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## JUNE 23 - 27, 2018

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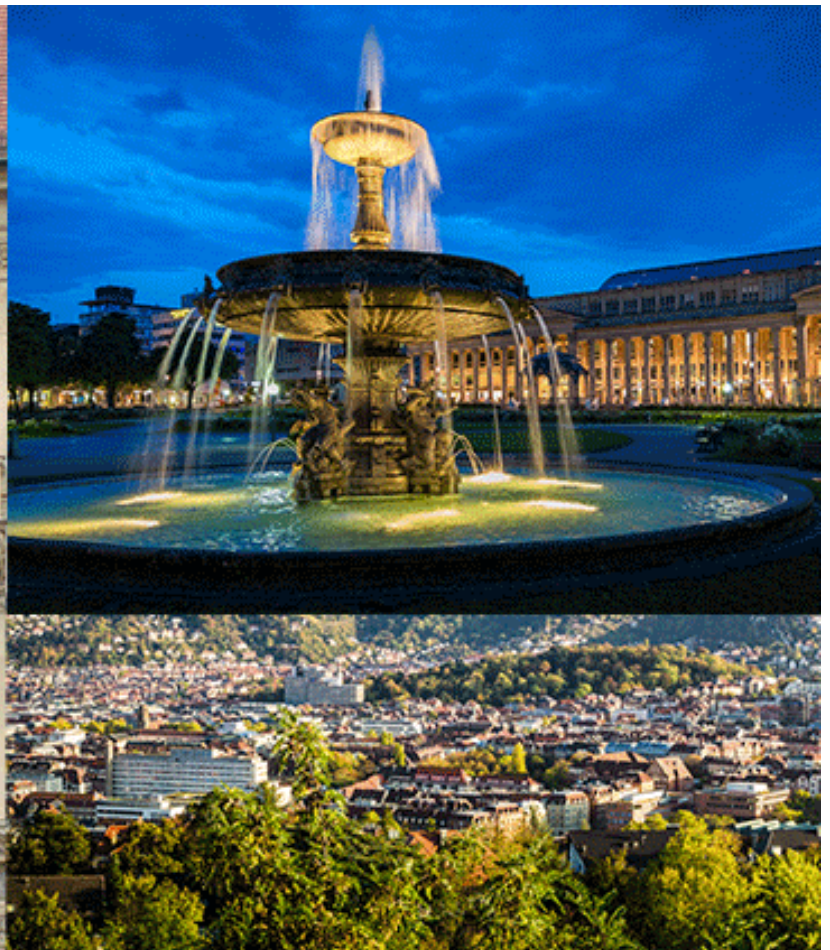
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Facilitating student cultural competence through a work-integrated learning: Short-term study abroad experience

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ABSTRACT

One of the greatest challenges for students in mandatory work-integrated learning programs within higher education is incorporating global immersion experiences in students' academic curricula. Due to the often lock-step nature of work-integrated learning programs, such as cooperative education, many students lack the curricular flexibility to engage in study abroad experiences oriented towards strengthening their cultural competence. Researchers at University of Cincinnati developed a short-term study abroad experience aimed at students in cooperative education programs to provide the students with a deep, immersive experience that would not conflict with their academic or employment commitments. Within the experience, the researchers incorporated specific academic content aimed at enhancing students' cultural competence. The following study will examine a work-integrated learning short-term study abroad experience in Italy and Spain and provide insight into students' development of cultural and global intelligence through the administration of the cultural quotient (Early & Ang, 2003). Further, student self-reported proficiencies in intercultural knowledge based on the Association of American Colleges & Universities VALUE Initiative (Rhodes, 2009) will be examined providing insight into the scope and impact of short-term, global immersive experiences.

INTRODUCTION

The examination of undergraduate student cultural competence in connection with a university study abroad program is not an entirely new concept within higher education literature. However, little research exists on the impact of short-term study abroad programs' effect on student cultural competence with respect to a professional development curriculum. Faculty researchers at a large research-intensive university in the United States set out to determine the impact of a short-term study abroad professional development curriculum on undergraduate students' cultural competence.

Faculty researchers designed and implemented a short-term study abroad course for undergraduate students primarily in mandatory cooperative education majors (e.g., engineering, technology, design, art, architecture). The researching institution's mandatory cooperative education curriculum generally prohibits students from engaging in semester-long study abroad experiences due to the mandatory employment requirements associated with students' curriculums. Thus, as a means for combatting student participation limitations, faculty researchers designed a short-term study abroad program taking place over a two-week intersession period between students' academic semesters. This design model created flexibility for students in mandatory cooperative education curriculums to participate and provided access to study abroad opportunities for those students that traditionally did not have access previously.

The short-term study abroad curriculum was administered through the university's experiential learning-focused, academic division. More specifically, the faculty researchers centered course efforts on student professional development in connection with work-integrated learning practices at the undergraduate level. The faculty researchers built the professional development curriculum to expose students to various cultural, historical and

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social facets of three cities in Europe: Turin, Milan, and Barcelona. Integrated within the curriculum, the faculty researchers created industry site visits to various prominent professional organizations within the destination cities. Students were prepared to compare and contrast industrial differences between professional organizations in the respective cities and the United States. Further, students underwent deep, immersive ethnographic observations of the professional organizations to facilitate their understanding of organizational differences across cities and nations.

Faculty researchers desired to determine the scope, value and impact of a short-term study abroad professional development curriculum on students' cultural competence. To measure cultural competence, students participated in a pre-test and post-test cultural quotient [CQ] analysis. Second, students completed a pre-test and post-test confidence survey measuring self-efficacy with respect to the Association of American Colleges & Universities (AAC&U) *intercultural knowledge and competence* essential student learning outcome. Finally, students engaged in reflective practice by articulating their personal learning through the medium of an electronic portfolio. The electronic portfolio assignment was designed to mirror essential student learning components as articulated by the AAC&U Valid Assessment of Learning in Undergraduate Education (VALUE) rubric initiative.

LITERATURE REVIEW

Rhodes (2009) in conjunction with the Association of American Colleges & Universities provides strong insight into student learning outcomes that should be derived from students' higher education experience. Specifically, Rhodes identifies 16 essential student learning outcomes in the VALUE initiative project that institutions of higher education can promote through their academic curriculums. One of the identified essential student learning outcomes made apparent through this study is that of intercultural knowledge and competence. Bennett (2008) describes intercultural knowledge as "a set of cognitive, affective, and behavioral skills and characteristics that support effective and appropriate interaction in a variety of cultural contexts" (p. 95). Utilizing this definition, Rhodes encourages higher education professionals to create learning contexts for students to further their development around the intercultural knowledge and competence construct. Rhodes further suggests that academic assessment of student learning centered on the essential student learning outcomes consider electronic portfolios as mediums for showcasing learning and facilitating reflection.

Alanson & Robles (2017) studied essential student learning outcomes articulated by AAC&U in connection with a first-year, professional development course for information technology majors at a large, research-intensive institution. The researchers in utilized a confidence survey assessment whereby students were given pre-tests and post-tests related to the pre-identified, essential student learning outcomes of teamwork and written communication. Further, the researchers employed an electronic portfolio method utilizing appropriately corresponding VALUE rubrics to provide students with formative feedback on their electronic portfolios demonstrating student learning related to teamwork and written communication in a professional development context. Results from this study suggest that intentionally designed electronic portfolio assignments could facilitate heightened student confidence with respect to identified essential student learning outcomes in a professional development setting.

Leung, Ang & Tan (2014) studied intercultural knowledge and competence in business and organizational contexts through the evaluation of multiple intercultural competence models and theories. Through survey methodology the researchers proposed that "intercultural competencies can be classified based on traits, attitudes and worldviews, capabilities, or a combination of these dimensions" (p. 489). The researchers posited that enhanced intercultural competence can lead to higher job performance and satisfaction. Further, they took time to dissect multiple intercultural theories and models to showcase the complexity of developing this workplace competency.

Kolb (1984) studied intercultural competence with connection to experiential learning theory. Specifically, Kolb postulated that individuals can enhance intercultural dimensions of development through direct participation in intercultural experiences. According to Kolb, intercultural knowledge can be developed through four phases of learning: (a) involvement in concrete experiences, (b) reflection on experiences, (c) abstract conceptualization, and

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(d) active experimentation. Kolb's experiential learning theory was situated as a mechanism for informing the underlying methodology of the present study.

Ang and Van Dyne (2008) studied cultural competence and specifically described it as cultural intelligence [CQ]. The researchers claimed CQ represents one's ability to recognize cultural differences through knowledge, mindfulness and behave appropriately when facing people from other cultures. They suggest cultural intelligence is comprised of multidimensional concepts. These four dimensions include: Motivation, Cognitive, Metacognitive and Behavioral components. These dimensions are represented by the following four CQ capabilities: Drive, Knowledge, Strategy, and Action respectively. CQ Drive is the capacity which measures one's energy and desire to learn about intercultural events and experiences. CQ Knowledge measures the capacity to attain and understand specific cultural knowledge. CQ Strategy is the capacity to be aware of one's own abilities to integrate and plan for interaction in a multicultural environment. Finally, CQ Action reflects the capacity to implement appropriate behavior within the context of specific cultures. Further discussion involved CQ as it relates to cognitive ability, emotional quotient and other scales of intercultural competencies.

Gardner, Gross and Steglitz (2008) studied how colleges and universities were marketing international learning experiences as a means of preparing students for the global workforce. The study revealed employers were not valuing the study abroad experience as much as other co-curricular activities available to students. These researchers created a list of competencies and behaviors that could be gained by an international experience and dissected them to focus on how these traits could be defined in the workplace. The researchers created a list of 20 competencies and surveyed employers to identify traits where recent hires with international experience compared to recent hires that did not participate in a study abroad experience. Employers selected a least one descriptor that students gained through an international experience. Once these traits and behaviors were broken down to workplace competencies, employers could grasp the value of the international learning experience.

The researchers created seminars for students who had engaged in an international learning experience to help students translate what they had gained on an international learning experience into workplace competencies that students could market to employers. Their research indicated that students must articulate their learning from the study abroad experiences in ways that employers can understand with relation to the construct of employability. The researchers indicated "Study abroad has value to employers but students have to unpack or critically reflect on their international academic experiences and reframe their stories in the context of the workplace" (p. 2). The researchers also created a pre-study abroad class for students to more fully engage in the learning process when they were immersed in the international study abroad experience. These results suggest students must utilize critical reflection to articulate their learning with meaningful examples of how this experience added to their professional development.

The present study will expand on the aforementioned cultural competence literature by utilizing a self-efficacy survey method as well as an examination of the cultural quotient [CQ] in connection with a short-term study abroad course.

METHOD

Faculty researchers planned a short-term study abroad experience to take place over the intersession period between spring and summer academic semesters. A total of 17 undergraduate students elected to participate in the course and the study. A total of 8 students completed a pre-test and post-test assessment aimed at measuring students' perceived intercultural knowledge and competence. Students represented academic majors including engineering, business, technology and design. Prior to engaging in the study abroad experience, students participated in mandatory pre-departure class meetings throughout the preceding spring academic semester. Pre-departure meetings oriented students to necessary program participation content including travel logistics, significant cultural components of visiting cities, language content, geographical content and sociological content.

At the first pre-departure meeting, students completed the cultural quotient [CQ] and a self-efficacy assessment based on the AAC&U essential student learning outcomes construct of intercultural knowledge and competence.

The self-efficacy assessment requested students to rate their perceived ability to articulate a relevant example of their intercultural knowledge when communicating with a prospective employer. Students rated their self-efficacy on a 7-point Likert scale. Once completed, faculty researchers collected student responses and began the curricular administration of program content. Students engaged in monthly pre-departure meetings leading up to the short-term study abroad experience. Throughout the preceding semester, students engaged in reflective practice through assignments designed to facilitate student exploration of the visiting cities and significant components of professional industries associated with the cities. Pre-departure meetings were designed to prime students with content to make them active, critical observers of their forthcoming destinations and industry site tours.

Students were also administered the cultural quotient [CQ] pre-test before departure to Turin and were administered the cultural quotient post-test upon completion of the study abroad portion of the short-term course. Participation in the QC was voluntary and the administration of the assessment was conducted in an online format through the Cultural Intelligence Center. A total of 15 students completed the pre-test and post-test assessments. Two additional students completed the pre-test assessment only and chose not to complete the post-test assessment. For purposes of evaluating student pre-test and post-test results, the researchers only utilized data from the 15 students that completed both assessments. Upon completion of the course, students were given official CQ results detailing their cultural strengths and areas for development.

When students arrived to their travel destinations of Turin, Milan and Barcelona, the students participated in a structured experiential learning curriculum during the day and were given the autonomy to engage in self-guided exploration in the evenings. Over the course of two weeks, students and the faculty researchers explored significant historical, cultural and social components of each city. Additionally, all program participants met with industry professionals to learn about business, commerce and education in each location. While on industry site visits, students were able to actively tour business facilities, learn about globalization and its impact on industry, and share observations and questions with industry professionals. Students were encouraged to situate their learning in the context of their anticipated professions as students represented a myriad of divergent academic disciplines.

Upon the conclusion of the short-term study abroad experience, students engaged in faculty-led, post-experience reflections where they were given the opportunity to share their personal learning with their peers. As mentioned, students were given the cultural quotient assessment and the AAC&U self-efficacy assessment to complete the post-experience data collection. Finally, students were allotted a period of time following their post-experience reflection to complete an electronic portfolio structured around content comprised within the AAC&U's VALUE rubric on intercultural knowledge and competence. Students turned in electronic portfolios to the faculty researchers for formative feedback administered through the intercultural knowledge and competence rubric.

The faculty researchers sought to determine two separate research questions with respect to the short-term study abroad experience. [R1] Would undergraduate students exhibit higher scores on the cultural quotient assessment following the conclusion of an immersive, short –term study abroad experience? [R2] Would undergraduate students indicate higher self-efficacy in relation to AAC&U's essential student learning outcome of intercultural knowledge and competence following the conclusion of an immersive, short-term study abroad experience?

To determine R1 the faculty researchers administered a paired samples t-test to measure pre-test versus post-test means on the CQ assessment. The faculty researchers utilized a .05 confidence interval to determine statistical significance. To determine R2, similarly the faculty researchers administered a paired samples t-test to measure pre-test and post-test student reported self-efficacy levels of intercultural competence the a 7-point Likert Scale. The faculty researchers utilized a .05 confidence interval to determine statistical significance.

<div align="center">RESULTS</div>

A total of 15 students completed the pre-test and post-test assessments with respect to R1. The researchers analyzed student results specifically pertaining to the knowledge capability within the CQ framework. The knowledge capability was isolated exclusively for this study as this capability represents the general knowledge obtained through the course experience, which is a reasonable construct to examine in connection with the study. Results

from the analysis showed that students had significantly higher CQ knowledge capabilities following the completion of the short-term study abroad course when compared with their initial assessment results prior to the course. Specifically, 9 out of 10 CQ questions pertaining to the knowledge capability (Figure 1) showed statistically significant findings.

FIGURE 1: Knowledge Capability (Cognitive CQ) Results

	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19
Observations	15	15	15	15	15	15	15	15	15	15
t-stat	2.356	2.958	2.476	3.90	2.708	4.090	2.350	2.956	4.183	3.223
P(T<=t) (two tail)	0.033	0.010	0.026	0.001	0.016	0.001	0.033	0.010	0.0009	0.006
Pre-mean	4.733	4.400	4.266	3.600	3.333	2.600	2.866	3.933	3.733	3.400
Post-mean	5.666	5.400	5.133	4.733	4.266	3.533	3.866	4.866	5.066	4.800

The researchers conducted pre-tests and post-tests regarding student self-efficacy to evaluate R2. A total of 8 class participants completed the pre-test and post-test. A total of 8 additional students chose not to complete the post-test, but did complete the pre-test. The 8 students that did not complete the post-test were omitted from the paired samples t-test when comparing sample means. The results of the paired samples t-test revealed a slight significant difference when comparing student self-efficacy pertaining to intercultural knowledge and competence prior to the short-term study abroad experience and after the short-term study abroad experience. Thus, students that engaged in the short-term study abroad experience reported slightly higher levels of self-efficacy related to the measured construct of intercultural knowledge and competence. Further, one could reasonably postulate that a short-term study abroad experience positively impacted levels of student self-efficacy related to the construct of intercultural knowledge and competence. Results from the paired samples t-test are revealed below in Figure 2.

FIGURE 2: t-Test: Paired Two Sample for Means

	6	6
Mean	5.875	4.625
Variance	0.410714286	3.125
Observations (n)	8	8
Pearson Correlation	0.583201701	
Hypothesized Mean Difference	0	
df	7	
t Stat	2.375954817	
P(T<=t) one-tail	0.024586857	
t Critical one-tail	1.894578605	
P(T<=t) two-tail	0.049173714	
t Critical two-tail	2.364624252	

DISCUSSION

Student t-scores with respect to R1 revealed the highest significance pertaining to student cognitive understanding of leadership styles across cultural settings [Q15] and describing different ways of motivating and rewarding people across cultures [Q18]. Essentially, students rated their ability to describe the ways the leadership styles differ across cultural settings significantly higher following the completion of the short-term study abroad course. Additionally, students showed significantly high perceptions of abilities to motivate and reward people across

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cultures. The researchers posit students' increased score on the understanding of leadership styles across culture settings [Q15] may be the result of exposure to three industry site visits on the short-term study abroad course. Students toured facilities and had the opportunity to interact with top executives at each industry site. Students may have concluded that experiencing three very distinct industry cultures enhanced their ability to understand different leadership styles across cultural settings. It is important to acknowledge that all four CQ capabilities determine overall CQ scores and this paper focused solely on students' knowledge capacity within the CQ framework.

When evaluating R2 the sample size that completed both the pre-test and post-test evaluations was very small. With 8 participating students choosing not to complete the post-test evaluation of self-reported intercultural knowledge and competence, the results of this study are limited and difficult to generalize. Thus, this study would be improved substantially with a larger sample size that completed both the pre-test and post-test evaluations. Nonetheless, results of the self-efficacy assessment revealed that students perceived abilities to demonstrate intercultural knowledge and competence when communicating with a prospective employer was enhanced. This result further supports the notion that a short-term study abroad experience could prepare students for future employment.

FUTURE IMPLICATIONS

The evaluation of student self-efficacy with relation to their experiential learning participation in a short-term study abroad experience is a reasonable construct to study in connection with students' undergraduate experience. Future research should expand the student survey assessment over time by implementing the survey over multiple years of course participation. Further, expanding the sample size (n) to ensure a higher value of participating students complete pre-test and post-test evaluations could add to the validity of the study substantially.

Additionally, the research within this study does not factor in prior student experiences abroad for curricular or non-curricular reasons. Thus, this research does not currently have a control in place to determine the extent to which prior experience abroad may or may not impact student self-efficacy or CQ. A possible consideration for future study integration could be the implementation a control method to account for prior experiences abroad.

Moreover, students in this study participated in self-reporting of their perceived levels of intercultural competence through the administration of a structured pre-test and post-test self-efficacy survey. This study could be expanded in the future through developed measures that could provide more objective student assessments to control for self-reported data unreliability. For instance, the administration of a normed evaluative measure such as the Multicultural Personality Model (Van der Zee & Van Oudenhoven, 2000) or Bennett's Model of Intercultural Sensitivity (1986) could be employed within the curriculum to expand the area of research surrounding these established tools.

The research institution is administering the CQ scale across multiple short term study abroad courses as well as semester long internship programs in spring of 2018. Analysis of additional data will help determine if there are consistencies across multiple short term study abroad courses. Additional analysis will focus on semester long internship immersion. Comparative analysis could be completed analyzing short-term study abroad courses data to semester long internship data.

Finally, this study was administered within one section of a short-term study abroad course focused on student intercultural competence and professional development. Future research consider applying the confidence survey methodology across other sections of short-term study abroad courses at the researching institution. The expansion of this methodology to other courses could help determine if student self-efficacy can be facilitated in other comparable short-term immersion experiences or if the facilitation of this construct is impacted exclusively in this course.

CONCLUSION

This study expands on existing literature on the value of study abroad and cultural immersion experiences in a higher education context. Specifically, this study reveals that even experiences that are limited in duration can still provide justification to the impact of experiential learning globally. Moreover, short-term study abroad experiences can be a medium to evaluate essential student learning outcomes tied to course priorities and influence students' cultural intelligence.

Through this study the researchers found some evidence that essential student learning outcomes, such as the development of intercultural knowledge and competence can be explored in connection with a short-term study abroad course. This study provides evidence that cultural immersion experiences could facilitate heightened levels of student self-efficacy with relation to the intercultural knowledge and competence essential student learning outcome derived from AAC&U.

Cultural intelligence revealed statistically significant growth in knowledge capability for students who completed a short-term study abroad course. This data confirms increased cultural awareness of students who participated in the short-term study abroad course. Students identified particular growth in the ability to describe the ways that leadership styles differ across cultural settings and the ability to describe different ways to motivate and reward people across cultures. Further research including multiple study abroad courses may reveal additional substantiation of student CQ growth in short-term study abroad contexts. The researchers hope this study will provide further reasoning for the value of immersive, work-integrated learning, study abroad experiences embedded within undergraduate curricula.

REFERENCES

Alanson, E. & Robles, R. (2017). Using electronic portfolios to explore essential student learning outcomes in a professional development course. Asia-Pacific Journal of Cooperative Education. 17(4), 387 – 397.

Ang, S., & Van Dyne, L., (2008). Conceptualization of cultural intelligence: Definition, distinctiveness, and nomological network. In S. Ang, & L. Van Dyne, (Eds.) Handbook on Cultural Intelligence: Theory, Measurement and Applications (pp. 3-15). Armonk, NY: M.E. Sharpe.

Association of American Colleges and Universities. (2009). Intercultural knowledge and competence VALUE rubric. Retrieved from https://www.aacu.org/value/rubrics/intercultural-knowledge.

Bennett, M. J. (1986). A developmental approach to training for intercultural sensitivity. Int. J.Intercult. Relat. 10: 179 – 196.

Bennett, M. J. (2008). Transformative training: Designing programs for culture learning. In Contemporary leadership and intercultural competence: Understanding and utilizing cultural diversity to build successful organizations, ed. M. A. Moodian, 95-110. Thousand Oaks, CA: Sage.

Earley, P. & Ang, S. (2003). Cultural Intelligence: Individual Interactions across cultures. University of Chicago Press.

Gardner, P., Gross, L., & Steglitz, I. (2008). Unpacking your study abroad experience: Critical reflection for workplace competencies. CERI Research Brief. 1 (1).

Kolb, D. A. (1984). Experiential learning: Experience as the source of learning and development. Englewood Cliffs, NJ: Prentice-Hall.

Leung, K., Ang, S., & Tan, M. L. (2014). Intercultural competence. The Annual Review of Organizational Psychology and Organizational Behavior. 489 – 519.

Rhodes, T. (2009). Assessing outcomes and improving achievement: Tips and tools for using the rubrics. Washington, DC: Association of American Colleges and Universities.

Van der Zee, K. I., & Van Oudenhoven, J. P. (2000). The multicultural personality questionnaire: A multidimensional instrument of intercultural effectiveness. European Journal of Personality. 14: 291 – 309.

The integration of work-integrated learning in teacher education

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ABSTRACT

The Technical and Vocational Education and Training (TVET) sector is part of the post-school system in South Africa. This sector provides training for the mid-level skills required for entry into employment. It also contributes to socio-economic development. In the South African context, the demand for relevant and sufficient skills for the labour market constitutes one of the fundamental challenges facing the post-school system. This qualitative study examined the need for an industry-based Work-integrated learning (WIL) component in professional development teacher education programmes for TVET staff. The findings of the study were collected from two capacity-building workshops attended by representatives of 14 South African universities, which aimed at developing a curriculum for industry-based WIL in teacher education professional development programmes. The Activity Theory by Engeström (2001) was used to describe the development of an industry-based WIL component for TVET lecturers. The study revealed that most TVET systems are supply-driven and struggling to respond to economic and technological demands, which exacerbates skills mismatches in the labour market. It is therefore necessary to consider the lecturer preparation, professional development; skills delivery and alignment of curriculum to labour market demands. The results are part of a larger study in progress that aims to develop a framework for the development and implementation of Industry-based WIL in teacher education.

Keywords: Work-integrated learning; TVET; Teacher education; Industry-based WIL; Capacity building; Professional development

INTRODUCTION

The post-school system in South Africa is made up of different Higher Education Institutions (HEIs) including universities; Technical and Vocational Education and Training (TVET) colleges (formerly known as Further Education and Training [FET] colleges); and community colleges (DHET, 2013). All these HEIs provide students with the skills, knowledge and attitudes necessary for employment. The TVET sector, particularly, provides opportunities for skills development and acquisition (Arfo, 2015:10) for the socio economic development of the country. Research on the skills shortage has shown the country's acute skills shortage hence the emphasis on TEVT colleges to should provide training for the mid-level skills required for employment.

According to the South Africa Council for Educators (SACE) (2011), the TVET sector is important for the future skills base of many countries including South Africa. In the South African context, the supply of skills with demand in the labour market constitutes one of the fundamental issues in the skills development policy (Reddy et al., 2016). However, because of the economic and technological change worldwide, the inability of most TVET systems to adequately respond to these challenges can mostly be associated to a major skills mismatch due to an insufficient demand orientation in TVET. It is therefore crucial to consider the TVET system in terms of lecturer preparation, skills delivery and alignment of curriculum to the labour market demands. This can be done through the integration of a workplace element in qualifications that train TVET lecturers. TVET lecturers are required to be knowledgeable about industry demands and be able to produce graduates who meet these demands (SA, 2013). According to Schuller and Bergami (2012), practically-based curriculum approaches need to be implemented because they can inform students about contemporary work practices that enable graduates when entering the workforce.

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TVET curricula has been identified as a weak point in the learning chain and the gap between the TVET training system, employment needs and opportunities keeps widening when the question on what to train is defined by closed-circuit training provider systems. It is against this background that the South African Department of Higher Education and Training (DHET) introduced the Policy on Professional Qualifications for lecturers in the TVET sector which selects qualifications from the Higher Education Qualification Sub-Framework (HEQSF) for TVET lecturer/teacher education, to be offered by HEIs. The policy suggests that TVET staff need to do both teaching practice and industry-based Work-integrated learning (WIL) (SA, 2013). The qualifications suggested in the policy should provide basic competences for newly qualified TVET lecturers and have one of the umbrella concepts as integrated and applied knowledge (SA, 2013). For students to be meticulously trained and educated about contemporary work processes, the educator also needs to have an understanding of the teaching and learning practice (Schuller & Bergami, 2012). Industry-based WIL across TVET lecturer qualifications needs to be structured, supervised and assessed in appropriate teaching and specialized workplace settings. Assessment also needs to form a significant part of the WIL component, and must be integrated and appropriately spread across the programmes (SA, 2013). The guidelines for industry-based WIL in professional development teacher education qualifications as stipulated by the DHET in the Policy on Professional Qualifications for Lecturers in Technical and Vocational Education and Training are as follow:

QUALIFICATION	WIL PERIOD	SPECIFICATIONS
Diploma in Technical and Vocational Teaching (Dip TVT) NQF level 6	18-24 weeks of WIL in appropriate teaching settings and specialized workplace settings	A minimum of 9 weeks of the teaching settings component. A minimum of 9 weeks for lecturing specialization in technical/vocational in nature. A minimum of 2 weeks for lecturing specializations that are general/academic in nature.
Bachelor of Education in Technical and Vocational Teaching (B Ed TVT) NQF level 7	32-40 weeks of WIL in appropriate teaching settings and specialized workplace settings	Between 16 and 20 weeks of the teaching settings component. Between 16 and 20 weeks of specialized workplace settings component for lecturing specialization in technical/vocational in nature. A minimum of 4 weeks for lecturing specializations that are general/academic in nature.
Advanced Diploma in Technical and Vocational Teaching (Adv Dip TVT) NQF level 7	A minimum of 10 weeks and a maximum of 12 weeks of WIL	A minimum of 8 weeks of the teaching settings component, of which at least 4 should be consecutive. A minimum of 2 weeks for the specialized workplace settings component.

The policy for TVET lecturers clearly emphasises that institutions offering TVET programmes need to have sufficient, appropriately qualified and competent lecturers who understand and have expertise in both the academic and work-related dimensions of TVET industry sector in order to make the critical contribution expected of them. In this policy, WIL in professional programmes include the classroom and industry component. TVET lecturers therefore need to be competent and knowledgeable in both the practical and theory components and their

programmes should emphasize on industry-based WIL to match TVET curriculum. The first stage of developing and integrating industry-based WIL in the curriculum is to explore the needs of different WIL stakeholders and the nature of the industry-based WIL component. This qualitative study therefore examined the need for an industry-based WIL component in the professional development teacher education programme for TVET staff. Literature on the TVET system and why it needs the workplace element in its curricula is discussed in this paper. The activity theory which was used as the lens to discuss the need for industry-based WIL in teacher education and the methodology used to collect the data are explained. The paper also describes, through a single activity system, the process followed to identify and discuss the needs for industry-based WIL in teacher education.

LITERATURE REVIEW

Industry-Based Work-Integrated Learning in Teacher Education

One of the main purposes of HEIs, including TVET colleges, is to prepare students for the world of work. TVET colleges' staff thus need to get regular workplace experience so as to keep abreast of developments in industry because they have the responsibility to equip students with the required skills. Industry exposure for lecturers includes learning in and from the workplaces through industry visits, placements and other interactions with industry (DHET, 2013; SA, 2013). Studies have indicated that many TVET lecturers in South Africa are not that confident in their abilities to pass on practical skills to their students and are in urgent need of a practical up-skilling intervention (ECCSEC-JIPSA, 2009; Wedekind, 2016). Young (2006) proposed models to address this challenge, one of which promotes professional development through a joint responsibility and partnership between TVET colleges and universities and addresses the issues of specialist vocational pedagogy and curriculum knowledge. This challenge can also be addressed through different forms of adequate capacity building of lecturers. Barends and Nel (2017) stress that the implementation of the WIL aspect in teacher education and capacity building requires all stakeholders to rethink every aspect of WIL.

