



# 2018 Conference Proceedings

*Fruit of the Vine:  
Change, Challenge and Opportunity for Learning  
16<sup>th</sup> – 18<sup>th</sup> of April, 2018, Onetangi, Waiheke Island, New Zealand*

*Editors  
Karsten E. Zegwaard & Katharine Hoskyn  
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**Front cover:** Onetangi Beach and The Venue, Onetangi, Waiheke Island, Auckland, New Zealand  
Photo credit: Karsten Zegwaard

# New Zealand Association for Cooperative Education 2018 Conference Proceedings

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# CONTENTS

International work-integrated learning placements: When things go wrong! <i>Elizabeth Abery, Deborah Agnew</i>	1
International work-integrated learning collaboration: Pre-departure preparation across two countries <i>Deborah Agnew, Elizabeth Abery, Kimberly Park</i>	5
Managing expectations during internship matching <i>Thomas Hartley, Kathryn MacCallum</i>	9
The seven wonders of employability <i>Denisa Hebblethwaite, Diana Ayling</i>	11
The professional development needs of the New Zealand work-integrated learning community in comparison to international perceptions <i>Katharine Hoskyn, Karsten E. Zegwaard, Sonia Ferns, Judie Kay, Kristina Johansson, Norah McRae</i>	17
Internships: Paid/unpaid legal or not <i>Brenda Lloyd, Susan Chard</i>	22
Internship in undergraduate and postgraduate programmes teaching Information Technology at a polytechnic <i>Sarita Pais</i>	27
Training Restaurants: Developing an activity model to align capability and learning outcomes to meet expectations of the graduate profile <i>Chantal Pillay</i>	31
A classification framework to make sense of industry placements * <i>Megan Roberts, Yvonne Wood</i>	37
Utilising existing frameworks and models for evaluating the relationships between a tertiary provider and the information technology industry in the Tairāwhiti region <i>David Skelton, Tina Blumenthal</i>	43
Where do we think you are?: Tracking the elusive alumni <i>Catherine Snell-Siddle, Sarah Snell</i>	49
The shifting perceptions by science and engineering employers of desirable graduate competencies: Comparing now to 15 years ago <i>Karsten E. Zegwaard, Elaina Khoo, Amina Adam, Mira Peter</i>	53

\* *Winners of the Allister McLay Best Proceedings Paper Award*



# International work-integrated learning placements: When things go wrong!

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There is an abundance of literature supporting the benefits of work-integrated learning (WIL) opportunities in international destinations, for students, host organizations and participants of the placement programs. It has been noted that students augment their cultural awareness and sensitivity, global understanding, awareness of differing practices attributed to the culture of the host country, and develop personal and professionally through increased confidence, resilience and enhanced skills and knowledge (Kearney, Perkins, & Maakrun, 2014; Green, Johansson, Rosser, Tengah, & Segrott, 2008; Button, Green, Tengah, Johansson, & Baker, 2005). These are also factors acknowledged as supporting university graduate attributes and employability (Tan, Flavell, Jordan, & Ferns, 2016; Jackson 2012; Trede, Bowles & Bridges, 2013). Hence, it is understandable that universities in Australia and globally are including opportunities for international WIL placements as an expected part of curriculum across many university disciplines and degrees (Trede et al., 2013).

The literature acknowledges the need for structured pre-departure programs that prepare students personally and professionally. In addition it is recognized that ongoing support for students is required while on placement in an international environment that may be culturally and physically new to them (Lowe & Hay, 2016; Button et al., 2008; Green et al, 2008). However, while good in theory, in practice things do not always go to plan, no matter how much pre-preparation and support is in place (Green et al., 2008). In these situations it is the university placement facilitator who needs to take the primary responsibility (Winchester-Seeto, Rowe, & Mackaway, 2016).

There are tailored pre-departure programs and models in place to prepare students (Agnew, Pill, & Orrell, 2017) and generic guidelines for implementing WIL programs including international placement recommendations (Lowe & Hay, 2016; Sachs, Rowe, & Wilson, 2016). However, little research considers the actual experiences of university facilitators of WIL placements in international destinations and their unique complexities. This paper reflects on experiences of university facilitators of international WIL placements “when things go wrong” and how this impacts on their role and well-being.

## UNIQUE FEATURES

In any WIL placement there are many stakeholders involved: the university, the student and the host organization. These all have varying roles and responsibilities in the placement facilitation and outcomes (Winchester-Seeto, et al., 2016; Chipchase et al., 2012; Rowe, Mackaway & Winchester-Seeto, 2012). Supporting students on a placement in a domestic environment comes with challenges for the university WIL facilitator in terms of management, workload and pastoral care (Winchester-Seeto et al.; Chipchase et al., 2012). However, where a student is undertaking a placement in an international destination, being “away from home” adds a level of risk and further impacts roles and responsibilities for students and the university placement facilitator, especially when something goes wrong (Chipchase et al., 2012; Green et al, 2008; Button et al., 2005). Drawing on anecdotal experiences of university facilitators of international WIL placements from Flinders University in Australia, across a range of disciplines (nursing and midwifery, disability, education and sport management) key areas of risk have been identified. These include: illness, injury, homesickness, group dynamics, student and family expectations of placement supervisors and facilitators, student difficulty in accepting differing cultural practices, learned theory not aligning with practice, expectations and relationships with host organizations, and facilitator isolation, where there is the need to connect with students for pastoral care but also maintain a professional relationship. Many of

these risks are unavoidable and no amount of preparation could change the situation but they still need to be managed and in these situations predominantly by the university facilitator accompanying the students.

## DISCUSSION AND ARGUMENT

International WIL placements provide exciting opportunities for university students. However, what happens when the excitement wanes and reality sets in (Green et al., 2008) or the unexpected occurs? Students and the university have a responsibility to the host organization and in some cases the international placement is a requirement of the university degree or the student may have received a scholarship, so non-completion could impact professionally or financially; there is a great deal of pressure on all stakeholders for things to go well. However, as has been identified here this is not always straightforward. This then raises the question of how as a university or international WIL placement facilitator this can be managed. Many factors have been identified in the management of international WIL placements and the role of the university facilitator. These cannot all be explored in depth in this context however, a snapshot is provided by using three themes.

### *Theme 1: Misalignment of theory to practice.*

One of the many benefits of WIL is the opportunity for students to see theory in practice, however cultural practices may vary significantly and impact on the mode of practice employed and on student perceptions. Nursing and midwifery students from Flinders University attended an orphanage in Indonesia as part of an international placement. Cultural practice in this institution involved babies under the age of one year to be kept in a cot with no physical contact and being fed by a bottle propped up by a pillow. Similarly in India, education and sport management students found the teaching methods utilized very difficult to comprehend. School students in India appeared to be dictated to, have very little input into their own learning and treated with what the university students felt was disrespect. In both cases students found the practices to be very much the opposite of what was deemed good practice in Australia and recognized the impact on physical and social development. Students found this very distressing and it was difficult for the university facilitator to assure them that this was the practice in place and that they could not intervene. Similar situations have been noted with student distress particularly where children are involved in other institutional environments, notably in the area of disability. Debriefing and pastoral care at the end of each session was a critical component in the role of the university facilitator in all of these situations.

### *Theme 2: Injury and illness.*

It is almost impossible to predict injury or illness, however the university facilitator must manage any consequences. In one situation, a student was bitten by a snake on day one of arriving at a placement location in Brunei. This raised several consequences; distress of the student but also the student's family as being "away from home" added to their concern; the university facilitator also needed to be with the student which meant that other students on this placement were lacking support from someone they were familiar with; dealing with an unknown health care system; language difficulties while in hospital and cost of treatment, that while could be claimed through travel insurance, needed to be paid up front.

Managing illness while away from home also has the potential to cause distress to the student, university facilitator and in country supervisor. Intestinal discomfort (gastro) has been a common occurrence during placements in India and in most cases easily managed. However, on one occasion a student was suffering significant intestinal discomfort due to lack of tolerance to the spicy Indian foods. Unbeknownst to the student, the in-country supervisor contacted the university facilitator (in Australia) stressing that the student needed to return home to Australia as they had misconstrued illness for significant homesickness. The university facilitator was unsure if this was what the student wanted as they had not given any indication of wanting to come home. After speaking to the student it was clear they did not wish to leave the placement and had worked through their own solution to the issue. Supporting students through illness or injury while on international placement and where mediation with in country supervisors or students' family is involved significantly adds to the workload and emotional labour associated with the role of the university WIL facilitator.



### *Theme 3: Cultural expectation differences*

It is well documented that student placements in international settings can lead to an increased understanding of cultural awareness. However, at times cultural expectations in the host country have led to significant distress for the students. An example involved students' home-staying with teachers from some of the schools they were to be working in. The home stays were not organized until the students arrived at the school, three weeks into the trip. Due to low student numbers there was not a university facilitator accompanying the students at this point of the placement as they had returned to Australia once students were settled with the host organization. The university facilitator received a distress phone call to Australia at 4am from a student asking what they should do because they were being asked to sleep in the same bed as the teacher (male student/male teacher). The student group had also been separated and sent to different teachers' homes which caused further concern due to lack of peer support. Neither of these issues were perceived as being problematic from the perspective of the host school as it is common for two people of the same gender to share the same bed. However, it was difficult to explain to the host placement supervisors that the issue was a teacher and student sharing the same bed and not one of gender. In this case, the university facilitator was required to be extremely diplomatic and resolve the problem at 4am Australian time. This situation was not predicted; given the university facilitators in this instance do not spend the entire trip with the students in country and this was a host organization new to the placement program. This raised the recognition of the importance of accommodation to be approved prior to arriving in country and also the need for thorough research into host organization practice.

### IMPLICATIONS

International placement opportunities are a growth area in higher education with demand increasing from both students and institutions (Trede et al., 2013; Patrick et al., 2009). However, acknowledging that things do not always go to plan with international WIL placements highlights the need to consider preparation programs not only for students but also for the staff facilitating international WIL placements and the importance of ensuring that sound support services are in place prior to, during and post placement (Patrick et al., 2009; Green et al., 2008). These staff, in most cases are the mediators for all other stakeholders; they need to be capable of initiating and maintaining stakeholder relationships particularly in choosing partner organizations for international placements, and be skilled in supporting, mentoring, debriefing and providing pastoral care for the students prior to, while on placement and post placement. The facilitator's own well-being must also be considered if they are to support student well-being and a positive international placement outcome (Berry & Cassidy, 2013) but, who supports the supporter? There is the need to recognize and value the intensified workload and emotional labour (Winchester-Seeto et al., 2016; Berry & Cassidy, 2013; Rowe, Clark, Bilgin, & Cantori., 2014; Bates, 2011) associated with the facilitation and unique complexities of international WIL placements. Providing means of sharing these complexities, how they are resolved and learning from "when things go wrong" will benefit future international WIL experiences for all stakeholders.

This paper has used an auto ethnological approach based on reflection and interpretation of the experiences (Ellis & Bochner, 2000) of international WIL facilitators in specific disciplines and student cohorts. This limitation is acknowledged and it is proposed that further research is warranted in other higher education environments that facilitate international WIL placements to seek similarities or contrasts. It does however, highlight the importance of ensuring that where international WIL placements are offered and encouraged by a higher education institution there is a key responsibility by that institution provide adequate support and training for the facilitators and to recognize the added responsibility, intensified workload and emotional labour involved.

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# International work-integrated learning collaboration: Pre-departure preparation across two countries

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Providing international experiences for students is a priority for Australian universities (Trede, Bowles & Bridges, 2013; Holmes, Bavieri & Ganassin, 2015). The push for internationalization has led to an increase in the number of students participating in study abroad programs (commonly referred to as international mobility programs), which could be short-term (several weeks) or long-term (semester or year-long exchanges). Brockington, Hoffa and Martin (2005) state that the number of students preferring short-term international placement experiences is increasing. International experiences that students are involved in include experiential, volunteer, service-learning and internship programs.

In order to maximize the experience, a pre-departure program to prepare the students for studying abroad is essential (Byram & Dervin, 2008; Bryam & Feng, 2006; Jackson, 2008). Lack of adequate and appropriate preparation potentially leads to lack of confidence and competence, a poor placement experience and places a higher demand on the host organization and the university facilitator (Chipchase et al., 2012; Parker, 2011). Being fully prepared for placement includes awareness of personal and professional expectations, and in the case of international placements what has been termed “culture shock” (Maginnis & Anderson, 2017). Consequently, an important element of any pre-departure program is intercultural learning activities (Bretag, Saddiqui, van der Veen, & Zhu, 2016). Students who participate in such activities have demonstrated better preparedness for interacting in culturally respectful ways in the placement host country (McAllister et al., 2006; Popplow, Sward, & Klinger, 2010; Dharamsi, Osei-Twum, & Whiteman, 2013; Lowe & Hay, 2016).

As a result of a recurring New Colombo Plan (NCP) Mobility Grants from the Australian Department of Foreign Affairs and Trade since 2015, Flinders University, Bachelor of Sport, Health and Physical Activity (BSHAPA) students have undertaken short-term international mobility programs for a number of years to various locations. Based on the personal and practical experiences of participating students and facilitating staff, pre-departure preparation programs have evolved (Agnew et al., 2017).

While the pre-departure program in its current format is offered to all BSHAPA students undertaking international placements, this paper discusses a short-term mobility program undertaken in 2017, travelling to Mumbai, India. Collaboration with Otago Polytechnic in New Zealand eventuated in three Bachelor of Applied Science (physical activity, health and wellness) students joining four Flinders University students in a short-term mobility program in India.

Students took part in developing and facilitating sport development projects at Singhania School and assisted a local cricket club with expanding and structuring their coaching programs.

## UNIQUE FEATURES

Given both New Zealand and Australian students would be working together as a team and in the same environment it was beneficial for all students to complete the same pre-departure program. A program specifically focused on international placements had been developed by a team at Flinders University (Agnew et al., 2107). The program content is set out in modules designed to be presented through online or face-to-face delivery. Program modules include: intercultural community engagement, cultural safety, career development, safety and survival

(health and wellbeing) entrepreneurship, and concludes with a post-placement debrief. The post-placement debrief allows students to reflect on their learning experience (Billett, 2011) but is also beneficial to the facilitators in evaluating the pre-departure content relevance and any changes or considerations needed for future programs.

The Australian students completed the program face-to-face and all modules were recorded (bar one due to copyright issues). This enabled the New Zealand students to receive predominantly the same content but presented in an online format. In addition any Australian students who were unable to attend the face-to-face sessions could “catch up” by viewing the recordings. In the interim YouTube was used to upload the recorded sessions. Once the effectiveness and value of the content in the recorded sessions has been evaluated a more formal format will be explored to aid in wider dissemination.

