

Can Employability Be Usefully Measured?

Prepared for the WACE 10th International Symposium

June 2014

“The great thing in this world is not so much where we stand, as in what direction we are moving”

- Oliver Wendell Holmes

We're in a world of measuring almost anything- technology has made it possible and limited funds have made it necessary. Industry, organisations and governments require empirical data to make informed decisions about their operations. What is measured can now involve highly complex human behaviours such as how happy we are as a society.... and how employable we are.

This paper outlines two measurement tools being trialled or proposed at The University of Melbourne's Business & Economics Careers Centre. The Core Skills for Work Self- Assessment tool was developed in conjunction with the Australian Government and industry. It provides a matrix of defined levels of capacity in employability and a self-assessment tool for students. Over the last two years, this tool has been applied to pre and post intensive Work Integrated Learning experiences to measure the impact of the experience on students' employability, its value for students and to inform future decision making within the Careers Centre.

The second measure, the Student Academic Progress tool is still in the planning stage. It aims to clarify the impact of a WIL experience by monitoring students' academic progress and the timing of a WIL activity, using predictive modelling.

A large part of the progress in developing these two measures is due to two factors- the quality foundations in education and training laid down by the Australian Government (in conjunction with key stakeholders of education institutions, industry and community) - and using established business practices.

How do we define employability- what is to be measured? From an individual's perspective

“Employability refers to a person's capability for gaining and maintaining employment (Hillage and Pollard, 1998). From an employer's perspective, employability can be defined by the attributes that they need from their employees, in order for their business or organisation to function effectively. Employers are looking to the various education sectors (schools, vocational, private and higher education) to provide graduates to meet their needs

Historically, the defining and measuring of employability skills has been a key part of training the blue collar employee through the vocational education sector. In this environment specific, measurable tasks are confirmed as being competently performed through observation and some theoretical assessment. In higher education, Work Integrated Learning (WIL) is an integral part of courses in disciplines such as medicine, nursing, social work and teacher training and there is now interest from industry, government and the community to embrace employability in all graduates. The Australian Government recently funded a project involving fourteen Australian universities to assess the impact of WIL on student work-readiness (Griffith University, 2013). Unfortunately, the cost of delivering a WIL experience is usually higher than the traditional lecture format hence the need to establish measures that quantify what is delivered and apply a cost benefit analysis.

From the higher education sector's perspective, defining employability continues to be a challenge. Manz Yorke has been prolific in this area for decades. His practical approach to explore ways in which higher education can define, measure and incorporate employability are well documented (Knight, P., & Yorke, M 2004). Pool has also added further insight, with a practical model of graduate employability (Pool, L., & Sewell. P. 2007).

From a government's perspective, their role is to work with all stakeholders. The Australian Government established the Australian Qualifications Framework (AQF 2013) to map the education levels of each industry sector's required knowledge and skills. The vocational sector and most Australian universities are now mapping their courses to this framework. Complementary to the AQF is the Australian Core Skills for Work Framework (Australian Government, Department of Industry (2013). The Core Skills for Work Framework (CSfW) describes a set of non-technical skills, knowledge and understandings that underpin successful participation in work. The CSfW uses a developmental approach to describe these skills at five different stages, from novice through to expert. It is this framework that has been adapted into a self-assessment tool by the Business & Economics Careers Centre at The University of Melbourne and used to develop a tool to measure students' perceived preparedness for the workplace. The ten core skills in the CSfW are detailed below.

1. Manage career and work life	a) identifying career and work options, b) finding work, c) developing the relevant skills and knowledge required for my work and career
2. Work with roles, rights and protocols	a) working with roles and responsibilities b) legal rights and responsibilities in my work, c) protocols
3. Communicate for work	a) communicating with others, b) speaking and listening , c) understanding and interpreting communication
4. Connect and work with others	a) understanding myself, b) building rapport with others, c) cooperate and collaborate with others
5. Recognise and utilise diverse perspectives	a) recognising different perspectives, b) responding to and utilising different perspectives, c) dealing with conflict with others
6. Plan and organise	a) planning and organising my workload and commitments, b) planning and implementing tasks
7. Make decisions	a) applying decision-making processes, b) reviewing the impact of decisions,
8. Identify and solve problems	a) problems happening at work, b) problem to be solved in my work environment, c) problem occurs in my work environment
9. Create and innovate	a) thinking about the value of new ideas, b) think about generating new ideas, selecting ideas for implementation)
10. Work in a digital world	a) digitally based technology in my work, b) using digital technology to connect to others and to access, organise and present information, c) awareness of the need to manage risk when using digital technology