WIL is defined by the Council of Higher Education (CHE, 2011:4) as an "educational pedagogy comprising curricula, pedagogic and assessment practices across a range of academic disciplines that integrate formal learning and workplace concerns". These curricula, pedagogic and assessment practices support the integration of theory and practice in student learning which is what the implementation of WIL approaches aims to achieve (CHE, 2011). The integration of WIL in the teacher education curriculum or any curriculum however needs consideration and should be properly planned. Policies on teacher education qualifications (DHET, 2011, SA, 2013 and SA, 2011) emphasize that WIL or learning-in-practice needs to be structured, supervised, integrated into the learning programme, spread across the learning programme and it must be formally assessed. In support, Barends and Nel (2017) explain that for WIL in teacher education to be a success, universities need to implement innovative mechanisms to strengthen it, which starts with identifying the needs, the nature and resources needed to develop, integrate and implement it in curricula.

The Swiss South African Cooperation Initiative (SSACI) carried out a study on TVET lecturer industry-based WIL placements in which lecturers were placed in industry for short periods of time in order to develop skills and improve alignment between practices in education and industry. The results of this project revealed that the relationship between industry and education is not straightforward, nor is the relation between vocational institutions and industry (Van de Bijl, 2016). According to Van de Bijl and Taylor (2016), TVET lecturers should undertake workplace-based learning to improve their knowledge of practice and improve their theorization and teaching skills. This study, emphasized on the need for further research on industry-based workplace learning for lecturers.

In South Africa, as in other African countries, one of the main challenges of vocational systems as alluded to above is the need to respond to the fast-changing requirements of the labour market. To this end, more effective partnerships between vocational training and the world of work is required (DHET, 2013). Field, Musset and Alvarez-Galvan (2014) assert that "a very wide range of evidence shows that effective vocational programmes can be part of the answer by providing practical training linked to the prospect of a job, smoothing the transition from

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school to work". Hence the importance of developing and integrating industry-based WIL in professional programmes for TVET staff so that they are able to effectively implement, assess and generally use WIL to create a link between industry and school and help students transition from school to work in their colleges.

THEORETICAL FRAMEWORK

Activity Theory

Activity Theory (AT) was used as the basis of theoretical framework in this study. Originally introduced by Vygotsky, later expanded by Yrjö Engeström, AT can be described as an activity or a system in which the researcher explores who is doing what, why and how. According to Engeström (1987, 2001), there should be a goal that a certain community wishes to reach in AT. Hasan and Kazlauskas (2014) also explained the AT as a lens that can be used in research where activities of a certain system are identified together with each activity's subject(s), object and purpose followed by the identification of the actions and mediating tools of the activity or tools; where tools can be primary, secondary or tertiary.

The AT has been developed in three generations over the years. The first generation of AT was an activity mediation approach by Vygotsky (1978) in which individuals' cultural artefacts are combined with their actions in order to reach a certain goal. In the second generation, Engestrom argued that artefacts be considered as part of the human actions and the mediation should be explored in its relationship with other components of the activity system. The elements of community, rules and division of labour were then added. In addition, Engestrom (1999) expanded the system in the third generation and emphasized on the importance of contradictions within activity systems and their ability to bring about change and development In the third generation of AT, Engestrom used joint activity systems to explain social transformations, change and development through multiple perspectives and contradictions (Engestrom, 1999). A single AT model by is used to explain the need for industry-based WIL in this study.
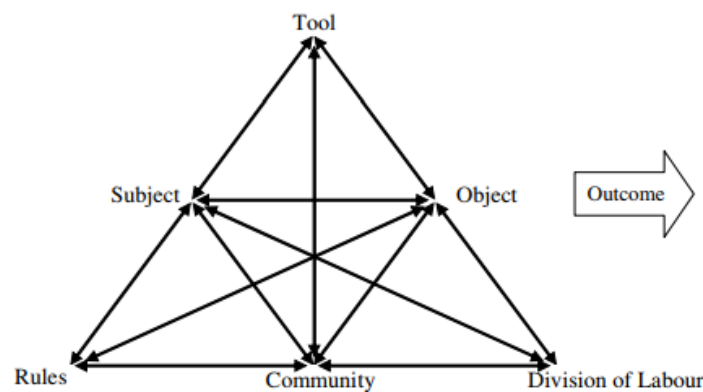
Figure 1. Engeström's Expended Activity Theory Model (Engeström, 2001).

In Engestrom's model of AT, the relationship between the subject (the doer) and the object forms the core of the activity. The object (the thing being done) of an activity encompasses the activity's focus and purpose while the subject incorporates the subjects' various motives. The outcomes of an activity can be intended ones, and in the context of this study, the outcome is the need for industry-based WIL in teacher education. The theory also recognizes emerging or unintended outcomes as the activity progresses. The subject of an activity system is the person, or group of people whose perspective is the focus of the analysis. The object is the goal or motive of the activity system as a whole. Both subject and object are influenced by mediating tools or artefacts, the nature of the community to which the activity system belongs, the rules of normal behaviour appropriate to the system and the division of labour within the system (Wilson, 2014:22).

METODOLOGY

This qualitative study aims to explore the need for the industry-based WIL component in teacher education professional development qualifications for TVET staff. Quality in qualitative research is described by Lune and Berg (2017) as the exploration of the "what, how, when, where, and why" of a phenomena. The essence and ambience of the phenomena is therefore described in qualitative research.

Purposive sampling was used to select the two representatives from 14 South African universities. Purposive sampling is defined by Richie, Lewis and Elam (2003) as an action in which members of a sample are chosen with a purpose to represent a location or type in relation to key criterion and the chosen sample "ensures that all key constituencies are relevant to the subject and that within each of the key criteria, some diversity is included so that the impact of the characteristic concerned can be explored" (Richie, Lewis & Elam, 2003, p. 79). Two staff members from each of the 14 universities (n=28) were purposively selected in this study on the basis that they are skilled personnel in curriculum design and teacher education and would be responsible for the curriculum development of the professional development qualifications for TVET staff at their respective universities.

Focus group discussions were held at two capacity building workshops to develop curriculum for industry-based WIL and used to collect data discussed in this study. The representatives from 14 South African universities were the respondents in the focus groups and provided their personal and institutional viewpoint on the need for the industry-based WIL component in teacher education. The AT, as a framework for analysing data, provides means for observing the emergence of patterns in human activity, in terms of achieving goals and purposes, awareness, focus of attention and tools (Hashim & Jones, 2007). An activity system is therefore used in this study to describe the activity analysing the needs for industry-based WIL in teacher education professional development qualifications.

FINDINGS AND DISCUSSION

Faculties of education in South African universities, as alluded to in the Policy on Professional Qualifications for lecturers in the TVET sector (SA, 2013), need to collaborate and try to develop a culture of mutual learning through the development of professional development programmes for TVET lecturers. This collaboration enables them to identify areas of common strength and potential of conceptual growth, especially on the integration of the workplace learning element in teacher education curriculum. The TVET sector has been highlighted in the findings of this study as a tool to be used for the enhancement of social and economic development in South Africa. However, this is currently not happening because of the inadequately educated workforce within TVET institutions which remain one of the challenges that face the South African TVET sector. The participants of this study are responsible for curriculation of various teacher education professional development qualifications for TVET lecturers and especially on the practical component of these qualifications. The respondents are accustomed to using teaching practice as the WIL modality in teacher education. The industry-based WIL component therefore distinguishes TVET qualifications from regular teacher education, hence the need to explore what constitutes industry-based WIL needs from perspectives of different stakeholders.

The workshop facilitators suggested a focus group activity, in which all university representatives were requested to come up with posters which metaphorically stipulate the different industry-based WIL stakeholders and what their needs from WIL are, in order to identify and discuss why industry-based WIL should be integrated in teacher education. The factors surrounding these needs were also addressed in the focus group discussions and presentations. The stakeholders that were identified to be beneficiaries of industry-based WIL from all focus groups are: the country and community/society; higher education providers; lecturers/TVET sector; the workplace/industry; professional bodies; and students. This is in line with (CHE, 2013; DHET, 2013) who state that these stakeholders are central to consider when developing and identifying the need for WIL in a specific programme. Below is the activity system that stipulates the focus groups discussion on the industry-based WIL needs of all stakeholders.
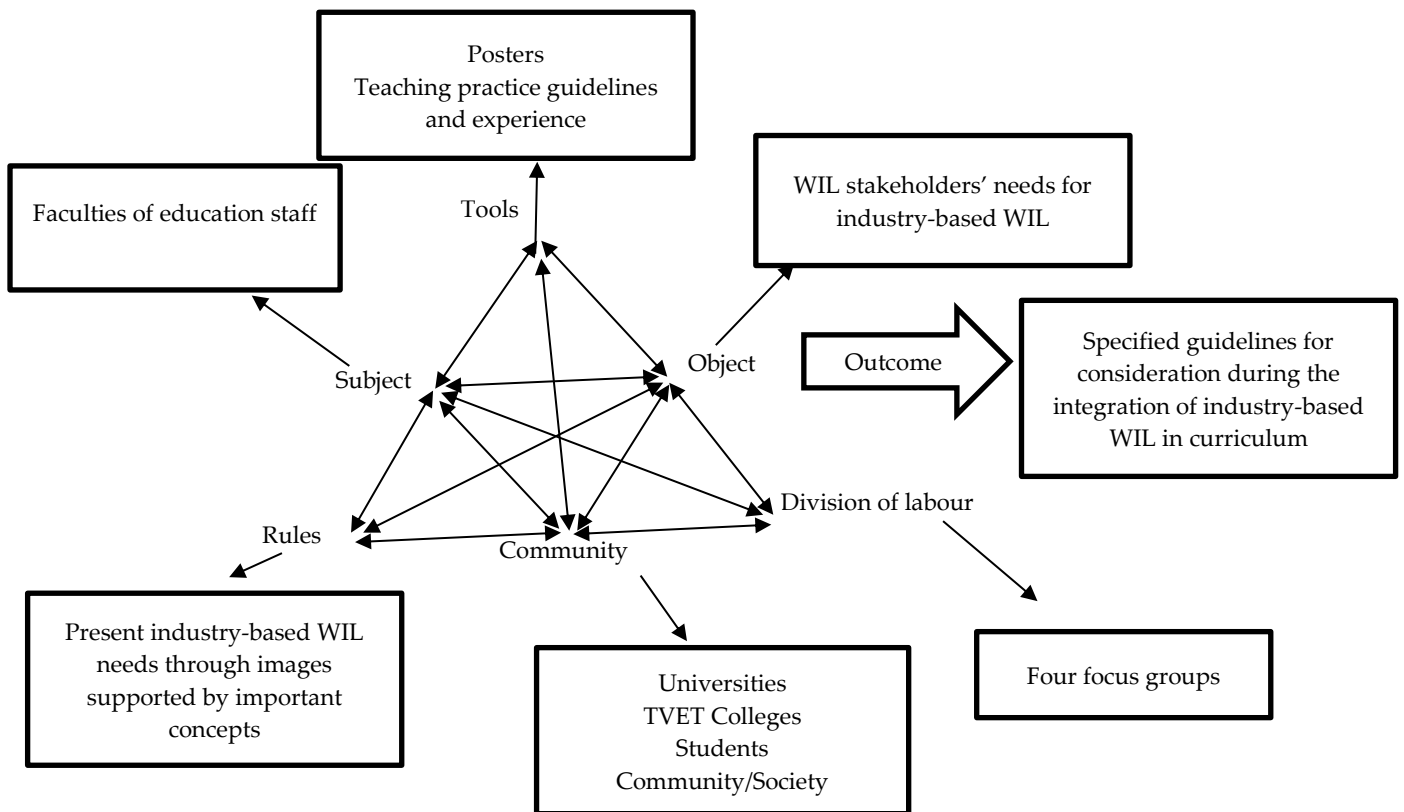
FIGURE 2: Activity system for identifying various stakeholders' industry-based WIL needs

The relationship between participants from all 14 faculties of education and the object (identifying WIL stakeholders' needs for industry-based WIL) and factors around them, formed core of this activity. The identification of the needs was thus the purpose of this activity to which the subjects (all participants) contributed with their different backgrounds and experiences. The community, students, industry and the TVET sector who will benefit from the industry-based WIL were put into consideration. All participants followed the rules stipulated by the facilitators which were to create pictorial representations of the needs with the verbal inclusion of the main concepts only, to describe the picture. The participants also each engaged in the group discussions to reach the outcome. However, during the discussions, contradictions and different participants' viewpoints led to additional and new outcomes at the end of the activity.

The first group presented their results regarding WIL needs in a form of a tree. The roots of the tree were presented as a clear underpinning WIL philosophy, while the stem of the tree was presented as the higher education providers, who in this context are the faculties of education. HEIs play an important role in producing the actual WIL component in its entirety. According to this group, higher education providers need to note that in order to successfully develop a successful workplace learning component in the curriculum, the context in which it is prepared should be put into consideration as well as the ethics related to the content and pedagogy. Higher education providers therefore need to be capacitated in terms of costs and resources which will assist them in sustaining the programmes. They also need to be aligned in terms of discipline knowledge and practice; and be socially responsive. This will benefit the braches of the tree who, in this context are the employers, lecturers; the community and students who should be responsible, innovative, critical thinkers, informed and professionals.

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The second group created an image of WIL as a social responsibility in a city comprising all stakeholders. The stakeholders of WIL are the community or country in general; the students and higher education providers. WIL is a social responsibility whose benefits will be reaped by all stakeholders and the benefits only extend to all of them if factors such as: resources to be used and the economy of the country are put into consideration. This group highlighted the importance of guidance in WIL. According to them, mentorship should be central in WIL.

In the third group, industry-based WIL was presented as drops of water from a tap, from which everyone should benefit. Similar to the previous groups, stakeholders who will benefit and work towards making industry-based WIL a success include: the state, society, industry and professional bodies whose role in the South African context are to offer assistance in WIL processes and approve the policies regarding WIL.

The final group presented WIL as a pot on fire. In this context, the students or TVET lecturers are the content inside the pot. The content inside the pot needs to be well-cooked and ready to perform in the workplace and plough back into TVET colleges to produce graduates who meet the needs of the labour market. The wood or fuel that is used to light the fire was presented as the factors that should be considered to meet the needs of all stakeholders and make industry-based WIL in teacher education a success. These are the policies in place, cultures, roles, responsibilities, mentorship, Information Communication Technology, standards, and ethics in HEIs, professional bodies and industry.

However, during the discussions, emphasis was placed on the need to discuss industry-based WIL in specific programmes according to their specifications such as the qualifications level on the National Qualification Framework (NQF) and the period of both WIL in the classroom and the workplace. This also meant that the varying learning outcomes should be considered and cannot be generalised for all qualifications. This would however bring forth completely new activity systems for each qualification which will then be combined to form a collective framework for industry-based WIL in teacher education. The discussions therefore brought to light the need to examine the context, needs of specific stakeholders and outcomes of a specific programme before conceptualising and integrating industry-based WIL in it. The European Commission (2015) confirms this from TVET lecturers' perspective that the alignment of needs to specific qualifications is particularly important because components such as industry-based WIL for TVET lecturers should be aligned to lecturers who come from different TVET systems or the level in which they operate, the subjects they teach hence the industry they will go into, the subjects they teach and the qualifications they already have.

CONCLUSION

This study revealed that most TVET systems are supply-driven and struggling to respond to economic and technological demands, which exacerbates skills mismatches in the labour market. It is therefore necessary to consider the lecturer preparation, professional development; skills delivery and alignment of curriculum to labour market demands. The starting point towards achieving this and integrating the above in curriculum is through the identification of the needs of all key beneficiaries and stakeholders of industry-based WIL in TVET. The results of this study are part of a larger study in progress that aims to develop a framework for the development and implementation of Industry-based WIL in teacher education.

REFERENCES

Arfo, E. B. (2015). A comparative analysis of technical and vocational education and training policy in selected African countries. Doctoral thesis, University of KwaZulu-Natal, Durban, South Africa.

Barends, Z. & Nel, C. (2017). Work-integrated learning within the reading literacy component of foundation phase teacher preparation programmes. South African Journal of Childhood Education 7(1), a435. https://doi.org/10.4102/sajce.v7i1.435

Council on Higher Education (CHE). (2011). Work-integrated learning: Good practical guide, HE Monitor No12. Pretoria, South Africa: Council on Higher Education.

Council on Higher Education (CHE). (2013). The Higher Education Qualifications Sub-Framework (Act 67 of 2008). Pretoria: Council on Higher Education (CHE).

Department of Higher Education and Training (DHET). (2013). White paper for post education and training: Building an expanded, effective and integrated post-school system. South Africa, Pretoria: Department of Higher Education & Training.

Eastern Cape Consortium for Socio-Economic Cooperation (ECCSEC)- Joint Initiative for Priority Skills Acquisition (JIPSA). (2009). Further Education and Training (FET) Colleges Systemic Audit 2008/2009: Towards improving performance in the FETC sector. Bisho: Eastern Cape Department of Education, ECCSEC, and JIPSA.

Engeström, Y. (1987). Learning by expanding: An activity theoretical approach to developmental research. Orienta-Konsultit: Helsinki.

Engeström, Y. (2001). Expansive Learning at Work: toward an activity theoretical reconceptualization. Journal of Education and Work, 14, pp. 133-156.

Engeström, Y. (1999). Innovative learning in work teams: analysing cycles of knowledge creation in practice. In Y. ENGESTRÖM et al (Eds.) Perspectives on Activity Theory, Cambridge, Cambridge University Press, pp. 377-406.

European Union. (2014). TVET college lecturer education annex report. Luxembourg: European Commission.

Field, S., Musset, S., & Alvarez-Galvan, J. (2014). A skills beyond school review of South Africa. OECD Reviews of Vocational Education and Training. Retrieved from https://www.oecd.org

Hashim, N. & Jones, M. L. (2007). Activity theory: A framework for qualitative analysis. In 4th International Qualitative Research Convention (QRC), 3-5 September, 2007, PJ Hilton, Malaysia.

Lune, H. & Berg, B. L. (2017). Qualitative research methods for the social sciences, (9th ed.). Harlow, England: Pearson Education Limited.

Reddy, V., Bhorat, H., Powell, M., Visser, M. & Arends, A. (2016). Skills supply and demand in South Africa. Human Sciences Research Council, Pretoria, SA: LMIP Publication.

Ritchie, J., Lewis, J., & Elam, G. (2003). Designing and selecting samples. In J. Ritchie & J. Lewis, (Eds.). Qualitative research practice: A guide for social science students and researchers (pp. 77-108). Thousand Oaks, CA: Sage.

Schuller, A. & Bergami, R. (2012). Industry placement experiences in vocational education: Voices from Australia. International Journal of Knowledge, Culture and Change Management, 11(6). pp. 29-48.

South Africa (SA). (2013). Policy on professional qualifications for lecturers in technical and vocational education and vocational education and training. Government Gazette, 576(36554).

South Africa Council for Educators (SACE). (2011). Position paper on the professional registration of FET College educators. Accessed: November 27, 2017 from http://www.sace.org.za/about-sace.php.

Van de Bijl, A. (2016). Implications of TVET and ACET policy frameworks for teaching practice. Proceedings of the Seventh Annual Teaching Practice/didactics Symposium, South Africa.

Van de Bijl, A. & Taylor, V. (2016). Nature and dynamics of industry-based workplace learning for South African TVET lecturers. Industry & Higher Education, 30(2), 99-108. doi: 10.5367/ihe.2016.0297

Wedekind, V. (2016). Technical and Vocational Education and Training (TVET) reform in South Africa: implications for college lecturers, context and background. In South African Qualification Authority (SAQA) Bulletin, 15(1), pp. 1-29.

Wilson, V. (2014). Examining teacher education through cultural-historical activity theory. Teacher Education Advancement Network Journal, 6(1), 20-29.

Young, M. (2006). FET College teachers: A knowledge-based profession of the future. Perspectives in Education, 24(3), 153-160.

Alumni: A critical role at the research intersection of employability and international education

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ABSTRACT

The project in which this paper is situated applied stakeholder theory to a study of WIL in transnational higher education. Stakeholder models are frequently applied to WIL (see Patrick et al., 2008) due to the importance of collaboration in delivering WIL that benefits all parties. We theorise that stakeholder approaches are also particularly appropriate for addressing transnational higher education issues, specifically those around graduate employability that encompass cultural differences in work and learning contexts. Therefore our investigation of feedback from alumni stakeholders relevant to WIL internships of an Australian university in Vietnam was situated in a stakeholder theory framework, and employed a grounded theory methodological approach. We conclude that stakeholder theory applied to local business and learning contexts of the university's transnational campus provides essential insight into delivery of locally-relevant and mutually-beneficial education and employability initiatives.

Alumni in transnational university locations constitute a uniquely valuable feedback source based on their dual experience as students of universities that operate in transnational education (TNE) environments, and as fresh graduates making the transition to local work environments. As fresh graduates they can be highly credible mentors to later cohorts of students, and as their careers progress they are well positioned to collaborate in WIL activities and host student placements. In addition, we propose that collaborative mechanisms developed through stakeholder-based approaches can contribute to greater knowledge creation and sharing that enriches teaching as well as WIL programme delivery.

INTRODUCTION

This paper addresses a gap in research: understanding local alumni stakeholder perspectives of work-integrated learning delivered in transnational education (TNE) settings. The paper is based on one stage of a research project whose fundamental aim was to understand how to establish and implement effective work-integrated learning (WIL) internships in overseas campuses of universities. The wider project investigated perspectives of three WIL stakeholder groups of an Australian university's Vietnam campus (referred to as the AUV): human resource professionals, intern work supervisors, and AUV alumni.

This paper focuses on the Alumni stakeholder group, and contributes to WIL-related research from alumni stakeholder perspectives in two ways. First, it employs a grounded theory approach rarely seen in the literature around TNE. Second, it discusses the value that alumni attribute to the AUV WIL internship, and how their desire to stay connected to the AUV implies their potential contributions to effective WIL implementation and to positive student and institutional outcomes in transnational higher education contexts.

The paper is structured as follows. A literature review defines transnational education (TNE) and outlines the context for WIL-related research in the TNE and Vietnamese environments. The research background and setting is then introduced, providing a context for the methodology section that details how grounded theory evolved as an appropriate approach to the project. Findings that relate to the perceived value of WIL and the potential for developing WIL partnerships with alumni that have implications for TNE internship opportunities as well as wider significance to TNE providers are discussed.

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LITERATURE REVIEW

McBurnie and Ziguras (2006) defined TNE as applicable to situations where an education qualification is delivered by an institution in one country to students residing in another country, and proclaimed TNE as "controversy-rich but data poor" (p. 23). Although most of the research related to graduate employability comes out of the West, there is a growing body of research from other areas such as China, Sri Lanka, Malaysia, Thailand, Japan, South Africa, and Vietnam. Yet Campbell (2010) concluded that the relevance of university-mandated graduate attributes to international students returning to their home countries is questionable, supported by a study of the challenges Vietnamese graduates from Australian universities faced fitting into local work cultures on their return to Vietnam (Nguyen, 2010). Similar questions about the relevance of a foreign university degree to graduate employability in TNE host countries arise, particularly in the delivery of business degrees which enjoy both high demand and relative ease of establishment in offshore environments (Kosmützky & Putty, 2016)

The importance of authentic practice that extends beyond the classroom while maintaining academic teaching and pedagogical mechanisms is inherent in WIL literature (Orrell, 2011). Commonly-cited benefits of WIL include applying academic knowledge to real work situations, learning new skills, evaluating career fit, developing career awareness and developing networking contacts and skills (Flinders University, 2015). Despite this apparent wide-spread consensus, WIL represents a high-resource academic activity subject to debate on how it should be delivered and how its impact should be measured. Therefore, financial and resource costs of its implementation are controlling factors in its TNE implementation (Kosmützky & Putty, 2016). Unsurprisingly, Mellors-Bourne, Jones, and Woodfield (2015) reported that evidence of employability-related activities such as WIL is noticeably absent from TNE literature.

In Vietnam, the need for authentic, work-based activities integral to graduate employability is widely recognised ((Duoc & Metzger, 2007; Phan & Wongsurawat, 2016; L. H. N. Tran, 2017). However, the current disconnected stakeholder environment lacks support for WIL collaborations (L. H. N. Tran, 2017; TT Tran, 2013). TT Tran (2010) reported that students do not know what their degree qualifies them to do; a later publication (TT Tran, 2014) expanded on the gap between employer expectations and perceived graduate employability, attributing the mismatch to both university and industry stakeholders. More recently, there has been a growing awareness of the importance of shared university, industry and government collaborations in achieving better graduate employability outcomes (Vu, 2014), exemplified by the proposal of a WIL stakeholder approach modelled by Patrick et al. (2008) for effective tourism internship programmes (Cam, 2016).

RESEARCH BACKGROUND AND SETTING

The AUV offered a WIL internship elective in its undergraduate bachelor degree programmes that consisted of two credit-bearing units delivered concurrently as outlined below.

1. Professional development: a 12 week, full time internship completed during the semester

2. Personal development: six workshop sessions facilitated by academic staff delivered throughout the semester

WIL internship units were non-graded units – students received either Pass or Fail. Unit assessments included:

- a goal proposal where the intern proposed goals for the internship, to be approved by their work supervisor

- five reflective blog journal entries submitted to the learning management system (Blackboard)

- a final reflection submitted at the end of the internship

- an internship performance evaluation (completed by the work supervisor upon the placement conclusion).

AUV academics visited each intern and their supervisor at least once during the 12-week internship placement. Interns' academic obligations were explained (attendance at workshops, and regular blog journals), assessments that require the supervisors' participation addressed (the goal-setting assessment and intern performance

appraisal) and any questions about the AUV and its programmes discussed, usually face to face, but over the telephone or Skype in occasional instances where the intern's workplace access was unviable.

The general research question that formed the focus of this paper was: "What do alumni stakeholders of an Australian university in Vietnam perceive about the value of internships and work-integrated learning?" The following section outlines how the question developed and was explored through a grounded theory approach.

METHODOLOGY

Grounded theory as a methodological system has incorporated a myriad of interpretations and debates about its application since its introduction by sociologists Glaser and Strauss (Charmaz & Smith, 2003). A full discussion of grounded theory is beyond the scope of this paper, however this section will explain elements of grounded theory that are relevant to the paper. Grounded theory approaches are suited to process-related research in environments that lack developed theory around the research question (Creswell, 2007). As this paper's focus was situated in a socio-cultural research environment that lacks significant research around both the general phenomenon (WIL and employability within TNE contexts) and the specific socio-cultural setting (the higher education, industry and social context of Vietnam), grounded theory presented an appropriate avenue towards an understanding of locally-relevant stakeholder perspectives.

Grounded theory limits presuppositions, often starting with a general statement or research question that subsequently develops as conceptual proposals emerge through an iterative process of data collection and analysis known as constant comparative analysis, a defining element of grounded theory methods. Glaser (1965) explained that constant comparative analysis "is concerned with generating and plausibly suggesting (but not provisionally testing) many categories, properties, and hypotheses about general problems as the data is simultaneously collected and analysed" (p.438). This iterative process incorporates 'theoretical sampling' of additional people or groups in order to develop emergent themes (Leech & Onwuegbuzie, 2007).

SAMPLING

A theoretical sampling process consistent with grounded theory methodology developed as interview data were constantly gathered and analysed to the point of theoretical saturation, where additional collected data contributes little towards understanding of the phenomena and subsequent concept formulation (Patton, 2002). Two elements of theoretical sampling relevant to this paper's focus on alumni perspectives follow.

First, at the start of the wider project it was assumed that intern work supervisor and student intern stakeholders would be recruited, as is conventionally reported in WIL research. However, as data from intern work supervisors in the first stage of the project were collected and insights into their own transitions from university study to Vietnamese workplace environments analysed, alumni stakeholders were proposed as a richer source of insight into the research question than students due to their breadth of experience as AUV students and as employees who had made graduate transitions to local workplaces. Therefore 16 AUV alumni (seven male, nine female) with between one and five years of local work experience after completion of their undergraduate business degree were recruited through the researcher's personal contacts, LinkedIn contacts, and snowball sampling (where recruits were referred by other alumni).

Second, as alumni were interviewed and their responses repeatedly indicated the differences between local university internships and the AUV internships (differences that were also discovered during the interviews with work supervisors earlier in the research project), it was decided to include business graduate alumni from two high profile local universities. Two female alumni from local universities who had graduated between one and two years prior were subsequently recruited.

ANALYSIS

Semi-structured interviews of approximately one hour were recorded and then transcribed immediately following each interview. They continued to the point of theoretical saturation, where collecting more data added little to

concept generation. The initial interview guide mainly focused on questions directly relevant to the initial research question about related to the perceived value of WIL, such as: what motivated participants to either do or not to do a WIL internship elective; the value derived from the experience; differences between AUV internships and internships that their friends from local Vietnamese universities experienced; and about other WIL activities such as industry projects.

As unexpected topics emerged in the transcription process, the semi-structured interview guide incorporated additional probes based on a progressively heightened awareness of possible themes. A desire for enhanced alumni affiliation with the AUV was one such theme. That topic was then introduced into the interview conversation at relevant moments to gain increased insight into what alumni valued about these associations, and how alumni might contribute to improved WIL opportunities and experiences. Interview transcripts were uploaded to a Nvivo 10 qualitative analytical software package, where the rounds of coding processes created descriptive impressions of the data, then formed links and associations between these impressions and refined them to build bases for theory conceptualisation (Charmaz and Smith, 2003).

Incorporating detailed memos and research journals into the Nvivo project record was a consistent part of the analytical process. These activities are integral to grounded theory, helping researchers to avoid forcing data into existing theories and forming an audit trail. (Charmaz and Smith, 2003; Patton, 2002).