Another unique feature in this program was the inability for the Australian and New Zealand students to meet and develop relationships prior to embarking on their international experience where they would need to work together as a team. Bringing students together from different backgrounds has value in cross discipline learning but also can impact team dynamics where there is diversity amongst the team (Graham. Hill, Reynolds & Parry, 2014). In an attempt to overcome this concern and to facilitate collaboration between the universities and students social media (FaceBook, Skype, Instagram and WhatsApp) was used to communicate prior to and during the placement. The use of social media helped to facilitate a sense of community and information sharing among the students prior to placement and promoted interaction between staff and students during placement (McAfooes, 2016). The recognized value of social media in facilitating communication between through groups is evident in the continued use following the completion of the placement, particularly by the Otago Polytechnic students.

#### DISCUSSION AND ARGUMENT

Given the pre-departure program was operating across two countries, the use of online resources and e-communication provided a valuable way to share information. However, it was identified that while the New Zealand students could watch the sessions online, the engagement was not the same as the sessions presented in the face-to-face format. This is supported by Richards, Sweet and Billett (2013) who found that self-directed learning may not be students’ preferred mode of learning leading to perceptions of difficulties with lack of structure in the placement environment. This was certainly the case for the majority of students in the current program who expressed their frustration multiple times at the lack of direction given by the host organizations in India with regard to what they should be teaching and coaching. There appeared to be general naivety with regard to cultural differences in the organization of activities, which despite the inclusion of such information in the pre-departure program did not appear to have been understood by students. Grace and O’Neil (2014) state that making information available to students about the organization environment prior to commencement can facilitate more time for practice and less time for orientation when the student begins their placement. However, Richards et al. (2013) argue that students must engage with the learning tools in order for them to be effective. Therefore the lack of understanding students displayed with regard to cultural differences in particular may indicate they have not engaged with the current format of the pre-departure program. It is proposed that the current format of the program be converted into online modules accessible via an app that the students can work through at their own pace, review when needed and have easy access to while on placement.

In an attempt to develop relationships and foster team dynamics as part of the pre-departure program a Skype session was organized to introduce the Flinders University students in Adelaide to the Otago Polytechnic students in Dunedin. However, while all three Otago Polytechnic students were present, only one Flinders University student was able to attend the designated time. Following this conversation the students used Facebook to communicate with each other prior to meeting in Mumbai. Reflecting on their preparation pre-departure the Flinders students felt that more Skype conversations between the two universities would have been beneficial. Richards et al. (2013) argue that students’ engagement with the opportunities being offered is a vital part of their learning, therefore only having one student from Flinders join the Skype conversation was a potentially inhibiting

factor in the preparation for the trip. It must be noted that responsibility for preparation and planning for placement is a shared role between the student and facilitator (Chipchase et al., 2012) in order to facilitate readiness for placement. While face-to-face meetings are ideal and maybe preferred, the students' reflections support Saarikoski et al. (2013) who suggest e-communication can be used to reinforce communication especially in this study where face-to-face prior to the placement was not an option.

Cultural awareness and international placement expectations training are difficult because often students are unable to imagine what to expect from their study abroad experience and therefore do not know whether their expectations are unrealistic (Amelvoort, 1999). The debrief session reinforced the complexities of cultural awareness training prior to departure as the students articulated the need for even more cultural awareness training to prepare them for the noise, volume of people, cuisine and environmental conditions because they felt significantly underprepared for the conditions of their placement. Gore (1993, p.132) stated "students who have paid attention to the preparations that must be made before going abroad should find few surprises." However, students argued that despite participating in the pre-departure program sessions, which adhered to Maginnis and Anderson's (2017) recommendation that the emphasis should be on cultural norms and beliefs, there was very little that could have prepared them for the actual experience of being in a foreign country that was so culturally diverse from their home country. For many of the students the immersion in the culture over the first few days of the trip was what was required to fully understand what they were involved in. Therefore, the importance of sending a staff member to accompany the students during the first week of the trip is crucial for acclimatizing students to cultural differences, placement expectations and supporting team dynamics (Graham et al., 2014).

#### IMPLICATIONS

The collaboration between Flinders University and Otago Polytechnic has provided the opportunity to test the effectiveness of a pre-departure model not only from the student perspective but also in refining the model's content, format, and transferability. The refinement of the pre-departure program and the shift towards an online delivery mode only, could lead to potential further collaboration prospects across individual or multiple institutions where a single host destination and placement opportunity is available. It became apparent through the post-placement debrief that of particular value to students travelling abroad is to learn about the experiences of other students who have completed the program. Therefore, an important addition to the pre-departure online program will be the inclusion of short videos of student experiences from previous international placements.

Collaboration between institutions can enhance opportunities for students to pursue international placement experiences. However, preparation for international placements is paramount. Where students are coming from different institutions there are no guarantees that preparation will be consistent and specific in the desired domains. Therefore an accessible pre-departure preparation program that can be tailored specifically to the international placement destination and host organization and all participating students will provide consistent information and support. Well prepared students will enhance the placement experience for students, facilitators and in turn host organizations and participants of the placement programs.

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# Managing expectations during internship matching

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The management of expectations by our stakeholders at EIT within the School of Computing Internship Programme is a complex process. Due to factors, such as an expanded sponsorship base, growing student numbers and the need to ensure that we are providing maximum value for all involved has meant that managing the diverse needs of our stakeholders has become highly complex and fast moving. This paper reviews a number of initiatives undertaken by the School of Computing to help support the success of a growing Internship Programme at EIT.

## UNIQUE FEATURES

What makes for a successful implementation and design of an internship programme has been a strong focus within the WIL literature. However, it is clear that a successful internship experience is strongly influenced by how the internship is initiated. One of the important aspects of this is the management of expectations of all stakeholders. In particular to establish, clarify and communicate the often-disparate needs of these stakeholders. Business sponsors are expected to make a considerable investment in the internship process. The time invested in interviewing potential interns, getting them initiated within the company, understanding workflows, purchasing equipment and software etc. is often a measurable risk. "For most interns, the costs of the internship are minimal. Nevertheless, potential pitfalls stem from the fact that employers and interns often do not have consistent or shared expectations regarding the internship" (Maertz, Philipp, & Jill, 2014, p.129). How this can be managed, to avoid the mismatching of needs and resolve these early issues, within the internship process is an important consideration in the design of a successful internship programme.

## DISCUSSION

Based on our experiences we have found that it was vital that we quickly established and clearly focused on establishing and managing the expectations of our students to sponsors. To ensure this we needed to establish the expectations of our stakeholders early within the internship process. This required in particular 1) a clear understanding of the sponsors' needs and requirements of the project; 2) then matching this with the appropriate skill set of the student and also taking into consideration desires of what the students in what they would like to do and learn; but 3) still take into account the academic standards of the school and the relative support required by the academic team to mentor and support the student. The gathering and matching of these needs have typically fallen to the Internship Coordinator who has to ensure that students and sponsors are appropriately matched. However, it can often be difficult to clearly understand, match and identify what students and sponsors are looking for. This issue is especially difficult to determine in the early phases of the programme where the needs of the various stakeholders can often be largely unclear and dynamic. This is further exacerbated when dealing with high numbers of students and sponsors.

## IMPLICATIONS

Coming up with clear ways to meet the expectations of all stakeholders required the adoption of new strategies; in particular, those that focused on better matching students with sponsors. These strategies need to be strongly aligned to best practices which will help ensure that students and sponsors are supported to our best ability. In particular, consideration and application of Martin, Rees, and Edwards (2011, p. 6), best practices specifically on student preparedness and organization (sponsor) set up, highlight the need for the following aspects:

#### Organisation set- up

- Placement requirements and support
- Placement selection and location
- Risk management issues

#### Student preparation

- Pre-requisites and theoretical basis
- Careers interview skills and CV preparation
- Readiness for practice

Though these aspects are addressed throughout the internship process it is the initial part that plays a key role on setting up a strong foundation for a successful internship. Within the School of Computing we have developed a few key strategies to support best practice. This includes developing procedures to collect and disseminate sponsor and student needs, including the use of template project request form completed by sponsors, and the better implementation of student biographies to help students to clarify their needs and market themselves to sponsors and the setup of an Internship and Sponsor matching event.

#### CONCLUSION AND FUTURE INITIATIVES

The impact on a successful internship is strongly reflected on the school. "Providing access to an internship within an academic program also increases the corporate and community visibility of the school's programs. In this way, internships can potentially boost the educational institution's general reputation and help recruit more students." (Maertz et al., 2014, p.130). Therefore, the application and continual focus and improvement of best practices will ensure that we are providing a valuable service for all stakeholders.

One of our future initiatives will be to look how we can streamline the initial matching process. This focus has become a common thread among tertiary institutions everywhere, for example at Georgia Tech, two students faced this problem and decided however in response they developed an online platform called InternBlitz (Maffei, 2017). The online tool allowed High School students to submit multiple applications to universities. The system automated much of the process of enabling students to apply for internships posted by sponsors. This making the matching process quicker and easier. This system has been highly successful with over 600 internships positions listed and at more than 3,500 companies. However, the way this automated system could be used to improve the internship experience and support best practices and improve stakeholder expectations would be a focus as we look to apply something like this within the School of Computing at EIT.

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# The seven wonders of employability

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There is growing recognition among tertiary education organisations (TEOs) of the importance and responsibility of transitioning students into the workplace. Previously, providing students with opportunities to gain real work experience and build 'employability', has been largely driven by policy makers and industry stakeholders (Cai, 2012), however, more recently, there has been added pressure from students themselves as they face a more competitive and changing job market (Jameson, Strudwick, Bond-Taylor, & Jones, 2012). Whether TEO's are trying to meet their students' demands, feel morally obligated to provide these skills, or are simply adhering to government policy, they are increasingly embedding work-integrated learning (WIL) experiences and professional development opportunities into the curriculum to enhance students' 'employability' (Higher Education Academy, 2016).

Different definitions of the concept of 'Employability' abound in the literature. A few authors describe employability as meaning the ability to not only gain employment but also to remain in employment and be successful in a chosen career. A commonality and key component of these definitions is, however, the importance of demonstrating relevant employability skills (Copps & Plimmer, 2013; Spoonley, 2012; Yorke, 2012). Numerous studies focus on lists of employability skills and attributes to be developed by students. These lists of employability skills go beyond knowledge and technical skills to include a range of attributes and personal characteristics such as work ethic and showing initiative (Victoria Careers and Employment, 2015).

Diverse models and approaches have been adopted by TEOs to deliver employability skills throughout their institutions. The ideas are far ranging and include various forms of WIL embedded in the curriculum as well as co-curricular and extracurricular activities such as providing networking and industry events. The value and effectiveness of students acquiring and enhancing employability skills through different forms of work-integrated learning during students' formal studies is well documented in the WIL literature. In particular, internships, work placements and work-based degree programmes that provide students with experiential action-learning, authentic work experiences and an opportunity to reflect on their experiences play an important role in enhancing employability skills and transitioning students from higher education to the workplace (Billet, 2011; Business Industry and Higher Education Collaboration Council, 2007; Coll et al., 2009; Freudenberg, Brimble, & Cameron, 2011; UK Commission for Employment and Skills, 2009; Yorke, 2011).

According to Jackson (2015) whilst WIL is widely viewed as highly effective in equipping new graduates with the required employability skills, the evaluation of WIL programs remains predominantly outcomes-focused. In fact, many of these studies explore the relationship between WIL and the development of various skills within different contexts and lack the use of a common framework of employability skills to measure the progress made in different WIL contexts (COMET, 2013). One such framework of employability skills that can be applied across different education levels was developed by the Pathways Advisory Group, a cohort of New Zealand employer and industry representatives, educators, government agencies, and industry training representatives (Youth Guarantee, 2013). In alignment with this Employability Skills Framework, Careers New Zealand, advocate seven employability skills to enable students to successfully transition into the workplace. The seven employability skills are: "positive attitude, communication, teamwork, self-management, willingness to learn, thinking skills and resilience" (Careers New Zealand, n.d.).

## AIMS

The overall aim of the study is to investigate the development of advocated employability skills during a WIL experience to inform future WIL curriculum development.

The specific research objectives are to:

- (i) to identify advocated employability skills developed by students during a WIL experience;
- (ii) to determine the extent to which students' experiences affect their perceptions of their employability.

## METHODS

The student cohort consisted of all students in the Industry Based Learning (IBL) course, a compulsory 30 credit course in the Bachelor of Business degree, at Unitec Institute of Technology during 2017. The students were required to write a 1500-word reflection on their WIL experience which formed part of an overall assessment of their achievements in a student portfolio. The research ethics were approved by the Unitec Research Ethics Committee and students voluntarily provided their student reflections following an invitation to participate in the study after completion of their course.

The researchers applied a mixed methods approach (Corbin, Strauss, & Strauss, 2014, Lewis, 2013) to the dataset of 30 reflective essays. These essays represented a corpus of approximately 45,000 words. Dedoose software provided a comprehensive and quantitatively derived framework in which qualitative analysis was effective. The dataset was analysed to extract the application of the seven elements of employability to the lived student experience. References to employability skills were identified and coded to one or more codes. The frequency of occurrence of concepts was measured, and each student was classified according to one of two themes: personal learning and engagement about employability, and reflections on their own employability as a result of the experience.

The analysis included both conceptual and relational content analysis which identified the presence and frequency of concepts from the dataset. The researchers considered how the concepts are related to each other, and the impact of the experience on students and this informed the results.

## RESULTS

The analysis of the identified references to employability skills revealed 'communication' as the skill students engaged with most frequently. Students engaged least with 'willingness to learn'. (Figure 1.).

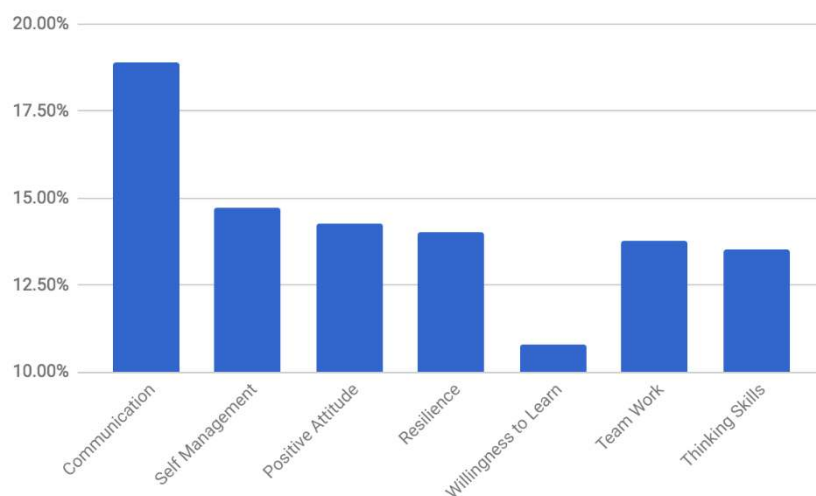


FIGURE 1: Analysis of student reflections by employability skills engagement.