Fig 1 Core Skills for Work Summary Table

Lee Harvey has contributed a significant amount of research in the area of measuring employability. He recognises the limitations of the current measurement of an education institution's success in this area through Graduate Destination Surveys. He sees opportunities for students to develop employability both within courses, in extra curricula activities and in life experiences. He sees that there are different ways that an education institution could measure employability- through students' abilities, job satisfaction and/or the requirements of the employer. He confirms that it is "the employer who ultimately converts 'the 'employability' of the graduate into employment." (Harvey 2001, pg. 102).

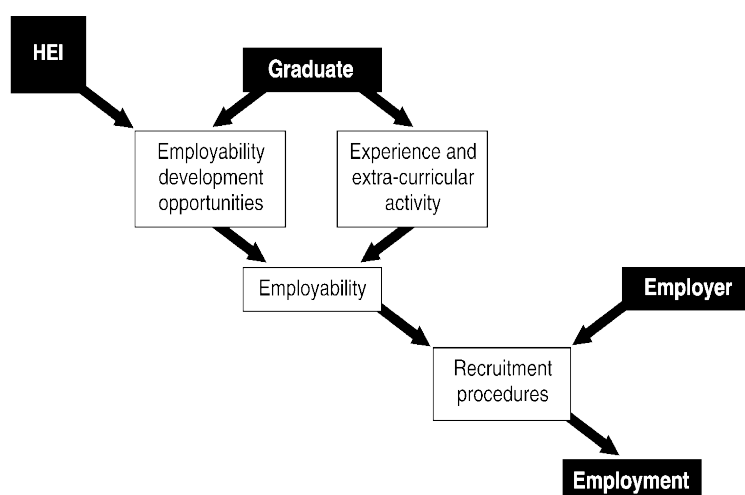


Fig 2 Harvey (2001) FIG. 2. A model of employability-development and employment

As a result of a close collaboration with Ithaca Group (Consultants to the Australian Government), the Business & Economics Careers Centre at The University of Melbourne established a formal arrangement with the Department of Education, Employment and Work Relations, to develop a CSfW Self-Assessment tool (CSfW-SA.). The aim was to see if the employability of a student after a WIL experience could be measured. The CSfW-SA was also perceived to have potential in assisting individual students to gain clarity on their work readiness and for the career centre to make informed decisions regarding their service.

The CSfW- SA was developed based on established business measuring practices, in particular Business Performance Measurement (BPM), and Total Quality Management (TQM). BPM uses a range of frameworks to manage constantly changing variables within an organization. Kellen provides a good summary of this (Kellen, V., 2003). TQM establishes processes that systematically collect data before academic and administrative decisions are made. It has, over many years, been adopted by many higher education institutions globally, to develop improved management practices. An example of this is outlined in a report by Asif, Awan, Khan and Ahmad examining the critical success factors of TQM in Pakistani universities (Asif, M., Awan, M., Khan M., and Ahmad N., 2013). TQM and BPM provide the business fundamentals to successfully establish the CSfW-SA. A good practical guide, the United World's Way of America's Measuring Program Outcomes: A Practical Approach (1996) was also useful along with a supportive IT team. The CSfW is a web based application developed using ASP.NET and Microsoft SQL Server.

By adding a requirement that the student provides evidence to support their claim of employability level, the CSfW-SA also builds reflective learning into the exercise- a standard technique for assessing experiential learning such as WIL. David Kolb is a key figure in experiential learning in higher education (Smith, M. K. 2001, 2010).

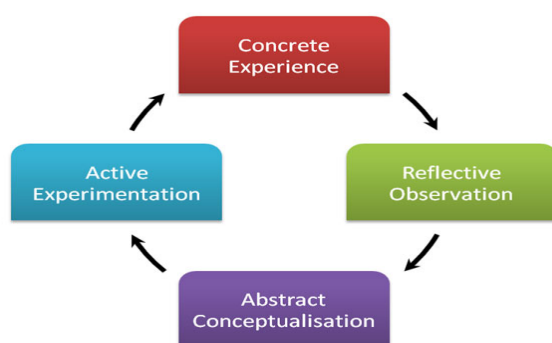


Fig 3 David Kolbe's model of Experiential Learning (Skills Converged Training Material 2014)

The CSfW-SA was first trialled during 2012 with the Ithaca Group to test the clarity of language used in the various levels of skills descriptors and options in usability. The trial involved forty-eight students and twelve professional staff from five different universities around Australia.

