as fundamental to robust, constructive, and mutually beneficial partnerships.

### **Conclusions**

The employability capabilities of graduates directly impact on the productivity, sustainability and innovation of the World-wide economy. WIL is perceived as the means for achieving this with increasing recognition from Government, industry, community and education providers of the need to support WIL initiatives. Given the triangulation of data, the results of the national OLT project *Assessing the impact of WIL on student work-readiness* project provide a comprehensive evidence base that supports a commitment to resourcing WIL. Furthermore,

the research highlights the role of collaborative and mutually beneficial partnerships between educational providers and industry and community organisations in providing authentic experiences for students that culminate in employable graduates. The overarching aim of this research has been to provide an evidence base for judging the impact of WIL on graduates' readiness to commence work and guide university leaders in best practice and curricula investment. Employability is not just about getting a job but is a multi-faceted concept where the development of attributes, techniques and expertise contribute to life-long and life-wide learning. The emphasis is less on 'employ' and more on 'ability' with a focus on developing *critical, reflective abilities*, with a view to empowering and enhancing the learner (Harvey 2003). The findings from this research verify that WIL is a worthwhile investment for the economic well-being and sustainability of the nation. The outcomes from this complex study provide a robust foundation for ongoing investigation into discipline-specific WIL; diverse models of curricula WIL; and partnership arrangements between all stakeholders.

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