DISCUSSION OF KEY FINDINGS

Feedback from all respondents about the value of internships and the lack of coordinated support existent in local university internships reinforced the importance of collaborative support for internships, including guidance provided to source internships as well as continuous support through academic monitoring and goal-setting assessments. A second interesting finding was the desire of AUV alumni for ongoing closer connection with the AUV, leading to a proposal that TNE campus alumni are uniquely positioned to become a valuable element of the TNE provider's WIL stakeholder network.

VALUE OF INTERNSHIPS

All alumni recognised the value of WIL internships whether or not they had participated in the elective WIL internships at the FUV. All AUV respondents described: how friends who attended local Vietnamese universities received no official support to obtain placements; that academic staff had no contact with the host intern supervisor; and that academic assessments were not related to internship placement activities. Local university alumni recruited to triangulate the analysis echoed the AUV responses. Alumni who chose not to do the WIL internship elective saw themselves as confident and capable of finding internships or employment themselves, but recommended the WIL internships to students lacking confidence, capability and contacts. Five of the six alumni who did not do the AUV internship arranged their own internships after graduation. Internships were perceived as valuable learning opportunities, rather than as sources for permanent jobs. Possibly, as transnational degrees are based on foreign curricula, WIL internships may be even more valuable in offshore locations than they are in the home campus in order to provide culturally-relevant learning contexts.

VALUE OF ALUMNI AS PARTICIPATIVE STAKEHOLDERS

Several alumni expressed a desire for greater post-graduate affiliation with the AUV and greater efforts from the AUV to establish and maintain a vibrant alumni community in Vietnam. First, the alumni wanted to be able to keep in touch with other alumni in order to support each other in career and business goals. Second, participants shared their willingness to mentor current AUV students and interns, and share their post-study career transition career experiences as the following quote represents: "I am quite willing to do so. Because it is from real experience" (A01). These findings were not expected; initially, the purpose of interviewing alumni stakeholders was focused on discovering how WIL internships were valued, and how they might be improved to better support AUV graduates in transition. However as the desire for greater alumni affiliation appeared over the course of initial interviews, the reciprocal links and subsequent benefits that a greater focus on alumni stakeholder relationships could provide for

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WIL as well as for the wider academic context in the TNE environment emerged more clearly. Universities value alumni engagement and strive to keep alumni connections alive; however in offshore campuses, this institutional commitment may lack strength. The findings indicate that in TNE host cultures such as Vietnam that place high importance on networks, TNE institutions should support alumni networking strategies and develop partnerships with alumni who can relate to current TNE students, are willing to share their own TNE transition experiences as mentors, and can supply desirable intern placements as their own careers develop.

CONCLUSION

Alumni in transnational university locations constitute a valuable feedback source based on their dual experience as students of transnational universities, and as fresh graduates making the transition to local work environments. The alumni in this study provided insight into the value of WIL in a TNE context, and into the importance of maintaining strong connections with TNE campus alumni.

The support from the AUV in providing its students with planned internships was an advantage that differentiated the AUV from local universities. WIL internships provided AUV campus students with local experience where they could apply their foreign university-acquired knowledge to local work environments, develop confidence, and comfortably transition to local workplaces. The value of internships to TNE employability-related learning appears crucial.

This paper's findings also suggest that the stakeholder approach largely adopted by the WIL community has been overlooked as a potentially useful framework for TNE providers, particularly with regard to TNE campus alumni. Alumni stakeholders who after graduation form part of the local industry fabric are well-positioned to advance WIL opportunities in the organisations they work for and in the local industry associations they belong to. As fresh graduates, TNE campus alumni can be highly credible mentors to later cohorts of students. The evident desire to engage with students that the alumni participants exhibited therefore represents a valuable learning resource for TNE providers. This paper's research scope was limited to one country; future research to increase insight and understanding of the WIL stakeholder model in general and into TNE alumni WIL-related roles in other TNE environments are recommended.

REFERENCES

Cam, K. T. H. (2016). Work-integrated learning process in tourism training programs in Vietnam: Voices of education and industry. *Asia Pacific Journal of Cooperative Education, 17*(2), 149-161.

Campbell, A. (2010). Developing generic skills and attributes of international students: the (ir)relevance of the Australian university experience. *Journal of Higher Education Policy and Management, 32*(5), 487-497. doi: 10.1080/1360080X.2010.511121

Charmaz, K., & Smith, J. (2003). Grounded theory. *Qualitative psychology: A practical guide to research methods*, 81-110.

Duoc, T. Q., & Metzger, C. (2007). Quality of business graduates in Vietnamese institutions: multiple perspectives. *Journal of Management Development, 26*(7), 629-643.

Glaser, B. G. (1965). The constant comparative method of qualitative analysis. Social problems, 12(4), 436-445.

Kosmützky, A., & Putty, R. (2016). Transcending Borders and Traversing Boundaries: A Systematic Review of the Literature on Transnational, Offshore, Cross-Border, and Borderless Higher Education. *Journal of Studies in International Education, 20*(1), 8-33. doi: 10.1177/1028315315604719

Leech, N. L., & Onwuegbuzie, A. J. (2007). An array of qualitative data analysis tools: A call for data analysis triangulation. School psychology quarterly, 22(4), 557.

McBurnie, G., & Ziguras, C. (2006). *Transnational Education: Issues and Trends in Offshore Higher Education*: Taylor & Francis.

Mellors-Bourne, R., Jones, E., & Woodfield, S. (2015). Transnational education and employability development. York, UK: Higher Education Academy.

Nguyen, C. T. (2010). What are the perceptions of Vietnamese students in approaching the teaching and learning process in Australia? *Journal of Administration and Development Mahasarakham University (Thailand), 2*(1), 8-33.

Orrell, J. (2011). Good Practice Report: Work-integrated Learning, Australian Learning and Teaching Council. *Sydney Australia.*

Patrick, C.-j., Peach, D., Pocknee, C., Webb, F., Fletcher, M., & Pretto, G. (2008). *The WIL (Work Integrated Learning) report: a national scoping study [Final Report]*: Queensland University of Technology.

Phan, V. M. T., & Wongsurawat, W. (2016). Enhancing the employability of IT graduates in Vietnam. *Higher Education, Skills and Work-based Learning, 6*(2), 146-161. doi: doi:10.1108/HESWBL-07-2015-0043

Tran, L. H. N. (2017). External stakeholders' roles and factors influencing their participation in developing generic skills for students in Vietnamese universities. *Journal of Education and Work*, 1-15. doi: 10.1080/13639080.2017.1386774

Tran, T. (2010). *Enhancing graduate employability: Challenges facing higher education.* Paper presented at the Australian Association for Research in Education (AARE) Conference, Melbourne.

Tran, T. (2013). Limitation on the development of skills in higher education in Vietnam. *Higher Education, 65*(5), 631-644. doi: 10.1007/s10734-012-9567-7

Tran, T. T. (2014). Is graduate employability the 'whole-of-higher-education-issue'? *Journal of Education and Work, 28* (3), 207-227. doi: 10.1080/13639080.2014.900167

Vu, C. (2014). *Triple Helix – Developing a tripartite international partnership to support skills development*. Paper presented at the Bringing the learning home, Hanoi http://www.britishcouncil.vn/sites/britishcouncil.vn/files/btlh-day_2-parallel_workshop-triple_helix-vu_chi_thanh_en.pdf

Factors affecting willingness to communicate in English of Thai co-operative education students

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ABSTRACT

English proficiency can help increase and enhance student's employment opportunities and work experiences in a multinational workplace .Although English is promoted and taught at all levels of education, Thailand continually scores low on English tests compared to other ASEAN Economic Community (AEC) countries .Willingness to communicate (WTC) is one of the effective factors influencing success in communication developed by being exposed to real-life communication to become confident speakers .The purposes of this research were to examine factors affecting WTC in English of Thai co-op students and to explore the relationship between affecting factors . 229 co-op students from a public university participated in this study .Univariate and multivariate statistical techniques were employed .Preliminary findings demonstrated significant relationships among the factors that affected WTC .The results will be useful for the development of co-op students and higher education authorities to improve WTC in English, as well as increasing employment prospects of students.

Keywords :Willingness to communicate, Self-esteem, Co-operative Education Student, Cooperative and Work-Integrated Education

INTRODUCTION

English plays an important role as a global language for international communication (Crystal, 2003) since it is not only used by the native speakers, but also among the non-native speakers from different countries around the world (Neuliep, 2006). Thailand is one of the countries in which people speak English which has been promoted and taught in all levels of education to prepare the students to have English literacy (Darasawang, 2007; Wiriyachitra, 2002). However, the Thai learners 'communication behaviors and skills could not be enhanced and achieved as expected since they rarely use English for in their daily communication (Punthumasen, 2007; Wongsothorn, Hiranburana, & Chinnawongs, 2002). Nowadays, Thai students are facing enormous difficulties in learning English (Wiriyachitra, 2002) because they tend to use English for communication only in classroom, but not in real life situation which causes them to have less chance to be exposed to an actual English-speaking environment (Pawapatcharaudom, 2007; Sakda, 2000; Tangpermpoon, 2008), and leads to problems in both aural and oral communication and disability to communicate effectively and appropriately (Chanawong, 2007). Therefore, without a well preparation, Thai students will not be able to compete with students in other countries, and it is likely that they lose many opportunities and have difficulties to get good jobs subject to the job mobility among ASEAN members (Balčaitė, 2016; Techakanont, 2014).

In response to this situation, Thailand has implemented the cooperative and work-integrated education (CWIE) in higher education institutions to not only develop undergraduate students and provide them the opportunity to learn, but also develop the skills requirement to become ready-to-work graduate (Srisa-an, 2002) with effective skills, professional working performance, mature personality and self-confidence as the global characteristics and attributes for twenty-first century required by workplaces and organizations (Fleming, 2015) including language

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development from the workplace for effective interaction (Brown & Cooke, 2011). Although English is the key tool for communication in workplaces which is the compulsory language in all levels of Thailand's education, there are many crucial factors affecting Thai students 'language learning (Pattapong, 2010) such as the situational context, cultural context, social and individual context, classroom context, and social and psychological context which affected Thai students 'willingness to communicate (WTC) in English (Cao & Philp, 2006; de Saint Léger & Storch, 2009; Kang, 2005). Similarly, social factors are significantly involved with students 'English language learning ability (Gardner, 1985) and crucial affecting factors such as socio-economic, socio-cultural, socio-psychological, educational background, personality, age and genders can be the important factors affecting co-op students' WTC, and could affect their individual decision-making to keep silent or start to communicate in English (MacIntyre, 2007).

As various relevant factors mentioned, the purposes of this study are to explore the affecting factors which influence WTC in English of Thai co-op students, explore what affecting variables are most influential and least influential to WTC, and to find out the correlation of numbers of speaking-English hours, a number of foreign friends, the educational levels of parents, and self-esteem as the independent variables to WTC as the dependent variable .The result will lead the appropriate preparation for developing the co-op students 'WTC in terms of communication skills as the key attributes and for future research conduct concerning the co-op and WIL on the improvement of WTC.

OBJECTIVE OF THE STUDY

The objective of the study was to examine the causal relationship between WTC and affecting factors: father's educational background, numbers of foreign friends, hours of using English to communicate via social network and self-esteem.

WILLINGNESS TO COMMUNICATE)WTC(

Willingness to communicate (WTC) was claimed to be the result of various variables (MacIntyre, Dörnyei, Clément, & Noels, 1998) and the most influential factor stimulating language learners to initiate a speech communication and communication behavior in English language (Yashima, Zenuk-Nishide, & Shimizu, 2004). In term of its definition, WTC was regarded as the situational variables and influential variable which could be changeable according to various situations of communication in which he/she feel like doing so and different interlocutors whom they are ready to have a conversation with (Baker & MacIntyre, 2000; MacIntyre, Baker, Clément, & Conrod, 2001; Sallinen-Kuparinen, McCroskey, & Richmond, 1991). Becoming successful speakers with high levels of WTC reflects an individual's success in organizational settings and organizational outcomes since it is believed that the relationship between intelligence and social interaction in workplaces can enhance positive factors, individual productivity and organizational success in work achievement (Richmond & Roach, 1992). Moreover, different individuals with low and high WTC illustrated the effective communication in terms of building individuals and group relationship which were likely to be considered as one meaningful factor for a position promotion and preferred hiring decision (Kinnick & Parton, 2005; McCroskey & Richmond, 1990; McCroskey & Sheahan, 1978). Up to this point, WTC is considered not only one of required characteristics and traits for successful working atmospheres among people, but also one of key factors for employability in demanding and challenging position (Gardner et al., 2004) . Responding to this importance, CWIE, as its key concept to have the students learn from two different settings :the educational institution and workplace (Zegwaard & Coll, 2011), is another crucial learning context to enhance co-op students to have WTC in both first and second language since CWIE provides actual interactions of workplaces with different types of people which leads to develop English language in social contexts of the workplace (Brown & Cooke, 2011), work experience and professional development (Dressler & Keeling, 2011), language and culture in contact and intercultural posture for employment in globalized world (House, 2008; McArthur, 2001; McCroskey & Richmond, 1990; Richmond & Roach, 1992).

METHODOLOGY

Participants

In total, 229 male (28.82%) and female (71.17%) co-operative education students participated in the study .These students were in the final year of their Bachelor's degree in five academic fields :management (40.17%), logistics and transportation management (17.4%), agricultural business (14.85%), economics (13.9%), and English (13.54%) .

Measures

Willingness to communicate: This study used the WTC scale (12-items) of Joe, Hiver, and Al-Hoorie (2017), which was adapted from Pae (2011), a scale previously studied in the Korean context (Joe et al., 2017). WTC scale consisted of three subscales including: WTC with strangers (4 items, α =.82), with acquaintances (4 items, α =.81), and with friends (4 items, α = .77). The participants responded to 5-point Likert scale that ranged from 1 (not at all true of me) to 5 (very true of me) to rate their level of WTC in each item.

Self-Esteem: Self Esteem scale (α = .69) was developed by Rosenberg (1965), consisted of 10 self-report items to assess how the student feels about themselves. Its items were answered on a 4-point Likert type scale ranging from 1 (strongly disagree) to 4 (strongly agree).

Fathers' Educational Level: The highest level of completed education of father was used in this study. The levels of education were converted into years of education based on the educational system in Thailand.

Demographic Information: The participants were asked to report their genders, the type of program, hours of using English to communicate via social network, and a number of foreign friends.

Data Analysis

Means (M) and standard deviations (SD) were calculated. The Pearson correlation (r) matrix was constructed to examine the relationship between the variables in the model. To explore causal relationships of WTC model, a structural equation modeling was made using Mplus 6.12.

RESULTS

Descriptive Statistics and Correlations Among Variables

The mean scores of three subscales of WTC for 229 co-op students were 3.61 (SD= 0.69) for with strangers, 3.99 (SD= 0.67) for with acquaintances, and 4.07 (SD= 0.63) for with friends. The mean of self-esteem was in the good range (M = 3.11, SD = 0.32) on a four-point scale. Whereas, averages of fathers' education level, numbers of foreign friends and hours of using English to communicate via social network were 10.94 years, 0.63 person, and 4.74 hours per week, respectively. The results are reported in Table 1.

Table 1 also presents the Pearson correlation coefficient between all variables, showing that ranging from -0.126 to .691. The correlation was statistically significant (p<.01) with 5 pairs, did not statistically significant (p>.05) were found in 5 pairs.

TABLE 1 :Mean, standard deviation, and correlations among variables.

Variables		Pearson Correlation						
		1	2	3	4	5	6	7
1	WTC with strangers	1.000						
2	WTC with acquaintances	.662**	1.000					
3	WTC with friends	.607**	.733**	1.000				
4	Self Esteem	.245**	.301**	.267**	1.000			
5	fathers' education level	.151*	.164*	0.129	-0.003	1.000		
6	Numbers of foreign friends	.239**	.141*	0.085	-0.001	-0.034	1.000	
7	Hours of using English to communicate via social network	.247**	.175**	.137*	-0.006	0.049	.206**	1.000
	M	3.61	3.99	4.07	3.11	10.94	0.63	4.74
	SD	0.69	0.67	0.63	0.32	4.02	1.32	7.36

Note * := p < .05, ** = p < .01

Effect of Predictor Variables on WTC

Table 2 shows the results of the structural equation modeling. It appeared that, the proposed model provided an adequate fit ([8, N=299] = 13.272, p = 0.103). The overall goodness-of-fit of the model, measured by the ratio of chi-square per degree of freedom, was 1.659, suggested that the proposed model fits the data reasonably well. The other fit indices (RMSEA = 0.054 [90% CI = .000 to 0.103], CFI = 0.986, TLI = 0.973, SRMR = 0.027) also confirmed that the hypothesized model fits well and all the standardized path coefficients were statistically significant and positively direct effects to WTC. All standardized factor loadings were significant and over 0.50, indicating the observed covariance terms reasonably fit the estimated covariance terms or the three subscales contribute significantly to the measurement of WTC.

TABLE 2: Standardized direct effects on the WTC outcome variables and standardized factor loading of WTC latent variable.

Factors	WTC outcome variable		
	Direct Effect	p-value	R-square
Self Esteem	0.335	0.000	
Fathers' education level	0.177	0.005	
Numbers of foreign friends	0.142	0.028	
Hours of using English to communicate via social network	0.176	0.006	
Subscales	WTC measurement model		
WTST_A	0.750	0.000	0.562
WTAC_A	0.893	0.000	0.797
WTFR_A	0.814	0.000	0.662
WTC latent variable			0.205

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DISCUSSION

Consistent with the first hypothesis, the main findings indicate that co-op student's backgrounds such as fathers' educational level, a number of foreign friends, and hours of using English to communicate via social network were statistically positive and significant predictors of WTC of Thai co-op students. This illustrates that the fact that Thai co-op students with higher educational qualification of their fathers will make them more WTC in English than those from the lower-educational-level fathers. Perhaps, student whose fathers with the lower education might not understand much or enough about child development at each moment of life and probably due to lack experience in foreign languages or cultural diversities can make them lack the communication skills to talk with their children (Sirridge, 2001), especially communication in English.

Since the highest educational qualification of students' fathers represents one of the key indicators of economic capital of student's background. Then this issue is the problem of social and educational inequality in Thailand. In order to develop WTC and English communication skills, educators, teachers and others, all stakeholders should pay attention to students from families who lack necessary resources of skills development because both WTC and English communication skills affect interpersonal and social interaction skills that are crucial and necessary for creating relationships and communicating in a diverse social and cultural in the educational institution and workplace. Furthermore, having experiences of using English via social network and having foreign friends helps students to be more confident and willing to communicate, so they should be motivated and encouraged to be more exposed to actual English communication.

With regards to the second hypothesis, self-esteem was significantly positive and influenced WTC. The finding of this study confirmed that basic psychological on self-esteem has a powerful direct influence on WTC and an individual behavior (Habib zade & Hashemi, 2014; Hadzantonis, 2013). In addition, a number of foreign friends could assist speakers to become familiarized and reduced shyness and anxiety in speaking foreign language classroom which could help enhance WTC (Bashosh et al., 2013); however, when in an interactional context using foreign language, the underlying factors such as different interlocutors: strangers, acquaintances, and friends were ones affecting the interactional behaviors of the speakers (Cao & Philp, 2006) as those reflected the decision making to communicate (MacIntyre, 2007) and individual preferences in social communication (McCroskey & Sheahan, 1978).

To clarify these crucial points, confidence, motivation and attitudes in using different language for social interaction could be regarded as influenced by the personality, home or environmental backgrounds of students (Edwards, 1994; Egunsola, 2014; Sapir, 1912).

IMPLICATION

Based on the finding of the present study, it could be suggested that students' WTC in English should be enhanced and encouraged to the high level, especially by promoting self-esteem. Since WTC has been seen to be related to the English language proficiency, it is; therefore, considered as the key tool for communication skills in career success and development (Kinnick & Parton, 2005) and working performance (Gardner et al., 2004). According to the CWIE, it aims to enhance the students' ability, knowledge and skills by integrating knowledge from the academic institutions and workplaces to become the ready graduates. Therefore, it is important to design the course curriculum: academic course, preparation course, and workplace course, which provides more communication in the classroom and institutional environment, reduces the anxiety, and boosts up the self-confidence using the appropriate and effective teaching and learning approach that help students to relate the different classroom situations with different classmates to both informal and formal real life settings. In addition, during CWIE program, the students should be encouraged to have workplace communication with different people using English which could lead to become confident speakers and successful employees in the future.

CONCLUSION

According to the findings of this study, it revealed that, affecting factors, father's educational background, numbers of foreign friends, and self-esteem were the influential factors affecting WTC in English of Thai co-op students and

illustrated the relationship between WTC and affecting factors. The outcomes of this study will have benefits for foreign language teachers, learners, co-op students, practitioners, educators, administrators, policy makers and students' families in their efforts to create more students' self-esteem and WTC through the environment in the classroom, institution and home.

REFERENCES

Baker, S. C., & MacIntyre, P. D. (2000). The role of gender and immersion in communication and second language orientations. Language learning, 50(2), 311-341. doi: 10.1111/0023-8333.00224

Balčaitė, I. (2016). "When ASEAN comes": in search of a people-centred ASEAN Economic community in greater Mekong borderscapes. Journal of Social Issues in Southeast Asia, 31(3), 880-921.

Bashosh, S., Nejad, M. A., Rastegar, M., & Marzban, A. (2013). The relationship between shyness, foreign language classroom anxiety, willingness to communicate, gender, and EFL proficiency. Theory and Practice in Language Studies, 3(11), 2098-2106. doi:10.4304/tpls.3.11.2098-2106

Brown, T. P., & Cooke, D. (2011). Cooperative and work-integrated education in English as an additional language. In R. K. Coll & K. E. Zegwaard (Eds.), International handbook for cooperative and work-integrated education (2nd ed., pp. 249 - 258). USA: World Association for Cooperative Education.

Cao, Y., & Philp, J. (2006). Interactional context and willingness to communicate: A comparison of behavior in whole class, group and dyadic interaction. System, 34(4), 480-493. doi: 10.1016/j.system.2006.05.002

Chanawong, S. (2007). Oral English communication strategies employed by first-year medical students, Mahidol University, in the 2004 academic year. (Master's Thesis), Mahidol University, Nakhon Phathom.

Crystal, D. (2003). English as a global language (2nd ed.). Cambridge, UK: Cambridge university press.

Darasawang, P. (2007). English language teaching and education in Thailand: A decade of change. In N. D. Prescott (Eds.), English in Southeast Asia: Varieties, literacies and literatures (pp. 187-204). Cambridge, UK: Cambridge Scholars Publishing.

de Saint Léger, D., & Storch, N. (2009). Learners' perceptions and attitudes: Implications for willingness to communicate in an L2 classroom. System, 37(2), 269-285. doi: 10.1016/j.system.2009.01.001

Dressler, S., & Keeling, A. E. (2011). Benefits of cooperative and work-integrated education for employers. In R. K. Coll & K. Zegwaard (Eds.), International handbook for cooperative and work-integrated education (2nd ed., pp. 261-275). USA: World Association for Cooperative Education.

Edwards, J. (1994). Multilingualism. London, UK: Routledge.

Egunsola, A. O. E. (2014). Influence of home environment on academic performance of secondary school students in agricultural science in Adamawa State Nigeria. Journal of Research & Method in Education, 4(4), 46-53.

Fleming, J. (2015). Enhancing cooperative education through action learning projects. In M. Li & Y. Zhao (Eds.), Exploring learning & teaching in higher education: New frontiers in educational research (pp. 171-187). Berlin, DE: Springer-Verlag. doi:10.1007/978-3-642-55352-3_7

Gardner, D. G., Dyne, L. V., & Pierce, J. L. (2004). The effects of pay level on organization-based self-esteem and performance: A field study. Journal of Occupational and Organizational Psychology, 77(3), 307-322. doi:10.1348/0963179041752646

Gardner, R. C. (1985). Social psychology and second language learning: The role of attitudes and motivation. London, UK: Edward Arnold.

Habib zade, M., & Hashemi, A. (2014). Self-esteem, willingness to communicate, and oral production: The case study of Iranian intermediate EFL students. International Journal of Language and Linguistics. 2(4): 290-294. doi:10.11648/j.ijll.20140204.17

Hadzantonis, D. M. (2013). English language pedagogies for a Northeast Asian context: Developing and contextually framing the transition theory. New York, NY: Routledge.

House, J. (2008). What is an 'intercultural speaker'? In E. Alcon Soler & M. P. Safont Jorda (Eds.), Intercultural language use and language learning (pp. 7-21). Castellon, ES: Springer.

Joe, H.-K., Hiver, P., & Al-Hoorie, A. H. (2017). Classroom social climate, self-determined motivation, willingness to communicate, and achievement: A study of structural relationships in instructed second language settings. Learning and Individual Differences, 53, 133-144. doi:10.1016/j.lindif.2016.11.005

Kang, S.-J. (2005). Dynamic emergence of situational willingness to communicate in a second language. System, 33(2), 277-292. doi:10.1016/j.system.2004.10.004

Kinnick, K. N., & Parton, S. R. (2005). Workplace communication: What the Apprentice teaches about communication skills. Business Communication Quarterly, 68(4), 429-456. doi: 10.1177/1080569905282099

MacIntyre, P. D. (2007). Willingness to communicate in the second language: Understanding the decision to speak as a volitional process. The Modern Language Journal, 91(4), 564-576. doi: 10.1111/j.1540-4781.2007.00623.x

MacIntyre, P. D., Baker, S. C., Clément, R., & Conrod, S. (2001). Willingness to communicate, social support, and language-learning orientations of immersion students. Studies in second language acquisition, 23(03), 369-388.

MacIntyre, P. D., Dörnyei, Z., Clément, R., & Noels, K. A. (1998). Conceptualizing willingness to communicate in a L2: A situational model of L2 confidence and affiliation. The Modern Language Journal, 82(4), 545-562. doi: 10.1111/j.1540-4781.1998.tb05543.x

McArthur, T. (2001). World English and world Englishes: Trends, tensions, varieties, and standards. Language Teaching, 34(1), 1-20. doi:10.1017/S0261444800016062

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Stuttgart, Germany

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McCroskey, J. C., & Richmond, V. P. (1990). Willingness to communicate: Differing cultural perspectives. Southern Journal of Communication, 56(1), 72-77. doi: /10.1080/10417949009372817

McCroskey, J. C., & Sheahan, M. E. (1978). Communication apprehension, social preference, and social behavior in a college environment. Communication Quarterly, 26(2), 41-45. doi: 10.1080/01463377809369292

Neuliep, J. W. (2006). Intercultural communication: A contextual approach. Thousand Oaks, CA: Sage.

Pae, T.-I. (2011). A study on the structural model of willingness to communicate in the L2. English Teaching, 66(4), 307-327.

Pattapong, K. (2010). Willingness to communicate in a second language: A qualitative study of issues affecting Thai EFL learners from students' and teachers' points of view. Doctoral Dissertation: University of Sydney.

Pawapatcharaudom, R. (2007). An investigation of Thai students' English language problems and their learning strategies in the international program at Mahidol University: King Mongkut's Institute of Technology North Bangkok.

Punthumasen,P. (2007). International program for teacher education: An approach to tackling problems of English education in Thailand. Retrieved from http://backoffice.onec.go.th/uploaded/Category/EngBook/ProblemEngEd13dec07-03-03-2011.pdf

Richmond, V. P., & Roach, K. D. (1992). Willingness to communicate and employee success in US organizations. Journal of Applied Communication Research, 20(1), 95-115. doi: 10.1080/00909889209365321

Rosenberg, M. (1965). Society and the adolescent self-image. Princeton, NJ: Princeton University Press.

Sakda, P. (2000). A study of the relationships among syntactic knowledge, lexical knowledge and listening comprehension in English of first-year nursing students, Mahidol University: Mahidol University.

Sallinen-Kuparinen, A., McCroskey, J. C., & Richmond, V. P. (1991). Willingness to communicate, communication apprehension, introversion, and self-reported communication competence: Finnish and American comparisons. Communication Research Reports, 8(1), 55-64. doi:10.1080/08824099109359876

Sapir, E. (1912). Language and Environment1. American Anthropologist, 14(2), 226-242. doi:10.1525/aa.1912.14.2.02a.00020

Sirridge, S. T. (2001). Parent education for fathers. In M. J. Fine & S. W. Lee (Eds.), Handbook of diversity in parent education: The changing faces of parenting and parent education (pp. 180-198). San Diego, CA: Academic Press.

Srisa-an, W. (2002). Global education for Asia in the twenty-first century. Asia-Pacific Journal of Coorperative Education, 3(1), 1-4.

Tangpermpoon, T. (2008). Integrated approaches to improve students writing skills for English major students. ABAC, 28(2), 1-9.

Techakanont, K. (2014). Managing integration for better jobs and shared prosperity in the ASEAN economic community: The case of Thailand's automotive sector. Bangkok, TH: ILO.

Wiriyachitra, A. (2002). English language teaching and learning in Thailand in this decade. Thai TESOL Focus, 15(1), 4-9.

Wongsothorn, A., Hiranburana, K., & Chinnawongs, S. (2002). English language teaching in Thailand today. Asia pacific journal of education, 22(2), 107-116. doi: 10.1080/0218879020220210

Yashima, T., Zenuk-Nishide, L., & Shimizu, K. (2004). The influence of attitudes and affect on willingness to communicate and second language communication. Language learning, 54(1), 119-152. doi: 10.1111/j.1467-9922.2004.00250.x

Zegwaard, K. E., & Coll, R. K. (2011). Using cooperative education and work-integrated education to provide career clarification. Science Education International, 22(4), 282-291.

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A review of South Africa's draft curriculum framework for industry-based and work-related work-integrated learning in TVET teacher education

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INTRODUCTION

Technical and Vocational Education and Training (TVET) has long been a component of the South African Education system albeit under a number of names and in a variety of forms. In the past decade, increasing attention has been placed on the critical role of TVET in growing the economy and effectively preparing South Africa's youth with the mid-level skills necessary to transition into the labour force. In response, the South African government has implemented significant policy revisions including dedicating substantial resources to improving access to and the overall quality of technical and vocational education.