The implementation of the CSfW-SA in 2013 focused on the Career Centre's WIL program, the Melbourne Business Practicum (MBP). The MBP involved students undertaking an intensive two week experience during a semester break, as an elective subject in their Masters degree, with a prior week for Induction, and a final week to produce a written report. Each MBP employer hosted a team of four students. The students worked on the business problem together, concluding with a final presentation of their proposed solutions to the host and their stakeholders.

Students completed a pre and post CSfW-SA, covering the ten employability skills. This involved students reviewing each of the employability skills, identifying the level (five levels articulated) that best represented their employability and supported this with anecdotal evidence. They received a written report immediately and could access career consultants to review their results at any time. Students completed this assessment during the Induction Week (therefore not as part of the application process where students are inclined to exaggerate their capacity to enhance their selection) and at the conclusion of the program (prior to receiving their results).

Below is an example of an automated CSfW-SA Report. It includes a Summary of Results and the student's selection of their employability level (1= novice, 5 = master) for the first of the ten employability skills, Manage Career and Work Life.

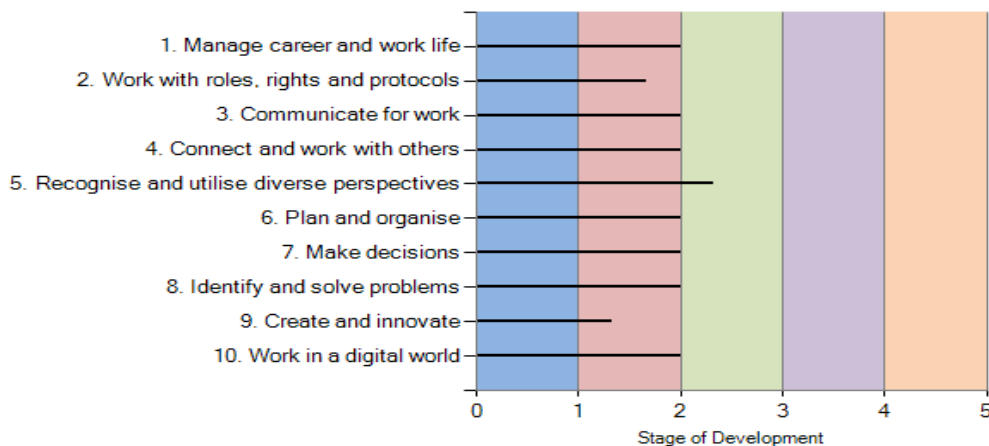
Your Core Skills for Work Self-Assessment Report

Report for: Anon Ymous

Date: Wednesday, 21 August 2013

These results should provide you with a better understanding of your Core Skills for Work, including the areas in which your strengths lie (which can be used to promote to your skills and capabilities to others) and areas in which your skills are less developed. For those areas that are less developed, there are a range of ways in which you might develop your skills, knowledge and understanding, such as through work experience and work-based learning, through informal learning (such as mentoring or coaching) or through formal learning (such as a training course). You can undertake this self-assessment as many times as you like, and can use it to track your progress over time.

Below is a summary of how you rated yourself across each of the ten skill areas.



Below are the details of how you rated yourself in each of the ten skill areas, as well as the example you provided to illustrate how you have demonstrated these skills.

1. Manage career and work life

1a. When I think about	I can see some work options that suit me, but would
1b. When it comes to finding	I can see what's required for some jobs, but need
1c. In order to develop the relevant skills and knowledge required for my work and career,	I use both formal and informal learning to develop my skills and knowledge for my role and am starting to recognise the importance of on-going learning

Evidence Example:

"Last year I discovered a good intern opportunity in Beijing through Unimeb Careers online and I successfully got that intern position. During the intern period, I learnt that ongoing learning is crucial in building a solid career path, as the task I was required to perform at workplace is quite different from what I learnt in class. I need to build my skills particularly in English language and Chinese business culture. I have attended Careers Consultations and skills workshops last year and joined Student Experience activities"