Communication skills were identified by students as key to successful performance in their workplace experience. Careers New Zealand identified a range of activities which relate to communication skills including: showing respect when communicating, thinking about how communication affects others and how to ask questions and listen. The research revealed examples of student reflections on their own communication skills and how they had to develop their skills for the workplace:

I had to send regular follow up emails to keep in touch, and remind them of how the project was changing. I also had to regularly follow up with work and information from various meetings with the team, and discover how XXX wanted certain pieces of work to be completed. (Student A)

Students reflected on the communication skills of their colleagues and peers, observing the adaptive nature of communication in the workplace.

x is one of the newer staff members at company x.... she was very blunt at times, which I occasionally found frustrating. I got used to this quite fast, and found the most effective way to communicate with her. I don't think it's a matter of changing anything in my opinion, I think it's more important to adapt to the current situation and environment, work towards compromises, and encourage positive feedback whenever the opportunity arises. (Student B)

Students reflected on their need to enhance their communication skills to increase their employability.

One thing I have learnt about myself from the feedback at the Collaborative Assessment Meeting was that I will need to further improve on my written communication skill. As English is not my first language, either oral communication or written communication is a barrier for me to overcome. Therefore, my next goal will be improving my written communication. (Student C)

The second highest frequency of skills reflected on by students was Self-Management. These skills include timeliness and preparedness, self-awareness of how own actions affect others, and demonstration of commitment and responsibility.

In the research analysis students reference various aspects of self-management skills.

With the clear schedule of all the work, I understand how much time and effort I need to allocate to each of the task and even in some extreme situations, I can reschedule my work if there is some urgent work that needs to be completed by management. I have learned that prioritisation and planning is quite important to deal with multi tasks and put things under control in a timely manner. (Student D).

Willingness to Learn was the least developed of the seven employability skills. Willingness to learn includes learning new tasks, skills and information, looking for opportunities to improve or help the business, accepting advice and learning from feedback.

"I was least proud of the fact that I feel like I could have learnt more... (Student F).

The lack of awareness of the need to bring to work a disposition of 'willingness to learn' is particularly curious when students are in a credit bearing course while at work.

The skills of positive attitude, resilience, thinking skills and teamwork were reasonably well developed and engaged with by students during their internship. Students considered that the WIL experience had developed their skills and that resulted in greater employability.

I have gained some great skills in this organisation and I feel like my employability has increased in the social media and digital marketing world. (Student G)

The practical experience took me from a perceived idea that HR may be an area that I can make a difference in, to solidifying for me the fact that HR is where I definitely want to work.

I am most proud of how much I have grown during this placement. I came in with no experience in the industry and have flourished. My confidence and skills such as conducting meetings, professionalism, and computer based skills have all improved.” (Student H)

Each student’s reflective writing was analysed by the number of references to employability skills. The number of references was classified as High, Medium or Low Engagement (See Figure 2.).

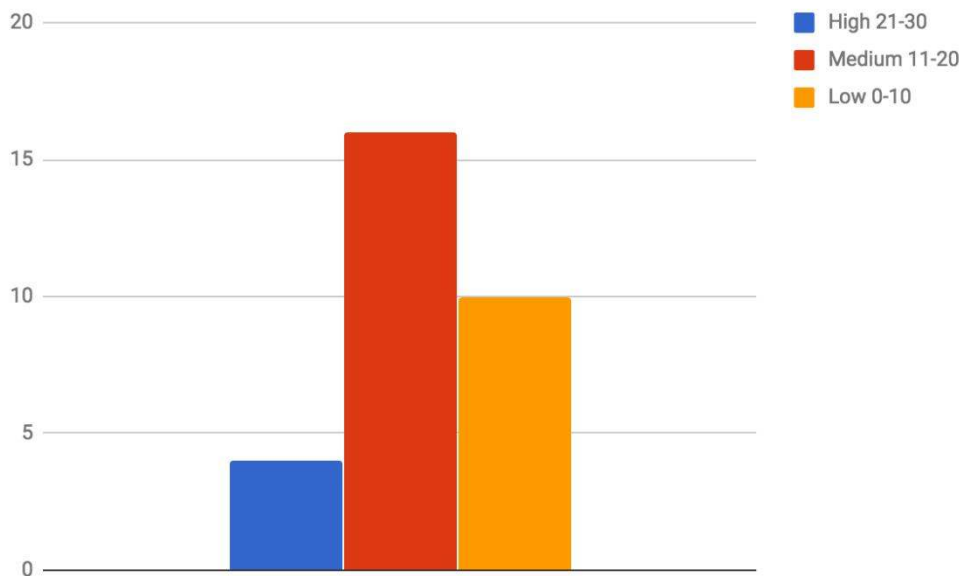


FIGURE 2: Frequency of student references to employability skills

The number of references to employability skills in student reflections was reviewed and classified as high (>20), medium (20 - 11), and low (<11) references. The results indicate that most students reflected that they were engaged in developing their employability skills. Ten students displayed lower levels of engagement.

### CONCLUSIONS AND IMPLICATIONS

The purpose of this study was to investigate the development of advocated employability skills during a WIL experience to inform future WIL curriculum development. The results of this study reveal a high level of engagement with the advocated skills of ‘communication’ and ‘self-management’, a medium level of engagement with ‘positive attitude’, ‘resilience’, ‘thinking skills’ and ‘teamwork’ and a low level of engagement with ‘willingness to learn’. In particular, the study has determined employability skills are developed by students in a WIL experience at variable levels and overall students believe the WIL experience has improved their employment prospects.

According to Youth Guarantee (2013), students who are highly engaged with their employability, and aware of the skills they need to foster and grow are likely to have better employment prospects. The variability of engagement with the employability skills, and the levels of student engagement poses questions and challenges for both the WIL curriculum of study, and the Bachelor of Business. How can students better develop their employability skills during their study programme and in preparation for WIL experiences? Can a higher level of reflective writing increase engagement with employability skills for all students? The authors suggest further work needs to be done to advance students’ understanding of the concepts and principles of ‘willingness to learn’ and the advocated employability skills in general.

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# The professional development needs of the New Zealand work-integrated learning community in comparison to international perceptions

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## INTRODUCTION

Internationally, work-integrated learning (WIL) has received increasing attention as tertiary institutions attempt to align their curriculum offerings closely to employability outcomes. This trend is also becoming increasingly evident in New Zealand with the tertiary sector redesigning curricular offerings to have a greater employability focus with work-integrated learning elements. The University of Waikato prescribed that all students commencing in 2018 will be required to complete at least one WIL course within their undergraduate studies. For most students, this is likely to occur in their third year of study, therefore, the full effect of this decision will not impact until 2020. Other institutions in New Zealand are also expanding their WIL offerings, with Auckland University of Technology (AUT) recently placing significant emphasis on WIL in its strategic plan, with over 90% of graduates from bachelor programs already having completed WIL papers. University of Waikato and AUT are typical of tertiary institutions in New Zealand where WIL can now be found in a wide range of forms in almost all disciplines, often mandated as a goal. Such ambitious goals are not unique to New Zealand. In Australia, Macquarie University made it compulsory for all students (~8,000 a year) to undertake a WIL course as part of the undergraduate degree, supported through a centralised PACE unit (Clark, 2017), and in 2012 the University of Cincinnati, USA, also prescribed that all students must complete at least one WIL course in their undergraduate degrees (Cedercreutz et al., 2017), which now equates to more than 30,000 student WIL activities per year.

Such significant expansion creates the resource need for more staff that have the relevant skill set to facilitate the process of WIL. WIL does not resemble a typical taught, tertiary-based course offering, as it requires close liaison with relevant industry or community partners. The design of assessment framework to capture the learning occurring in diverse settings is complex. However, in New Zealand, opportunities for access to professional development opportunities in WIL remains very limited. Few institutions offer WIL professional development to their staff, and often this is limited to ad hoc opportunities such as a visiting scholar providing a guest lecture. Many national associations offer professional development opportunities, which for the New Zealand community has primarily been the NZACE annual national conference and access to the ACEN webinars through the collaborative NZACE-ACEN relationship. Additional professional development accessible to the New Zealand WIL community is available through the online global WIL modules run in collaboration with four national associations (ACEN, CEWIL, NZACE, and VILA). There are two online global modules; one focused on the theories underpinning WIL (run four times), and another focused on engaging with employers (run twice) (Zegwaard et al.,

2016). The expressions of interest in these modules exceeded the number of available places , which prompted the survey reported in this paper.

As far as the authors of this paper are aware, there has never been international survey undertaken to determine the professional development needs of the WIL community. Reported here are the findings of such an international survey, with the data related to New Zealand along with the world data for comparison.

## METHODS

Using Survey Monkey, an anonymous online survey of 24 questions was constructed. All known national associations for WIL were asked to distribute the survey, which ACEN, CAFCE (now CEWIL Canada), NZACE, SASCE, ASET, JACE , TACE, WILA, and WACE did. The actual number of people contacted internationally is unknown as the associations' contact lists were not shared with the researchers and some individuals appear on more than one list (e.g., many WACE members will also be members of a national association).

Data analysis was completed using Microsoft Excel and open-ended questions were thematically analysed. Separate analysis was also undertaken for each country, with the relevant data present (or supplied) at their national association gathering. The New Zealand WIL community data is the focus of this paper.

## FINDINGS AND DISCUSSION

### *Demographical data.*

The total completed responses for the international survey was 688. In New Zealand, the survey link was sent to just over 200 people, of which approximately 100 opened the link, and 36 completed the survey (17% NZ return rate; 5.2% of the total international data). Albeit the New Zealand demographic has some differences, it mostly mirrors the international community (Table 1).

TABLE 1: New Zealand and international WIL community demographic data of the total responses

Attribute	Component	New Zealand (n=36)	World (n=688)
Gender	Male	31%	25%
	Female	69%	74%
	Other	0%	0.3%
Age	20-29	0%	5%
	30-39	6%	24%
	40-49	36%	28%
	50-59	31%	31%
	60-69	28%	11%
	>70	0%	1%
Employment type * (participants could select more than one)	Placement coordinator	25%	28%
	Lecturer	50%	24%
	Director/manager	17%	22%
	Administrator	8%	12%
	Faculty	6%	10%
	Career counsellor	6%	9%
	Researcher	19%	9%
	Senior manager	11%	8%
	Educational consultant	0%	6%
	Tutor	6%	3%
Other	17%	19%	



New Zealand participants indicated that 63% had taken the opportunity to undertake WIL professional development, similar to the international community (Table 2).

TABLE 2: Access to a WIL relevant peer support group and professional development opportunities

Statement	Component	New Zealand	World
Do you have a mentor or a peer-support group knowledgeable in WIL?	• Yes, mentor/peer-group very knowledgeable about WIL	57%	59%
	• Yes, but with only limited knowledge	19%	14%
	• Yes, but we seldom discuss WIL	3%	6%
	• No	22%	21%
Have you had professional development specific to WIL before?	Yes	63%	60%
Does your workplace offer professional development opportunities in WIL?	Yes	50%	51%

Most New Zealand participants indicated that their institutions were moderately supportive of their undertaking professional development. There was considerably less interest from the New Zealand WIL community in undertaking a credit-bearing certificate in WIL compared with the international community (Table 3).

TABLE 3: Level of perceived need, support, and type of professional development

Statement	Mean Likert (1 = strongly disagree, 10 = strongly agree)	
	New Zealand	World
How supportive do you feel your workplace would be of you undertaking professional development in WIL?	7.94	8.21
To what extend do you feel you need professional development in WIL	6.25	6.81
To what extend do you feel you have easy access to WIL professional development opportunities?	5.19	6.23
Would you like to take a non-credit bearing certificate in WIL?	5.25	6.35
Would you like to take a credit bearing certificate in WIL?	5.61	7.26

#### *Professional development needs*

Participants were asked to indicate all topics of interest for their own professional development (indicates highest general interest) and then their top three professional development topics of interest (indicates highest need) (Table 4). New Zealand participants offered no other topics as suggestions for professional development, but did comment that they desired ongoing support for professional development and ideally to a mixed group (e.g., researchers, educators, and practitioners together).

TABLE 4: Level of interest internationally and for New Zealand (NZ) for each topic where participants were asked to indicate as many topic they were interested in (general interest) and then to indicate their top three topics (most needed). List is in order of most popular in general interest by the New Zealand WIL community

Professional Development Topic	General level of interest*		Three most important level of interest**	
	NZ	World	NZ	World
Curricular design and mapping WIL activities to learning outcomes	58%	53%	29%	23%
Designing learning outcomes for WIL and enhancing student learning	55%	53%	21%	24%
Evaluating the quality and impact of WIL	55%	60%	32%	25%

Leadership in WIL	47%	45%	11%	15%
Enabling effective student reflection	42%	47%	16%	17%
Engaging with industry/workplaces	42%	50%	21%	19%
Administrational design for WIL programmes (tracking information)	39%	33%	13%	8%
Assessment design	39%	48%	8%	16%
Governance of WIL	39%	32%	13%	9%
Learning contracts and workplace agreements design	39%	35%	11%	6%
Educational theories underpinning WIL	37%	38%	11%	12%
Engaging effectively with faculty/academic staff	34%	39%	11%	9%
How to best match students to workplaces	34%	35%	13%	9%
Communicating and marketing WIL to students and employers	32%	41%	11%	15%
Managing WIL staff	32%	29%	3%	6%
Research design	32%	30%	8%	8%
Engaging effectively with students	29%	41%	3%	11%
Internationalisation of WIL	29%	39%	8%	13%
Knowledge on different forms of WIL	29%	39%	3%	10%
Research data analysis	29%	26%	11%	7%
Setting up a WIL course	29%	31%	5%	10%
Providing feedback on assessments	26%	30%	3%	4%
Publishing research	26%	30%	11%	9%
Health & Safety, risks, and legal requirements when engaging with WIL	24%	35%	3%	10%
Other	3%	6%	3%	2%

\*Participants were able to select as many topics they wanted.