One major initiative related to improving the quality of the TVET system involves the education and training of the TVET lecturers themselves. In 2013, the South African Department of Higher Education and Training (DHET) established the *Policy on Professional Qualifications for Lecturers in Technical and Vocational Education and Training* which set the minimum admission requirements, knowledge mix, and major curricular components for all TVET lecturer qualifications. In recognition of the importance of work-integrated learning (WIL) in developing a professionalized TVET lecturer workforce, the DHET mandated a WIL component for each qualification. Since the release of the 2013 policy, a number of working groups have been established to determine the content of the industry-based WIL component of the TVET lecturer qualifications.

In this paper, we review the current *Draft Curriculum Framework for Industry-based and Work-Related Work-Integrated Learning* and make recommendations for the operationalization and implementation of the draft framework. Three main recommendations emerge: increase the length of all WIL industry based placements, implement strategies to increase knowledge transfer, and re-evaluate all learning activities with an eye to the impact on all stakeholders. Additionally, we recommend that a best practice guide should be developed for all TVET lecturer trainee institutions to help implement the framework. We suggest that a robust evaluation plan for the curriculum development framework be developed to assess the success and impact of the industry-based WIL component. Finally, to ensure TVET lecturers maintain the industrial currency developed through WIL in their initial training, we encourage the DHET to develop and implement a continuing professional development plan for TVET lecturers which includes an industry-based WIL component.

DEFINITIONS

Technical and Vocational Education and Training (TVET)

We use the United Nations Educational, Scientific and Cultural Organization's (UNESCO) definition of TVET as "those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life" (UNESCO, 2011). This is the same definition adopted by the DHET in its 2013 policy framework document (DHET, 2013a).

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TVET Lecturers/TVET Lecturer Trainees

TVET education occurs in a variety of settings ranging from secondary school and college programs to workplace settings, private consultancy firms, and not-for-profit and government enterprises (European Commission, 2014; Smith, 2009). In this paper, we use the term *TVET lecturer trainees* to refer to students enrolled in the various DHET TVET qualifications and the term *TVET lecturer* to refer to practitioners working in DHET funded TVET colleges.

Work-Integrated Learning

The Department of Higher Education and Training's definition of *work-integrated learning (WIL)* involves "learning in and from practice" and notes that for TVET lecturers in particular, this includes the dual role of both learning how to teach and learning the skills, processes and technologies associated with the subject that they are teaching (DHET, 2013a). The DHET thus further subdivides work-integrated learning into WIL within a teaching setting and WIL in a workplace or industry setting.

THE CASE FOR TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING

TVET is firmly entrenched in the education systems of many high-income countries and the sector has seen significant growth and professionalization in recent decades (Grollman & Rauner 2007; Smith, 2009). While TVET is noted for its ability to drive economic growth and reduce poverty and unemployment (Agrawal 2012; McLean & Wilson, 2009), participation in the TVET sector is quite low in many low income countries (Lolwana, 2017; European Commission, 2014) and often characterized by significant gaps between the curriculum taught and the needs of industry (Agrawal, 2012; European Commission, 2014).

In 2007, the African Union (AU) highlighted the importance of TVET for the continent, citing it as "a support mechanism for economic growth and as a means of empowering individuals to lead sustainable livelihoods" (African Union as cited in European Commission, 2014). Significant strategic efforts have been undertaken across Africa in the subsequent decade to improve access to and the quality of TVET education including the AU's 2007 Strategy to Revise Technical and Vocational Education and Training and the 2013 African TVET strategy for Youth Employment which called upon each African nation to develop its own national TVET strategy (African Union Commission, 2013). Nevertheless, in 2017, the World Economic Forum listed TVET as one of the key "future ready" strategies for Sub-Saharan Africa. Demographic pressures increase the need to build capacity within the TVET system quickly. Sub-Saharan Africa is currently world's youngest region with 60% of its population under the age of 25 (World Economic Forum, 2017). By 2030, the region will expand the size of its labour force by more than the rest of the world combined (GE, 2015). Additional capacity needs to be built across all education levels to support this demographic shift.

THE SOUTH AFRICAN CONTEXT

Within the Sub-Saharan Africa region, South Africa faces some unique challenges. The country has the second lowest employment rate in the region with 60% of the population either unemployed or inactive in the labour market (World Economic Forum, 2017). Furthermore, despite significant policy efforts and reparation activities, post-apartheid South Africa still struggles to break down historic barriers in its education system, particularly with respect to the quality of teaching staff, infrastructure, and resources in many rural institutions including those in areas associated with the former bantustans (DHET, 2013b). With the important role that education plays in promoting equality and reducing poverty, it is imperative that South Africa find ways to build an education system that provides access and quality curriculum for all of its citizens. The TVET sector is a critical component of an improved education system.

In 2013, South Africa's the Department of Higher Education and Training recognized the critical role of TVET in its White Paper for Post-School Education and Training noting that, "the DHET's highest priority is to strengthen and expand the public TVET colleges and turn them into attractive institutions of choice for school leavers" (p. xii). Key priorities for the DHET included increasing access, throughput rates, and building management capacity. The

DHET noted that funding for the TVET sector would need to increase substantially in order to support projected growth with an overall goal of 2.5 student enrolments in the TVET system by 2030 (DHET, 2013b)

PROFESSIONALIZATION OF THE TVET LECTURER

One of the most important factors in a successful TVET system is the quality of the TVET lecturers themselves. In 2014, the European Commission found the TVET teacher education in Africa was generally hampered by issues of underfunding, a lack of clear pathways to become a TVET lecturer, and low social status as a profession. This poor image of TVET teaching as a profession is not unique to Africa. As Grollman (2009) notes, given the important role that TVET plays in supporting economic growth, it is quite remarkable that in many countries, TVET has failed to achieve the necessary societal support to make it well-regarded profession.

A 2014 Organisation of Economic Co-operation and Development (OECD) review of South African's TVET system echoed concerns with the current preparedness of South Africa's TVET lecturers citing that 25% of lecturers do not have teaching qualifications and more than half do not have industry experience (OEDC, 2014). While the DHET is aware of the deficits in the existing TVET system, as explained by Blom in 2016, "the need is so great, and the students needing post-school education are so numerous, that it [the DHET] has no choice but to 'fix the airplane while it is flying'" (p. 4).

One of the main levers for improving the quality of TVET teaching is to improve the TVET practitioner qualifications and the educational curriculum supporting the attainment of said qualifications (Grollman, 2009). This is the primary route taken by the South African government with its 2013 *Policy on Professional Qualifications for Lecturers in Technical and Vocational Education and Training* (DHET, 2013a).

REVIEW OF THE DRAFT CURRICULUM FRAMEWORK

The *Draft Curriculum Framework for Industry-based and Work-Related Work-Integrated Learning* provides the learning outcomes (Appendix A) and assessment activities (Appendix B) for the industry based WIL component for all new TVET lecturer qualifications proposed by the 2013 policy.

The same learning outcomes and assignments are proposed for all programs despite significant differences in the curricular requirements of the various TVET qualifications. The learning outcomes are based on a list of key elements identified for the WIL experience. These elements include the notion that industry-based WIL should occur in an authentic setting which is the primary site of learning. They also include that the fundamental purpose of WIL for TVET lecturers is "to achieve currency of knowledge and skills" (Curriculum Framework, 2018). This updated knowledge is expected to assist lecturers in ensuring the curriculum aligns with industry and its technology, processes, and systems and thus effectively preparing their students for future workplaces (Curriculum Framework, 2018).

The draft framework further articulates that all industry based WIL experiences, even those as short as two weeks, must lead to the identification and critical analysis of the differences between the curriculum taught and workplace technologies, processes, and practices; to critical reflection on the role of WIL experience in the TVET lecturer trainee's own development and its impact on the trainee's teaching; and to the ability to incorporate knowledge and experience gained in the WIL experience in the preparation and teaching of lessons (Curriculum Framework, 2018).

Much time and effort has gone into the development of the current draft curriculum framework. It has draws upon key theories in WIL literature including Lave and Wenger's (1991) theories of communities of practice and legitimate peripheral participation, Engeström's (1987) activity theory, and Tuomi-Gröhn and Engeström's (2003) work on boundary crossing.

Further, the architects reference best practices for developing effective educators including Schulman and Shulman's (2004) conceptual model for teaching learning communities. Finally, the curriculum framework also references existing TVET teacher professional development frameworks including the work of Schuller and Bergami (2008) in the development of their teacher industry placement conceptual framework in Australia. While

these are useful frameworks for conceptualizing teacher professional development, it should be noted that these frameworks have been developed for practicing TVET lecturers and that different conceptual frameworks may be required for TVET lecturer trainees who are still developing in the profession.

The learning outcomes in the draft framework reflect the unique nature of vocational pedagogy which require the TVET lecturer to be both professional educator and industry professional (Blom, 2016). Outcomes address many of the key competencies identified for TVET lecturers including subject matter expertise, pedagogical expertise, an understanding of the changing world of work, and self-reflective and research skills (Attwell, 1999). Further, the learning outcomes recognize the importance of building capacity for WIL within the South African system and require learners to assess their WIL experience for its potential as a future learning site for their students.

Careful consideration has also gone into the activities and assessments which will demonstrate attainment of the learning outcomes. Following best practice, each activity can be mapped to a specific learning outcome and assessment of that activity can then be used to demonstrate achievement of the outcome (Driscoll & Wood, 2007).

Thus, from a high level review, the framework appears to be grounded in the literature, aligned with key competency development, and supported by specific learning activities. The challenges with the draft framework begin to appear when it is analyzed in terms of operationalization particularly with respect to the length of the WIL experience, the demands placed upon host employers, and the current status of the post-school system in South Africa. When reviewed in this light, the draft framework appears not only difficult to implement but also contradictory to some its guiding principles. If implemented as currently envisioned, we contend that students will struggle to meet the expected learning outcomes, industry partners will fail to see the benefits of engaging in TVET lecturer trainee WIL, and institutions will be challenged implement all of the required components of the curriculum. To address these concerns, we propose three major revisions to the curriculum framework:

1. Increase the duration of all WIL industry based placements to a minimum of six weeks

2. Implement strategies to assist students with knowledge transfer

3. Re-evaluate learning activities with an eye to the impact on all stakeholders

Additionally, we recommend that a best practice guide should be developed for all TVET lecturer trainee institutions to help implement the framework. Particular emphasis should be given to developing relationships with industry. We recommend that a robust evaluation plan for the curriculum development framework be developed to assess the success and impact of the industry-based WIL component. Finally, we encourage the DHET to develop and implement a continuing professional development plan for TVET lecturers which includes an industry-based WIL component.

RECOMMENDATION #1 - INCREASE THE DURATION OF ALL WIL INDUSTRY BASED PLACEMENTS

If, as the curriculum framework suggests, the "overarching purpose of industry based WIL for educators in TVET is to achieve currency of knowledge and skills", the industry based placements must be long enough to ensure such acquisition of knowledge (p.14). However, certain qualifications in the framework such as the Advanced Diploma in Technical and Vocation Teaching (Adv Dip TVT) require a two week industry based placement. Part of the rationale for such an argument is that the Adv Dip TVT students are expected to have "specific depth and specialization of knowledge, assumed to have been developed in prior qualifications, together with practical and workplace experience" (DHET, 2013a). In practice, however, students can enter this advanced diploma program with an appropriate undergraduate diploma or degree. Thus, students may have discipline specific knowledge but no real workplace experience.

In order to ensure that students are able to meet the first two learning outcomes articulated in the draft framework, we propose a minimum work placement duration of six weeks for all TVET qualifications. There is some research to suggest that TVET lecturer trainee placements of six weeks can be effective in developing new practical skills (Donkor, Nsoh & Mitchual, 2009). In the study of an TVET lecturer trainee industry placement program based in Ghana, all levels of stakeholders affirmed that the six week experience helped the students develop new skills, one

old skills and knowledge, and learn new technologies. The authors contend that new skill developed occurred because the placement allowed students to work, in a full-time capacity, on new machinery and equipment not found in the students' schools (Donkor et al, 2009).

In addition to providing dedicated time for lecturer trainees to develop skills, a longer industry based placement has potential benefits for the entire TVET system. First, it will allow for the creation of a baseline of experience within the TVET lecturer population which can be built upon with a continuing professional development plan. Second, a longer work placement will allow students to produce work product for their industry host thus increasing the reciprocity in the WIL placement, a key element for developing sustainable partnerships (Fleming, McLachlan & Pretti, In Press).

RECOMMENDATION #2 - IMPLEMENT STRATEGIES TO ASSIST STUDENTS WITH KNOWLEDGE TRANSFER

Even if a six week industry based placement is sufficient to assist TVET lecturer trainees in developing new skills, students may struggle to meet higher order learning outcomes including transferring knowledge to a teaching context and critically analyzing their industry experience vis a vis the existing curriculum. Le Maistre and Paré (2004) found that during their first work experience, many students were unable to connect what they learned in the classroom with what they experienced in the workplace. The authors note that, "interns and new practitioners need help to recognize how the abstractions of theory, method and law have come to life in practice" (p. 50). They further note that "learning-to-act" is a slow process and that time must be built into the curriculum to accommodate it (Le Maistre & Paré, 2004).

A few strategies may assist the TVET lecturer trainees in transferring knowledge from the classroom to the workplace and back again. First, students may benefit from either a split industry based WIL experience or multiple industry based WIL experiences. In both instances, students are able to move between the various systems of school and work and to connect and reflect upon their learning in one system with the benefit of temporal and spatial distance (Horwood, 1989; Kottkamp, 1990; Mezirow, 1991).

An alternative would be to provide more opportunities throughout the curriculum for students to y connect what is learned in the classroom with both their industry and education based WIL experiences either through assignments or through "return to campus" days. In one Dutch study, students engaged in a five month industry placement were two "release days" to return to school. In preparation for the release days, students were required to create presentation for their peers about both the workplace environment and the work completed within it. This presentation assignment was seen to be effective in promoting information transfer across systems as students were challenged to synthesize their understanding of their workplace and seek additional information from supervisors and colleagues in order to prepare their presentations (Akkerman & Bakker, 2011). Activities such as the apprenticeship presentation which encourage students to transfer knowledge from one system to another can be seen as boundary objects (Star & Griesemer, 1989). While the current draft curriculum includes some assignments which could be considered boundary objects including reflective reports and the development of a lesson plan based on the WIL industry practicum, we encourage the architects to develop deliberate strategies to increase the efficacy of these assignments in recognition of the time frame associated with "learning to act".

RECOMMENDATION #3 - RE-EVALUATE LEARNING ACTIVITIES WITH AN EYE TO THE IMPACT ON ALL STAKEHOLDERS

We encourage the authors of the curriculum framework to re-evaluate the proposed learning activities in light of the potential impact on all stakeholders including TVET lecturer trainees, their instructors, industry partners, and the institution itself. Such an analysis may lead to potential implementation barriers which would necessitate altering or eliminating some assignments. As one example, the current assessment framework requires students to research their proposed industry placement on a variety of factors ranging from the various departments in the workplace to its technology and workflows, culture, ethics, dress code, rules, policies, and more. Conceptually,

this is a pedagogically sound assignment for students to complete. Workplace preparation is a key component of any WIL program and if a student is not properly oriented to a new workplace, learning outcomes may not be met (Cooper, Orrell, & Bowden, 2010). Practically speaking, it may be very difficult for a student to collect this information prior to entering the workplace and/or without taking significant time from the industry partner and its staff in order to effectively answer all of these questions. While an industry host may be willing to assist one TVET lecturer trainee in compiling this information, if they continue to participate in WIL, they are less likely to want to put aside time to provide this information to each successive student. In such a case, it may be more beneficial to have a standard information package prepared for each industry partner and to ask the TVET lecturer trainee to ensure the accuracy of the information of that package as part of their WIL industry placement.

ADDITIONAL RECOMMENDATIONS

The draft framework specifies that each faculty/department offering a TVET lecturer qualification will be required to develop an implementation plan for the industry based WIL. We contend that in order to support scaling up of the system in a short time period, a best practices document be developed to assist institutions in the delivery of this WIL component. Particular attention should be paid to best practices associated with building industry partnerships as this is a critical component of many WIL program and one of the most difficult to develop and sustain (Dickson & Kaider 2012; Donkor et al, 2009) As noted in the DHET's 2013 white paper on post-school education and training, successful implementation of work-integrated learning experiences may necessitate cross system partnerships including working closely with the Sector Education Training Authorities (SETAs). A best practice document can identify possible models for such cross-system partnerships (DHET, 2013b).

A program evaluation plan should also be established to assess the effectiveness of the industry-based WIL component which should collect feedback from TVET lecturer trainees, their faculty members, program administrators, and industry partners. Costs and challenges of implementation should be assessed along with achievement of learning outcomes for students. Tracer studies on the first cohorts of graduates should be done to assess the impact of the WIL industry placement on actual teaching and curriculum development. This information can also be used to inform development of TVET lecturer continuing professional development plans.

Following on this last recommendation, as referenced in the Draft Curriculum Framework, we strongly encourage the DHET to begin development of the Continuing Professional Development Plan for TVET lecturers. This continuing professional development is critical for fixing the current issues in the TVET system and for ensuring that TVET lecturer trainees maintain the industry currency gained through their industry based WIL experiences (Choy & Haukka, 2009; European Commission, 2014)

CONCLUSION

The Draft Curriculum framework reviewed in this paper has the potential to dramatically affect the nature and quality of teaching in the TVET sector in South Africa. It sets the industry experience baseline for all TVET lecturers and begins, what will hopefully be, a lifetime of connecting industry experience to the TVET curriculum in order to ensure subsequent generations of students receive a grounded and relevant TVET education. In order to achieve these important goals, it is imperative that the framework authors revisit the learning outcomes for the industry-based experience, ensuring that it is sufficient in length to meet the intended outcomes, that the students are provided with the necessary scaffolded supports to properly transfer learning across contexts, and that the impacts of the framework on all stakeholders are accurately assessed.

REFERENCES

African Union Commission. (2013). Continental Strategy For Technical and Vocational Education and Training (TVET) to Foster Youth Employment. Retrieved at:
http://www.digitalskills4africanyouth.org/sites/default/files/tvet_continental_strategy_english.pdf
Agrawal, T. (2012). Vocational education and training in India: Challenges, status and labour market outcomes. Journal of Vocational Education & Training, 64(4), 453-474. doi:10.1080/13636820.2012.727851

Akkerman, SF., & Bakker, A. (2012). Crossing boundaries between school and work during apprenticeships. Vocations and Learning, 5, 153-173. doi:10.1007/s12186-011-9073-6

Atwell, G. (1999). New roles for vocational education and training teachers and trainers in Europe: a new framework for their education. Industrial and commercial training, 31(5), 190-200.

Blom, R. (2016). Towards a Vocational Pedagogy for South African TVET Educators. Occasional paper. Retrieved at: https://www.academia.edu/22143098/Towards_a_Vocational_Pedagogy_for_South_African_TVET_Educators

Choy, S & Haukka, S. (2009). Industrial Attachments for Instructors in TVET Delivery. In Maclean R. & Wilson D. (Eds), International Handbook of Education for the Changing World of Work (pp. 1367 -1382) . Dordrecht, The Netherlands: Springer.

Cooper, L., Orrell, J., and Bowden, M. (2010). Work Integrated Learning: A Guide to Effective Practice. New York: Routledge.

Curriculum Framework for Industry-Based and Work-Related Work Integrated Learning for Qualifications for lecturers in Technical and Vocational Education and Training and Adult and Community Education and Training. (2018). Unpublished.

Dickson, K, & Kaider, F. Designing, developing and delivering work-integrated learning to large student cohorts. In ACEN 2012: Collaborative Education: Investing in the Future. Proceedings of the 2012 ACEN National Conference (pp. 61-67). Melbourne: Australian Collaborative Education Network. Retrieved from:http://acen.edu.au/2012conference/wp-content/uploads/2012/11/ACEN-2012-National-Conference-Proceedings.pdf

Donkor, F., Nsoh, S. & Mitchual. S. (2009). Assessment of supervised industrial attachment of a technical and vocational teacher education program in Ghana. Asia Pacific Journal of Co-operative Education, 10(1), 1-17.

Driscoll, A. & Wood, S. (2007). Developing Outcomes-Based Assessment for Learner Centered Education. A Faculty Introduction. Virginia: Stylus Publishing, LLC.

Department of Higher Education and Training. (2013a). Policy on Professional Qualifications for Lecturers in Technical and Vocational Education and Training. Government Gazette, 11 June 2013, No 36554. Pretoria: Government Printers.

Department of Higher Education and Training. (2013b). White Paper for Post-school Education and Training. Building an expanded, effective and integrated post-school system. Government Printers: Pretoria.

Engeström, Y. (1987). Learning by Expanding: An Activity Theoretical Approach to Developmental Research. Helsinki: Oreinta-Konsultit.

European Commission. (2014). TVET Teacher Education in Africa: Synthesis Report. Luxembourg: Publications Office of the European Union. Retrieved at: http://ec.europa.eu/dgs/education_culture/repository/education/library/reports/tvet-africa-report_en.pdf

Fleming, J., McLachlan, K. & Pretti, TJ. (in press). Successful work-integrated learning relationships: A framework for sustainability. International Journal of Work-Integrated Learning.

Grollman, P. (2009). Professionalization of VET Teachers and Lecturers and Practices in TVET Institutions in an International Perspective. In Maclean R. & Wilson D. (Eds), International Handbook of Education for the Changing World of Work (pp. 1185-1201) . Dordrecht, The Netherlands: Springer.

Grollmann, P., & Rauner, F. (2007). International Perspectives on Teachers and Lecturers in Technical and Vocational Education. Dordrecht, The Netherlands: Springer.

Horwood, B. (1989). Reflections on reflection. The Journal of Experiential Education, 12(2), 5-6.

Kottkamp, R.B. (1990). Means for facilitating reflection. Education and Urban Society 22(2), 182-203.

Lave, J., and Wenger, E. (1991). Situated Learning. New York: Cambridge Press.

Le Maistre, C. & Paré, A. (2004). Learning in two communities: the challenge for universities and workplaces. Journal of Workplace Learning, 16(1/2), pp. 44-52. doi.org/10.1108/13665620410521503.

Mezirow, J. (1990). How critical reflection fosters transformative learning. In J. Mezirow (Ed). Fostering Critical Reflection in Adulthood. Jossey-Bass Publishers: San Francisco.

Lolwana, Peliwe. (2017). In Eicker, F. Haseloff, G., & Lennartz, B. Vocational Education and Training in Sub-Saharn Africa: Current Situation and Development. Germany: W. Bertlesmann Verlag GmbH & Co.

Maclean R., Wilson D. (Eds), International Handbook of Education for the Changing World of Work. Dordrecht, The Netherlands: Springer.

Organisation of Economic Cooperation and Development, (2014). A Skills beyond School Review of South Africa. OECD Reviews of Vocational Education and Training.

Schüller, A., and Bergami, R. (2008). Expanding the profession – industry placement for teachers. In Swaffield B., and Guske I., (Eds). Education Landscapes in the 21st Century: Cross-cultural Challenges and Multi-disciplinary Perspectives. Newcastle-upon-Tyne: Cambridge Scholars Publishing.

Shulman, L.E. & Schulman, J.H. (2004). How and what teachers Learn: a shifting paradigm. Journal of Curriculum Studies, 36(2), 257-271. doi.org/10.1080/0022027032000148298

Swiss South Africa Cooperation Initiative (SSACI). (2015). Industry-based WIL for TVET lecturers in the Adv Dip TVT and the SSACI programme as a model for this. Presentation by Taylor, V. at the Wits School of Education, 27 November 2015.

Smith E. (2009). Teachers, Instructors and Trainers: An Australian Focus. In Maclean R. & Wilson D. (Eds), International Handbook of Education for the Changing World of Work (pp. 1203 -1217) . Dordrecht, The Netherlands: Springer.

Star, L., and Griesemer, J. (1989). Institutional ecology 'translations' and boundary objectives. Social Studies of Science, 19(3), 387-420.

Tuomi-Gröhn, E., and Engeström, Y. (2003). Between School and Work: New Perspectives on Transfer and Boundary–Crossing, Emerald, Bingley

UNESCO. (2011). Revised Recommendation Concerning Technical and Vocational Education.

World Economic Forum. (2017). The Future of Jobs and Skills in Africa: Preparing the Region for the Fourth Industrial Revolution. Switzerland: World Economic Forum. Retrieved at:
http://www3.weforum.org/docs/WEF_EGW_FOJ_Africa.pdf

APPENDIX A - DRAFT LEARNING OUTCOMES FOR TVET LECTURER QUALIFICATIONS

Learning Outcomes	Persons credited with this outcome are able to…
Demonstrate knowledge of the current application and relevance of specialised subject fields in associated workplaces	Show knowledge of current application of the subject fields' in workplaces; Identify organisational and cultural aspects as they relate to particular workplaces, including employer expectations of employees in the field
Demonstrate practical skills in subject field developed in the context of work in associated workplaces	Apply practical skills to the completion of workplace tasks and problems relevant to subject field; Incorporated practical skills in subject field in the teaching of lessons
Demonstrate knowledge of and critically reflect on training and WIL practices and strategies in specialised subject fields in associated workplaces	Show knowledge of training and WIL practices and strategies in specialised subject field in associated workplaces Analyse and critically review workplace training and WIL practices and strategies and draw lessons for teaching subject specialisation, implementation of WIL in this and alignment with workplace processes and requirements
Reflect on the workplace knowledge and skills associated with the subject field or area to enhance teaching and learning	Analyse and compare the curriculum with prevailing practices in the workplace to understand the implications for teaching and learning; Incorporate such practices in teaching and learning
Reflect critically on experiences during industry-based exposure depicting lessons learnt with regards to own subject specialisation and the subject's teaching	Report on lessons learnt and their applicability to teaching the subject; Apply work-based learning experiences in the preparation and teaching of lessons
Initiate a two-way exchange with a workplace or employee in a workplace toward development of partnership or community of practice	Report on and critically review two-way exchange / relationship initiated and its potential for future engagements, including WIL, and the development of a community of practice

APPENDIX B – PROPOSED ACTIVITIES AND ASSESSMENTS

Activities	Assessment	Materials required
Planning for WIL placement • Meet with employer to plan for WIL placement • Develop plan for WIL placement: subject areas to focus on and day-to-day plan for placement	• Prepare report on planning meeting with employer • Prepare plan for WIL	• Agenda for meeting • Template for report on meeting • Template for WIL plan
Research / investigation • The workplace: what it does, its structure, the function of different departments, work flows, etc. • Jobs and job requirements (skills and behaviours) in subject field • Technology and systems • Soft skills important to subject field • Culture, ethics, dress code, rules, policies, discipline, etc. • Risks, health and safety • Changes, developments and trends • How training is done in the workplace • Approach and practice with training and WIL in workplace	• Prepare a report on questions investigated and analyse and reflect on information obtained	• Questions to investigate • Logbook / journal for recording daily activities, learning and reflection • Template for report

Observation / job shadowing • Rotate through different departments / sections • Observe work processes and the use of technology in the completion of core functions / tasks related to subject field	• Complete observation schedules • Logbook and reflective journal	• Logbook /reflective journal for recording daily activities, learning and reflection • Observation schedule
Participate in / support workplace activities • Assist with planning and preparation for a task OR • Assist with completion of a task OR • Complete a task under supervision	• Prepare a report on an activity that participated in, describe role played and reflect on learning	• Logbook / journal for recording daily activities, learning and reflection • Template for report
Develop new skills • Learn to use a new piece of technology or system • Learn a new work process / procedure	• Prepare a report on skills develop • Provide evidence of skills developed	• Template for report and evidence • Logbook / journal for recording daily activities, learning and reflection
Make a contribution to the workplace • Identify and do something beneficial to workplace, e.g. • Teach employees new knowledge or skills • Do a piece of work / job • Help solve a problem / suggest improvements to procedures, systems, documents, etc.	• Report on contribution: what did, why this and how it benefited the workplace	• Template for report

Transfer learning from workplace to classroom
• Identify similarities and differences between subject curriculum and industry practice
• Identify pedagogical lessons for teaching subject
• Prepare college learners for WIL
	• Prepare a report in which
	  • Describe similarities and differences between subject curriculum as taught at college and workplace practice
	  • Reflect on workplace requirements in relation to subject curriculum and the way it is taught
	  • Articulate pedagogical insights for teaching subject
	  • Articulate insights on how to prepare college learners for WIL and incorporate their learning from this into teaching
	• Develop a lesson plan which links to the workplace and directly draws on WIL experience
		• Template for report
		• Template and instructions for lesson plan

Initiate a two-way exchange toward development of partnership or community of practice • Explore possibility of future exchange and relationship with workplace for WIL, guest lecturing and other activities • Identify employees in workplace who could contacts for future exchanges and activities	• Prepare a report on possible future relationship with employer, contacts made with staff in workplace and possible future interaction and exchanges	• Template for report • Logbook / journal for recording daily activities, learning and reflection

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Boosting collaboration within the strategic triangle: results from an Erasmus+ Strategic Partnership Project called "BEEHiVES"

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ABSTRACT

Employability is, at the level of society as a whole, an essential prerequisite for meeting the present and future challenges of the national and international labour market and it is strengthening the competitiveness of the national, European and international economy and society. Activity profiles and qualification requirements have and will be changed by the ever more knowledge and human capital intensive and digitized work. One problem among other things is the lack of strong collaboration in work-based learning (work-integrated/CWIE, etc.), understanding and interaction between education institutions, employers (business) and students - the so-called strategic triangle (BEEHiVES 2016). Strengthening and boosting strategic partnerships within this triangle must be the goal. In particular, more transparency and understanding, needs and expectations within the triangle should be created and further developed, inter alia, in order to discuss the current and future needs of the labour market and to promote employability and entrepreneurship.