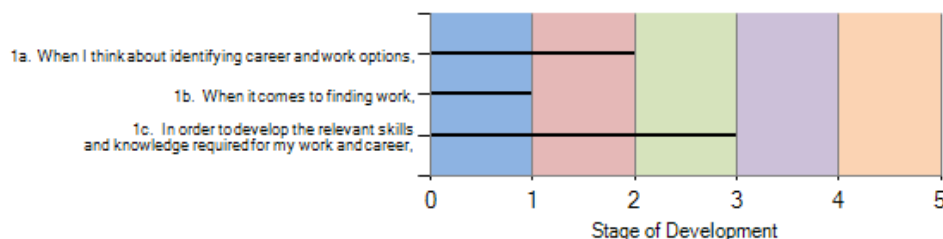


Fig 4 Automated CSfW-SA Student Report

The feedback from both staff and students in the 2012 trial indicated that there was potential for the tool, but that it took too long to complete (around 35-45 minutes depending on the student's English competency level). Student- *"This exercise made me aware of my competencies and areas where I can improve and work on."* Staff- *"This assessment is very useful. I will recommend my department to use this tool as a work skill assessment. Though, there should be some further instructions as well as solutions to develop one's working skill to a higher level."*

In 2013, the CSfW-SA was applied to a pre and post assessment for the February and July MBP elective subject, involving a total of ninety-eight students. The combined February/July CSfW-SA results are shown below. They continue with the same pattern as the CSfW Self Assessments for MBP in 2012 trials, with the students believing they were more employable as a result of the MBP, albeit with a minimal increase. Most students found the process valuable (65 per cent in July), whilst others found it too long or did not see its value. As one of the students reflected, *"It reveals the key areas that I need to pay attention to and the goals that I need to aim at"*.