\*\*Participants could only select the three professional development needs they perceived as most important.

## DISCUSSION AND CONCLUSION

The topics deemed of most interest and importance were similar to the international community and clustered around themes related to enabling student learning. The difference in the New Zealand data between 'topics of interest' and 'topics of importance' was more marked than that of the international community. For example, Leadership in WIL was ranked 4<sup>th</sup> in general interest but 9<sup>th</sup> in importance, which suggest the New Zealand WIL community has a strong interest in learning more about developing leadership skills but do not see it as important as some other topics. Compared with the international community, New Zealand also seems to have less interest in learning about different models of WIL and internationalisation. Of particular note is the low ranking of interest and importance in professional development in health and safety when engaging with WIL. This ranked the lowest of all the topics. This is particularly concerning considering that recent law change in New Zealand which now clearly shifts a legal responsibility on to tertiary institutions to take all reasonable steps to ensure that the workplace is safe when students engage in WIL. The overall appetite amongst the New Zealand WIL community for professional development is similar (albeit slightly lower overall) to that of the international community, however, there is a notably lower desire to undertake this professional development through a certificate. Some of these differences could perhaps be explained by the self-identification of half the New Zealand WIL community as lecturers (higher than the international community), who may have less desire to obtain further qualifications about some of the operational aspects of WIL (e.g., health and safety).

It is the researchers' intention that a survey of interest of the New Zealand WIL community in professional development will inform decision making by our national association and/or tertiary institutions.

## ACKNOWLEDGEMENTS

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# Internships: Paid/unpaid legal or not

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Internships have been run for two years both for Domestic and International Students within our own campus and also for the Wellington ICT Graduate School (WICTGS). The interns which are based on our own campuses find their own positions and all are paid internships. Those which run under the WICTGS system are sometimes unpaid and are found by the industry coordinator employed by WICTGS. This paper will look at these differing criteria and, using available literature together with our experiences clarify the issues and arguments for each system.

In the IT industry, especially in the development side, Intellectual Property (IP) and Security are an issue. Within our capstone projects we have an agreement around these which all parties sign unless the Industry partner has their own agreement, in which case we have a legal expert read it first before we sign. We have expanded this process to include our internships, as part of the students' proposal to undertake the internship for academic credits any issues must be identified. A member of our staff also meets with the industry representative to ensure they are aware of our requirements for the paper, and discuss any security or IP issues.

## ISSUES

One of the main issues with unpaid internships is their legality "there is a disconnect between the law and business practices" (Bacon, 2011, p. 67). This is a USA view but New Zealand is just as confused with an article in the Human Resources Director "Are your unpaid internships legal?" (Middlemiss, 2017). The type and usefulness of the work which a student performs has a strong impact on whether they are considered an employee or not. If they are considered an employee they are covered by the employee relationship laws and so must be paid.

According to the New Zealand Ministry of Business, Innovation and Employment (MBIE) an organisation that takes on an unpaid internship (referred to as a volunteer), must fulfil the following requirements among others: "avoid getting an economic benefit from the work done by the volunteer, and avoid having the volunteer do work which is integral to the business, such as work that a full-time employee would ordinarily do" (Employment New Zealand, n.d). A requirement of our internships is that the student undertakes a valid IT position which means that it is highly unlikely any position which does not abide by the above requirements would gain approval. The whole aim of internships are to give the student experience working in a role for which they have been trained. There have been trials where the judge has ruled in favour of the employee when these requirements have been breached saying such things amount to abuse of vulnerable workers (Robins, 2011).

The issues around who is responsible for finding positions for interns are such criteria as the number of interns requiring positions, their suitability for the positions available, and the maintenance of the relationships between the industry and the person finding the positions. The better quality student tends to have little or no problem finding a position whereas the less able are far less attractive to employers.

Intellectual Property (IP) is another factor especially within a development environment. According to the literature even if an IP document has been signed by all parties it may not stand up in court if the person who designed or built the artefact was not paid (Drobka & Wallin, 2013).

## DISCUSSION AND ARGUMENT

The internship paper is compulsory for students in the WICTGS whereas it is an optional paper for those students studying on our campus. This means that WICTGS have employed an industry liaison person solely responsible for finding internships. These resulting internships often involve multiple students on one site and may be unpaid.

To date none of our students who are studying under the WICTGS umbrella have accepted any of these, preferring instead to find their own placement and thus get paid. However one of our students found their own internship position which was unpaid.

The local New Zealand news site, Stuff NZ, ran a series of articles on this subject in 2017. These highlighted among other things a number of social issues citing example case studies. One such issue highlighted is that students tend to work during their holidays to provide money to supplement their living allowance for the rest of the year. If they are required to work without pay during this time then they sometimes do not have money for essentials, thus causing stress and less ability to focus on coursework (Reidy, 2017).

Within the IT industry, paying interns at the level which is required by law, for example the minimum wage, is far below the expected income of an experienced, or even beginner employee within the industry. This means that all parties benefit. The student will treat the position responsibly as a job and be more motivated to work than if they were not being paid. The employer will be getting labour at a far reduced cost than even a new inexperienced employee, without the commitment to ongoing employment. From personal experience international students tend to be the most vulnerable, as they are trying to obtain employment within the year following completion of their qualification in order to qualify for residency. Some employers are aware of this and exploit those students in particular.

Internships tend to be different to work placements used by teachers or nurses, for example. These tend to be on the job training where the students are supervised by an employee from the firm and so do not abide by the criteria of an employee as set out by the Ministry of Business, Innovation and Employment (Employment New Zealand, n.d). In this case they do not replace an employee, and in actual fact are often a cost rather than an asset to the company.

#### IMPLICATIONS AND RELEVANCE TO OTHERS IN WIL

The legal aspect of internships is something of which both educators and employers need to be aware to safeguard all the stakeholders. If some clarity around this could be confirmed it would benefit practitioners working in this area.

This field is very much under explored, only recently coming into mainstream debate. Students want a job when they finish their studies and often think that will be achieved if they work without pay beforehand. Sometimes this works but not always, and in an economic environment as competitive as the current one, employers tend to try and minimise their costs by taking on these students without pay.

Interest in area of employment law is increasing, with a number of firms and web sites specialising in this area, making it easier for students to find out the necessary information on their rights. Most of the information currently is from overseas but the Ministry of Business, Innovation and Employment has started to produce guidelines and information in this area.

The availability of information in this field as with every other field within the public domain tends to be variable in its accuracy, however the government sites are a good reliable source, as they are based on current laws.

#### CONCLUSION

Internships are becoming more popular as a means of enabling students to experience the “real world” of their chosen career. They sometimes also help the student to decide which part of the discipline, they have studied, they wish to progress in. Work Integrated Learning is no longer solely the domain of polytechnics where the traditional “hands on” careers were taught but have become the norm for all fields and all educational institutions. This means that the legal side of this topic affects far more people. Students are often younger, and have been brought up in the “information age” making them more knowledgeable and confident when looking for information including their rights.

The legality of the documents which the students sign on commencement are important and need to be thoroughly checked. However they can still be challenged in court if they could contravene the employment or other laws of

the country. There are a number of international companies In New Zealand for which laws internationally could differ.

With a qualification that includes a compulsory internship it is important that this is managed within the law to protect all the stakeholders.

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# Internship in undergraduate and postgraduate programmes teaching Information Technology at a polytechnic

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Internships are part of many programmes taught in universities and polytechnics. The academic credits for undertaking these projects may vary in different programmes. The intention is to introduce students to the practical application of theoretical knowledge from classrooms to related work in the industry. Internships help give the students a head start in their career.

Internships designed for Information Technology programmes at postgraduate and undergraduate level of study need to complement the students' qualification. The New Zealand Qualifications Authority has guidelines for programmes of study and assessments at different levels. Hence these internships should comply with defined learning outcomes.

## ISSUE

How does the internship course at different levels of study satisfy the requirements of the programme?

## DISCUSSION

The internship paper at Whitireia for undergraduate programmes such as the Bachelor's degree and Graduate Diploma is worth 30 credits. The learning outcomes underpinned the need to apply knowledge and skills related to IT work practices. Internships give students the ability to identify problems in the organisation where they are placed and recommend strategies to solve them.

The internship paper designed for Post Graduate and Master's students studying at Whitireia and WelTec and offered at the ICT Grad school in Wellington is also 30 credits; however the emphasis is to critically assess work practices in a field related to IT. The students were expected to apply theories and research relevant to the topic to solve a specific problem in the organisation where they work as interns.

## DIFFERENT LEVELS OF STUDY

Undergraduate students are expected to apply knowledge and skills learnt in class such as programming and project management. They experience first-hand what has been discussed in text books and practically undertaken in class rooms and laboratory sessions. The knowledge and skills for entry level roles in IT as discussed by Aasheim, Li & Williams (2009) were prominently relevant. Most of the projects at undergraduate level were using web systems and technologies similar to the findings by Jones et al. (2017). These technologies are covered in the ACM/IEEE 2008 IT curriculum. Emerging technologies such as cybersecurity, Internet of Things (IoT), data science, mobile computing, cloud computing as discussed in the ACM Education Board IT2017 Task Group are covered to a limited extent in the undergraduate programmes and extensively covered in the postgraduate programmes.

Postgraduate students are expected to research the topic in literature and apply some of these solutions in the workplace. Some of the IT solutions published in research are at prototype level and may have issues being implemented in industry. Issues of security, scalability and usability of such projects need to be evaluated. Internships related to software development, website design, mobile apps design were mostly common for undergraduate students. The internship programme greatly helped the students enhance their skills by applying technical knowledge from papers such as programming, database, system analysis and design, software testing and human computer interaction. Other types of projects were related to system administration and helpdesk

technicians. Thus most technical papers from the undergraduate programmes supported students to undertake the internship.

### EMERGING TECHNOLOGIES

Many start-up companies are looking for solutions and ideas for contemporary technologies such as cloud/mobile/IoT. There is voluminous literature around these topics. Some internship projects involved using open source software and its application to a specific problem in the organisation such as automated software testing tools. Both undergraduate and postgraduate students undertook software testing projects. However postgraduate students were required to critically review the literature and apply innovative solutions. In one example, an undergraduate internship student worked for a start-up company in a shared workplace. Although the work environment was not of an office setup, they were able to interact with others in the team and were exposed to different technologies.

In another example, a postgraduate student obtained internship placement in a Business Intelligence reporting company. The Data Mining and Business Intelligence course at postgraduate level helped the student undertake and complete the internship successfully. The student got an opportunity to attend Microsoft training to use Power BI. Programme advisory members from industry agree that some jobs in the industry need a higher level of knowledge and that a Bachelors programme may not be sufficient. The Government initiative of ICT Graduate School to teach postgraduate programmes in three different regions in New Zealand is a reflection of this. Internship projects are a compulsory course in these programmes. This initiative also supports those with adequate industry experience rather than a formal qualification.

Many SME organisations were interested in automated software testing solutions. Postgraduate students were able to recommend the right tool for the organisation and use it in their in-house software development projects. A review of tools was undertaken as part of the internship and recommendations and lessons learnt were identified at the end of the internship project.

### RESEARCH COMPONENT

Students undertaking software development internships at postgraduate level had an innovative solution for a domain or organisation. These internship projects were an example of a proof of concept. Such projects were developed in undergraduate programmes (Lloyd & Chard, 2014) but were focused more on the technologies and the product. Postgraduate students had to evaluate critically the literature and similar projects were undertaken. Health domain and use of telemedicine technologies have huge potential for developing research projects. The research projects also applied user-centred design principles (Norman, 1988) involving project client and stakeholders from the community. The utility of the applications was greatly enhanced as usefulness and usability aspects were given utmost importance. Postgraduate papers related to multimedia applications for mobile devices, software testing and human computer interaction greatly helped the students to apply their theoretical knowledge in the internship. The Project Management paper brought useful soft skills such as time management to the internship. The programmes had the flexibility to teach a special topic paper and research projects for new and emerging technologies were trialled in this paper. Thus research related to these areas were studied and some of the research processes were applied. Students achieved similar and interesting new findings depending on the domain and type of participants.

### IMPLICATIONS AND RELEVANCE TO OTHERS IN WIL

University students may involve in higher level of research. However polytechnics are expected to work closely with industry and local communities to prepare their students for jobs in the industry. Polytechnics in New Zealand have a similar approach to those in Finland (Virolainen, 2007).

#### *Technical skills*

The papers of the programme were helpful to students in their internship. The skills required in each internship project were different. The tools and technologies were different to what was taught in class. However students

had the background technical knowledge to apply their skills to new technologies at the workplace. They should have the skills to research new tools and technologies and the ability to analyse and recommend the best of these for use in a project. This is a valuable skill for a sustainable career in ICT related jobs.

#### *Transferable skills*

Apart from technical skills, employers value soft skills and transferable skills (Seek, n.d). Good communication and working in a team is an important skill that student need to have. Students may be well aware of the transferable skills they need to develop. The internship will provide the right setting before they can graduate and get employed. Time management was also a crucial skill for many, as students struggled with the time required to complete tasks in the workplace. The students also had to complete academic requirements such as a log book and a final reflective report and presentation. The log book entries kept them focussed on the project to meet the requirements and deadlines. The academic supervisor was able to check the work in progress.

#### *Types of organisation*

Students were exposed to a range of internships. Some were placed in reputed large organisations while others worked for small and medium-sized enterprises (SMEs) and start-ups. The exposure to learning new technologies helped these students secure related jobs upon graduation. The larger organisations were able to absorb the students into employment as they were constantly recruiting talent. Students working for smaller organisations were able to contribute well by building applications and infrastructure. These organisations had limited resources and depended on contract work by experts. Many of the international postgraduate students were mature students with 8-10 years of overseas work experience in the IT industry in their home country and overseas. Their skills were helpful for small organisations whose expectations were to get ready employable students.

#### *Arranging internships*

Sourcing internship projects has not been easy. The internship paper was not compulsory in undergraduate and postgraduate programmes. A similar trend is observed in a study in the United Kingdom (Chillas, Marks, & Galloway, 2015). The study participants (from different universities) confirmed they could not guarantee placements to all students. Some students were capable of undertaking a hard 'techie' project while others got into management and consultancy. Some IT students got placements in non-IT organisations as most of these required IT professionals to work on their website and network infrastructure.