The project "Boosting European Exchange on Higher VET and Employer Involvement in Education Structures" (BEEHiVES) addresses these issues of improving the "(provision of) advanced VET (Vocational Education & Training) skills and competences, potentially responding quickly to new labour market demands"- identified in CEDEFOP WP 23 (2014). The project focusses on the benefits of EQF level 5 qualifications and above - and fundamentally strengthens the role of employers in the development of Professional Higher Education (PHE) courses; and thereby improves student retention, applied research activities and graduates´ employability.

INTRODUCTION

In the current knowledge and experience-based society, education systems make a valuable contribution to prepare their fellow members for the constantly more complex social, economic and political settings. In order to meet the present and future challenges of the national and international labour market and to strengthen the competitiveness of the economy and society, employability is an essential prerequisite at national levels. Activity profiles as well as qualification requirements have been changing by the ever-increasing knowledge, human capital, and digitized work. Therefore, study programmes will have to change constantly too and adapt to those needs more quickly. Consequently, academic success will get more and more multifaceted (Stifterverband, 2015: 16).

The European benchmarks for 'Education and Training 2020' call for at least 40% of all 30- to 34-year-olds to hold tertiary-level certificates (Powell and Solga, 2011: 50). This has nearly been reached by all partner countries – with an average of 38,7 percent (European Commission, 2016: 4). A key part of the 2011 'EU Modernization Agenda for Higher Education' (renewed 2017) is a reform of higher education with the emphasis on relevant skills, qualifications and graduates' employability to meet the requirements of the labour market more adequately.

In Germany, e.g., the Federal Institute for Vocational Education and Training (BIBB) points to bottlenecks in skilled workers' numbers with intermediate education degrees by 2030 (Helmrich et al. 2012). Complying with the requirements of the labour market and its demands on specific expertise, competence, skills and qualifications of the graduates, is therefore a key point of the EU Agenda for the Modernization of Europe's Higher Education in

order to meet employability (Stifterverband, 2016). One problem lies in the lack of strong cooperation, understanding and interaction between different stakeholders. Unfortunately, no clear trail for higher employability rates can be assured, as the employability and work-readiness of graduates encompass too many different factors and competences (Dunkel et al., 2009: 243). Some of them, like soft skills, new values, new codes of behaviour, have got more important, because social and cultural issues in all European countries are not separable from economic, demographic and immigration issues (Béduwé et al., 2009: 28; Krone, 2015b: 74). More transparency and understanding of the needs and expectations of the other stakeholders as well as strong collaboration in work-based learning (work-based learning, work-integrated/CWIE etc.) should be created as well as further developed. This is necessary for the discussion of the current and future needs of the labour market, and the promotion of employability and entrepreneurship.

The Erasmus+ project "Boosting European Exchange on Higher Vocational Education and Training (VET) and Employer Involvement in Education Structures" (BEEHiVES) has therefore been addressing the issues of improving the "(provision of) advanced VET skills and competences, in order to be able to respond faster to new labour market demands"- identified in CEDEFOP WP 23 (2014). BEEHiVES focus on the benefits from EQF level 5 qualifications and in the Basque country, Czech Republic, Flanders, Germany, Czech Republic and England. The main goal of the project is to "boost" the strategic triangle by strengthening the collaboration between the three stakeholder groups: students, education institutions and employers (see figure 1).
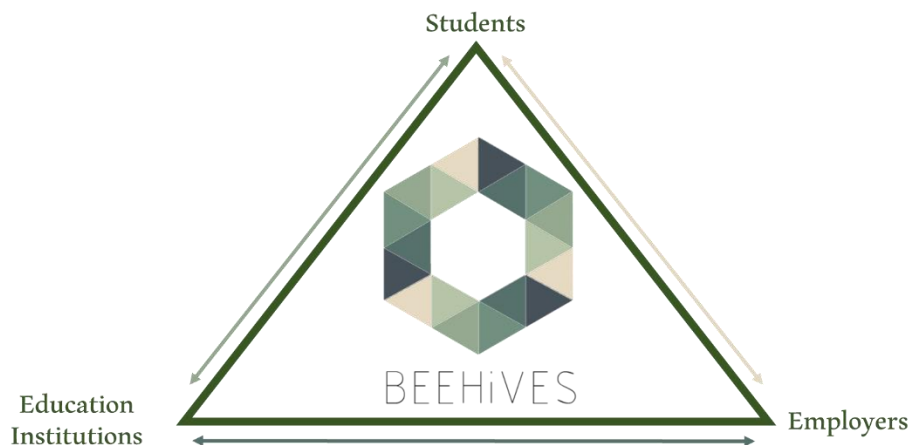
FIGURE 1: The strategic triangle (BEEHiVES, 2016)

The main objectives of BEEHIVES are:

- To demonstrate, if a balance at the expectations and engagement level between the three stakeholder groups is desired and possible.

- To promote innovation, exchange of experience and expertise between different types of companies/organizations, students/alumni and education institutions (EQF-level 5 and above).

- To better meet, in line with the EU Modernisation Agenda for Higher Education (HE), the requirements of the labour market with emphasis on relevant skills, qualifications and graduates´ employability.

- To enhance employers´ engagement possibilities in programme and curriculum design, validation, accreditation and award processes.

- To benefit from students as the crucial link between education institutions and companies.

- To exchange new knowledge of innovative practices and recommendations – that will strengthen the strategic triangle.

BACKGROUND

Due to the fact, that institutions divide between Vocational Education and Training (VET) and Higher Education (HE), has been increasingly challenged by recent developments at global and European levels (Graf, 2013: 14). EU Member States have been engaged in developing links, and it appears, that HE and VET systems are getting closer to one another - "blurring boundaries" (Powell & Solga, 2011: 53). There is a diversity of concepts and structures in Higher Education, resulting from the academically or vocationally orientated Higher Education, as well as from different traditions and forms of Vocational Education and Training (Dunkel et al., 2009: 243). BEEHiVES have been working at those boundaries between Higher Education (HE), Professional Higher Education (PHE) and Higher Vocational Education and Training (HVET). Hereby, they have focussed on (1) the confused policy area in many member countries – with HVET offered in several structurally separated sectors (HE, PHE, VET, CVET) with limited permeability and progression and the limited attempts to identify innovative employer engagement in HVET and PHE practices which have the potential for transferability. Thus, the project BEEHiVES has concentrated on its own working definition of HVET - "a study programme (EQF level 5 and higher) that includes periods of work experience, work based assessment, transferable occupational skills, and significant employer involvement offered in some institution or sector".

In order to stay competitive in the European Education Area, the expansion of the tertiary system has been necessary. A declared goal of the Federal Government in Germany, for example, has been the increase in student ratio to at least 50 percent of an age cohort (Krone, 2015a: 25). Since the mid-1990s the rate has risen to 46 percent by 20 percentage points, whereas the OECD average lies at 60 percent (Baetghe et al., 2014a: 2). The comparatively lower percentage in Germany probably results from the fact that other countries have shifted vocational training in some professional fields to higher education at universities (Berthold et al., 2009: 9–10). To meet these requirements, the European Education Area has been propagated and restructured by two educational policy-driven processes – the Bologna (already in 1999) and Copenhagen Processes (in 2002) (Ratermann and Mill, 2015: 96). Only very few studies have had a go at a combined Bologna and Copenhagen process (but see, e.g., Balzer and Rusconi, 2007; Powell, Bernhard, and Graf, 2012a).Thus no studies exist on the unintended impact of the Copenhagen process on HE (Graf, 2013: 18). Through the demographic development a new constellation between the two main education sectors has been generated. In 2011, for the first time the number of university student entrants was nearly the same as the number of new entrants to dual vocational training in Germany (Baetghe et al., 2014b: 43).

"Bologna"-inspired changes in Higher Education have begun to impact VET systems (Powell and Solga, 2011: 53). The development of hybrid organizations and pathways, such as dual/cooperative studies, has been one response (Graf et. al, 2014)). Both processes have a qualification framework as well as a credit point system: the European Credit Transfer and Accumulation System (ECTS) for HE and the European Credit System for Vocational Education and Training for VET. The importance of workplace learning has repeatedly been underlined in the Copenhagen Process (Powell et al., 2012: 447). The goal of "Bologna" of higher employability can only be achieved when theory and practice are combined in the students' study curricula (Heidenreich, 2011: 4).

Countries within Europe significantly differ in their HE and VET institutions and organizations, and in participation and attainment rates at various levels. The VET systems have not yet been structurally adjusted towards an European VET area with the same qualifications (Ratermann and Mill, 2015: 98). In HE a single university model has been replaced by rather a complex set of private institutions and public ones. Public universities have been in transition from the academic republic to managerial university and have been struggling with issues of marketization and commercialisation. In addition, a broad range of VET providers vary from full-time schools to dual system and work-based providers. All of which finally has led to a diversity of institutions, in both HE and VET. This diversity has also been characterised by a competition for human (best students and teachers) and financial resources (public funds spent either for continuing education or research & development activities) (Dunkel et al., 2009: 262). CEDEFOP (2014: 112) sees the EQF Level 5 qualifications as a possible interaction (vertically and horizontally) between HE institutions and VE training institutions. This underlines the possible benefit of VET at all qualification levels (VET and HE).

Due to the increasing number of students, the demographic change, the globalization of markets and national as well as European education policy, they are the dual/cooperative study programmes which have been given a special role in fulfilling the future tasks of employability. This role fits in with the basic idea of dual and cooperative study programmes – dovetailing as closely as possible theory and practice. The strongest link between theoretical knowledge and practical experience can be gained through training-integrated study courses (Ratermann and Mill, 2015: 101) . Demographic change will cause a change in demand and supply and thus it will enable future students to choose their HE institution. Therefore, additional imperative elements might influence the future student's choice. Especially, as the number of cooperative study programmes has risen explosively in the last years. The student might choose the education institution where the strategic triangle works best for them.

METHODOLOGY - STAKEHOLDER ENGAGEMENT

The level of engagement with the three stakeholder groups, students, education institutions and employers, has been very high in the BEEHiVES project. In 2015 the project partners started with an intense desk research by writing a report about cooperative education in each of the partner countries (Basque country, Czech Republic, Flanders, Germany, Czech Republic, England and additional Denmark) including the HVET/PHE system, policy context, providers, quality etc. The desk research has also provided a development of information sheets of each qualification programme within HVET/PHE for each partner country, giving an example of one outstanding programme at the end of each sheet.

Through this desk research, a half-standardized workshop survey was established at the beginning of 2017. Its aim has been to collect the national stakeholders´ views on HVET/PHE, existing collaborations, strategic goals, needs, necessary skills, barriers of collaboration, including recommendations for strengthening this strategic partnership (triangle). At least three workshops took place in each partner country - one workshop per stakeholder group. Overall, more than 130 participants have contributed their experience on the cooperation with the other two stakeholder groups in the workshops. The results of the workshops have also been included in the country reports, which provide a context of strategic collaboration in 6 countries with a qualitative methodology approach. They are online on www.beehives.de. An evidence-based characterisation of the strategic triangle and its collaboration within have successfully been provided by each partner. Afterwards they have been clustered into five overall themes, originating from the structure basis to their quantitative research: (1) mission, strategy & aims (2) programme, curriculum & course design (3) work-based learning & teaching (4) qualifications, skills & competencies (5) engagement, measures & competencies, developed to boost collaboration within the strategic triangle. A detailed quantitative survey for each of the three stakeholder groups of the strategic triangle was conducted online in mid-2017 - Education institutions (overall feedback from 313 participants), employers (316 participants) and students (373 participants). The project´s consortium decided not to develop just quantitative results, but also prepare three questions per survey that could be answered openly. The consortium regards these three open questions as a huge benefit to the survey, as the answers might cover aspects that have not been covered by the five themes, yet. The workshops and quantitative surveys have played an essential part in getting the different views of what can boost the strategic triangle, of what is already working, of what are the different expectations, etc. The key results are presented in the following section.

DISCUSSION OF KEY RESULTS

The results have always been evaluated from a scale from 1 to 5 (1 = low; 3 = moderate, 5 = high) and are calculated in means.

Responses of Higher Education Institution (HEI) Staff Members – Key Results:

In the view of the Higher Education Institution (HEI), the student as a part of the strategic triangle is hardly ever involved in any processes or activities (see Figure 2). One consequence of this is a lack of collaboration opportunities in important processes such as curriculum design, work-based learning activities, or with future alumni (employers). On the other hand, the HEI academic staff feels highly involved to operationalize strategic collaboration with employers.
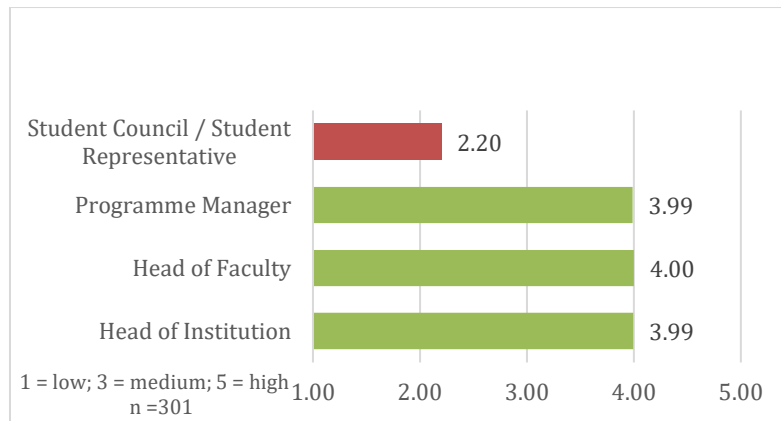
FIGURE 2: Level of Involvement of HEI to operationalize Strategic Collaboration with Employers (BEEHiVES, 2018)

The ranking of barriers that hinder the collaboration of HEI with employers show some interesting results:

- Bureaucracy is not seen as a high barrier

- Different cultures even have a lower mean

- Time & capacity and budget are the biggest hinderers (see also Ivascu et. al, 2016)

Employers (mean about 3) have a much better influence on processes at HEI than students (mean stays below 2,5). Still, it shows that the influence even of employers is only moderate and can or must be further improved. The highest influence on HEI processes have employers, of course, on the organization and implementation of work-based learning in their companies (mean 3,87) and on defining the tasks that are performed during the work-based learning in their companies (3,86).

Around 90% of the participating HEI offer work-based learning in their study programmes. Half of them offer work-based learning with an average length between 3-6 months. Thus, the amount of work-based learning in study programmes is very high whereas the duration of the work-based learning can still be extended.

During the work-based learning phases at a company, for example, good communication (mean 4,42) and clear agreements between the institutions, the trainers and the students (4,39) are as important as clear goal setting (4,33). Nevertheless, to ensure adequately experienced trainers (3,79) or providing an opportunity for trainers at the HEI (3,34) is only of limited importance for the HEI . However, a lack of quality in the work-based learning phase has been detected, which will be the research item of a new project called ApprenticeshipQ headed again by the DHBW Heilbronn.

FIGURE 3: Status of Knowledge of employers by HEI (BEEHiVES, 2018)

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Figure 3 clearly shows that HEIs know the employers´ needs and are able to address these needs and also their expectations. Results about the used surveying methods to understand employers' requirements for qualifications, skills and competences, have only been limited. There has been no clear indication of the applied systematic evaluation methods of the employers' requirements. This could be a topic for further research.

Responses of Employers – Key Results:

The main benefits of employers to cooperate with HEIs are the following: incorporating employer knowledge in teaching & learning (mean 4,02), identifying future employees (3,98) and obtaining students with work-ready skills (3,88). The influence, however, employers have on HEIs to determine relevant skills for the job market, is very low (2,40).

In contrast to the response of HEIs, employers regard their own involvement in defining and organizing work-based learning at their company together with HEIs only as rather limited (mean 3,38). Thus one of the most important factors in cooperation with HEIs on proper work-based learning activities is good communication between both (4,47). There should also be clear agreements between the three stakeholder groups, employer, HEIs and students (4,20) and the company should create their own work-based learning goal setting (4,18).

In order to improve collaboration with HEI, employers regard it necessary to get a better understanding for each other's needs and roles (mean 4,32), some improvements on communication structures (4,12; see also Graf et. Al 2014) and some development of innovative strategic partnership models with HEIs (3,98). The survey has also shown, that a barrier of collaboration due to cultural differences of employers and HEIs, is not existent. The career guidance of students and employees at HEIs and companies has demonstrated some improved potential.

Responses of Students – Key Results:

Students regard their influence on the boards and senates of HEIs as limited. (mean 3,29). The current research cannot provide desirably higher influence.

The students´ modest influence on given processes at HEIs consists in helping to organize, implement and define work-based learning at companies (mean 2,96; 2,88), in supporting the definition of quality processes correlated to programmes and curriculum (2,98).

Students demand an improvement of the employer´s engagement in internships/work-based learning (mean 3,68). As the employers want the same, HEIs should include the companies better, when organizing and defining work-based learning in companies. Students, too, want a boost in the collaboration between HEIs and employers (3,91). They think, that this collaboration would improve the graduates´ employability (3,91) and the work-readiness of students (3,95).

Generally, the surveys have shown, that HEIs see the collaboration with employers more positively than the other way round, but both sides want more collaboration in research (mean 3,63) and a better contribution of the employers' knowledge in teaching and learning (4,02). Research projects (see also Ivascu et. al, 2016), guest lecturers and improved contact management are some effective ways to reach this. The career guidance has already worked well when it comes to apprenticeships and internships, but not to employment options for students. Employers wish for better recommendations on students as their possible future employees.

CONCLUSION

The project BEEHiVES clearly shows which parts of the cooperation within the strategic triangle have already been well developed and which parts of cooperation not. Students have not been seen as an equal partner in the strategic triangle in Europe, yet, even though they possess great potential, especially as later alumni and employers. Thus they would represent two stakeholder groups that should generate better cooperation between the three stakeholder groups.

An improvement in career guidance at HEIs and companies of students and employees has been considered desirable. The potential of research projects and better communication structures by all stakeholders could be

further developed. These and other mentioned research items could be well used for further research building on the results from the BEEHiVES project.

REFERENCES

Baetghe M, Cordes A, Donk A, Kerst C, Leszczensky M and Meister T (2014a) Bildung und Qualifikation als Grundlage der technologischen Leistungsfähigkeit Deutschlands 2014: Schwerpunkt: Neue Konstellation zwischen Hochschulbildung und Berufsausbildung. Berlin.

Baetghe M, Kerst C, Leszczensky M and Wieck M (2014b) Neue Konstellation zwischen Hochschul-bildung und Berufsausbildung. In: Expertenkommission Forschung und Innovation (EFI) (ed.) Bildung und Qualifikation als Grundlage der technologischen Leistungsfähigkeit Deutschlands 2014: Schwerpunkt: Neue Konstellation zwischen Hochschulbildung und Berufsausbildung. Berlin: 43–89.

Béduwé C, Germe J, Leney T, Planas J, Poumay M and Armstrong R (2009) New and emerging issues in vocational education and training research beyond 2010. In: Modernizing Vocational Education and Training: Fourth Report on Vocational Training Research in Europe: Background Report. Luxembourg: 17–72.

Berthold C, Leichsenring H, Kirst Sabine and Voegelin Ludwig (2009) Demographischer Wandel und Hochschulen: Der Ausbau des Dualen Studiums als Antwort auf den Fachkräftemangel. CHE Consult: 1–75.

Cedefop (2011) Vocational education and training at higher qualification levels. Thessaloniki.

Cedefop (2014) Qualifications level 5: progressing in a career or to higher education 2014(23): 1–186.

Dunkel T, Le Mouillour I and Teichler U (2009) `Through the looking-glass`: diversification and differentiation in vocational education and training and higher education. In: Modernizing Vocational Education and Training: Fourth Report on Vocational Training Research in Europe: Background Report. Luxembourg: 240–288.

European Commission (2016) Education and Training Monitor 2016. Brussels. [online] http://ec.europa.eu/education/sites/education/files/monitor2016_en.pdf [14.01.2018].

European Commission (2017) COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS on a renewed EU agenda for higher education. Brussels, 30.05.2017. [online] https://ec.europa.eu/education/sites/education/files/he-com-2017-247_en.pdf [17.01.2018].

Graf L (2013) The Hybridization of Vocational Training and Higher Education in Austria, Germany, and Switzerland. Opladen, Berlin & Toronto.

Graf L, Powell JJ, Fortwengel J and Bernhard N (2014) Duale Studiengänge im globalen Kontext: Internationalisierung in Deutschland und Transfer nach Brasilien, Frankreich, Katar, Mexiko und in die USA. Deutscher Akademischer Austausch Dienst (DAAD): 1–66.

Helmrich, R.; Zika, G.; Kalinowski, M.; Wolter, M. I. (2012) Engpässe auf dem Arbeitsmarkt. Geändertes Bildungs- und Erwerbsverhalten mildert Fachkräftemangel. Neue Ergebnisse der BIBB-IAB-Qualifikations- und Berufsfeldprojektionen bis zum Jahr 2030 in *BIBB Report*. Nr. 18/12. Bonn.

Heidenreich K (2011) Erwartungen der Wirtschaft an Hochschulabsolventen. Deutsche Industrie- und Handelskammertag e.V. 2011: 1–24.

Ivascu S, Cirjaliu B and Draghici A (2016) Business Model for the University-industry collaboration in open innovation. In: *Procedia Economics and Finance 39*: 674-678.

Krone S (2015a) Das Duale Studium. In: Krone S (ed.) Dual Studieren im Blick: Entstehungsbedingungen, Interessenlagen und Umsetzungserfahrungen in dualen Studiengängen. Wiesbaden: 15–28.

Krone S (2015b) Neue Karrierepfade in den Betrieben: Nachwuchsbindung oder Akademisierung? In: Krone S (ed.) Dual Studieren im Blick: Entstehungsbedingungen, Interessenlagen und Umsetzungserfahrungen in dualen Studiengängen. Wiesbaden: 51–88.

Powell JJ and Solga H (2011) Why are higher education participation rates in Germany so low?: Institutional barriers to higher education expansion. Journal of Education and Work 24(1-2): 49–68.

Powell JJW, Bernhard N and Graf L (2012) Amerikanisierung oder Europäisierung der (Aus-)Bildung? Die Bologna- und Kopenhagen-Prozesse und das neue europäische Modell der Hochschul- und Berufsbildung. In: Becker R and Solga H (eds) Soziologische Bildungsforschung. Wiesbaden: 437–458.

Ratermann M (2015) Verzahnung von akademischen und betrieblich-beruflichen Lerninhalten und -orten In: Krone S (ed.) Dual Studieren im Blick: Entstehungsbedingungen, Interessenlagen und Umsetzungserfahrungen in dualen Studiengängen. Wiesbaden: 167f.

Stifterverband für die deutsche Wissenschaft (ed.) (2015) Handbuch Studienerfolg. Strategien und Maßnahmen: Wie Hochschulen Studierende erfolgreich zum Abschluss führen. Essen.

Stifterverband für die deutsche Wissenschaft (ed.) (2016) Hochschulbildung für die Arbeitswelt 4.0. Jahresbericht 2016. Essen.

An initial examination of the link between internship/co-op participation and leader talent recruitment

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ABSTRACT

During the college recruitment process, more organizations are keying into potential leader talent that will meet future leadership requirements in these organizations. While scholarly research continues to focus on organizational leadership training programs, little research covers the recruitment of leader talent. Advocates of work-integrated learning initiatives, especially internship and co-op programs, allude to this connection between interns and organizational leadership without demonstrated and reliable information to substantiate their claims. This paper explores the talent recruiting process on college and university campuses throughout the U.S. to discern any connections between internship/co-op involvement and selection into organizations' leadership training programs. Preliminary results suggest that about one-third of organizations select leader candidates directly from internship/co-op placements, a principle form of WIL.

INTRODUCTION

Finding leader talent continues to be an increasingly difficult assignment for human resource professionals. For many organizations, leader talent acquisition now begins with the recruitment of general operational talent (often entry-level positions) on college and university campuses. Employers connect earlier with students, presenting them with opportunities to engage with the courting organization in a variety of ways. Conversations among recruiting professionals often infer that these activities can pre-identify potential leader talent. Employers also intentionally engage student leaders, especially from pre-professional student or athletic organizations. The other source, frequently mentioned as a talent pool of future leaders, pinpoints internships and co-ops who have served or are currently serving within the employers' organizations.

Study of the connection between internship and co-op participation and selection into leader training programs is limited. Anecdotal observations or overly enthusiastic support for internship/co-op programs often provides the foundation for these connections; however, lack of evidence on how internships and co-ops play into leader talent recruiting raised questions that led to exploratory studies into this connection. Insight was gathered from employers about how they source leadership-training programs and the methods used to identify potential candidates. The intention of this exploratory effort is to identify a research agenda that can examine more rigorously, including sound theory and methods, the role internships and co-ops play in developing organizational leaders

LITERATURE REVIEW

Organizational leadership training and development provides a rich understanding on how organizations train and develop leader talent, especially executive leadership. While this literature will serve us in the future, it fails to provide understanding to our two key questions. In fact, few studies are available on recruiting leader talent on college campus. These examples show that most studies are discipline specifics, as for libraries (Winston, 2001) and education (Huber and Pashiardis, 2008).

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A few studies touch upon the link between leadership and internship. Again, the studies focus are likely found in disciplines: education (Milstein, 1991) and nursing (DeSimone, 1999 and Wendler, etal., 2009). Several papers contain observations about the role of leadership in experiential education (Smith, 2007) and in practice (Stedman, etal. 2006). At this stage in our research, we have failed to build an extensive base of prior scholarly work.

METHODS

The 2016-17 Recruiting Trends survey, which receives input from several thousand employers across the United States, included a question set on leader talent acquisition during the college or university recruiting process. Designed as an exploratory exercise, the question set covered basic aspects of recruiting, including sources for identifying talent, functional areas requiring leader talent, methods for evaluating leader talent, criteria for selecting leader talent, and topics covered in face-to-face interviews or interactions with organizational leaders. Several characteristics of the organization's leader development program captured the number of candidates admitted to the program annually, the length of the leadership program, availability of rotations (including number of rotations), the percentage of accepted class who were former interns or co-ops, and the percentage of current leadership who came through the organization's development program.

Leader talent acquisition was one of several special topics question sets to be included in the 2016-17 Recruiting Trends survey. Using the quota option in Qualtrics, three special topic areas appeared from which respondents selected one option. The quota command insures a balance of respondents across the three topics. Approximately 545 respondents selected to complete the leader acquisition/recruiting topic.

These respondents represented organizations that ranged in size from fewer than 10 employees to more than 25,000 employees. Sixty-two percent of organizations had 500 or fewer employees and 38% reported 501 or more employees that which approximates the organizational size distribution in the U.S. All major economic sectors (based on North American Industrial Classification system) are found among these respondents: 27% from production based sectors (agriculture, mining & gas, construction, utilities and manufacturing), 8% from finance and insurance, 26% from professional, business and scientific services (includes organizations from accounting, computer services and design, engineering services, marketing, science research, and consulting), and 40% from service economy (retail, transportation, informational services, education, health services, nonprofits and government, for example).

The interest in the leader talent topic among these respondents is evident as 50% indicated the primary purpose of their college/university recruiting program was to identify and recruit the next generation of organizational leaders. An additional 28% indicated that their program located talent to support their organization's operational requirements. The remainder used college recruiting to fill deficient skills areas, technical and sales in particular, or expand the diversity of their workforce.

FINDINGS

Organizations source leader talent in multiple ways. Forty percent followed directives in their succession/replacement plans by selecting talent from an eligible pool of current employees. Another third (34%) selected leader talent directly from their internal internship and co-ops programs. Other organizations relied on their general college recruiting program (9%), expanding their presence (organizational brand) across select campuses to generate interest (9%), while others tapped into student leaders through professional associations (9%). Organizations following their succession plan can pull potential leader talent into their organization from above sources, but do not generally make final selection into their leadership development programs until candidates actually engage in their workplace. Over 75% of these organizations promote talent into leadership training programs exclusively from those who have worked directly *within* the organization for a period of time as an employee of the organization.

The number admitted into the leader development program averaged 40 but varied according to size of company. Companies with fewer than 100 employees invited 3 to 4 employees into their programs annually while companies with more than 25,000 reported program sizes of over 200 individuals. The length of leadership training programs

ranged from between 12 and 17 months for companies with fewer than 10,000 employees. The largest companies' programs spanned 20 to 24 months. Organizations that used succession plans or intern/co-op pools to source talent placed about 12 employees in their leadership programs. Organizations that sourced from a wide range of sources directly into their programs had over 100 candidates selected annually for their programs. The length of leadership program was slightly shorter for organizations with succession plans (12 to 13 months), compared to the 18 to 20 months for the other two sourcing options.

Basic Approaches to Identifying Leader Candidates.

As organizations evaluate potential candidates for their leader talent pipeline, they focus on finding the highest level of organizational – personal fit to insure cultural congruence between the individual and the organization. Another important approach is to seek out individuals that have breakout experiences that indicate strong leadership potential. Structural (behavioral) interview process employs questions that probe candidates' potential leadership behaviors. The use of leadership assessments, quite widely prescribed on the internet, are less likely utilized in identifying leader talent.

Comparison among the different sourcing options revealed two significant differences. Organizations drawing from their intern/co-op pool and using broader focused approaches on-campus agreed at a higher level that they employed leader talent language in drafting position announcements than did those selecting from candidates within their organization (F=8.249, p = .000). This difference appears reasonable considering that the two options using leader language are focusing their communication to potential talent outside the organization and want to grab their attention. For organizations sourcing within their organization, the language used to solicit candidates may not have to be so specific.

The other difference found concerned the use of leader assessments. Organizations with succession plans or using their intern/co-op pool are less likely to report using these assessments; only about one-third agree on employing assessments. Organizations from the "other option" are in higher agreement on using assessment with nearly 50% administering these assessments (F= 5.486, p=.005).