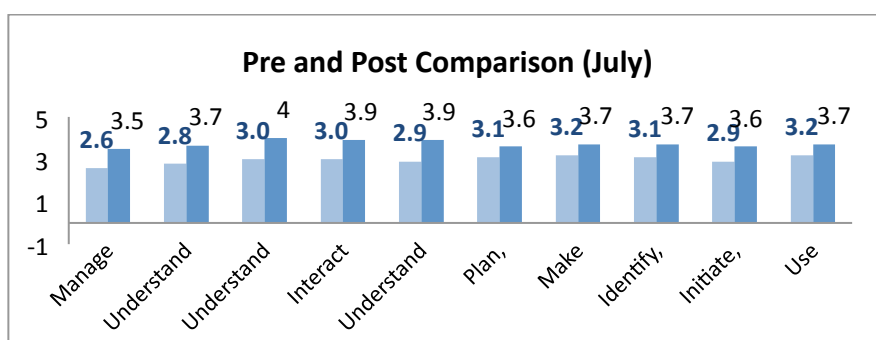
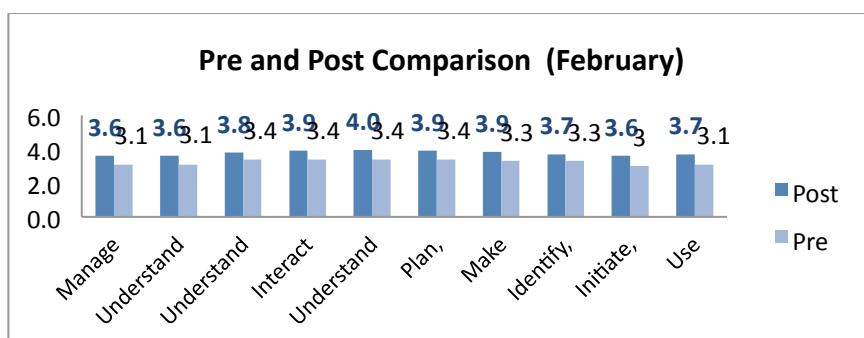
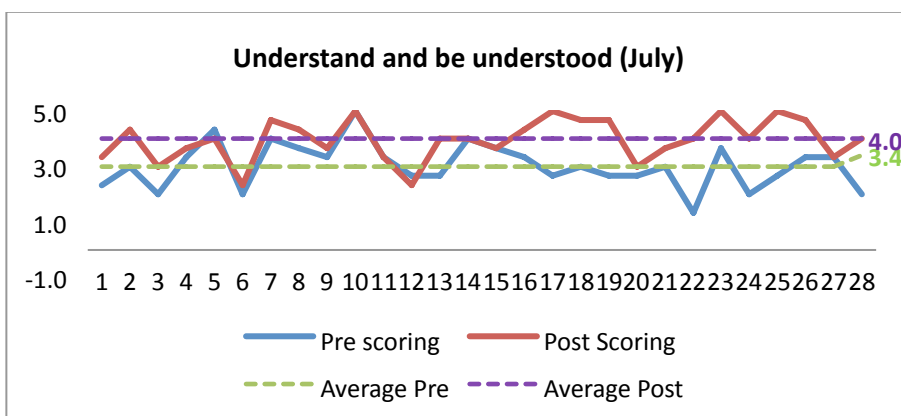
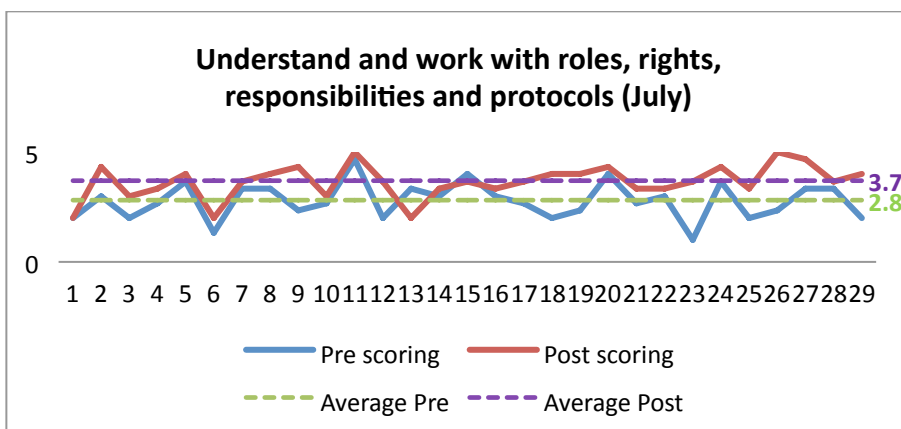
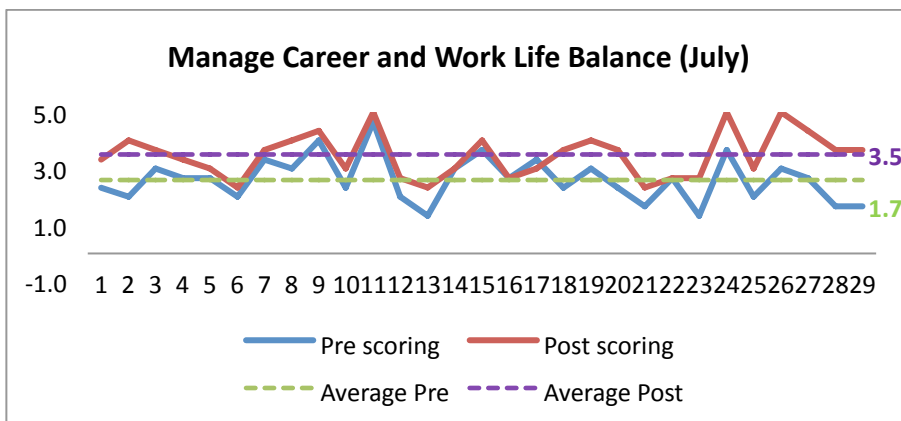


Fig 5 The combined February/July CSfW-SA results

These results show that all students perceived their skills to be in the mid-range of 2 or 3 out of 5, and this has been confirmed anecdotally by career advisors/consultants. Further observations from these results are outlined below-

1. There is a possibility that the improved post result could simply be due to students being more familiar with the process, so were able to complete it with more confidence in the post assessment. Most students indicated that they were able to complete it within 35 minutes the second time and anecdotally, no student previewed their pre assessment before completing their post assessment.
2. The July average pre assessment was lower than February, but the post assessments were similar. An explanation for this could be that the effort and the quality of evidence the students supplied in February confirmed the need to build more awareness of the importance of the soft skills in the July Induction program. The more rigorous Induction in July emphasised the high standards of employability required. Students were more circumspect about their capabilities in the pre July assessment and were more motivated to complete the CSfW-SA for their own benefit. (Work by Liu, Bridgeman and Adler in *Measuring Learning Outcomes in Higher Education: Motivation Matters (2012)* shows how scores in standardised assessment tasks vary significantly in different motivational conditions).
3. The first five employability skills in July showed the greatest improvement of students' perceptions of their employability - managing career and work life balance, understanding work roles, being understood, building relationships –which again could be attributed to the MBP Induction. Programs offered by the Careers Centre could also have contributed to this, but further analysis would need to be undertaken to examine students' involvement in Career Centre programs and their MBP CSfW-SA results.