Students from Whitireia/WelTec Wellington campuses were studying on a semester system and most industry partners had internship programmes that accommodated the semester course time. Students at the Auckland campus were predominantly international students and were on different course durations. They missed out on the July internship and could only take the summer internship from December to second week of February. Staff through their networking connections were able to provide the opportunity for students to take the internships. In some cases students were proactive and made local industry connections through meetup groups. Additional staffing was also a constraint as student numbers had decreased and the overall staff numbers were under pressure by management.

There is an acute shortage of ICT and digital skills in New Zealand. The programme filled the gaps to provide employment in long term skill shortage area listed by Immigration New Zealand (Immigration New Zealand, n.d.). Most of the students studying at postgraduate level were international students. The wide experience from different organisations, cultures and countries will enhance the diverse pool of talent for organisations and individuals.

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# Training Restaurants: Developing an activity model to align capability and learning outcomes to meet expectations of the graduate profile

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What makes for a dynamic, interesting and enabling learning environment for students to gain skills and knowledge in a vocational degree? More importantly how will they cope with industry demands once they graduate and will they be an asset to their employers? These are important questions we must consider if we want competent staff in the hospitality sector. Hospitality institutions are known to have focused on providing students with some internship or work integrated learning opportunities that expose them to real world examples of business. A combination of three to six month blocks of work experience in the hospitality industry is often expected. Some institutions have turned their own facilities into a work space allowing students to work within the institution to provide services to other students. In these initiatives, institutions may encounter challenges in endeavouring to achieve quality curricula which incorporates Work-Integrated Learning (WIL) (Zopiatis & Constanti, 2012).

## UNIQUE FEATURES

There is a growing trend of linking the learning outcomes with competencies and graduate profiles. Whilst there is literature related to designing curriculum frameworks, there is no evidence of the use of management theories, such as the Competing Values Framework (CVF) (Quinn et al., 2011), as a tool to structure learning activities for a training restaurant.

This study provides an example of how a framework could be used as a base for a WIL practice. The model competencies were used to assess students work and provide structure and clarity for students, tutors and other stakeholders. Key competencies were mapped to the learning outcomes and graduate profiles. Students prepared for WIL, having learnt model concepts and applied the learning to a plan prior to the WIL. Students then used the training restaurant to put the theory into practice and could assess their own knowledge and skills with tasks they had to perform.

The aim of this study is to gain a better understanding of how the use of the CVF helped in structuring student activities to create a model for an authentic working environment and to assess to what extent students learn to apply their knowledge and how it may improve their skills and expertise in dealing with challenges in the future.

## LITERATURE

There are problems and dilemma that institutions encounter with WIL practices. A common complaint is that the WIL does not meet the student expectations. Students may not engage well with the supervisor, may not have autonomy or input in the work they do and the lack of team spirit and involvement are common issues students have with WIL (Zopiatis & Consanti, 2012).

There should be a link between the hospitality curriculum and the WIL the student undertakes. There is much criticism amongst academic scholars relating to the ambiguous relationship between theory and practice since it is very unlikely all hospitality work environments can provide experiences that cover all theoretical perspectives. This disconnect may lead to some WIL experiences being inadequate. It is essential that these gaps are addressed to enable graduate competence (Alexander, Lynch & Murray, 2009; Chang & Hsu, 2010; McHardy & Allan, 2000; Johns & Henwood, 2009).

## COMPETING VALUES FRAMEWORK

Linking the conceptual values framework and the learning outcomes of the course attempts to close the gaps and address the problems stated above. In a world that is constantly changing and work environments becoming more demanding, graduates will need to not only understand theoretical models but also be able to use them as tools to improve business practices. The competing values framework is built around the assumption that stability and change must be addressed together (Quinn et al, 2011). The model allows for organisations to be adaptable and flexible, yet stable and controlled. The basic model uses four quadrants, Collaborate, Control, Compete and Create. Within each quadrant, key competencies were identified. These competencies formed the structure for the different roles students would play in the restaurant (Refer to figure 1).

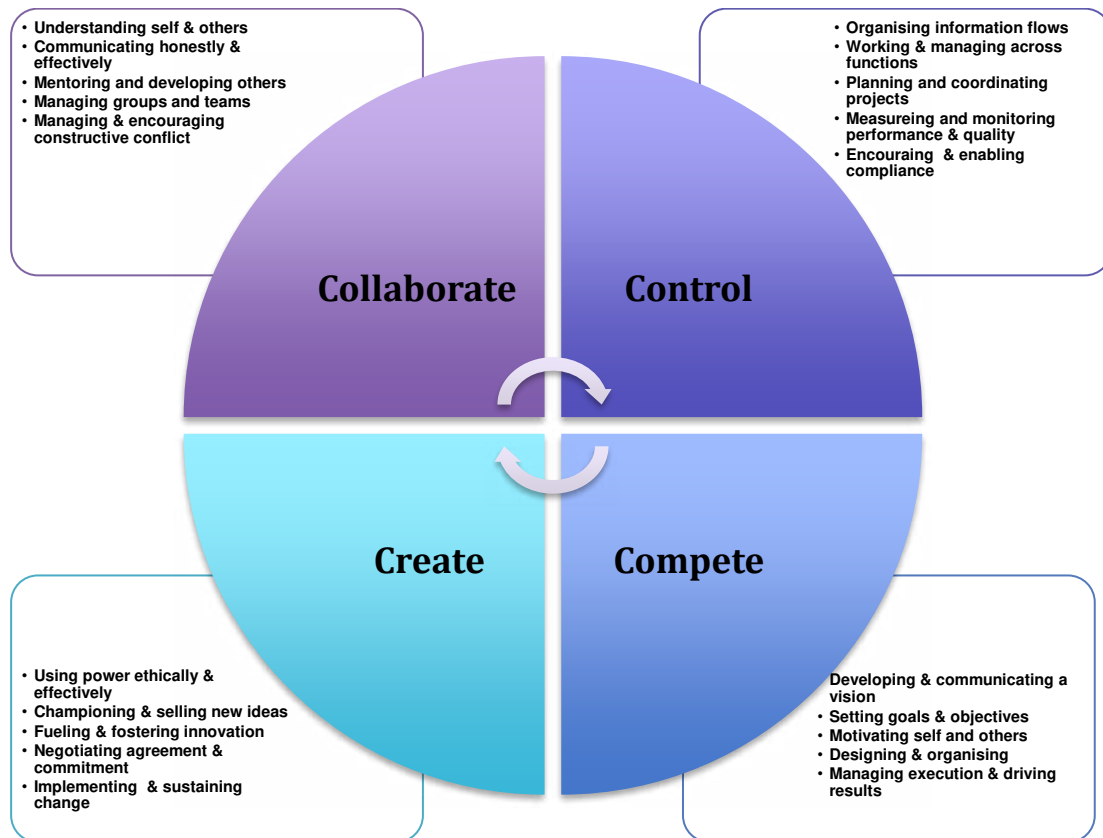


FIGURE 1: Key competencies associated with the four quadrants of the competing values framework

TABLE 1: Linking learning outcomes for the hospitality management course with the framework

Learning Outcomes	Competencies	CVF Quadrant
Define and evaluate organisational structure and design in hospitality management	Designing and organising Developing and communicating a Vision. Planning and coordinating projects Organising information flows Working and managing across functions Measuring and monitoring performance and quality	<b>Compete, Control</b>

Identify and analyse a variety of management roles and their competencies suitable for hospitality managers	Understanding self and others, Communicating honestly and effectively	<b>Create, Compete, Collaborate</b>
	Managing groups and teams	
	Setting goals and objectives Fueling and fostering innovations	
Critically discuss the interaction of management competencies in organisations and associated effective operations	Encouraging and enabling compliance	<b>Compete, Collaborate, Control</b>
	Motivating self and other	
	Mentoring and developing others	
	Managing and encouraging constructive conflict.	
Analyse individual leadership and management approaches and styles, and the strengths and weaknesses of these when applied to different hospitality contexts	Understanding self and others	<b>Collaborate, Create, Compete</b>
	Managing execution and driving for results	
	Using power ethically and effectively	
	Championing and selling ideas	
	Negotiating agreement and commitment	
	Implementing and sustaining change	

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#### THE APPLICATION OF THE FRAMEWORK

Students created rosters and plans for the services before the events. They identified the optimal level of staff required for each service and restaurant roles were assigned for different shifts enabling them to experience a different management role. The four key roles were maitre d', bar manager, pass manager and cashier. All four roles required the application of CVF competencies. Students could 'create', 'collaborate', 'compete', and 'control' in the roles which required different levels of engagement. All activities required planning, organizing and controlling of processes and people. Students had to instruct first-year peers on restaurant needs.

Students received feedback from their assessor and they in turn were required to reflect on their experiences related to the key competencies of the CVF and provide a reflective report. This report allowed them to review the work they had performed, look at feedback they received from their peers, the assessor and the customers and critique their own practice and relate it back to the theoretical principles.

#### METHOD

Students were observed and debriefings were documented. Student reflective reports were also analysed and common themes were extrapolated. Students were also asked for feedback through a survey, however this was sent out during the holidays so only three of eight students responded to the survey. Finally, customer feedback forms were captured and analysed for a different perspective of student performance. All students granted permission for the use of their work and feedback. All data has been used anonymously and students' identities were not revealed in this study, to maintain confidentiality and comply with the ethical practice of research. Students were approached well after the events of assessment in the semester following the events so students would not feel compelled or intimidated in taking part in the study.

#### RESULTS

The reflective reports highlight the level of engagement and learning that took place during this work experience. Students showed great commitment and dedication to the roles they played and had a far greater invested interest in meeting the learning outcomes and accomplishing a great service. Students also experienced many challenges related to the roles they had to play and whether other students respected those positions.

... ensuring that the glasses were counted and polished for the day. I tried to use incentive and encouragement, along with rewards. Such as telling the staff that if they got all the work done they could have a longer break

Whilst only three students responded to the survey, the analysis reveals some interesting points. The data was summarised into the four key quadrants of the CVF (refer to figure 2 below). Students seemed to do well in the 'collaborate' and 'compete' areas however they struggled in the 'control' and 'create' areas. Reasons for this are clearer when considering the details in the survey and report feedback.

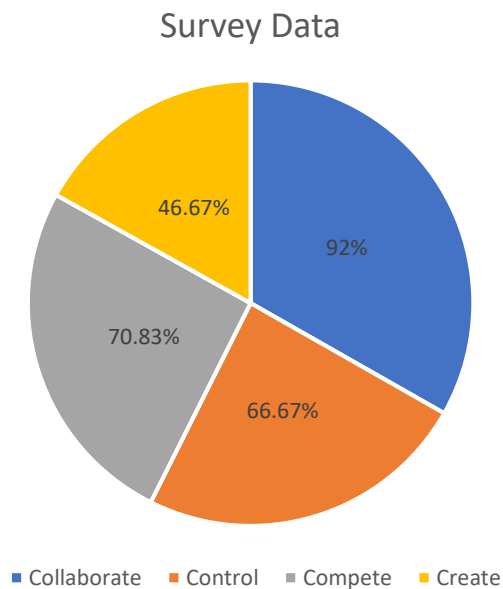


FIGURE 2 - Survey data

A few students mentioned at the end of the events that early feedback on their performance would help them improve in the next shift. The following are what students expressed as challenges impacting on the management of the restaurant.

A clearer understanding of what each level is trying to achieve would help to clear up misunderstanding of "power plays". It is hard for some to see the big picture all at once, however more reflection would allow for this to be a better experience.

Cultural differences and communication also seemed to affect the management team.

Some cultural differences were an issue, however this is most likely a good learning experience as not all people are the same and you need to adapt your approach when working in a team.

Again managing people is difficult when they have their own ideas and are not listening. Having a plan on paper makes it easier to refer to, it gives a sense of formality.

Overall customers were hugely impressed with the service performance of the students. The feedback data (refer to figure 3 below) shows a large majority of customers had an excellent overall experience.



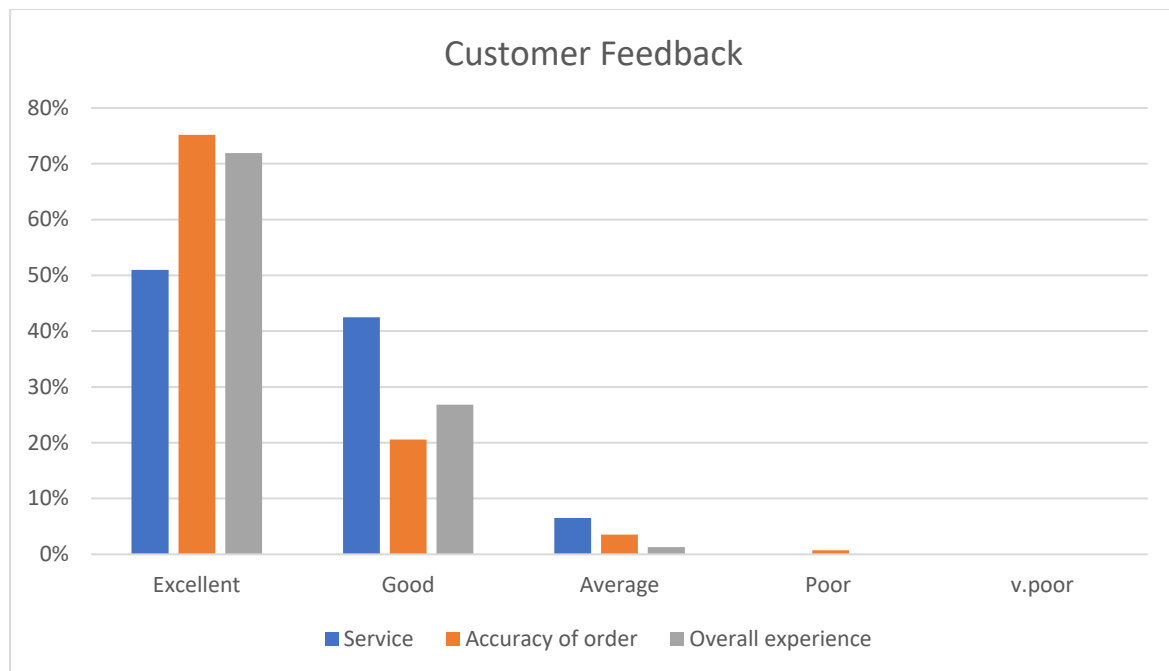


FIGURE 3. Customer feedback

## CONCLUSION

Overall this initiative was successful in that it gave students some direction and allowed them to experience first-hand the issues a manager may experience and to actively think about the decisions they needed to make to apply the CVF and make the learning outcomes real.