TABLE 1: Different options for identifying leader talent candidates, percentage strongly agree on utilizing approach

Approaches	Source: Succession	Source: Intern/co-op	Source: Other	Size: <500	Size: > 501
Using leader talent language in position announcements	63	75	80	71	72
Employing structural (behavioral) interview process	79	84	86	82	83
Complete leader assessment survey	33	31	47	33	39
Assess cultural (organization-personal) fit	85	82	88	84	86
Look for breakout experiences	80	81	79	82	78

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Requirements for Selection into Leadership Program

Once organizations have a group of potential candidates, the next step involves evaluating candidates to insure they meet the desired requirements for admittance into their program. Respondents selected from a list of twelve characteristics, frequently cited in articles covering leader selection. They indicated which requirements they used for consideration into the program.

Three requirements stood across size and source: communication skills, interpersonal skills, and ability to take the initiative. For organizations following succession plan, a candidate had to gain the required level of relevant work experience before advancing for further consideration. We failed to draw out any significant differences though more organizations that follow succession plans and utilize their intern/co-op pools selected communication and interpersonal skills than those using a variety of sources did.

TABLE 2: Leader Program Selection Requirements, percentage of organizations that use requirement

Criteria	Source: Succession	Source: Intern/Co-op	Source: Other	Size: < 500	Size: > 501
Demonstrate communication skills	72	73	59	69	67
Demonstrate interpersonal skills	68	64	59	63	62
Able to take the initiative	66	64	63	64	60
Gained relevant work experience	59	45	47	49	49
Able to learn quickly	53	53	49	51	49
Demonstrate strong analytical skills	49	45	38	41	46
Attained required degree	47	52	50	44	53
Able to adapt	42	40	46	42	40
Has the appropriate disciplinary background	32	25	27	28	26
Able to travel & relocate	15	13	17	10	22
Meet GPA requirements	12	15	18	10	20
Able to obtain security clearance	4	6	8/		

Characteristics Evaluated During Interviews

For candidates that meet the basic selection requirements, potential leaders engage in interviews with the human resource team responsible for leader talent program, and possibly upper level management. These interviews probe key characteristics often desired among the organization's leaders. Respondents were asked how important it was to uncover a candidate's aptitude across five key characteristics. Two characteristics received ratings of very to extremely important by two-thirds or more of respondents: ability to build trust and confidence among

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colleagues and ability to uphold the behavioral standards of the organization. More than half also place very – extremely high importance on ability to deliver strong/credible results and ability to master new expertise (especially important among organizations selecting from interns and co-ops).

Comparison by size revealed only one significant difference for stakeholder influence where larger companies consider it more important than smaller companies (F=9.261, 002). Further comparisons by source found that the other source group rated upholding behavioral standards (F=3.496, .031) and influencing stakeholders (F=3.880, .021) higher than respondents from the intern/co-op source.

TABLE 3: Characteristics Evaluated during Interviews, percentage rating very – extremely important.

Characteristics	Source: Succession	Source: Intern/Co-op	Source: Other	Size: < 500	Size: > 501
Ability to deliver strong/credible results	63	57	60	58	63
Master new expertise	54	63	50	57	52
Uphold behavioral standards of organization	69	63	72	67	69
Build trust and confidence among employees	67	72	73	68	72
Able to influence stakeholders	47	44	55	44	54

Intra-Personal Competencies

Important behavioral abilities for a leader are considered intra-personal: self-awareness, self-regulation, and self-motivation abilities. Commonly accepted definitions for these abilities are:

- Self – awareness: the extent to which a person is conscious of various aspects of his or her identities and the extent to which self-perception are congruent with the way others perceive them.

- Self – regulation: the ability to work toward goals to reduce perceptual discrepancies, gain congruence and improve effectiveness.

- Self – motivation: an individual possesses a desire to go beyond what is asked.

All three intra-personal competencies are considered very to extremely important both by size and by source (no statistical differences found). Clearly, organizations seek highly self-motivated young talent. Combine these intra-personal competencies with high self-awareness and the willingness to reduce discrepancies on how others perceive them, this is the talent pool that organizations want to hire.

TABLE 4: Behavioral (intra-personal) Competencies, percentage rating very—extremely important

Intra-personal	Source: Succession	Source: Interns/co-op	Source: Other	Size: < 500	Size: > 501
Self-awareness	64	60	63	62	65
Self-regulation	76	68	72	72	72
Self-motivation	91	88	85	88	88

Operational Areas Targeted for Leadership Talent

Respondents identified all the functional areas in their organization that required leader talent. A lengthy list of possible functional areas provided opportunity to move talent in multiple directions. Functional areas, selected by ten percent or more of respondents, are included in Table 5. The discerning eye can ferret out some patterns across the different categories even though no comparisons were performed (due to messy nature of this data). In general, leader talent is slotted for management preparation (especially among organizations following a succession plan). Across all categories, one-quarter of talent is designated as general leadership preparation. In both management and general categories, selection is thrown open to all candidates regardless of disciplinary or functional background.

Leader talent selected from interns/co-ops tend to be headed to leadership position in engineering and marketing in addition to management and general area. For organizations, sourcing from other sources their talent is designated for leadership in multiple functional areas throughout the organization. Large organizations focus on engineering, followed by management and general positions.

TABLE 5: Operational Areas Designated for Leader Talent, percentage of organizations selecting specific area

Functional Area	Source: Succession	Source: Interns/co-op	Source: other	Size: < 500	Size: > 501
Management	34	21	23	25	28
General	27	26	26	25	26
Engineering	28	23	22	19	30
Marketing/sales	18	21	29	22	21
Operations	19	14	20	17	17
Computer/IT	17	13	18	13	20
Customer Service	11	7	9		
Finance	13	12	21	10	22
Supply Chain			12		15

DISCUSSION AND LOOKING FORWARD

This exploratory exercise attempts to unearth some clues regarding the relationship between internship/co-op participation and the selection of candidates for organizations' leader training programs. With little existing documentation on this connection, any insights that we gain can guide future research into this topic. Survey respondents who opted to respond to this question set voiced a strong commitment to the college recruiting process in building a talent pipeline for future leaders. Internship and co-ops assignments appear to be a key pathway to leadership in over one-third of the organizations surveyed. However, it cannot be ruled out that internship/co-op participation may play an even broader role as leader candidates selected through other sources (succession planning and on-campus activities) could also have completed a work related experience, albeit not with their hiring organization.

While our perspective tends to place a positive spin the relationship between internships/co-ops and leader talent development, we recognize that other perspectives exist that can shape the direction future research takes. One group contributes engagement in WIL to improved and successful performance, especially learning and mastering tasks. Some members of this group are so supportive of WIL they make claims, attributing WIL contributes in developing broad based competencies and abilities, despite the lack of good research to support these claims.

Another perspective views the achievement in a WIL experience as more dependent on already existing amities individuals possess. Members of this group argue that too much of an individual's success is attributed to WIL and more modest claims should be made. A final perspective contends that WIL plays a negligible role in a student's development and may even be dysfunctional. At this point, WIL contribution to leader development is unknown; the relationship or influence WIL (internships and co-ops) on leader talent is simply missing.

Training and educational programs may have little impact on some of the characteristics essential to leader talent (characteristics such as vision, courage, and creativity for example). Organizations have to rely heavily on identification, recruitment and selection efforts to find leader talent. The selection criteria for potential leaders seems to be more rigorous: requiring a higher level of inter and intra personal abilities, demonstrating the capacity to engage with and motivate others, and displaying confidence in accepting input from differing perspectives. What employers are looking for in future leadership may not be found solely in the WIL (internship and co-op experiences). The WIL experience itself provides a fast track into an entry-level position due to familiarity with the host organization, but not necessarily a leadership role within that organization. To achieve the competencies required, the work-integrated learning experience needs to be accompanied by other experiences that may include classwork in leadership development, and leader experience in a student organization. Also co-curricular experiences, that include research with faculty, civic engagement, international study, and similar opportunities provide avenues to build and strengthen skills and abilities that, combined with internship/co-op, will aid in the development of leadership abilities. As rich as these experiences may be to develop future leaders, students and employers also need to understand how to translate these experiences to the workplace in the form of skills application, something academia has not necessarily mastered at present.

A rich area of research on the integration of WIL experiences and leadership shows potential, supported with the evidence reviewed here. Using thoughtful design and appropriate methods, researchers can pursue a range of possible research avenues, such as:

- Development and evaluation of an experience that combines work-integrated learning and leadership advancement.

- Assimilation of work-integrated learning and leadership development opportunities available on campus.

- Leadership attainment in early career, using both cohort and longitudinal designs, of various combinations of pre-professional work experiences (WIL) and leadership participation.

- Comparison of methods to identify and recruit new leader talent from among new college graduates.

Upon reflection, readers can expand the list of possible research strands. Using this research as a starting point, we have the opportunity to open new directions in WIL research, increasing our understanding of the connections WIL stimulated throughout undergraduate education.

REFERENCES

DeSimone, B.B. (1999). "Perceptions of leadership competencies between interns and mentors in a comparative nurse internship." *Nurse Educator* 24 (4), 21-25.

Huber, S. G. and Pashiardis, P. (2008). The recruitment and selection of school leaders. *International handbook on the preparation and development of school leaders.* 176-202.

Milstein, M.M. (1991) *Internship programs in educational administration: A guide to preparing educational leaders.* Teacher College Press, Teachers College, 1234 Amsterdam Avenue, New York, NY 10027.

Smith, T. and Rosser, M. (2007). Leadership development through experiential learning. In Research session of the Association of Leadership Educator Conference.

Stedman, N.P., Rutherford, T. A. (2006). "The role of critiques reflection in improving the perceived leadership competencies of undergraduates during a ten week professional internship." AAAE National Conference. Charlotte NC. Retrieved from http//aged.caf.wvu.edu/Research/NAERC-2006/Research%20papers?Paper%20E-4.pdf2006

Wendler, M.C., Olson-Sitki, K. and Prator, M. (2009) Succession planning for RNs" Implementing a nurse management internship. *Journal of Nursing Administration* 79 (7/8) 322-333.

Winston. M D. (2001). Recruitment theory: identification of those likely to be successfully leaders. *Journal of Library Administration* 32 (3-4), 19-35.

Development of an international expansion strategy: key challenges for a university offering work-integrated dual study programs

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ABSTRACT

Internationalization is a strategic objective of higher education institutions (HEIs). It is no longer a "nice to have" component of a study program. Instead, it has become an essential part to prepare students for an increasingly globalized world. However, while there seems to be mutual agreement about the need of internationalization there seems to be less of a consensus regarding the best practice. Moreover, universities that offer cooperative and work-integrated education face the challenge to identify a strategy that embraces the practice-orientation of their study programs. This paper analyzes the approach of Duale Hochschule Baden-Württemberg (DHBW) as Germany's first university to integrate academic studies and work experience. Approximately 90% of the students sign employment contracts with their training companies after graduation which proves the employability of DHBW graduates. Given the strengths of the DHBW model, a key question for developing an internationalization strategy is how to use the specific feature of dual education to expand globally. Most of its partner institutions do not offer a similar study program. The paper explores concepts that allow DHBW students to study abroad and that in turn give foreign students an opportunity to experience the DHBW system. A variety of concepts are examined which can lead to mutually beneficial co-operations between DHBW and international partners. Moreover, the strengths and weaknesses of different approaches are evaluated. Given the strong interest from different stakeholders to implement a similar study concept in other countries, the paper also addresses DHBW's opportunity to "export" its dual study model.

Keywords: Dual education, employability, international collaboration, internationalization strategy

INTRODUCTION

The Duale Hochschule Baden-Württemberg (DHBW) is the first university in Germany to integrate academic studies and work experience. The model of the DHBW (i.e.,Baden-Wuerttemberg Cooperative State University) was initiated by large German companies almost 40 years ago – among others Robert Bosch and Daimler-Benz. The unique characteristic of this higher education institution is the participation of training companies in the university and the successful work-integrated learning principle of its study programs.

Given the strengths of the DHBW model and the need for its students to gain foreign experiences, a key question for developing an internationalization strategy is how to use the specific feature of cooperative and work-integrated education to expand globally. As most partner institutions do not offer a similar study program, concepts have to be developed that allow DHBW students to study abroad and give foreign students an opportunity to participate in the DHBW system without having contracts with partner companies.

The paper is structured as follows. The first section explains the special study concept of alternating theoretical and practical phases and outlines the key features of the DHBW model. The second section focuses on internationalization as a success factor of study programs. In a globalized world, university graduates must possess the skills to act in an international context and work within multicultural business settings. The next section looks at potential ways of international collaboration for DHBW. A variety of concepts are examined which can lead to

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mutually beneficial cooperation between DHBW and international partners. Moreover, the strengths and weaknesses of different approaches are evaluated. The last section concludes and gives an outlook for future strategic orientation.

KEY FEATURES OF THE DHBW MODEL

DHBW offers 3-year Bachelor's degree programs in three different schools: School of Engineering, Business School, and the School of Social Work Studies. In recent years, DHBW also started to offer Master's degree programs. However, as the structure of these programs differ from the Bachelor programs and the experience is relatively new, this paper focuses on international relations in the field of Bachelor's degree programs. Enrollment has grown strongly over the past years with the student population reaching almost 33,000 students in the academic year 2016–17 (DHBW 2017, 10).

The key feature of the dual, practice-oriented degree program is the alternation of 3-month phases with students studying theoretical concepts at the university and receiving practical training from an enterprise or social institution. The students have an employment contract, and throughout the entire period, they earn a monthly salary and have an insurance status of employees. The curricula combine practical training in more than 9,000 cooperating companies and university education aiming to provide both practice-oriented and academic-based theoretical knowledge. This combination can be viewed as a public private partnership. The academic education is provided by DHBW which is a public university. Baden-Württemberg is a federal state within Germany that does not charge tuition fees to German and EU students but finances the education expenditure by tax revenue. Neither these students nor the companies have to pay for the university's expenses. Only non-EU students are charged a tuition fee. However, the partnering companies and institutions pay the monthly remuneration to the students and incur the cost of training them during the practical training.

A major benefit for DHBW is the selection process of its dual partners in the enterprise sector. Students do not apply directly at the university but send their applications to the companies that conduct tests, interviews and assessment centers to recruit their students. After having selected the students, the companies sign contracts with the successful candidates and register them with DHBW. This process ensures that only highly motivated students are admitted. As a result only very few students drop out of the 3-year study programs – a figure in the single-digit percentage range. This compares to the chances of a U.S. student not to complete the 4-year degree within six years of approx. 43 % (The Economist 2012).

Upon graduation students are capable of meeting the demands of the enterprises immediately which is a major competitive advantage on the labor market. Approximately 85 % of the students sign employment contracts with the companies after graduation (see DHBW 2018) which proves the employability of DHBW graduates as demanded by the Bologna Declaration (European Union 1999). Since 1999, the three main objectives of the Bologna Declaration have been the introduction of a 3-cycle system of bachelor, master and doctorate degrees, as well as quality assurance and the recognition of qualifications and periods of studies among the signatory states. However, especially against the backdrop of the economic developments in Europe, the Bucharest Communiqué (European Higher Education Area (EHEA 2012)) identifies the following three priorities: mobility, quality, and employability. The latter has gained utmost importance due to high youth unemployment (under age of 25) in many European, especially Southern European countries. These unemployment rates exceed 30% in Spain and Italy and reach 40% in Greece (Eurostat 2017).

Another important component of the DHBW model is its decentralized structure with overall 12 locations, that is, nine main campuses and three branch campuses. The existence of several campuses throughout the federal state is intended to support the regional business sectors. Instead of concentrating academic education at universities in a few major urban areas or university cities, the state acknowledges the need for higher education at the provincial level to allow young people to study either close to their hometowns or close to their employers that are spread throughout the entire federal state. The decentralized structure of the enterprise sector is a special feature of the so-called Mittelstand (small and medium-sized enterprises) in the state of Baden-Württemberg. Moreover, the decentralized organization leads to smaller campuses that fit well into the concept of teaching in small classes of

only up to 30 students. The smaller class size allows close supervision by lecturers and student centered study approaches that use, for example, presentations and teamwork activities (DHBW 2018). Moreover, the close relationship of DHBW to the enterprise sector – the dual partners are actually part of the university system – is mutually beneficial for both parties. The university gets feedback on the study program's curricula and is able to make necessary adjustments. Adjunct faculty is often recruited from dual partners. This ensures up-to-date business experience in classrooms. In turn, the companies do not only benefit from lower cost of hiring young professionals through DHBW compared to other universities' graduates. They are also able to realize projects in cooperation with DHBW. For two case studies on Intel and SAP see Reinhard et. al. (2007) and Reinhard et. al. (2008).

THE ROLE OF INTERNATIONALIZATION FOR THE SUCCESS OF THE DHBW MODEL

As mentioned above a key factor for the success of the DHBW model of academic cooperative and work-integrated education is the employability of its graduates. The companies are willing to support the students for the period of the three-year Bachelor program because they expect to train their own young professionals. If graduates lacked the skills required by their employers, the latter would soon search for alternative ways to recruit their staff. However, in addition to employability, university rankings use internationalization as an important indicator to compare academic institutions (Hazelkorn 2012). This is underlined by the German Rectors' Conference view that the next student generation at German universities should not only be employable but should be equipped for global citizenship (Hochschulrektorenkonferenz 2011). As one step to facilitate the achievement of this objective its general meeting passed a resolution on the language policy at German universities (Hochschulrektorenkonferenz 2008).

TABLE 1: Key Skills Comparison (Jones, 2012, p. 7)

Key skills required by employers	Key skills developed through international mobility
- Self-awareness - Initiative and enterprise - Willingness to learn - Planning and Organizing - Integrity - Commitment/motivation - Problem-solving - Flexibility - Self-management - Team work - Communication Skills - Foreign languages - Networking - Leadership - Customer Service - Interpersonal Skills - Intercultural Skills	- Self-awareness, self-confidence, sense of identity, and personal independence - Being informed, greater interest in global affairs and cross-cultural perspectives - Organizational skills, project management, decision-making, creativity and taking on responsibility - Vision, independence, experience, broader outlook and attitude - Problem-solving, coping strategies and risk-taking - Patience, flexibility, adaptability, open-mindedness and humanity - Team work and team leadership skills - Fluency, accuracy and appropriateness of language competence - Mediation skills, conflict resolution, sensitivity, humility and respect - Forging of relationships and networks - Challenge to personal stereotypes, cultural relativism - Enhanced intercultural communication, conducting business inter-culturally - Cultural empathy - Non-judgmental observation, respect for local values without abandoning one's own - Cultural understandings, ways of thinking and adaption to complex cultural environments

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The internationalization of the goods and services as well as the labor market has led to changing needs of companies when hiring graduates. Formerly domestically or even locally oriented companies now conduct international business in the fields of sourcing and/or sales. Therefore, many companies – and not only large multinationals – establish new career models. One part of the job may be related to the domestic market and the other part of the job has to be done abroad (Wittmann 2012). Many studies have shown (Jones 2012) that there is a good match of the skills demanded by companies and the skills that students develop through international mobility.

Therefore, the majority of employers acknowledge the international collaboration of DHBW with international partners and support study abroad stays of their students. In addition, quite a few employers use the periods of practical training in the companies to send their students abroad, that is, working at a foreign subsidiary or a branch office. Smaller companies that do not have foreign locations often use their suppliers' or clients' contacts abroad to enable their students to gain international practical experience. These developments show that internationalization is no longer seen as a "nice to have" component of a study program. Instead, it has become an essential part of higher education to prepare students for an increasingly globalized world. However, while there seems to be mutual agreement about the need of international components there seems to be less of a consensus regarding the best practice of internationalization. The next section examines a variety of approaches which can lead to mutually beneficial collaborations between DHBW and international partners.

OPPORTUNITIES OF INTERNATIONAL COLLABORATION

For a comparative study of internationalization strategies from a German perspective see Schreiterer and Witte (2001). In a more recent study Powell et al. (2014) analyzed the status quo and the future perspectives of the internationalization of cooperative and work-integrated German study programs. The two key components of their study are the degree of internationalization of German study programs with a focus on student mobility and the opportunities of transferring the specific German cooperative and work-integrated model to other countries. These two aspects are closely related to DHBW's approach to internationalization. Its strategy focuses on the support of its cooperative partners in the global environment through two pillars: the intercultural competence of the graduates and the development of customized programs at DHBW or work-integrated study programs abroad.

STUDENT AND FACULTY EXCHANGE

Several DHBW campuses look for opportunities to establish student and faculty exchanges on a reciprocity basis. While foreign students will be able to study one or two semesters at a DHBW campus, in turn, German students will spend a term at the partner university. Exchange students will participate in English-spoken academic programs offered at DHBW campuses to avoid language barriers. Foreign and German students will benefit through enhanced academic experience and intercultural competence gained during their study abroad programs. Both parties will strive for a balanced approach in terms of student exchange numbers over the medium term, and therefore, tuition will be waived for international incoming students at the host institution. Each sending institution may charge applicable tuition and student fees to their outgoing students. To strengthen international ties, faculty members are encouraged to teach at the partner institution, too.

This approach can be viewed as the "standard approach" of international collaboration. Therefore, a major benefit is the experience that both parties usually possess with regard to the implementation of the exchange. Especially for student exchanges most university have established processes in place. However, the success of a balanced student exchange rests on an equal number of students – if not annually, at least over a certain period of time – willing to study at the other institution. For a German university like DHBW the language requirement may constitute a significant barrier. Even if courses are offered in English – which may constitute a challenge itself for the university – foreign students might prefer host institutions at which English is used in day-to-day conversations. As long as the student exchange is limited to taking courses at the partner institution, DHBW is not positioning itself on the international market by stressing its unique feature of cooperative and work-integrated education. This has led to a second approach where the practical experience is the focus of the exchange program.

STUDY-ABROAD INTERNSHIP TANDEMS

For universities that want to benefit from DHBW's unique approach of dual education and its excellent relations to German companies, a special student exchange can be offered. German students study an academic semester at the partner university and are put in touch with a student of the host institution who acts as a mentor during the study abroad experience. Upon completion of the term, the German and the foreign student return to Germany. The foreign student does an internship at the same company that the German student works for. An example of this tandem approach is the so-called CANEU-COOP program that partners two Canadian universities, University of Victoria and University of Waterloo, and two European universities, DHBW in Germany and FH Joanneum in Austria. In 2016, this program won an award for "Outstanding Program in International Education" by the British Columbia Council for International Education (University of Victoria 2016).

As the students already know each other and have possibly become friends during the time they spent together, the foreign student has a mentor at the German enterprise who offers support and assistance during the stay. Therefore, the international students gain invaluable practical, social and intercultural experiences that will boost their career perspectives. Moreover, the support required by the host institution's international office as well as the host company's personnel department is drastically reduced through the creation of the tandem. Naturally, participants in internship programs require a great deal of assistance as they are not familiar with legal, cultural, and social norms and regulations of the host country. This support is outsourced to the tandem student who simultaneously acquires additional skills in advising his mate. In addition, this program allows DHBW to center the international relations on its core competence.

SHORT-TERM PROGRAMS FOR FOREIGN STUDENTS

While the student exchanges proposed in the previous two subsections are no-fee / non-degree exchanges, DHBW also offers short-term (summer) programs tailored to the needs of foreign students for which a certain charge applies. International partner universities can send student groups to a DHBW campus to study specific topics during a short-term intensive program. These courses can be designed for Business and/or Engineering students and can be offered on a Bachelor or Master level. Moreover, these programs can include talks with German businessmen, social and cultural activities and company visits due to the extensive enterprise network of DHBW. The timing as well as the exact contents and structure of such a program can be determined in bilateral negotiations. The costs depend on the duration and scope of the program plus the range of services provided to the students.

A major advantage of such a model is the ability to make a special offer irrespective of a match of the study programs at host and home institution. In addition, such a model can be a source of revenue to DHBW if the short-term programs are allowed to generate a profit. However, a great downside of such programs is the weak or even missing link between the visiting students and the regular students of the host university. The programs are often offered during break times as these periods provide the required capacities in terms of room and board as well as faculty to teach the visiting student cohort. The same reasoning applies to short-term programs offered by partner universities for DHBW students.

"EXPORT" OF THE DHBW-MODEL TO OTHER COUNTRIES

DHBW is also interested in cooperating with foreign universities to examine the potential of its model for the international market. Foreign subsidiaries of German multinational businesses as well as multinational companies with business relations to Germany are interested in hiring academically well-trained students who have combined excellent theoretical knowledge with first experience in a business environment. However, caution must be exercised. A model that has proved to be successful in Germany cannot simply be "exported" to another nation. The prerequisites for the transfer of the model into the other culture have to be carefully examined. Usually, four parties need to be involved. Firstly, the corporate sector must express the demand for cooperative and work-integrated education. Secondly, as DHBW is a public institution with a clear mandate for educating students in Baden-Wuerttemberg for German companies, a local university of higher education institutions has to be identified that is willing to and capable of offering practice-oriented study programs. Thirdly, and closely linked to the

aforementioned aspect, the national and local authorities have to be supportive of the project – including the legal framework that must allow for such an academic program. Lastly, DHBW is the fourth player that can assist in designing, building and operating a work-integrated study program abroad. However, it is crucial that DHBW is not conferring its degree, but the students are enrolled in a national program and will receive the local university's degree upon successful completion of the cooperative and work-integrated study program.

From a longer-term perspective, the collaboration between DHBW and foreign universities that offer similar study programs provide a great potential for an intensified international cooperation beyond the usual no-fee/non-degree student exchange. International students could study in German to experience the successful combination of theoretical and practical training and vice versa. Such a model would allow both institutions to confer double or joint degrees. Multinational corporations would benefit from being able to have their students being trained in different countries and getting the degrees from two institutions. This reduces the uncertainty that results from the lack of acceptance of foreign degrees in some countries. While this strategy focuses especially on the core competence of cooperative and work-integrated education, such a relationship requires very close collaboration including the alignment of curricula which is very resource intensive.

CONCLUSION

Two aspects of DHBW exert a strong influence on its internationalization strategy. Firstly, the close cooperation with partner companies requires DHBW to be present in markets where its firms are active. Secondly, the decentralized structure may hamper the implementation of a uniform strategy while simultaneously facilitating the on-the-spot support of student and faculty exchange. DHBW's standard approach is an international collaboration based on agreements for student and faculty mobility. However, the so-called "tandem programs" are a good way to stress the unique selling position of DHBW. By coupling the theoretical with practical exchange terms, each side can offer what they can do best. The most advanced model of cooperation is the "export" of the DHBW. However, it will only function with a foreign partner university that offers a program that resembles DHBW's study programs. While Reinhard (2006) argues that the cooperative and work-integrated education can be used by all cultures, caution is advised that DHBW's success is deeply rooted in Germany's traditional dual vocational education whose origin dates back to the medieval ages. A consistent internationalization strategy, therefore, must be based on a case-by-case decision on which approach can work best for the expansion into a certain market or for the collaboration with a specific partner.

REFERENCES

DHBW (2018). Homepage of Duale Hochschule Baden-Wuerttemberg, http://www.dhbw.de/die-dhbw/wir-ueber-uns.html, (retrieved on Jan 10, 2018).

DHBW (2017). Jahresbericht der Dualen Hochschule Baden-Wuerttemberg 2016-17.

EHEA (2012). "Making the Most of Our Potential: Consolidating the European Higher Education Area", Bucharest Communiqué, http://media.ehea.info/file/2012_Bucharest/67/3/Bucharest_Communique_2012_610673.pdf (retrieved on Jan 4, 2018).

European Union (1999). Joint Declaration of the European Ministers of Education convened in Bologna on the 19th of June 1999, http://ec.europa.eu/education/higher-education/bologna_en.htm (retrieved on Jan 4, 2013).

Eurostat (2017). Euro area unemployment at 8.8%, news release euroindicators, No. 182, October 2017.

Hazelkorn, E. (2012). "Understanding Rankings and the Alternatives: Implications for Higher Education" in Handbook "Internationalisation of European Higher Education", Section A 2.1-5, July, pp. 1–34.

Hochschulrektorenkonferenz (2008). "German Universities in the World and for the World: International Strategy of the German Rectors' Conference (HRK) – Principles and Guidelines", Resolution by the 4th General Assembly of 18 November 2008, reprinted in "Die deutschen Hochschulen internationalisieren!", Beiträge zur Hochschulpolitik, 2/2012, ed. by Hochschulrektorenkonferenz (German Rectors' Conference), pp. 19–30.

Hochschulrektorenkonferenz (2011). "Language Policy at German Universities", Resolution of the 11th General Meeting of 22 November 2011, reprinted in "Die deutschen Hochschulen internationalisieren!", Beiträge zur Hochschulpolitik, 2/2012, ed. by Hochschulrektorenkonferenz (German Rectors' Conference), pp. 51–67.

Jones, E. (2012), "Internationalisation and Employability: Are We Missing a Trick?", Forum – Discussing international education, European Association for International Education, Winter, pp. 6–9.

Powell, L.; Graf, L.; Fortwengel, J.; Bernhard, N. (2014). Dual Study Programmes in Global Context: Internationalisation in Germany and Transfer to Brazil, France, Qatar, Mexico, and the US, Documents & Materials, Band 77, ed. by Deutscher Akademischer Austauschdienst (DAAD) and Stifterverband für die Deutsche Wissenschaft.

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Reinhard, K. (2006). "The German Berufsakademie Work-Integrated Learning Program: A Potential Higher Education Model for West and East", Asia-Pacific Journal of Cooperative Education, Vol. 7, No. 1, pp. 16–21.

Reinhard, K.; Osburg, T.; Townsend, R. (2008). "The sponsoring by industry of universities of cooperative education: a case study in Germany", Asia-Pacific Journal of Cooperative Education, Vol. 9, No. 1, pp. 1–13.

Reinhard, K.; Satow, L.; Sisco, L. (2007). "The sponsoring by industry of universities of cooperative education: a case study in Germany", Asia-Pacific Journal of Cooperative Education, Vol. 8, No. 2, pp. 109–119.

Schreiterer, U.; Witte, J. (2001). Modelle und Szenarien für den Export deutscher Studienangebote ins Ausland. Eine international-vergleichende Studie im Auftrag des DAAD. Edited by Centrum für Hochschulentwicklung, Gütersloh.

The Economist (2012). "Higher education: Not what it used to be", The Economist, December 1st, pp. 49–50.