The graphs below show the July MBP breakdown of each of these first five employability skills for each student (28-29 responses out of a possible 48). There are some significant variations between the pre and post assessment for some students.



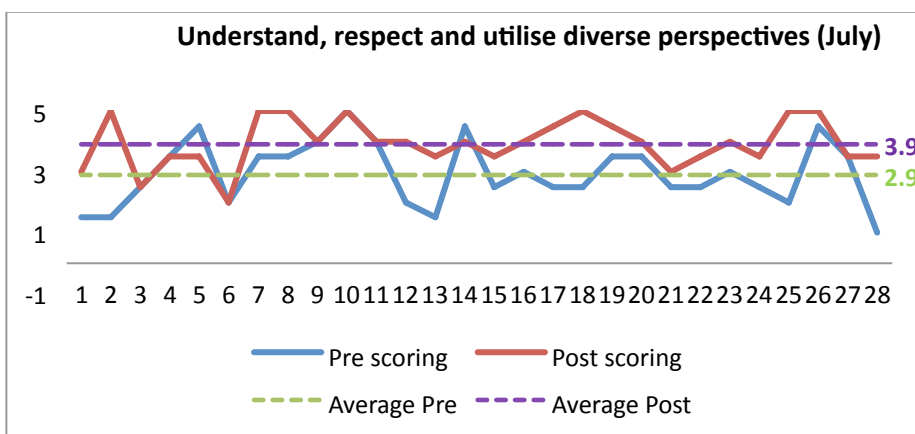
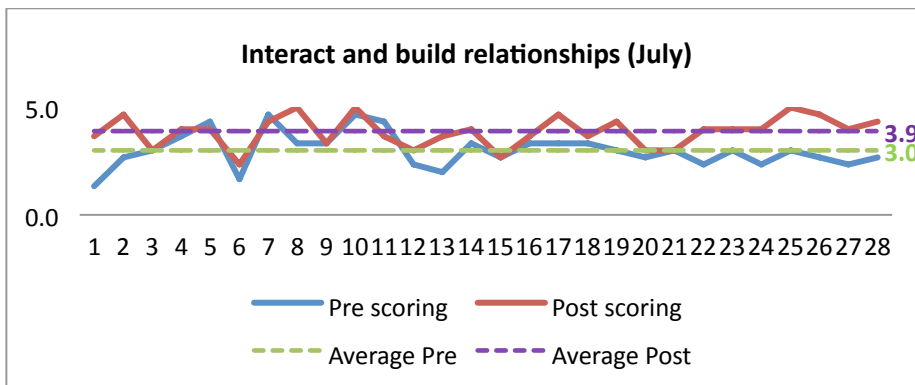


Fig 6 CSfW-SA July MBP breakdown of each of these first five employability skills

Although the signs are encouraging, confirming just how useful the CSfW-SA tool can be will require a lot more work. Only 28-39 students completed the February assessment and 28-29 students completed the July assessments. It is a very small sample.

The CSfW –SA does, however, provide clear indicators to students’ perceived levels of employability that benefit their understanding of what employability is, their current capacity and the way forward for them to achieve the highest Level 5 capability. It is a personal assessment, not an external assessment. MBP host employers have indicated that they do not spend enough time with the students to be able to evaluate them effectively. This would alter if the MBP became a semester long subject opening up the opportunity for comparisons to be undertaken between the student’s

perceptions of their employability and the employers. Potentially, the CSfW could be developed into a useful report for employers along the lines of the CPA+.