## RECOMMENDATIONS

All students need to be briefed on the expectations of the roles that will be playing including the wait staff who would be taking instructions from the second-year students. A clear hierarchy to be drawn up so that all students can see where roles would sit in the organisational structure of the restaurant. Although this is a flat structure, students need to know who their direct reports are. Feedback during the events in the form of debriefings need to be formalised and it is recommended it take place immediately after the event.

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# A classification framework to make sense of industry placements

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An organised approach to Cooperative Education programmes is needed to support student learning and to facilitate positive placement experiences. The necessity for students to secure their own industry placement is a key component of Cooperative Education on the Bachelor of International Hospitality Management (BIHM) and the Bachelor of International Tourism Management (BITM) at Auckland University of Technology (AUT), New Zealand. However, the relationship between study pathways and placement organisations is often hard to define due largely to the heterogeneity of hospitality and tourism organisations.

The use of existing business classifications provided a framework to classify 419 student placements occurring over a three-year period in 263 organisations. Specifically, we used the Australia New Zealand Standard Industrial Codes (ANZSIC), the Business Industry Codes (BIC) and the Tourism Satellite Account (TSA) to classify placement organisations. In addition, we developed a new level of classification, the Cooperative Education Placement Code (CEPC), the application of which resulted in a more accurate categorisation of 44% of placement organisations.

This paper offers a refinement of existing hierarchical organisation frameworks that provides more detailed information about the activities of placement organisations. The new framework will thus enable students to better prepare and search for placements and help them to make a more appropriate placement choice.

## LITERATURE REVIEW

Cooperative Education experiences are an important aspect of hospitality and tourism education. A student's placement experience is important in this regard because it can influence their perception of the industry and, in turn, their decision to seek employment within hospitality and tourism organisations. However, hospitality and tourism students have often been found to have a negative image of the industry, which can affect their dedication and enthusiasm for securing a job within that industry upon graduation (Bontenbal & Aziz, 2013; Schott & Sutherland, 2009).

In addition, students benefit from the Cooperative Education placement experience by gaining a clearer career identity (Giles, 2010), greater employability (Fleming, Martin, Hughes, & Zinn, 2009) and developing a more positive work ethic (Howard, 2009).

Cooperative Education research has focused on the importance of stakeholder partnerships (Solnet, Robinson, & Cooper, 2007) and relationship management (Solnet, 2004). Existing approaches to Cooperative Education have been critiqued for being disorganised and lacking focus (Busby, 2006; Solnet, 2004; Solnet et al., 2007).

The BIHM and BITM approach to Cooperative Education requires students to have 'hands-on' experience with processes or tasks related to their field of study (Wood & Roberts, 2017). In addition, placements need to provide relevant and professional workplace experiences (Coll & Zegwaard, 2011). It is therefore important to foster close relationships between the academic institution and the placement organisations (Rowe, 2015).

## INDUSTRY CLASSIFICATION SYSTEMS

Research utilising standard industrial classifications has been predominantly focused on the comparison of financial and accountancy perspectives (Katselas, Sidhu, & Yu, 2017; Krishnan & Press, 2003). The Australia New Zealand Standard Industrial Codes (ANZSIC), an alphanumeric hierarchical numbering system, is used to collect and analyse nation-wide industry statistics (Statistics New Zealand, 2006; Wood & Roberts, 2017).

In New Zealand, Business Industry Codes (BIC) are used to classify businesses in order to calculate government levies. This framework is an extension of the ANZSIC classification framework (Accident Compensation Corporation, n.d.).

The Tourism Satellite Account (TSA) is a classification framework used to measure the contribution of tourism to a nation’s economy (Statistics New Zealand, 2015). As part of a core set of tourism data, the TSA provides information for “understanding and monitoring tourism activity”(Statistics New Zealand, 2015, p. 7).

METHODS

In this study, the hospitality and tourism organisations in which 419 BIHM and BITM students had completed a Cooperative Education placement were categorised. The purpose was to understand the characteristics of the placements and their structure across the industry. Administrative data from student placements were electronically collated then de-identified to ensure that student details remained anonymous.

Firstly, using a framework based on the ANZSIC and the BIC classification systems, codes were assigned to placement organisations “according to their predominant economic activity” (Statistics New Zealand, 2006, p. 1). This initial organisation provided a classification to five hierarchical levels. However, 44% of the placements required further classification to more accurately describe the placement organisations’ activities. Therefore, a further analysis of placement data was made using an extension of the existing frameworks.

The classification extension comprised subclasses and corresponding codes that provided a more refined level of categorisation. We have called the new subclasses ‘Cooperative Education Placement Codes’ (CEPC). The CEPC codes are designed to complement not replace, the existing coding systems.

To further contextualise placement organisations, the data were also categorised using an internationally accepted and tourism-specific classification framework, the TSA.

The new classification framework thus created has been named the Industry Placement Classification (IPC). The IPC combines the existing classification systems – TSA, ANZSIC and BIC – and incorporates our new Cooperative Education Placement Codes as an additional level. The IPC framework, is summarised in FIGURE 3.

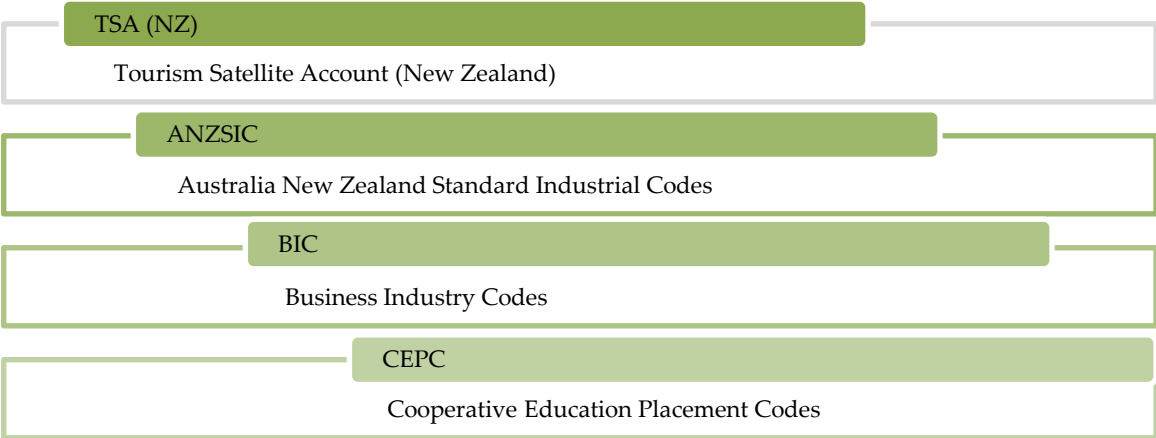


FIGURE 3. Industry Placement Classification (IPC) framework

The analysis and classification of placement organisations was completed by two researchers and, therefore, prior to starting the classification process, the classification criteria had to be discussed and agreed upon. In some cases, where there was a difference in opinion, discussion was had until agreement was reached as to the correct category to be assigned. Further data analysis, using excel pivot tables, was completed to identify similarities and differences between placements undertaken by students enrolled in hospitality and tourism undergraduate programs.

## RESULTS

The organisation of placement data allowed for an analysis of the hospitality and tourism organisations within which BIHM and BITM students complete Cooperative Education placements. A total of 419 placements, completed between 2013 and 2015, were classified using a new framework, the IPC, which incorporates the ANZSIC, BIC and TSA classification systems with an additional level of placement classification, termed the Cooperative Education Placement Codes (CEPC). This classification framework provides the basis for analysis of the data to identify the characteristics of student placements and their structure within the tourism industry.

Of the total placements, 74% (n=312) were completed by students enrolled on the BIHM degree and 26% (n=107) by students enrolled on the BITM degree. Furthermore, of the total placements completed, 48% were paid, 45% were unpaid and 7% were unreported. Significantly, 58% of placements for students studying hospitality were paid; however, just 19% of placements completed by tourism students were paid. Additionally, just 5% (n=22) of placements were completed internationally.

Students completed placements at 263 organisations, 78% of these organisations hosted just one placement accounting for almost half (49%) of all placements. Just 6% of all organisations hosted four or more student placements accounting for 28% of all placements and including one organisation that hosted 27 placements.

### *Structure of placements within the industry*

Organisation of student placements using the TSA classification was undertaken to identify the structure of placements across the various sectors of the tourism industry (see TABLE 1).

TABLE 1. Total number and percentage of hospitality and tourism student placements in each Tourism Satellite Account (TSA) category

TSA category	Hospitality		Tourism		Total	
	#	%	#	%	#	%
TSA 1 Accommodation services	63	20	14	13	77	18
TSA 2 Food and beverage serving services	108	34	5	5	113	27
TSA 3 Road passenger transport	-	-	-	-	-	-
TSA 4 Rail passenger transport	-	-	-	-	-	-
TSA 5 Water passenger transport	-	-	-	-	-	-
TSA 6 Air passenger transport	2	1	1	1	3	1
TSA 7 Other transport, transport support and travel and tour services	8	3	33	31	41	10
TSA 8 Rental and hiring services	-	-	-	-	-	-
TSA 9 Arts and recreation services	50	16	17	16	67	16
<b>SUBTOTAL</b>						
<b>Tourism characteristic industries</b>	<b>231</b>	<b>74</b>	<b>70</b>	<b>66</b>	<b>301</b>	<b>72</b>
TSA 10 Retail trade	15	5	4	4	19	5
TSA 11 Education and training	12	4	6	5	18	4
<b>SUBTOTAL</b>						
<b>Tourism related industries</b>	<b>27</b>	<b>9</b>	<b>10</b>	<b>9</b>	<b>37</b>	<b>9</b>
TSA 12 All other industries	54	17	27	25	81	19
<b>SUBTOTAL</b>						
<b>Non-tourism related industries</b>	<b>54</b>	<b>17</b>	<b>27</b>	<b>25</b>	<b>81</b>	<b>19</b>
<b>TOTAL placements</b>	<b>312</b>	<b>74</b>	<b>107</b>	<b>25</b>	<b>419</b>	

A range of placements are categorised within eight of the 12 TSA categories; however, placements in the road, rail and water transport categories and the rental and hiring services category are notably absent.

A clearer picture of the nature of student placements was provided by the use of the IPC framework to analyse data in this study. This detailed classification of placement organisations allowed for a deeper understanding of the characteristics of placements and the structure of placements across the hospitality and tourism industry.

## DISCUSSION AND CONCLUSION

A focused and organised view of industry placements can inform curricula, strengthen industry relationships, and provide an effective approach to Cooperative Education (Busby, 2006; Solnet, 2004; Solnet et al., 2007). A more detailed knowledge of the characteristics and structure of industry placements therefore provides benefits for students, educators and industry partners.

Providing students with the IPC organisation of industry organisations early in their studies, and prior to them seeking a placement, supports students in making good placement choices (Crump & Johnsson, 2011). A more detailed view of the structure of hospitality and tourism placements, across the industry, may encourage a positive view of career prospects (Bontenbal & Aziz, 2013; Schott & Sutherland, 2009). This, in turn, benefits the student by providing a clearer career identity (Giles, 2010) and better opportunities for employment (Fleming et al., 2009). A more meaningful placement experience enhances a student's perception of the industry and allows for greater integration of off-campus and on-campus learning (Coll & Zegwaard, 2011).

The existence of strong relationships between placement organisations and tertiary educators has been found to have a significant impact on Cooperative Education outcomes (Rowe, 2015). This study resulted in a detailed and up-to-date classification of the organisations where hospitality and tourism students' complete industry placements and clearly identifies those sectors where students are not securing placements. Initiatives can be aimed at establishing relationships with organisations in underrepresented sectors in addition to fostering relationships with organisations already engaged with the Cooperative Education programme. "The aim of these initiatives would be to provide greater scope for student placements and enable collaboration with a wider range of industry organisations, which in turn informs a more relevant curriculum" (Wood & Roberts, 2017, p. 284).

This study has reinforced the importance of being able to accurately report Cooperative Education placement information, which allows university-wide resources to better support the student placement experience while fostering and maintaining strategic industry networks. Therefore, the application of the IPC classification framework can increase the probability of achieving successful outcomes for all stakeholders by the early provision of detailed information pertaining to the nature of placements for hospitality and tourism students.

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# Utilising existing frameworks and models for evaluating the relationships between a tertiary provider and the information technology industry in the Tairāwhiti region

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EIT Tairāwhiti has offered the Bachelor of Computing Systems (BCS) since 2011 through a blended mode of delivery. Students undertake three years of study including an internship in the final semester, where they assume an IT role within a company or complete an IT-based project. For this reason, strong partnerships with industry stakeholders are essential for students to engage their skills in a workplace, and experience theory in practice. Since 2014, Tairāwhiti BCS interns have graduated and many have gained employment in the Tairāwhiti region as a result. However, the recent re-alignment of course offerings and rapid changes to how technology influences business and IT practices is now driving the need to understand key success factors that build and support business relationship networks. Building these partnerships between tertiary institutions and employers should have an influence on program development (Van Rooijen, 2011).

Due to the relative newness of the degree and internship, it is important for EIT Tairāwhiti, School of Computing to understand what the local IT industry needs are, potential opportunities for student internships, and the role recruitment plays in the nature of work experience and employability. These factors will contribute to the development of tripartite arrangements that are both sustainable and scalable. This regional example of EIT and industry connections was used to populate the Sustainable Partnerships Framework developed by Fleming (2016). Data was also gathered about IT roles secured by past graduates from Tairāwhiti BCS, along with online data about IT jobs. A Rich Picture illustration from the Soft Systems Methodology line of enquiry was also used to further illustrate and extend the understanding of the current stakeholder relationships network.

## BACKGROUND AND CONTEXT

The role of BCS coordinator involves advising students during their three year study pathway, and guiding them on how to look for opportunities with industry. Over time, a students' academic strengths, personal motivations and capabilities become a reference point to recommend or explore suitable industry matches for work-integrated learning. This coordination encompasses career based events like "Meet the Grad" which is delivered across faculty, so a selection of local organisations are invited to present a snapshot of their business. This gives upcoming graduates a chance to learn about different organisations, find out what companies expect from employees and share their CVs in an informal environment. For example, one company Gisborne.net, a local ISP, only became aware of the high-calibre and availability of BCS students when they presented. This proved timely since the company had recently secured contracts with both RocketLab and NZ MBIE prompting expansion of their IT services, creating new jobs and potential WIL opportunities for students.