University of Victoria (2016). "Award-winning CANEU CO-OP program helps students become global-ready graduates", https://www.uvic.ca/news/topics/2016+caneu-coop-program-global-ready+ring; UVic news, 11 July 2016, (retrieved on Jan 31, 2018).

Wittmann, F. (2012). "International Skills for Professional Success" in Handbook "Internationalisation of European Higher Education", Section E 1.6, July, pp. 1–20.

Student transfer of skills and knowledge across university and work contexts

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INTRODUCTION

When students create new knowledge in the university classroom it is important they are later able to find meaning in this learning, actively connecting it with new situations arising in different contexts, such as the workplace. This is particularly critical as graduates are increasingly expected to navigate multiple, and rapidly changing, work environments, as well as respond to the changing nature of future employment, such as the growth of casual/contract work (Rowe & Zegwaard, 2017). Bransford and Schwartz's (1999) Preparation for Future Learning (PFL) paradigm forms the conceptual framework for this study. Here, future learning is reliant on the ability to "transfer in" prior knowledge which prepares students to learn and create new knowledge in the different setting. The transfer of skills and knowledge is not only influenced by an individual's propensity for connecting past learning with current and future learning, but also their response to, and interpretation of, different learning contexts (see Schwartz, Bransford, & Sears, 2005).

Leberman, McDonald and Doyle (2006) assert learning transfer can occur on a spectrum from simple to complex and that some transfer is not automatic. Several studies on transfer across learning and workplace contexts (see, for example, Leberman et al., 2006) indicate the process is significantly influenced by the characteristics of the learner and the nature / degree of similarity between, the original learning setting and the new application context (Baldwin & Ford, 1988). Far transfer, where the source of learning and new context are dissimilar (Barnett & Ceci, 2002), is considered more difficult.

Jackson and Hancock (2010) argue that higher education (HE) should be proactive in facilitating transfer through purposive curricular design. Experimental learning is considered a good opportunity to develop transfer (Analoui, 1993), providing individuals with an opportunity to "practice" the process. Work-integrated learning (WIL), where students undertake, and are formally assessed on, authentic activities through engagement with industry and community partners, is one example of a curricular intervention which may foster effective transfer. WIL can be immersive - such as internships, placements and practicums - or undertaken virtually or on-campus with a focus on consultancy and project-based learning. Immersed models provide a unique opportunity to gauge and develop transfer as students shift between classroom and professional settings.

This study builds on existing scholarship, seeking to better understand the transfer of skills and knowledge through WIL experiences at university, as this complex area is relatively under researched. Specifically, the research objectives were to: i) examine to what extent and how WIL students are transferring their skills and knowledge across university and work settings; and ii) examine characteristics and strategies in WIL program design (in the university context) which facilitate the transfer of skills and knowledge from university to the workplace. The paper is structured to review relevant literature, followed by an outline of the methodology, presentation of results and implications for practice and future research.

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BACKGROUND

Transfer – The Preparation for Future Learning

The transfer of skills and knowledge across different contexts is acknowledged as a complex area of learning theory and one lacking in empirical analysis (Hakel & Halpern, 2005). There are many different theories on the process of transfer (Jackson & Hancock, 2010), with the more traditional concerned with cognitive processing and outputs "transferred out" of the original learning situation (Mestre, 2005). The underpinning conceptual framework of PFL (Bransford & Schwartz, 1999) instead focuses on an individual's interpretation of, and response to their context, which in turn impacts on their ability to draw on prior learning as a building block for constructing new knowledge. It is concerned with developing the "seeds for new learning" which are "transferred in" to new learning situations (p. 16). This approach focuses on developing learners who can make sense of, and interpret their new learning contexts in a way that enables them to connect with, and use their prior learning, successfully adapting their skills and knowledge to new circumstances.

Importance of Transfer in Students

The new world-of-work is characterised by horizontal career progression, multiple job roles over an individual's lifetime, global mobility and portfolio working (Bridgstock & Cunningham, 2016). Graduates, along with other workers, will therefore need to transfer their skills and knowledge across a range of different contexts. The Foundation for Young Australians (FYA) (2016) asserts the potential ease of simple transfer where certain skills – such as communication, collaboration and organisation – "look" the same within certain clusters of jobs. However, given the complexity of graduate-level tasks and responsibilities, contemporary work is likely to catalyse significant need for skills in far and complex transfer.

Transfer and the Role of Work-Integrated Learning

The transfer process, many assert (for example, Beach, 1999), cannot be separated from context, both in the original learning setting and the destination where students are drawing on their prior learning. Learner characteristics, such as students' propensity for risk, personality, motivation for learning, self-confidence and cognitive ability are acknowledged as important for transfer (see Burke & Hutchins, 2007). However, the focus of this paper is to explore interventions to improve transfer in HE students, arguably a more useful approach for promoting student success (rather than focusing on personal traits which may be less malleable). Specifically, our interest is manipulating WIL features to augment transfer.

Learning Program Characteristics

In 2016 Jackson reviewed extant literature and empirically analysed the learning program characteristics considered important for successful transfer. These included developing a student understanding of general theories with the clear use of analogies and examples from authentic situations, to ensure learners have a clear understanding of the value of the skill being taught and their use in a different setting (Cilliers & Tekian, 2016). Further, Jackson's review highlighted the importance of motivating students to learn through imparting the value of curricula content – including non-technical skills – and the purpose of learning through establishing outcomes which guide the learning experience. Collaborative and engaged learning with opportunity for feedback and practice was also deemed relevant, in addition to reflection which encourages learners to consider the differences between different learning contexts and the challenges these may pose.

Interestingly, quality principles which underpin WIL (see Billett, 2011; Smith, 2012) clearly align to the outlined learning program characteristics. First-hand exposure to authentic learning, enables students to visualise theoretical principles in a practical way. Students can "practice" being a professional, as well as experience failure in an environment which supports learning and development. Regular and constructive feedback underpins quality WIL (Smith, 2012) and can be gathered from workplace supervisors, student peers undertaking WIL, and academic coordinators (Peach, Ruinard, & Webb, 2014).

METHOD

A cross-disciplinary and international, multi-institutional approach was used to increase the potential for transferability of the findings across different models of WIL in different countries. Qualitative and quantitative data were collected using online surveys. Although WIL comprises a number of different types (Patrick et al., 2009), the WIL context in this study was limited to a workplace-based experience that was a formal and integrated component of the university degree program.

Participants

Student participants (*N*= 75) were recruited from undergraduate and postgraduate WIL programs in a West Australian university (*N*=47), New Zealand university (*N*=22) and New South Wales university in Australia (*N*=6). Students from business, sociology and sports/recreation were selected for convenience and to ensure a cross-disciplinary sample. Participants were required to have completed at least 100 hours of work placement within the current or previous semester. All students had completed at least one-half of their degree program prior to undertaking WIL. Those undertaking WIL on a part-time basis did so during the academic semester as typically one to two days per week.

Procedures

Eligible students were invited to complete an anonymous survey administered through a link provided within the student online learning management system in each university. Online surveys were completed in Qualtrics between November 2017 and January 2018 across the three universities. Ethics approval was gained from each university.

Measures

The survey was designed with a mix of open ended questions as well closed questions with multiple responses or five-point Likert scales. Student participants were asked to report on their background characteristics. Remaining items were developed using extant literature and in line with the research questions to ascertain the extent to which students perceived learning transfer occurred during their WIL activity, as well as to identify interventions that promoted or hindered this process. The instrument was pretested for content validity.

Analysis

Open ended questions were coded deductively and inductively, using a combination of Microsoft Word and Excel, with prevalent and key themes summarised (Braun & Clarke, 2006). Identified themes were then interpreted in relation to the research questions. Extracts of narratives which illustrated interventions where learning transfer was facilitated, were identified and examples of these are presented within the findings section. Closed survey questions were analyzed using descriptive techniques in SPSS version 23.0.

RESULTS

Key findings relating to students' perspectives on transfer of skills and knowledge and the characteristics and strategies for WIL program design are presented in this section.

Transfer of Skills and Knowledge

The first research objective was to determine to what extent, and how, WIL students are transferring their skills and knowledge across university and work settings. Seventy four students identified university activities, some more than one, which built their confidence in being able to transfer skills and knowledge between different contexts (see Table 1). A count of the number of times each theme was mentioned by the students is included.

TABLE 1: Activities which develop confidence in skills and knowledge transfer

University activities	Frequency	Outside university activities	Frequency
WIL	33	Paid work	51
Group work	13	Volunteering	35
Authentic projects	11	Sports and community-based activities	4
Oral presentation	8	Research on industry/sector and roles	2
Communication	3	Mentoring	3
Industry engagement	3	Participation in other training and development	2
Discipline-based knowledge	3	Networking events	2
Exchange program	1		
Student competition	1		
Reasoning activities	1		
Research			
Examples of real-life practice	2		
Reflective activities	2		
Report-based assignments	2		
Volunteering/clubs	2		
Coaching	1		

Some students referred broadly to the value of practical activities in their degree program, enabling them to apply theoretical concepts and knowledge. Most pinpointed specific activities with WIL experiences frequently mentioned. One student stated WIL helped them to "to gather knowledge of working in a business, learning about sporting organisations and how they are run". WIL was highly valued for both internships and placements (immersed WIL) and authentic, industry-based projects. This was further supported by those who commented on the value of industry engagement, with collaboration giving them access to real-life data and/or established professionals through particular tasks or activities. Teamwork based activities were also mentioned frequently, with students acknowledging the benefits of group assignments, communicating in group discussions and working with diverse members. Communication was also mentioned more broadly, in both verbal and written format, with lecturers, peers and during the application process for securing a WIL opportunity. Interestingly, only two students cited reflective activities as important, and only one creativity, "the ability to reason and think outside the square".

Students were also asked about activities outside university which helped build their confidence in transfer. Seven types of activities were identified (Table 1) by the 71 respondents. Volunteering and paid work appear critical for enhancing students' confidence in transfer.

As WIL undertaken as part of a university qualification was clearly an important activity for transfer, and a key focus of this research, students were asked to rate – on a five-point scale – how confident they felt, prior to their WIL experience, about transferring the skills and knowledge learnt at university to a different context. Of the 75 responding students, only 13.3% stated they were very confident, with remaining students reporting they were 34.7% confident, 29.3% somewhat confident, 17.3% slightly confident and 5.3% not confident at all. The mean rating was 3.33 with associated standard deviation of 1.082.

In terms of the value of WIL for encouraging transfer in learners, 54 students felt they had sufficient opportunity to apply the skills and/or knowledge learnt at university during their WIL experience. These students proceeded to describe an experience where they successfully applied skills and/or knowledge learnt during their degree program in the workplace. They were asked to outline where they were, what task(s) they were doing and what

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skills and/or knowledge they drew on from university. One illustrative example was from a third year business student who stated "I was working on the development of my placements new website, for example, creating and uploading content. I was able to refer to the consumer decision making framework when creating content to ensure that what was chosen and uploaded best suited our consumers needs".

The 54 students who described their transfer situation were asked to rate, on a five-point scale, their degree of familiarity with different aspects of the experience at that point in time (see Table 2). Just over one-half (53.7%) were either familiar or very familiar with the tasks they were completing at that time. In terms of the professional setting, just under one-half (48.2%) rated their familiarity with the professional setting as either familiar or very familiar. Finally, only just over one-third (37.1%) indicated they were familiar or very familiar with the people they were working with, or alongside at that time. The 54 students were also asked to rate, on a five-point scale, the complexity level of the activity they were undertaking. Only 38.9% rated this as complex or very complex and 13.0% not complex at all. In terms of how challenging they found applying their skills/knowledge in this instance, only approximately one-quarter (26.0%) rated this as challenging/very challenging, 11.1% not challenging at all, 37.0% slightly challenging and 25.9% somewhat challenging.

TABLE 2: Familiarity with different aspects of the transfer experience

Aspect	Not familiar at all		Slightly familiar		Somewhat familiar		Familiar		Very familiar	
	N	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Tasks being completed	1	1.8	11	20.4	13	24.1	13	24.1	16	29.6
Professional setting	5	9.3	10	18.5	13	24.1	17	31.5	9	16.7
Co-workers at that time	12	22.2	14	25.9	8	14.8	11	20.4	9	16.7

Of the 28% of students (*N*=21) that did not feel they had sufficient opportunity for transfer, most explanations provided, related to the nature of the tasks that they were given in the workplace.

Work-Integrated Learning Program Design for Fostering Transfer

The second research objective was to examine characteristics and strategies in WIL program design (in the university context) which facilitate the transfer of skills and knowledge from university to the workplace. Students were specifically asked to identify interventions at university that would promote transfer. Selection of an appropriate placement related to the student's course of study, as well as being well prepared for the WIL experience were identified as key strategies to help students transfer skills and knowledge from university to the workplace. The 54 students who described a transfer situation identified factors that assisted them with applying their skills and knowledge, as well as things which made it harder for them. A key factor that helped facilitate transfer in the workplace setting was workplace support. Students acknowledged their university based learning and the knowledge base they had gained at university was also important in facilitating transfer. Other factors that helped facilitate transfer are presented in Table 3.

Key factors considered to be inhibitors of knowledge and skills transfer, included a lack of familiarity with the context (e.g., tasks, setting, software, people) and the students own level of experience (e.g., having adequate skills). Other factors that made it hard for students to transfer are listed in Table 3.

TABLE 3: Facilitators and inhibitors of skills and knowledge transfer

Facilitators	Frequency	Inhibitors	Frequency
Understanding weaknesses	1	Communication (jargon and English second language)	3
Commitment/determination	3	Lack of familiarity/experience	14
Workplace support	16	Lack of workplace support	5
Previous experience	7	Lack of confidence	4
Knowledge base	8	Uncertainty/difficulty in applying theory	4
University-based learning	9	Cultural diversity	2
Time and task organisation	3	Poor time management	2
University WIL support	3		
Self-directed learning	1		
Confidence	2		
Peers and family	1		
Research on role/industry	2		

Certainly, as mentioned previously, involvement in WIL undertaken as part of a university qualification was considered to help develop student confidence in transferring newly acquired skills and knowledge from WIL to another context/setting. When asked how WIL assisted this process, several students commented on how WIL improved their communication skills, while others attributed it to improving their understanding of the professional setting or simply to gaining relevant experience in their discipline area. Some noted how WIL developed their skills and knowledge, improved their networks, as well as giving them an opportunity to gain feedback from industry. Of the 40 responding students, only five felt their WIL experience did not enhance their confidence in transfer.

DISCUSSION AND IMPLICATIONS

Transfer is clearly something that many students have considered and practiced, and the narratives provided of their transfer experience were largely rich and informative. WIL experiences undertaken as part of the university program were seen as a key facilitator of transfer. While there were varying levels of confidence in students ability to transfer prior to undertaking WIL, following their WIL experience most reported confidence in near transfer (between situations that are similar). Although specific examples were not captured in the narratives, many students indicated that they had improved their confidence in far transfer (Barnett & Ceci, 2002) where they could transfer skills and knowledge to the workplace as well as to different contexts. Far transfer is important as students need to be able to extend their learning beyond the environment where this learning occurred (i.e.,university or WIL placement organisation) and have the confidence to transfer to graduate positions. With current trends in employability (Rowe & Zegwaard, 2017), graduates need to be prepared to perform in roles across different sectors and transfer their learning to help navigate these new contexts.

A range of factors are acknowledged as influencing transfer including the characteristics of the learner, program design and social/cultural contexts (Jackson, 2013; Leberman et al., 2006). In this study, WIL students identified workplace characteristics as important for transfer to occur. Those that did not have the opportunity to transfer indicated that they were limited by the appropriateness of the placement organisation or the alignment of tasks that they were given in relation to their course of study. Therefore, designers of WIL programs need to ensure that processes are in place so that placement selection enables authentic workplace activities which align with university learning to maximise opportunities for transfer. Lam and Muldner (2017) also found that targeted preparation for the peer collaborative experience further enhances learning transfer. Other critical influences include having a

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supportive mentor/supervisor who understands the importance of encouraging transfer and a collaborative environment where students can network and interact with others in the work setting (Jackson, 2016).

In this study it was found that university activities such as group work and authentic projects, also provided opportunities for students to transfer skills and knowledge. The lack of reference to reflection when students considered activities and factors which augment transfer is somewhat surprising. Educating students on the importance of reflecting on capabilities, achievements and weaknesses is critical for professional development and ultimately enhancing their confidence in their ability to apply skills and knowledge in a practical setting (Coulson & Harvey, 2013).

Transfer was not limited to university activities or WIL experiences. WIL students indicated that outside of the university, paid work and volunteering were activities that also built confidence in transfer. Program designers need to develop ways to utilise such extracurricular experiences to complement and strengthen the learning achieved through WIL and other university activities.

There is certainly room for improvement in relation to building confidence levels among students (in their ability to transfer) prior to WIL. Given students were past the mid-point in their studies, findings indicate that attention is needed to this important area. WIL adds value in a number of ways yet its design is critical. It is therefore important that educators pay close attention to incorporating factors which augment transfer or create barriers to transfer, such as appropriate selection of placement organisations, effective preparation for placements and workplace mentoring / support.

Beyond WIL, it is imperative that educators recognise the value of certain activities (in and outside of university) to developing students' ability to transfer skills and knowledge. Further research is needed to explore how these activities contribute to, and complement, student learning.

CONCLUSION

The study provides a unique insight into the transfer of skills and knowledge among higher education students. It contributes to the dearth of empirical explorations of this area and provides a foundation for future research. Findings essentially indicate that students are broadly aware of the importance of transfer, and while they display a degree of confidence in their ability to transfer skills and knowledge, there is certainly room for improvement. Given the importance of portability among new graduates and their ability to operate across a variety of different functions, attention to transfer in curriculum design is paramount. In this vein, a number of strategies for enhancing transfer are identified, specific to WIL and beyond. As with all studies, there are limitations. The sample size is not considerable, yet given the volume of qualitative data, it is considered ample to develop a rich picture of student experiences with transfer and its determining factors. While the narratives provided insights into near or simple transfer from university to the workplace, further research is needed into student and graduate experiences and perceptions of complex and far transfer.

REFERENCES

Analoui, F. (1993). Training and transfer of learning. Nevada, US: Avebury.

Baldwin, T., & Ford, J. (1988). Transfer of training: A review and directions for future research. Personnel Psychology, 41(1), 63–105. doi: 10.1111/j.1744-6570.1988.tb00632.x

Barnett, S. M., & Ceci, S. J. (2002). When and where do we apply what we learn? A taxonomy for far transfer. Psychological Bulletin, 128(4), 612–637. doi: 10.1037//0033-2909.128.4.612

Beach, K. (1999). Consequential transitions: A sociocultural expedition beyond transferring education. Review of Research in Education, 24(1), 101–39. doi: 10.3102/0091732X024001101

Billett, S. (2011). Curriculum and pedagogical bases for effectively integrating practice-based experiences – Final report. Strawberry Hills, NSW: Australian Learning and Teaching Council. Retrieved from: https://www.vu.edu.au/sites/default/files/CCLT/pdfs/billett-wil-report.pdf

Bransford, J., & Schwartz, D. L. (Eds.). (1999). Rethinking transfer: A simple proposal with multiple implications. Thousand Oaks, CA: Sage Publications.

Braun, V., & Clarke, V. (2006). University thematic analysis in psychology. Qualitative Research in Psychology, 3, 77–101. doi: 10.1191/1478088706qp063oa

Bridgstock, R., & Cunningham, S. (2016). Creative labour and graduate outcomes: Implications for higher education and cultural policy. International Journal of Cultural Policy, 22(1), 10-26. doi: 10.1080/10286632.2015.1101086

Burke, L., & Hutchins, H. (2007). Training transfer: An integrative literature review. Human Resource Development Review, 6(3), 263–296. doi: 10.1177/1534484307303035

Cilliers, F., & Tekian, A. (2016). Effective faculty development in an institutional context: Designing for transfer. Journal of Graduate Medical Education, 8(2), 145-149. doi: 10.4300/JGME-D-15-00117.1

Coulson, D., & Harvey, M. (2013). Scaffolding student reflection for experience-based learning: A framework. Teaching in Higher Education, 18(4), 401-413. doi: 10.1080/13562517.2012.752726

Foundation for Young Australians. (2016). The new work mindset: 7 new job clusters to help young people to navigate the new work order. Melbourne, VIC: FYA.

Hakel, M., & Halpern, D. (2005). How far can transfer go: Making transfer happen across physical, temporal and conceptual space. In J. Mestre (Ed.), Transfer of learning from a modern multidisciplinary perspective (pp. 357-370). Greenwich, CT: Information Age Publishing.

Jackson, D., & Hancock, P. (2010). Developing non-technical skills in undergraduate degrees in business and their transfer to the workplace. Education Research & Perspectives, 37(1), 52-84.

Jackson, D. (2013). Business graduate employability – where are we going wrong? Higher Education Research & Development, 32(5), 776-790. doi: 10.1080/07294360.2012.709832

Jackson, D. (2016). Modelling graduate skill transfer from university to the workplace. Journal of Education & Work, 29(2), 199-231. doi: 10.1080/13639080.2014.907486

Lam, R., & Muldner, K. (2017). Manipulating cognitive engagement in preparation-to-collaborate tasks and the effects on learning. Learning & Instruction, 52(1), 90-101. doi: 10.1016/j.learninstruc.2017.05.002

Leberman, S., McDonald, L., & Doyle. S. (2006). The transfer of learning: Participants' perspectives of adult education and training. Aldershot, UK: Gower Publishing.

Mestre, J. (2005). Transfer of learning from a modern multidisciplinary perspective. Greenwich, CT: Information Age Publishing.

Patrick, C., Peach, D., Pocknee, C., Webb, F., Fletcher, M., & Pretto, G. (2009). The WIL report: A national scoping study. Brisbane, QLD: Queensland University of Technology. Retrieved from: http://www.olt.gov.au/resource-wil-work-integrated-learning-griffith-2009

Peach, D., Ruinard, E., & Webb, F. (2014). Feedback on student performance in the workplace: The role of workplace supervisors. Asia-Pacific Journal of Cooperative Education, 15(3), 241-252.

Rowe, A. D., & Zegwaard, K. (2017). Developing graduate employability skills and attributes: Curriculum enhancement through work-integrated learning. Asia-Pacific Journal of Cooperative Education (Special Issue), 18(2), 87-99.

Schwartz, D., Bransford, J., & Sears, D. (2005). Efficiency and innovation in transfer. In J. P. Mestre (Ed.), Transfer of learning from a modern multidisciplinary perspective (pp. 1-51). Greenwich, CT: Information Age Publishing.

Smith, C. (2012). Evaluating the quality of work-integrated learning curricula: A comprehensive framework. Higher Education Research & Development, 31(2), 247-262. doi: 10.1080/07294360.2011.558072

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A legitimation code theory perspective on work-integrated learning in South African school physical science curriculum policy

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ABSTRACT

While work-integrated learning (WIL) continues to gain prominence worldwide, the range of definitions indicates no consensus on what it actually includes. This contributes to a creative space in which to uncover its more nuanced forms and potential. Despite the range of available definitions there appears to be an emphasis on WIL at the level of post-schooling, at the expense of considering its relationship with school curriculum policy. This mirrors the emphasis that many countries seem to place on exit level education outcomes or achievement and can be criticised along the same lines. In response to the paucity of knowledge around WIL at school level, we consider a legitimation code theory perspective on 'work-integrated learning' in school science curriculum policy. We provide a general overview of Karl Maton's Legitimation Code Theory, paying particular focus on the notion of semantic gravity. With the South African school physical sciences as the case in this qualitative curriculum study, the paper uncovers aspects of school science education curriculum which align it to the precepts of work-integrated learning. The paper reveals the utility of legitimation code theory for uncovering epistemic shifts in school science curriculum that contribute to bridging science theory and contextualised practical knowledge. The results of the study provide insight into the epistemological contribution of work integrating learning, suggesting a complimentary relationship between formal education and work-integrated learning that goes beyond the notion of the former simply including the latter as a stepping stone towards meaningful engagement in the workplace.

Keywords: school science curriculum, work-integrated learning, epistemic shifts, theory-practice relationship, legitimation code theory

INTRODUCTION

Work-integrated-learning (WIL) in a more formal sense, has existed for over a century (Coll, Eames, Paku, Lay, Hodges, Bhat, Ram, Ayling, Fleming, Ferkins, & Wiersma, 2009). Workplaces are useful epistemological spaces by virtue of their potential for accommodating both theory and practice (Choy, 2009). The benefits of WIL programmes to students, employers and higher education institutions are numerous and well-documented in literature (e.g., Coll et al, 2009; Winberg, Garraway & Jacobs, 2011). It is thus not surprising that WIL has been able to attract substantial investment towards its expansion (Abeysekara, 2006), and has become an important feature of higher education globally (Smith, 2012). In Australia for example, although WIL has been integral in some disciplines for a long time, its presence in them is still growing and its significance in universities is expanding even further through recent legislative and policy shifts (Emslie, 2011).

While there is widespread agreement on the plethora of benefits WIL offers to a range of stakeholders and its prominence grows worldwide, there are a range of definitions attached to it (as presented in the literature review), suggesting no consensus on what it actually includes. This is confirmed by the literature describing it as a 'chameleon term' (Orrell, 2011), an 'umbrella concept' (Lewis, Holtzhausen & Taylor, 2010) and 'provisional concept' (Jonsson, 2007, p. 5). WIL could also be viewed as a sensitizing concept (Hermansson, 2004, in Jonsson,

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2007) – a concept that is frequently used despite its definition being diffuse (Blumer, 1954). The meaning of such concepts require ongoing conversation and they thus demand researchers be open to empirical data with potential for shaping the concept. This contributes to a creative space in which to uncover the more nuanced forms and potential of WIL.

Despite the range of available definitions there appears to be an emphasis on WIL at the level of post-schooling, at the expense of considering its epistemological relationships to school curriculum. This mirrors the emphasis that many countries seem to place on exit level education outcomes or achievement and can be criticised along the same lines – the knowledge-building experience which higher education institutions provide to students does not exist in isolation from the knowledge-building work of school curriculum.

Higher education (HE) in South Africa (SA) consists of 'traditional' universities- offering theoretically oriented qualifications, universities of technology - offering vocationally oriented qualifications, and comprehensive universities which offer a both theoretically and vocationally oriented qualifications. Universities of Technology (UoT) were previously referred to as Technikons, and are similar to polytechnics or institutes of technology in terms of their primary offering being career-focused three year diploma courses (Spowart, 2006). Most HE institutions irrespective of their categorisation have faculties with an applied focus, which offer professional education programmes. Such institutions have recognised the importance of preparing students for work and helping them gain practical experience, such as through inclusion of work-placements as a part of their curriculum (Winberg et al, 2011).

The SA Higher Education Qualifications Framework (HEQF) which came into effect in 2007 (South Africa. Department of Education, 2007) was the first instance of use for the term 'Work-Integrated Learning' (WIL) in a South African Department of Education document (Lewis et al, 2010). However, in its various forms and under the guise of other terms, WIL has always been a distinguishing feature of technical, vocational and professional education in the country (Winberg et al, 2011). Recognition of the workplace as both a learning resources and a site of knowledge production is evident in the South African training of professionals in fields such as health, applied sciences, engineering and business involving the actual sites of practice (e.g., a teaching hospital in the case of health professionals) (Winberg et al, 2011).

South Africa is one of many countries invested in curricular and pedagogical reform to support students from diverse backgrounds and prepare them for responsible citizenship and to face the challenges arising from the global economy. In contexts of development such as South Africa, for the successful integration of graduates into work life in a manner that allows them to contribute meaningfully, innovation is required in terms of curriculum, teaching, learning and assessment (Winberg et al, 2011). We contend that such innovation includes the potential for knowledge-building in vocational training (more specifically, through WIL) to capitalise on knowledge-building foundations at the level of schooling as will be outlined over the course of this paper.

PROBLEM STATEMENT

While the potential value of WIL is recognised across the globe, a growing body of literature (eg. Ferns & Moore, 2012) is focusing on how the rich potential of WIL may be better realized. For example, the impact of student learning as preparation for practice is actualised only through curriculum integration between theory and practice-based experience (Billett, 2009) and more can be done to better prepare students for work placements (Nagarajan & McAllister, 2015). These raise questions around mechanisms for scaffolded towards theory-practice integration before their WIL placement. In addressing this challenge, we can't ignore the fact that students at vocational institutions do not arrive there as blank canvases – they are products of school curriculum, amongst other factors.

In terms of epistemological articulation, science knowledge-building strategies at school level are stepping stones towards science students' successful theory-practice integration in their tertiary learning. It makes sense for the latter to capitalise on the epistemological foundations provided by the former. This is alluded to by Winberg et al (2011) who reveal the need for higher education practitioners to not only realise that knowledge is being produced in a variety of sites, but to also understand both theoretically and practically how different knowledge production

systems function. Towards this end for science related coursed at vocational institutions, there is a need for the foundations of knowledge-building at school science curriculum level to be explored in order to identifying specific epistemic mechanisms which science vocational training can draw from and extend.

LITERATURE REVIEW

In broad terms, WIL is the practice of combining traditional/formal academic study with student exposure to the world-of-work related to their intended profession (Jackson, 2015). Some regard it as a generic term used by various writers for describing educational models that engage students in professional development within their curricula (Lewis et al, 2010). The range of literature definitions indicate confusion and even disagreement around WIL and its related concepts, some details of which we will now turn our attention to.

One reason for confusion about what WIL is, as pointed out by Du Plessis (2015), is that various terminologies are concurrently being used internationally for describing education programmes which have a practical component or are related to activities in the workplace or in professional practice. This is evident for example, by the terms 'cooperative education' and 'internships' being used as synonyms for WIL in the USA and many other countries, while the UK commonly uses the term sandwich degree (Coll et al, 2009). It is thus not surprising that Jonsson (2007, p. 5) describes WIL as a provisional concept since its more nuanced meanings are only evident in relation to the context of its use.