The CSfW-SA also assists the Careers Services to make more informed programming decisions by clarifying what areas across a student group need further development (as seen with the improved July MBP Induction program). It also provides a useful tool for career consultations. Many of the MBP students struggled with providing the evidence to support their claim, so follow-up consultations were needed to outline how to do this, using techniques such as STAR-L. In the future, this will be covered in the Induction in the MBP program

The CSfW- SA can stand on its own, as a cost-effective self-management tool with the capacity to provide immediate feedback to the student. It has the potential to assist students across all education sectors and be a “check-in” process during a life-long career, particularly during times of career change. Further development to this will include an automated customised resources list, providing the student with targeted advice on how to further develop their employability capabilities, plus a brief on-line training module to assist any student wishing to use the CSfW-SA.

Given the current intensive format of the MBP subject, it is unlikely that the students’ life experiences will impact on their pre and post assessments. The CSfW-SA does need further development in measuring the impact of external factors in a student’s broader life cycle and attitude that impact on employability. These have been articulated in the CSfW Framework and are called Influencing Factors. They include areas such as the context and familiarity of the workplace, the nature and degree of support, the level of autonomy, the degree of motivation, the self-belief and resilience, the cultural and value-based factors and external factors.

By being aligned with the CSfW Framework, CSfW-SA is able to be more easily updated as changes to the Framework are advised by employers. This process will ensure currency and reduces the time and cost factors associated with upgrades for the Careers Centre.

Another way to measure a WIL experience is being considered at the Business & Economics Centre. Predictive modelling is a key tool used by industry to assist management to make informed decisions about their company's progress and future directions. A large amount of data is mined and techniques such as multiple regressions, non-linear and logistic regression are applied, to predict the critical issues facing an organisation. In a presentation at the Academic and Business Research Institute Conference in Las Vegas, Armar Sahay concluded that "although, data mining is widely used in business, it has scarce applications in education" (Sahay, A 2010).

The predictive modelling project is still in its planning stages of development at the Business & Economics Careers Centre, with clarifications around ethics and purpose required. The intention is to develop a Student Academic Progress Monitor (SAP Monitor) using predictive modelling to measure the impact of activities such as WIL on students' academic performance. The diagram below summarises the concept, where a WIL experience in Semester Two has had a positive impact on students' academic results. (There is no guarantee that a WIL experience will do this!).

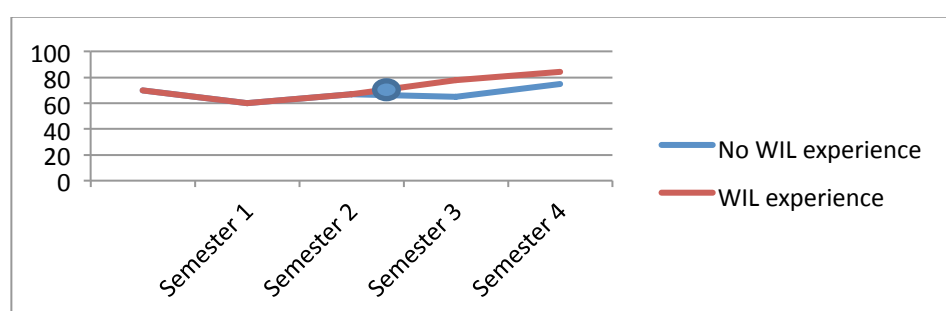


Fig 7 Example of a possible Student Academic Progress as a result of a WIL experience

The progress of a student's academic results will be based on data collected from around two thousand student profiles from previous years. The data will include personal details, education qualifications, work experience and other scores such as IELTS collected through the development of a crystal report from the University's student management system.

In summary, can employability be usefully measured? This key word is "usefully". There are proven techniques in measuring business performance that can be, and are being, adopted to measure employability outcomes for graduates in higher education for both the student and the education institution. But, in order for these results to be "useful", higher education institutions need to move more towards an agreed business model of operation with a sustained commitment to developing quality measurements to inform decision-making in all parts of their operations, including building employability activities.

A key part of any business model, is the importance of not reinventing the wheel, and working in partnership with a variety of key internal and external stakeholders to improve best practice. To achieve the ultimate goals of all graduates achieving the most rewarding and sustainable career possible, and meeting industry's labour requirements, all stakeholders- government, industry, the community, academics, and educational associations across disciplines and at local and international levels- need to work together where it makes sense to do so.

The Core Skills for Work Self- Assessment tool and the Student Academic Progress Monitor were initiated as a result of leadership, quality partnerships with key stakeholders and the application of established business practice principles. There is much work to be done....but we're moving in the right direction.