## ISSUES AND BENEFITS OF STAKEHOLDER RELATIONSHIPS

From the inception of the BCS degree in Tairāwhiti, student intake has increased each year, creating a need to secure and future-proof the internship (WIL) programme. Some industry partnerships are well established as sponsors have been approached by students, attended events or contacted the School. Other sponsors have taken multiple interns or repeated intern uptake over time. In order to develop relationships, a comprehensive insight to industry stakeholders in the region will help staff establish stronger network ties, enable the School to tailor course offerings

to meet local demand and prepare students accordingly. Furthermore, BCS interns are themselves an effective form of connection between the school and the company involved.

#### LITERATURE REVIEW

Sustainable relationships are the bedrock from which successful work integrated learning experiences thrive. This was the focus of a three phase action research project Fleming (2016) conducted to identify critical success factors for industry engagement across various WIL sectors. A review of different WIL models revealed that although some common elements exist, wide variations between these possibly influence relationships that are established. The review also identified two frameworks from the perspective of participants in the WIL relationship. Firstly, a framework by Arden, McLachlan, and Cooper (2009, p.6; as cited in Fleming, 2016) grouped success factors under explicit and implicit behaviours and attitudes that contribute to sustainable university-community engagement. The second framework categorised factors that may have a positive or negative influence on university-industry collaborations (Ankrah & Omar, 2015, p.397; as cited in Fleming, 2016). Finally, a discussion forum sourced reflections from WIL practitioners on what they considered critical success factors for sustaining WIL partnerships, which were summarised in themes. Once identified, a culmination of success factors and key themes are used to underpin the development of a Sustainable Partnerships Framework for WIL. Although personal connections between parties are an important part of strong workplace partnerships, Fleming’s model offers an effective guide for coordinators and facilitators. Pilgrim (2012) noted how the scope of WIL now embraces a variety of models in the field of ICT “extending the traditional work experience placement or internship programs to innovative virtual or simulated work experiences”. This type of model may be applied to interns who have limited sponsorship choice, are geographically restricted, or simply because a company seeks an intern for a virtual role.

#### METHODOLOGY

Fleming’s model offered a framework to examine the significant factors that impact either positively or negatively on work-integrated partnerships through examples from the Tairāwhiti BCS and internship. The three central themes; compatibility, commitment and communication encompass all nine success factors.

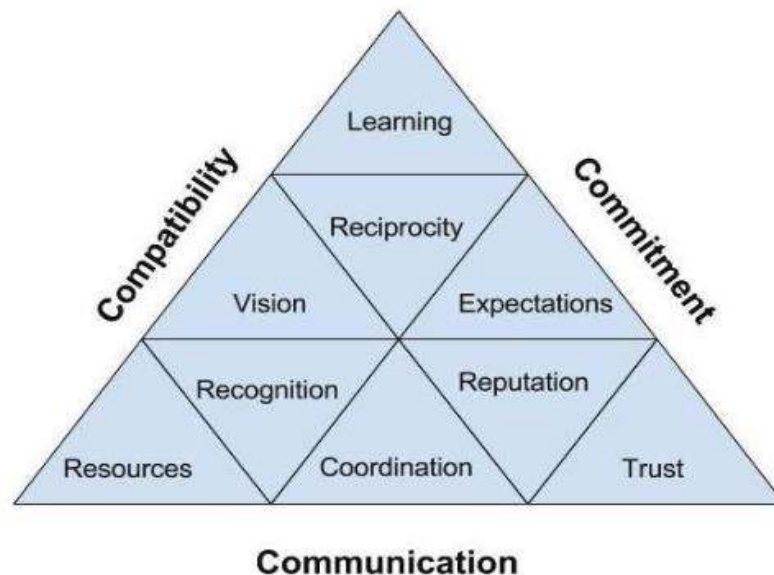


FIGURE 1: Sustainable partnerships framework for work-integrated learning (Fleming, 2016)

TABLE 1: Success factors applied to EIT BCS internships

	<b>EIT</b>	<b>Students</b>	<b>Industry</b>
<b>Resources</b>	Time Software Lab Lecturers with subject specialties	Time Sandbox of Tools	Time Support Staff
<b>Recognition</b>	Industry evaluations	Grade, experience, industry feedback, offer of employment	EIT acknowledgement, Staff feedback on interns, potential business benefit from technical artefact, growth of ideas or efficiencies within processes
<b>Coordination</b>	Meetings with students, LAC, Intern presentations, Guest Speakers, Graduate recruitment events, Career based events, Community based activities (GovHack)	Meetings with EIT, industry & internal internship dependent relationships	Meetings with intern, company project or department process
<b>Reputation</b>	School of Computing acknowledged for positive outcomes	Add to professional profile	Exposure as a potential employer
<b>Trust</b>	Maintain a high standard in student recommendation	Maintain a high standard of IT output, professional manner in communication, ethical practices	Engage intern in valuable experiences that build on current IT skills & knowledge
<b>Vision</b>	Strengthen pathways for BCS students and interns to experience future oriented roles	Positive learning experience, potential employment in IT role	Enhanced IT capacity within organisation built on engagement with BCS interns
<b>Reciprocity</b>	Support local business, industry and community initiatives	Professional practices and communications	Support internships, guest speaking, lab engagements, career and graduate events
<b>Expectations</b>	Positive outcomes from strengthened connections	Achieve internship objectives, personal and professional	Added business value from alignment of interns IT skills
<b>Learning</b>	Knowledge and understanding of Industry preferences and trends	Real life experiential learning, utilisation of 21st century skills, latest preferences and trends	Value of fresh IT perspective, gain knowledge of BCS subject, content and practices.

## FINDINGS

By populating the Fleming Model with examples from this particular Case Study as seen in Figure 2, a better insight was achieved for staff involved. Categories not fully addressed can be added to in future, while aspects which are working well (e.g., Coordination) can be acknowledged and affirmed. Further discussion of the success factors will be included in future research.

### SOFT SYSTEMS METHODOLOGY (SSM)

The Rich Picture (Checkland, 1989) was also used to illustrate the industry stakeholder connections for Tairāwhiti BCS. This pre-analysis tool provides a useful means to address a complex situation that has differing views on the problem definition. Core themes were sourced to illustrate core systems present in the issue, for example, Industry & Business, IT Services, WIL, Media, and Knowledge. This allowed each core area to be defined by its purpose, for example, Media is the hub for communications and a vital life force for all actors and systems in the situation. This information then allows us to build human activity models, make comparisons, define desirable and feasible changes and take action to improve the problem.

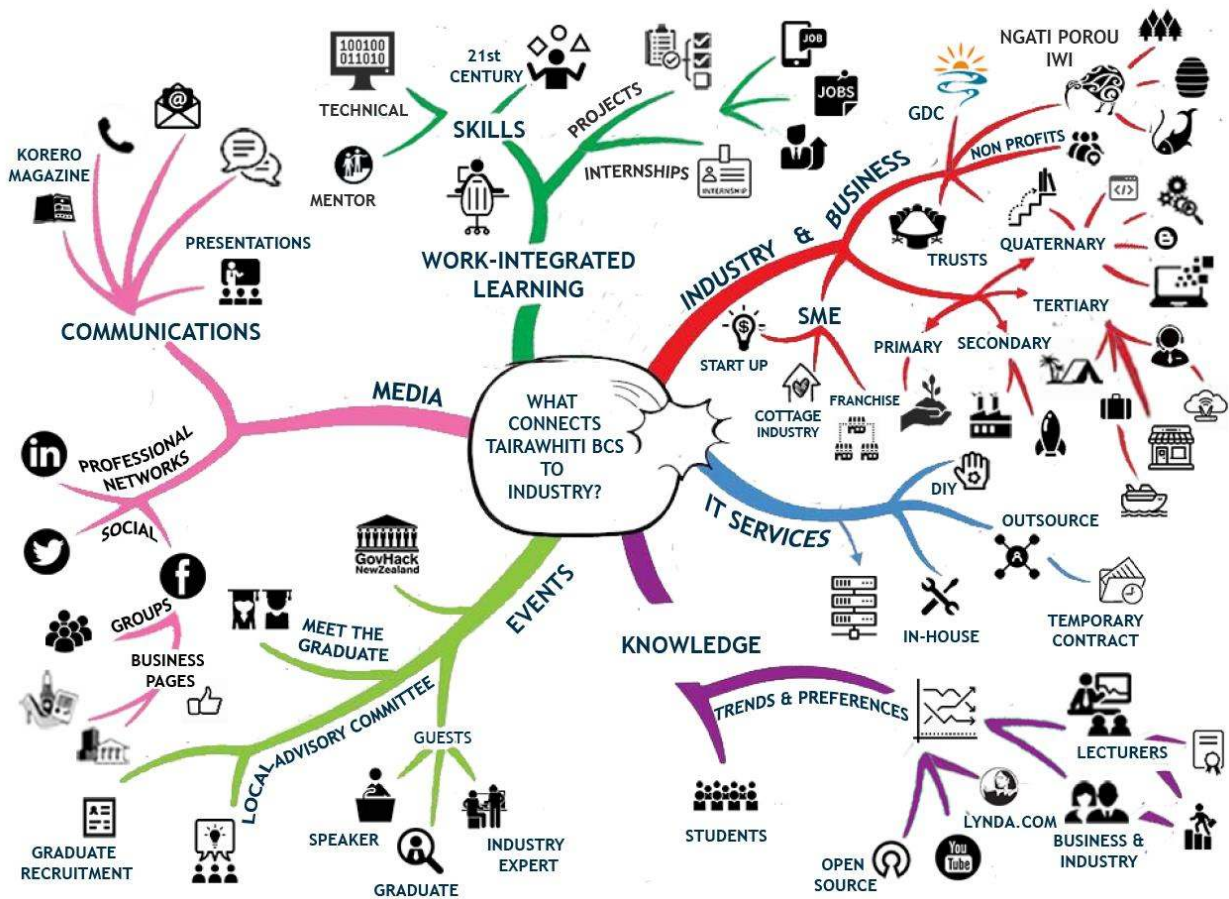


FIGURE 3: Rich text picture - EIT School of Computing connection to Tairāwhiti industry

## BCS STUDENTS-GRADUATES-EMPLOYED IN IT

There were 46 students considered over several years in the BCS Tairāwhiti data set. This includes part-time, non-completions, and those currently studying. Graduates make up 59% of this group and 41% of graduates are employed in IT in Gisborne. From those graduates employed in IT, four were in IT Systems Support roles, three Help Desk roles, two in IT education and one each in Information Management, Systems Engineer, Web Developer, IT Production Manager and IT Sales. These outcomes would contribute to the Recognition and Expectations categories of the Fleming Model.

## JOB POSTINGS

A list of Gisborne jobs from TradeMe and Seek websites were recorded in a database by position, category, type, URL and comments. From these postings only 2% of vacancies recorded were pure IT positions and 7% were business management type roles requiring software skills. Although there were a low number of advertised IT jobs in the region over 3 months, it does appear that IT-related positions are available but are likely to be filled through more informal means; which gives EIT and the WIL programmes more scope to exploit this situation. Job opportunities are linked to the Fleming model through the Vision category where the communications theme provides a medium of delivery to partnership stakeholders.

## DISCUSSION AND CONCLUSIONS

By using the Fleming Model of Sustainable Partnership and the Checkland Rich Picture it has been useful to evaluate a particular localised environment in terms of the relationship between EIT and the local IT organisations. IT employers and organisations in the Tairāwhiti region do appear to benefit from the tertiary provider (EIT) and its' work integrated learning activities. Furthermore, opportunities for employment are woven into the BCS Tairāwhiti -Industry Rich Picture, presenting as human roles, and purposeful activities throughout themed areas.

The benefits are provided to students (as EIT acts as a broker and intermediary between student and industry), to industry organisations as they receive better trained graduates and employees, and to EIT as it can maintain a reputation of providing work-ready education to its potential students/customers, and EIT can show to industry its effectiveness. The Sustainable Partnership Framework also helps providers like EIT to consider a tighter, ongoing and more long-term relationship with industry stakeholders. Future research will be conducted on taking the data illustrated in the Fleming Model and the RP and investigating how each category can be improved and enhanced.

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# Where do we think you are?: Tracking the elusive alumni

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The term 'alumni' refers to a graduate or former student of a specific school, college, polytechnic, or university, as well as a former associate or employee. 'Alumni' is usually used to refer to either one or both genders – traditionally 'alumnus' referred to a single male, with the feminine term being 'alumna' (Business Directory, 2018). The formation of an alumni association enables graduates to stay in touch with former students and staff and provides opportunities for networking, work integrated learning, mentoring, and keeping up with latest trends and current developments. As well as providing these services to graduates, benefits to institutions can include fundraising opportunities, obtaining feedback on policy making and education issues, strengthening ties with the business community, and graduate profiling to enhance the institutions' reputation and status.

As is the case for all institutes of technology/polytechnics, wānanga and private training establishments, staying connected with graduates is important, not only for the reasons stated above, but due to the New Zealand Qualifications Authority (NZQA) requiring these institutions to provide documented evidence of graduation destination data and the value of the qualifications' outcomes. NZQA requires all tertiary education organisations awarding New Zealand qualifications at levels 1-6 (except university qualifications) to participate in consistency reviews to ensure there is national consistency of graduate outcomes. The tracking of graduates' career pathways is also important to answer key evaluation questions as part of NZQA's self-assessment evaluation and review process, and to inform ongoing curriculum development and improvement. All degree qualifications awarded by technology/polytechnics, wānanga and private training establishments are also subject to NZQA self-assessment and ongoing monitoring for quality assurance.

The Open Polytechnic of New Zealand (Open Polytechnic) is the institution under discussion in this paper and delivers qualifications from level 1 to level 7 on the New Zealand Qualification Framework (NZQF). A new Bachelor of Information Technology degree commenced delivery in 2017 and there is a strong desire for this degree to act as the standard-bearer for their online distance flexible learning (ODFL) model. It is proposed that this qualification be the focus of a pilot study to establish stronger connections with alumni and in turn, closer partnerships with industry.

## UNIQUE FEATURES

The Open Polytechnic of New Zealand is unique to most other Institutes of Technology and Polytechnics (ITPs) in New Zealand with a core constituency of vocational adult learners, 70 per cent of whom are already in employment, and 95 per cent studying part-time. Most programmes are delivered entirely online to students located throughout New Zealand. With most students being in work while studying, information about where they are working should be readily available, however, often this information is not formally captured and tracked on a regular basis, both while students are studying and after graduating. Because the majority of students are in employment while studying, there is a unique opportunity to capture information about their employment at the time of enrolling, and then tracking their job status and work progression once they have successfully attained their qualification. A graduate survey conducted in 2015 found that many respondents would like to part of an Open Polytechnic alumni association. These graduates, as both employees and employers, could provide the Open Polytechnic with the opportunity to better understand what employers expect a qualification to equip a graduate with, as well as the opportunity to build and maintain strong links with employers.

Another aspect that is unique to Open Polytechnic is that many students often enrol in one or two courses that they then transfer back to qualifications being undertaken at another institution. Reasons for this can be due to their own institution not offering the course in a certain semester, the opportunity to study via distance, or the requirement to study additional courses after finishing a qualification in order to meet professional bodies' requirements for admission, for example, Chartered Accountants Australia New Zealand (CAANZ). As these types of students only study for a short time with the Open Polytechnic, they are more likely to be inclined to have an allegiance with their main institution of study. This creates further challenges to stay in touch and create alumni relations.

## DISCUSSION

There are many web and cloud based online tools/alumni management software available to assist organisations to track and maintain relationships with alumni. Most of these tools allow branded platforms and enable institutions to manage their alumni communities with features such as job advertisements, events, social and professional networking. A google search of alumni management software reveals a plethora of options (Capterra, n.d.; GetApp, 2018). While the Open Polytechnic does not currently use alumni management software tools to track graduates, it does conduct online surveys of graduates through a Graduate Outcomes Survey and a Student Satisfaction Survey. While the summary report of the 2015 graduate survey recommended that the Open Polytechnic should continue to collect data and information on their graduates through survey methods, it also recommended establishing an alumni to further cement the engagement of the Open Polytechnic with employers.

An observation of ITPs' websites reveals that only three out of 16 institutions appear to have an alumni association that actively encourages membership and promotes the benefits of belonging. Some of these benefits include: free library membership; fees discounts on courses; discounted gym memberships; supplier discounts; employability and career support; networking events; mentoring and internship opportunities; free professional development, for example, to complete an elective course from a qualification that has been completed; room hire and video conferencing facilities; awards for distinguished alumni; and alumni newsletters.

Some institutions have a web page that provides graduate profiles and all but three of the institutions have LinkedIn pages that allow alumni to connect with each other. At the Open Polytechnic, students are invited to self-join LinkedIn and are reminded again ahead of graduation. Other institutions' LinkedIn pages work in the same way, in that there is no approval process in place from the institution's side. See Table 1 below for a list of ITPs and their alumni initiatives.

TABLE 1: Alumni initiatives for ITPs in New Zealand

Institutes of Technology and Polytechnics in NZ	Alumni Association	LinkedIn Alumni Pages
Ara Institute of Canterbury (ARA)	x	✓
Eastern Institute of Technology (EIT)	Alumni page only	✓
Manukau Institute of Technology	x	✓
Nelson Marlborough Institute of Technology (NMIT)	✓	✓
Northland Polytechnic (NorthTec)	x	✓
Otago Polytechnic	✓	✓
Southern Institute of Technology (SIT)	x	x
Tai Poutini Polytechnic	x	x
The Open Polytechnic of New Zealand	x	✓
Unitec New Zealand	✓	✓



Universal College of Learning (UCOL)	Alumni page only	✓
Toi Ohomai Institute of Technology	x	✓
Waikato Institute of Technology (Wintec)	Alumni page only	✓
Wellington Institute of Technology (WelTec)	x	✓
Western Institute of Technology at Taranaki (WITT)	x	x
Whitireia Community Polytechnic	x	✓

The lack of effort from the majority of ITPs to establish alumni associations contrasts strongly with New Zealand universities, which make effective use of their alumni associations to promote their courses, showcase research activities and to profile successful graduates. Universities are also proactive in using their alumni to provide mentoring to students. An example of this is Victoria University's Alumni as Mentors (AAM) programme, which connects final-year students with Victoria alumni who are experienced mentors in the workforce across New Zealand and internationally. Mentors can be based anywhere in the world and connect with each other through email and Skype, along with an AAM coordinator and online resources (Victoria University, 2018). As another example, Monash University (2018) run a work integrated learning programme through their Monash College (2017), which draws on alumni to host students in their workplace through an internship. Monash see this as a win-win opportunity for students and alumni – working with students gives alumni fresh ideas and skills, plus mentoring interns provides professional development opportunities and the potential to recruit new talent.

#### IMPLICATIONS AND REFERENCE TO OTHERS IN WIL

For those institutions who form strong connections with their alumni, opportunities for work integrated learning will be increased, through mentoring, internships and partnerships. The benefits of partnerships with industry are well researched, with Zegwaard (2014) believing that partnerships are central to facilitating academic integrity, industry credibility and the assurance of graduates with skills transferable across different contexts.

One of the priorities in the Tertiary Education Strategy 2014-2019 (Ministry of Education, 2018) expects more explicit cooperation between industry and tertiary education organisations and the types of skills most needed, and requires industry involvement in planning and delivering education. This provides strong motivation for ITPs to consult and actively involve industry in the development, design, and delivery of courses – the establishment of an alumni association to strengthen links with business communities could well hold the key in helping to meet this government priority.

Tracking graduates, and providing evidence of this engagement, is an essential element for maintaining curriculum relevance and ensuring consistency of graduate outcomes for all tertiary education providers. NZQA expects validation of self-assessment reporting by way of data on employment outcomes or progression to further training over time. Being able to maintain regular contact with graduates through alumni initiatives will provide ITPs with this informative and vital data.

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# The shifting perceptions by science and engineering employers of desirable graduate competencies: Comparing now to 15 years ago

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Recently, the New Zealand Ministry of Education has focused on the linking of employability outcomes with the engagement with tertiary education. Such governmental-level focus on employability is mirrored internationally and prompted considerable research activity in employability skills, transferable skills, and employability outcomes (Rowe & Zegwaard, 2017). In response, universities are actively mapping their curricular learning activities to employability skills with the assumption that employability skills results in better employability outcomes (Bates & Hayes, 2017; Jackson, 2013; Kaider, Hains-Wesson, & Young, 2017). Many universities internationally (and in New Zealand) are identifying work-integrated learning (WIL) as a valuable pathway of directly linking learning with employability skills and employability outcomes (Jackson, 2013, 2015).

Several years ago, the University of Waikato commenced a major curricular review and redesign – the first year of rollout of the new curriculum occurred at the start of 2018. As part of the new curricular framework, all students enrolled in an undergraduate degree must complete at least one paper/course (15pt credits out of either a 360 or 480 credit degree) in work-integrated learning. The University of Waikato is the first New Zealand university to make this compulsory for all undergraduate students. Other New Zealand universities are making similar moves and there are international examples already in place such as University of Cincinnati (Cedercreutz et al., 2017) and Macquarie University (Clark, 2017).

With the University of Waikato's increased focus on employability and curricular redesign, the question arose of what competencies science and engineering employers perceive as important graduates entering the workplace. Such information would inform the curricular design of the science and engineering degrees. In 2002, such study was completed by Coll, Zegwaard, and Hodges (2002) and helped to inform the science and technology curriculum design (Coll & Zegwaard, 2006). This study was useful in informing science and engineering curriculum and allowed for the development of a work performance assessment framework (Zegwaard, Coll, & Hodges, 2003). However, this study was completed 16 years ago and science and engineering employers' perceptions may since have shifted.

Presented here is a study which (re)investigated graduate competencies desired by New Zealand science and engineering employers. These employers were asked to rate the importance of 26 competencies for science and engineering graduates entering the workplace today and in 10 years' time. The research also asked how well graduates are currently performing at each of these competencies, where the difference between expectation (importance) and performance indicates the skill-gap of current graduates. Comparisons with the findings here are done with the findings from Coll et al. (2002) study.

## METHODS

A competency list was derived from an extensive literature research and differs to that used in the Coll et al. (2002) study. The Coll et al. (2002) study used the Spencer and Spencer (1993) competency framework, which was used in the Burchell, Hodges, and Rainsbury (2000) on business employers, to which the Coll et al. (2002) study was making comparisons to. However, since 2002, the use of terms to describe competencies had shifted and, furthermore, the Spencer and Spencer framework was notably limited by including written communication as a competency but not including oral communication.

The study adopted a mixed-method approach. Using LimeSurvey, an anonymous online survey was sent out in October, 2017, to 1,159 science and engineering employers, which provided a return rate of 21% (244 completed responses). According to Nulty (2008), a 21% return rate exceeds the minimal return rate required for 'liberal conditions' for this sample size. The survey had a high dropout rate (7.3%), which reflects that the rating of 26 competencies across three dimensions was an onerous task for participants.

The survey collected demographic information and then asked participants to rate the importance of each competency for graduates entering the workplace today and for entering the workplace in 10 years' time. Participants were also asked how well graduates were performing at each of the competencies. The survey was followed with three semi-structured focus groups (total of 17 participants) discussing the highest and lowest rated competencies and their importance for the workplace. Quantitative data were analysed using SPSS and Excel, while qualitative data were thematically analysed using NVivo-11. The survey was granted ethical approval through the Faculty of Education Higher Education and Research Ethics Committee, University of Waikato, and piloted before release.

## RESULTS

Employers rated all 26 competencies as important (higher than 3.5 Likert) but clearly valued some competencies more than others. The employers also rated all competencies more important in 10 years' time than today. Comparison of the top 10 competencies from the Coll et al. (2002) study and this study showed similarities in the results (Table 1).

TABLE 1: Comparison of the top 10 important competencies for graduates entering the science and engineering workplace today from the Coll et al. (2002) study and this study.

Coll et al. (2002) study	This study
Ability and willingness to learn	Teamwork
Teamwork and cooperation	Written communication
Initiative	Problem solving
Analytical thinking	Oral communication
Concern for order, quality and accuracy	Interpersonal relationships
Computer literacy	Self-management
Written communication	Critical thinking
Achievement orientation	Continuous learning
Personal planning and organizational skills	Help seeking
Flexibility	Adaptability

The Coll et al. (2002) study did not include a measure for graduate competency performance, therefore, no direct comparison can be made, however, Hodges and Burchell (2003) repeated their 2000 study (on which the Coll et al., 2002 study was based) on business employers and this time included the graduate competency performance as a measure. Hodges and Burchell (2003), like the authors of this study, referred to the difference between importance and performance as a competency gap. The Coll et al. (2002) study and the earlier Burchell et al. (2000) study had very similar results, therefore, the comparison of graduate competency performance between Hodges and Burchell (2003) and this study is of interest. (Table 2).

TABLE 2: Comparison between the competency performance gap for graduates entering the workplace today for business graduates (Hodges & Burchell, 2003) and science and engineering graduates (this current study),

where the list is presented in descending order (greatest gap first), where the performance gaps is the difference between the competency importance and graduate performance at the competency.

Hodges and Burchell (2003) study	This study
Customer service orientation	Written communication
Order, quality and accuracy	Critical thinking
Interpersonal communication	Oral communication
Problem solving	Problem solving
Planning and organisation	Self-management
Initiative	Project management
Written communication	Creative thinking
Self-control	Technical knowledge
Relationship building	Conceptual thinking
Teamwork and cooperation	Financial literacy

## DISCUSSION

### *Shifting perceptions from 2002 to today*

The use of two different sets of terminologies blur the comparisons, however, the top 10 competencies (Table 1) show clear overlaps. For example, *written communication* was ranked 7<sup>th</sup> most important in the 2002 study and 2<sup>nd</sup> most important in this study; *personal planning and organisation* was ranked 9<sup>th</sup> most important in the 2002 study and *self-management* (the most directly comparable competency) was ranked 6<sup>th</sup> in this study. The 2002 study showed that *ability and willingness to learn* was the most important competency. This result was identical for business studies (Burchell et al., 2000) and sport studies (Fleming, Martin, Hughes, & Zinn, 2009). This study did not include the same term, however, *continuous learning* is likely the most comparable competency and was ranked 8<sup>th</sup> (note: there was only 0.31 Likert difference between *continuous learning* and the top competency, out of a 7-point Likert scale). An interesting note to make here is that choice of words may have influenced the ratings, for example, the word 'willingness' has common usage and positive connotations while 'continuous learning' is a term used in academic literature but not readily in the workplace.

Teamwork showed to be a consistently and strongly preferred competency by employers (ranked 2<sup>nd</sup> in 2002 and 1<sup>st</sup> in this study). This finding is similar to comparable by Fleming et al. (2009) and Burchell et al. (2000) studies and other studies undertaken by Baker, Day, and Salas (2006), and Hernandez-March, del Peso, and Lequey (2009).

### *Competency performance gap*

Aside from *digital interpersonal skills*, employers thought current graduate performance was lower for all competencies when compared to their rating of importance of each competency today. This difference is interpreted as a graduate competency performance gap (Table 2). Of the 10 largest gaps, five of the competencies were also seen as the top 10 important competencies. Furthermore, it is concerning to see *critical thinking*, *problem solving*, *technical knowledge*, *conceptual thinking* and (to some extent) *creative thinking* with large performance gaps because these are held as the core learning areas of university education. The issues around graduate abilities with written and oral communication has been identified in the literature before and, even though concerning, it was not unexpected (Coll & Zegwaard, 2012; Pons, 2015). Feedback from the focus groups indicated that employers accepted that graduates may not be fully able in every competency and that universities may not be able to deliver that, and employers understood that further 'training' of graduates may be required when they enter the science

and engineering workplace. However, they did express the view that if university education included more 'real problems' and used greater engagement with industry (workplaces), that students would likely develop these competencies further.

The only competency where there was no perceived competency performance gap was for *digital interpersonal skills*. Focus group feedback around this competency was that current graduates are well engaged with social media and other forms of digital communication and, therefore, have well-developed skills to convey understanding and emotion in digital forms. Employers provided further feedback that they saw *digital interpersonal skills* as an increasingly important competency for the future and an important aspect of their future business.

## CONCLUSION

The results from this research showed that there has only been small shifts in importance of competencies in science and engineering compared to the Coll et al. (2002) study. Furthermore, it also showed that there were similarities to comparable studies from other disciplines. It is, therefore, likely that these high-level competencies are generic and transferable across disciplines and (to some extent) time. The competency performance gap, however, showed that science and engineering workplace expectations are greater than current graduates abilities for all competencies (except *digital interpersonal skills*). Some of the greatest competency performance gaps were found for competencies that are core to the university curriculum (e.g., *critical thinking, problem solving, conceptual thinking, creative thinking, and technical skills*). It is hoped that this research will inform the science and engineering curricular design and development.

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