REFERENCE LIST

Asif, M. , M., Khan, M., & Ahmad, N (2013) A model for total quality management in higher education. *Quality & Quantity: International Journal Of Methodology*, 47(4), 1883-1904.
doi:10.1007/s11135-011-9632-9

Australian Government, Department of Industry (2013) *Core Skills for Work Framework* Retrieved 6 January 2014 <http://industry.gov.au/Skills/CoreSkillsForWorkFramework/Pages/default.aspx>

Australian Qualifications Framework (2013) *AQF* Retrieved 31 July 2013 from
<http://www.aqf.edu.au/aqf/in-detail/aqf-levels/>

Doc, EW and Tsang, KC (2013) *CLA+: The Future of College Hiring, or a Lesson in Redundancy?* NACE Journal Retrieved 11 January 2014 <http://naceweb.org/j112013/collegiate-learning-assessment-measuring-outcomes.aspx#sthash.loTHyKUG.dpuf>

European Alliance on Skills for Employability (2014) *Employability Alliance* Retrieved 12 January 2014 from <http://www.employabilityalliance.eu/ea.php>

Griffith University (2013) *Assessing the Impact of Work Integrated Learning on student work readiness* Retrieved 13th January 2014 from
<http://www.griffith.edu.au/learning-futures/research/assessing-wil-impact>

Kellen, V., (2003) *Business Performance Measurement At the Crossroads of Strategy, Decision-Making, Learning and Information Visualization* CIO & Faculty, School of CTI, DePaul University Chicago, ILU.S.A. Retrieved 9 January from <http://www.kellen.net/bpm.htm>

Knight, P., & Yorke, M (2004) *Learning, curriculum and employability in higher education*/Peter Knight, Mantz Yorke, New York RoutledgeFalmer 2004

Pool, L., & Sewell. P. (2007) *The Key to Employability Developing a Practical Model of Graduate Employability* Education & Training 49(4).277-289

Harvey, L., (2001) *Defining and Measuring Employability, Quality in Higher Education*, 7:2, 97-109 Retrieved 7 January 2014 from <http://dx.doi.org/10.1080/13538320120059990>

Hillage, J. & Pollard, E., (1998) *Employability: Developing a Framework for Policy Analysis*, Department for Education and Employment (DfEE) Research Report no RR85 (London, DfEE)

International Labour Organisation (1996-2014) *Skills and Employability in the Asia Pacific Region* Retrieved 14 January 2014 from <http://www.ilo.org/asia/areas/skills-and-employability/lang--en/index.htm>

Liu, O., Bridgeman B., and Adler R., (2012) *Measuring Learning Outcomes in Higher Education: Motivation Matters* Educational Researcher December 2012 41: 352-362,
doi:10.3102/0013189X12459679

Sahay, A.,(2010) *Assisting Higher Education in Assessing, Predicting, and Managing Issues Related to Student Success: A Web-based Software using Data Mining and Quality Function Deployment*

Retrieved 5 July 2013 from <http://www.aabri.com/LV2010Manuscripts/LV10127.pdf>

Smith, M. K. (2001, 2010). 'David A. Kolb on experiential learning', *the encyclopedia of informal education*. Retrieved 11 January 2014 from <http://infed.org/mobi/david-a-kolb-on-experiential-learning/>

The European Federation of Educators and Employers (2010-2014) Retrieved 16 January 2014 from <http://www.educationemployers.eu/home/>

United Way of America (1996) *Measuring program outcomes: a practical approach* Alexandria, Va:

United Way of America c1996

IMAGE SUMMARY

Fig 1 Core Skills for Work Summary Table Pg 5

Fig 2 Harvey (2001) FIG. 2. A model of employability-development and employment Pg 6

Fig 3 David Kolbe's model of Experiential Learning Pg 8 Retrieved on 16 January 2014 from

<http://www.skillsconverged.com/TrainingTutorials/TraintheTrainer/TrainingtheTrainerExperientialLearning.aspx> 2014

Fig 4 Automated CSfW-SA Student Report Pg 10

Fig 5 The combined February/July CSfW-SA results Pg 12

Fig 6 CSfW-SA July MBP breakdown of each of these first five employability skills Pg 15

Fig 7 Example of a possible Student Academic Progress as a result of a WIL experience Pg 18