Another possible reason for confusion around what WIL includes, as pointed out by Patrick et al. (2009), is that WIL is an umbrella term - it covers a range of approaches for integrating theory with the practice of work. Patrick et al (2009) mention that while the most common approach is work placements, other strategies such as industry-engaged project work, work-environment simulations and virtual activities are also included. Smith (2012) for example, disagrees with Patrick et al (2009) by arguing that WIL is not synonymous with work experience or work-based learning. The basis for this disagreement is that neither work experience nor work-based learning explicitly require students to learn, apply or integrate theoretical/canonical/disciplinary knowledge to the practical context of the work situation in the way that WIL does.

Du Plessis (2015) reminds us that WIL implies alignment between work and education and so while WIL is not necessarily restricted to the workplace (as in the case of work-based learning), work-based learning is one possible learning modes through which WIL can be facilitated. In positing that WIL requires a sharper definition than an 'umbrella term', Oliver (2015) proposes that WIL be defined as a range of learning tasks which either resemble those actually expected of working graduates, or are aligned to the physical/digital spaces where professional work takes place.

Despite the reason for confusion and disagreements indicated above, all the definitions presented here thus far do not limit WIL to only work-based learning in real workplace settings. However, many others do (e.g., Cooper, Orrell & Bowden, 2010; Emslie, 2011; Smith, 2012), appearing to conflate WIL and work-based learning despite the arguable distinction between these. This presents a third tension around the definition of WIL.

Some researchers refer to approaches involving preparation for work placement as a stage of WIL. Nagarajan and McAllister (2015) refer to both on and off-campus WIL components, acknowledging that WIL extends beyond just work placement activities. They recognise that the relevance and application of on-campus learning to workplace settings is needed by students prior to their entering work placements. In agreement, are Martin and Hughes (2009) who state that equipping students with disciplinary content knowledge, critical thinking skills and exposure to the profession are in fact aspects of an early stage of WIL.

Many researchers focus on integration across academic/theoretical learning and practical application, in their definition of WIL. Atchison, Pollock, Reeders, and Rizzetti (2002, p. 3) for example, describe WIL programs as educational programs that combine learning and its workplace application with recognition that such integration may or may not occur in industry and may be real or simulated. More explicitly, Orrell (2011, p.1) defines WIL as the 'intentional integration of theory and practice knowledge' and indicates that 'a WIL program provides the means to enable this integration and may, or may not, include a placement in a workplace, or a community or civic

arena'. Echoing this sentiment, Winberg et al (2011) state that integration of theory and practice in student learning can occur through a range of WIL approaches, other than formal or informal work placements.

In terms of how this pedagogical approach is expressed, Blom (2014) indicates three ways: Learning **for** work – vocationally orientated/career focused learning intended for inducting entrants to their chosen vocation/profession; Learning **at** work – the range of modalities at workplaces which enhance knowledge and competency integration; and Learning **through** work –engagement of students in particular work-related tasks as part of the curriculum, to solve problems related to work in real life. This layered view of WIL is echoed by Billett (2009) who reminds us that curriculum, pedagogic and epistemological responses are in fact required, before, during and after students WIL placements in order to integrate these experiences towards achieving their full educational value.

According to Stuckey, Hofstein, Mamlok-Naaman, and Eilks (2013), science should prepare students towards further training and subsequent employment. They remind us that a new aspect of science literacy presented during the 1980's but which is sometimes implicit in the definition of science literacy, is the vocational dimension. Young (2013) suggests that curriculum theory needs to address the question of what students are entitled to learn, whether it be at primary or secondary school, university or a vocational programme aimed at increasing employability. The Work-Integrated Learning: Good Practice Guide by the SA Council for Higher Education acknowledges the need for professional education to look both ways. University teachers of application-oriented subjects such as Engineering, Education, and Medicine, or who teach subjects such as Physics for Engineering, Education and Medicine should be guided by both scientific disciplinary knowledge, as well as knowledge for professional practice (Winberg et al, 2011).

Scientific meanings operate at a level that is general and context-independent. The danger of them being learned in a practical setting like a work placement, is that they may end up being tied to that specific context and their transferability to other contexts may be lost. Thus, one viewpoint is that scientific knowledge should first be acquired for what it is, so that it can provide the knowledge base for problem-solving in professional practice. The challenge that this poses for students, is that this foundational knowledge is usually obtained from studying academic subjects which students often fail to understand the relevance of and have difficulty transferring into the workplace (Winberg et al, 2011). This further supports the need for identifying epistemic mechanisms towards strengthening students' ability to apply theoretical knowledge in the workplace.

While it is true that compared to general education programmes, WIL involves specific curricular, pedagogical, and assessment considerations, these only differ in certain respects. One aspect which WIL curricula requires engagement with is 'philosophies of education, theories of teaching and learning, and educational research findings– particular WIL modality' (Winberg et al, 2011, p.14). A successful strategy for WIL curriculum design and implementation to ensure students focus on theory-practice integration for connecting disciplinary learning with workplace application is by 'designing learning activities that require the integration of disciplinary and workplace-relevant knowledge and skills' (p,15).

However, there is paucity of knowledge regarding scaffolding mechanisms towards such integration in WIL curriculum prior to work placement, and we contend that lessons may be learned from how this is approached in school science curriculum. This is because, like teaching and learning during pre-WIL placement at vocational institutions, work experience is not yet available to be drawn into the school science learning experience but levels of cognitive demand beyond basic recall and comprehension such as application, still require scaffolding in order to empower learners.

There are many curricular modalities which can be drawn on in developing a WIL programme. In addition to workplace learning, these include work-directed theoretical learning (WDTL), problem-based/oriented learning (PBL) and project-based learning (PJBL) (Winberg et al, 2011). It terms of WDTL, WIL programmes include theoretical components which should be aligned with practical or practice-based components through teaching and learning activities that bring theory and practice together in meaningful ways. These include the use of authentic examples/case studies from the world of professional practice.

PBL has as its main objective, the acquisition of an integrated knowledge base for application to analysis and solution of problems. (Boud & Feletti, 1997). Few academic programmes in SA have adopted PBL in its purest form. Problem-oriented learning is more common and it involves the inclusion of real world scenarios for problem-based activities and assessments. PJBL stimulates learning through projects. While the projects may be 'real' projects in the workplace, they are more commonly simulated with the learning takes place in the educational institution. As with the case of problems, projects 'are a means of engaging students in complex, work-related issues, through which they develop and transfer skills and knowledge.

THEORETICAL FRAMEWORK

Maton (2009) flags segmental learning (learning a isolated ideas/skills strongly tied to context of acquisition), as a pressing concern in educational debates. Since this kind of learning problematizes students' knowledge-building through it limiting transfer of ideas/skills to new contexts such as everyday life, future studies or work (Maton, 2014). The issue of cumulative learning on the other hand, 'where new knowledge builds and integrates past knowledge, is becoming increasingly salient' (Maton, 2009, p. 43). Cumulative learning involves new workplace knowledge building on and integrating previous knowledge and is thus desirable for realising the educational benefits of WIL. Legitimation Code Theory responds to the question of how to enable cumulative learning at school and university.

The LCT approach to education, knowledge and practice is rapidly growing (Maton, 2014). LCT extends from social realism which recognises knowledge as being both based on an external reality, and socially constructed (Macnaught, Maton, Martin and Matruglio, 2013). It extends and integrates the approaches of Bernstein and Bourdieu (Maton, 2014). The LCT epistemic-pedagogic device models the social fields of production, recontextualisation and reproduction as being governed by a range of logics, and creating an arena which is the site of struggle for power by different social groups (Maton, 2014).

The multidimensional toolkit of LCT includes semantics, which has the organising principles of semantic gravity and semantic density. In social practices such as education, semantic gravity is the degree of context-dependence of meaning while semantic density is the degree of condensation of meaning (Maton, 2014). Semantic density and gravity work together to frame the knowledge practices through semantic codes and profiles. A range of semantic codes are possible due to both semantic gravity and semantic density existing along continua of strengths For example, at different times science lecturer talk or student responses to assessment may have stronger or weaker semantic density depending on how many meanings are condensed in their language. References that are more contextualised have stronger semantic gravity compared to those which are more decontextualized and thus have weaker semantic gravity. Due to the potential for semantic shifts between relatively higher and lower strengths of semantic gravity and density over time, it is possible to plot semantic profiles (Macnaught et al, 2013) of lecturers' talk or students' written reflections, for example.

In a semantic profile of talk or writing, the potential of upward and downward semantic shifts creating a semantic wave over time, is recognised as being powerful for cumulative knowledge-building. Semantic flatlines (regions of minimal or no semantic shift) on the other hand, suggest the author/speaker is stuck in a limited semantic range (Macnaught et al, 2013) and they constrain knowledge-building. Uncovering mechanisms for extending semantic range is central both to learning and fostering a society that is more inclusive and far-sighted (Maton, 2014).

RESEARCH DESIGN

The research design was guided by the following 2 research questions, which draw from the rationale for the study:

- How does South African school science curriculum align to WIL precepts?

- What are the mechanisms for epistemic shifts between theory and practice, in the SA school science curriculum?

A major feature of qualitative studies is enquiry, and traditional routes include case study. Case study is one of the main types of naturalistic inquiry, and involves investigating a specific instance/phenomenon in its real-life context

(Cohen et al, 2007). While generalisability of case studies is limited, this does not impact on its relevance to the current study's context-specific foci of South African school science curriculum alignment to WIL precepts, and mechanisms for epistemic shift. Furthermore, case studies have noteworthy strengths such as being grounded in reality, speaking for themselves, being capable of serving multiple audiences and being steps to action (such as in education policy-making) (Cohen et al, 2007).The case in this study is the SA school Physical Sciences Curriculum and Assessment Policy Statement or CAPS (South Africa. DoBE, 2011) which school physical sciences teachers are mandated to deliver. In South Africa, Physical Sciences is the optional Grade 10-12 school science subject which includes physics and chemistry.

The research method of document analysis is strongly applicable to qualitative case studies (Bowen, 2009). Documents are distinct from interviews and observation etc, in that the documents being analysed already exist before the research necessitates their use as data (Miller and Alvarado, 2005). Although often used to complement other methods (e.g., for the purpose of triangulation), document analysis can also be used as a stand-alone method, for example in specialised qualitative research (Bowen, 2009; Miller & Alvarado, 2005) such as the current curriculum policy study.

The document analysis of the SA Curriculum and Assessment Policy Statement (CAPS) for physical sciences (DoE, 2011) in this study involved iterative cycles which combine elements of content and thematic analysis. Bowen (2009, p. 32) describes content analysis as 'a first-pass document review, in which meaningful and relevant passages of text or other data are identified' and goes on to discuss data reduction by highlighting that 'the researcher should demonstrate the capacity to identify pertinent information and to separate it from that which is not pertinent'. Subsequent thematic analysis of pertinent documentary data involves a careful and more focused re-reading/review of the data for the purpose of coding data towards constructing categories to uncover themes relevant to answering the research questions.

RESULTS AND DISCUSSION

Preparation for Workplace andCareer

Preparation for the world of work is a key feature of WIL literature and more directly evident, through such terminology as occupational competence (Billet, 2009), vocational education, work placements, work-placed learning, work-based learning and work-readiness (Winberg et al, 2011). The CAPS: Physical Sciences (DoBE, 2011) does not stipulate work placement, and so does not align to WIL in that regard. However, the curriculum policy highlights that one of the general aims of the SA curriculum is to facilitate the transition of learners from education institutions to the workplace. Furthermore, it states that a specific aim of physical sciences is to prepare learners for employment and that learners who study this subject 'can have improved access to professional career paths related to applied science courses and vocational career paths' (p. 8). It also makes multiples references to a range of industry types (as will be discussed later) to which specific science content is relevant. There is thus some alignment in this regard.

Theoretical Knowledge

A common feature of all WIL programmes is that they include theoretical components (Winberg, 2011). In the Physical Sciences CAPS document, detailed of the theoretical knowledge constitutes the major section of the document. There is thus strong alignment in this regard.

Practical Skills

WIL literature tends to include a strong focus on skills. The physical sciences CAPS refers to a range of technical skills such as measuring, observing and comparing. One column running throughout the content section of the document (labelled Content, Concepts and Skills) lists specific skills in relation to the various content topics. Interestingly, Lichfield et al (2010) reveal that while technical skills are viewed as important, some employers believe the basis for their recruitment relates more to generic professional attributes. This is because employers they could train new graduates in technical skills, but to do so for more generic professional attributes would to be too

difficult. Generic professional attributes are referred to in some literature as 'soft skills'(e.g., Winberg et al, 2011, p. 19) and in others as non-technical competencies (e.g., Martin and Hughes, 2009). There have been numerous studies across the world to ascertain the most important non-technical competencies. Some commonly desirable attributes according to Martin and Hughes (2009), are listed together with the results around indicators of alignment from the Physical Sciences CAPS in Table 1.

TABLE 1: Commonly desirable graduate attributes (Martin & Hughes, 2009, p.20) matched to indicators of alignment in the Physical Sciences CAPS document

Attribute	CAPS indicator
The ability and willingness to learn	Physical Sciences prepares learners for future learning, specialist learning (p.8)
The ability to prioritise tasks and organise effectively	to produce learners that are able to organise and manage themselves and their activities responsibly and effectively (p. 5)
The ability to take responsibility and make decisions and The ability to solve problems	identify and solve problems and make decisions using critical and creative thinking'; 'demonstrate an understanding of the world as a set of related systems by recognising that problem solving contexts do not exist in isolation (p. 5)
The ability to communicate interpersonally	communicate effectively using visual, symbolic and/or language skills in various modes (p.5); Teachers of Physical Sciences should be aware that they are also engaged in teaching language across the curriculum (p. 14)
The ability to work as a team	work effectively as individuals and with others as members of a team (p. 5)

An additional aim in the Physical Sciences CAPS (South Africa. DoBE, p. 5) is to develop learners who use science and technology effectively and critically showing responsibility towards the environment and the health of others'. This resonates with the competency theme of 'professional ethics' referred to by Martin and Hughes (2009, p. 38). The results indicate strong alignment between strongly desirable graduate attributes and the Physical Sciences CAPS and that the CAPS has a strong focus on technical skills as well.

Theory-Practice Integration

Effective WIL curricula are ones which ensure that students focus on the integration of theoretical knowledge and practice (Winberg, 2011). Some aspects of WIL related to theory-practice integration are assessment and contextualisation, for which the alignment of the Physical Sciences CAPS will now be discussed. According to (Winberg, 2011), it is important that assessment tasks be developed around disciplinary knowledge *and* its transfer to the world of work. This is echoed in the Physical Sciences CAPS, which emphasises the acquisition *and* application of knowledge and skills in ways that are meaningful to students own lives. The CAPS further outlines both pen-and-paper assessments (such as tests) as well as practical assessments as being compulsory, and that application activities are required across all cognitive levels for all the knowledge areas (DoBE, 2011).

In terms of student WIL placements, authentic professional contexts serve as learning environments in which students engage in meaningful workplace activities that support integrative learning (Winberg, 2011). As indicated earlier, the epistemological usefulness of workplaces is explained in terms of their potential for accommodating both theory and practice (Choy, 2009). One of the general aims of the SA curriculum is the promotion of knowledge in local contexts while maintaining sensitivity to global imperatives (DoBE, 2011).

Following through with the issue of local contexts, the Content, Concepts and Skills section of the CAPS makes reference to a range of 'everyday life' contexts related to specific content. Some examples include the mention of kitchenware produced from polymers (in the organic chemistry section) and the relative amount of work done

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when a trolley is pushed vs when car tyres turn without slipping (in the mechanics section). These exemplify the categories of household items and transport respectively, and other similar categories of the emerging from the analysis of the curriculum include food, household chemicals, environment and medicine. These reveal the integration them of everyday-context. Further to everyday-contexts, the theme of workplace-contexts related to specific content, concepts and skills frequently arises in the CAPS. Exemplar categories include the mining, fertiliser, energy and medical industries. The CAPS thus provides rich opportunity for theory-practice integration via a range of categories in the themes of everyday-contexts and workplace-contexts.

Mechanisms for Epistemic Shifts Between Theoretical Knowledge and Practical Application, in the SA School Science Curriculum

Maton (2014, p. 106) reveals that 'Enabling cumulative learning is central to education' and that 'mastering semantic gravity is a key to cumulative learning'. Considering the previous section on the CAPS theory- practice integration themes, it becomes evident that they allow for contextualising of theory (increase in semantic gravity) or theorising of context (decrease in semantic gravity). Through their contribution towards shifts in semantic gravity, the everyday-context and workplace-context integration themes are thus epistemic shift mechanisms which contribute to knowledge building. While the Physical Sciences CAPS is delivered without work placements in school, its otherwise strong alignment to WIL precepts and the rich range of specific options it involves as epistemic shift mechanisms provide a foundation for more nuanced pre-placement work-directed theoretical learning in science courses at vocational institutions. This empirically informs improved scaffolding towards work placement as called for by Nagarajan and McAllister (2015). Furthermore, the notion of semantic waving between theoretical knowledge and practical application offer insight into science vocation pedagogy (in terms of lecturer talk for example) and assessment criteria (of student reflections for example) related to powerful knowledge-building via cumulative learning by students.

CONCLUSION

In considering the range of definitions for WIL, this paper highlights the reasons for its descriptions as a(n) provisional, chameleon, umbrella and sensitizing concept. While acknowledging that there is cause for confusion and contestation around what WIL includes, the paper also surfaces some of its core tenets: preparation for workplace/career, inclusion of theoretical knowledge, inclusion of technical and non-technical practical skills; and theory-practice integration. Document analysis of the South African Physical Science CAPS reveals that it is strongly aligned to the key tenets of WIL. From a legitimation code theory perspective, the strong alignment of the curriculum policy to WIL tenets allows for a range of specific semantic shifting opportunities between decontextualized science theory and contextualised practical knowledge. The results of the study provide insight into the epistemological contribution of work integrating learning, suggesting a complimentary relationship between theoretical learning and work-integrated learning which goes beyond the notion of the former simply including the latter as a stepping stone towards work-readiness. The study has the potential to inform science vocation pedagogy and assessment criteria.

REFERENCES

Abeysekera, I. (2006). Issues relating to designing a work-integrated learning program in an undergraduate accounting degree program and its implications for the curriculum. AsiaPacific Journal of Cooperative Education, 7 (1), 7–15.

Aikenhead, G. S. (2003, August). Review of research on humanistic perspectives in science curricula. In 4th Conference of the European Science Education Research Association (ESERA), Research and the Quality of Science Education. Noordwijkerhout, The Netherlands (August 19-23).

Atchison, M., Pollock, S., Reeders, E., & Rizzetti, J. (2002). Work-integrated learning paper. Melbourne, Australia: RMIT University.

Billett, S. (2009). Realising the educational worth of integrating work experiences in higher education. Studies in Higher Education, 34(7), 827-843.

Blom, R. (2014). A policy framework for work-integrated learning. The African Journal for Work-Based Learning: Towards A Policy Framework for Work-Integrated Learning, 2(1), 1-12.

Blumer, H. (1954). What is wrong with social theory?. American sociological review, 19(1), 3-10.

Boud, D., & Feletti, G. (Eds.). (1997). The challenge of problem-based learning (2nd ed.). London: Kogan-Page.

Choy, Sarojni C. (2009) Aligning workplace pedagogies with learners: what do they need to know? In: 12th Annual Conference of Australian Vocational Education and Training Research Association, 15-17 April 2009, Crowne Plaza, Coogee Beach, New South Wales.

Cohen, L. Manion. L., & Morrison, K.(2007). Research methods in education. London:Routledge.

Coll, R. K., Eames, C., Paku, L. K., Lay, M., Hodges, D., Bhat, R., Ram, S., Ayling, D., Fleming, J., Ferkins, L. & Wiersma, C. (2009). An exploration of the pedagogies employed to integrate knowledge in work-integrated learning. Journal of Cooperative Education & Internships, 43(1), 14-35.

Cooper, L., Orrell, J., & Bowden, M. (2010). Work integrated learning: A guide to effective practice. Abingdon, Oxon.: Routledge.

Du Plessis, J.G. E. (2015). A work-integrated learning education and training programme for radiography in South Africa (Doctoral dissertation, University of the Free State).

Emslie, M. (2011). Where's WIL? Including work-integrated learning in descriptions of what it is that academics do. Journal of Cooperative Education and Internships, 45(1), 34- 44.

Ferns, S., & Moore, K. (2012). Assessing student outcomes in fieldwork placements: An overview of current practice. Asia-Pacific Journal of Cooperative Education, 13(4), 207-224.

Freudenberg, B., Brimble, M., & Cameron, C. (2011). WIL and generic skill development: The development of business students' generic skills through work-integrated learning. Asia-Pacific Journal of Cooperative Education, 12(2), 79-93.

Jackson, D. (2015). Employability skill development in work-integrated learning: Barriers and best practice. Studies in Higher Education, 40(2), 350-367.

Jonsson, B. (2007). Work integrated learning as praxis. In 5th International Conference on Research Work and Learning (RWL5).

Lewis, M., Holtzhausen, N., & Taylor, S. (2010). The dilemma of Work-Integrated Learning (WIL) in South African higher education-the case of Town and Regional Planning at the University of Johannesburg: scientific article. Stads-en Streeksbeplanning= Town and Regional Planning, 2010(57), 25-35.

Litchfield, A., Frawley, J., & Nettleton, S. (2010). Contextualising and integrating into the curriculum the learning and teaching of work-ready professional graduate attributes. Higher Education Research & Development, 29(5), 519-534.

Macnaught, L., Maton, K., Martin, J. R., & Matruglio, E. (2013). Jointly constructing semantic waves: Implications for teacher training. Linguistics and Education, 24(1), 50-63.

Martin, A., & Hughes, H. 2009. How to make the most of work-integrated learning: aguide for students, lecturers & supervisors. New Zealand: Massey University Press.

Maton, K. (2009). Cumulative and segmented learning: Exploring the role of curriculum structures in knowledge-building. British Journal of Sociology of Education, 30(1), 43-57.

Maton, K. (2014). Knowledge and knowers: Towards a realist sociology of education. Routledge.

Miller, F. A., & Alvarado, K. (2005). Incorporating documents into qualitative nursing research. Journal of Nursing Scholarship, 37(4), 348-353.

Nagarajan, S. V., & McAllister, L. (2015). Integration of practice experiences into the allied health curriculum: Curriculum and pedagogic considerations before, during and after work-integrated learning experiences. Asia-Pacific Journal of Cooperative Education, 16(4), 279-290.

Oliver, B. (2015). Redefining graduate employability and work-integrated learning: Proposals for effective higher education in disrupted economies. Journal of Teaching and Learning for Graduate Employability, 6(1), 56.

Orrell, J. (2011). Good practice report: Work-integrated learning. ALTC: Strawberry Hills.

Patrick, C-j., Peach, D & Pocknee, C. (2009). The WIL report: Work integrated learning - A national scoping study. Retrieved from: http://eprints.qut.edu.au/44065/1/WIL- Report-grants-project-jan09.pdf.

Smith, C. (2012). Evaluating the quality of work-integrated learning curricula: A comprehensive framework. Higher Education Research & Development, 31(2), 247-262.

South Africa. Department of Education. (2007). Higher Education Qualifications Framework. Pretoria: Government Printer.

South Africa. Department of Basic Education. (2011). Curriculum and Assessment Policy Statement Grades 10-12: Physical Sciences. Pretoria: Pretoria: Government Printer.

Spowart, J. (2006). Hotel school students' views of their preparation for work-integrated learning: an exploratory study. Asia-Pacific Journal of Cooperative Education, 7(2), 10-15.

Stuckey, M., Hofstein, A., Mamlok-Naaman, R., & Eilks, I. (2013). The meaning of 'relevance'in science education and its implications for the science curriculum. Studies in Science Education, 49(1), 1-34.

Winberg, C. (2006). Undisciplining knowledge production: Development driven higher education in South Africa. Higher Education, 51(2), 159-172.

Winberg, C., Engel-Hills, P., Garraway, J., & Jacobs, C. (2011). Work-integrated Learning: Good Practice Guide–HE Monitor No. 12. Council on Higher Education (CHE).

Young, M. (2013). Overcoming the crisis in curriculum theory: A knowledge-based approach. Journal of curriculum studies, 45(2), 101-118.

Industry careers of information technology graduates with soft skills: A regional survey

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ABSTRACT

The local Information Technology (IT) industry in Wellington is under short term pressure to recruit graduates for technical skills, rather than the soft skills needed for growth. This manifests in students echoing an industry narrative that a fourth year of study in a degree designed to impart advanced technical and soft skills, contrasts poorly with a year of work experience. This narrative is critically examined by seeking the experience and perspectives of our past Computer Science (three year degree) and IT Engineering (four year degree) graduates with up to six years of industry experience. We find Engineering graduates earn on average 18% more than their peers. We found 36% of responding Engineering graduates are engaged in management and consulting activities, earning on average a 31% salary premium compared to peers in similar occupations. Extrapolating from the survey data, over six years the income disparity is NZ$83,200 (US$62,400).

Keywords: WIL, IT, Engineering, soft skills, graduate, career outcomes

INTRODUCTION

The local IT industry in Wellington, New Zealand, is sending mixed messages. On one hand industry leaders tell tertiary institutions and central government they need well balanced, work ready IT graduates able to grow and develop with industry. On the other hand the narrative provided by some in industry, direct to students, is that a fourth year of study in a degree designed by industry to provide this, is a waste of time and industry will not pay more for it. We are concerned that students may be uncritical of this narrative which is offered without evidence.

We dissect this industry narrative, which tends to focus on an IT graduate's first job and first salary, and contrast it with the government and tertiary sector view that envisages career long benefits from advanced tertiary education, aided by transferable skills and having learned "how to learn" highly technical subjects.

We found evidence the narrative may be more widespread than initially thought. Graduate Computer Scientists (BSc) with three year degrees are paid 5% more on average in their first year than IT Engineering (BE) graduates with four year degrees from the same tertiary institution and faculty. This is despite a BE graduates more advanced technical and management studies. However, after the first year BE graduate average salaries exceed that of BSc graduates. If starting salaries do not reflect the qualification, we infer; first that subsequent BE graduate pay rises are based on merit in the workplace; second that local industry is ambivalent about recognizing early, a pool of talent that they tend to reward faster.

Researchers contacted 495 BSc and BE graduates of Victoria University of Wellington's School of Engineering and Computer Science, from the period 2012 to 2017. This generated a 24% response rate to an initial survey gathering information on career progression and other factors of interest. A Grounded Theory process was then used to select and interview nineteen respondents to explore the initial data and gain a greater understanding of the topic.

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The key findings are as follows:

1. The faculty's BSc and BE graduates on average are paid more than the national median for their peers in both the IT and Engineering professions. BE graduates involved in management and consulting earn significantly more than their BSc peers in the same roles. Graduate interviews indicate that industry projects, work experience and the work-relevant, business-focused skills included in the BE can aid advancement in the IT industry.

2. Local industry appears to not value the four year BE qualification. The initial salaries offered to BE graduates are marginally less than those offered to three year BSc graduates. None-the-less BE graduates tend to earn salary increases in the following years faster. It appears local industry has not yet realized this may be systemic.

3. Graduates that participated in six or more team-based projects during studies, both BSc and BE, on average earn more than those that did not.

From here we discuss the local context and the research methodology before analyzing the survey responses and outlining the results of the interviews. We discuss and offer theories to explain the findings and conclude with relating the results to activities undertaken within an Engineering degree utilizing a Work-integrated learning (WIL) framework.

BACKGROUND

Wellington's Information Technology Industry

Wellington is the centrally located capital city of New Zealand (NZ). It boasts a vibrant local IT industry which is a mix of private and public owned entities. The city is an IT innovation hub, attracting private investor interest as well as active support from local government. There are a range of IT education providers in Wellington. Two Universities, Massey University and Victoria University of Wellington (VUW). Two Polytechnics, Whiteria and Weltec, plus several smaller private training establishments offering IT courses from three months to a year. All providers offer industry relevant qualifications that lead to jobs.

There is a national shortage of IT talent, leading to recent long term investment by central government in postgraduate ICT Schools, in Wellington and other cities. They are intended to address high-level ICT skill shortages by offering post graduate taught qualifications in industry relevant IT subjects, along with a work experience component. The school's aim to provide clear pathways from education into employment (NZ Ministry of Business Innovation and Employment, 2017).

When local industry recruits IT graduates, earlier research by one of the authors found technical skills appropriate to the qualification tends to be assumed and recruiters instead recruit for soft skills, such as team fit and communication. Soft skills are sought because many in local industry perceive them to be untrainable in the workplace. Key soft skills are identified in the previous research on what local industry is looking for in IT graduates (Stevens & Norman, 2016).

The School of Engineering and Computer Science at Victoria University of Wellington, New Zealand

The School of Engineering and Computer Science offers two primary undergraduate degrees. The first is the flexible three year BSc with majors in Computer Science, Computer Graphics or Electronic and Computer Systems. The second is the structured four year BE with majors in Software, Network/Security or Electronic and Computer Systems.

The BSc's flexibility is intended to accommodate a wide range of student interests. It allows combining a second major or minor specializations in complementary topics, for example, the Humanities, Law, Psychology or Biology. The BE is structured to meet the demands set by the Washington Accord, an agreement intended to set an internationally accepted standard of Engineering education (International Engineering Alliance, 2018). The

expectations of Engineering graduates are high, the US based Accreditation Board for Engineering and Technology (ABET) notes;

> Students should gain an ability to apply knowledge of mathematics, science, and engineering; to design and conduct experiments as well as to analyze and interpret data; to function on multidisciplinary teams; and to communicate effectively. (Cited from Duderstadt, 2007, p. 29)

The four year BE degree is three years of Computer Science studies interspersed with papers covering work relevant, business focused skills such as; teamwork, leadership, project management, professionalism and ethics. Graduates have completed two or more substantial projects, advanced fourth year Computer Science papers and 800 hours (typically 5-6 months) of work experience. Graduates are expected to be well rounded with advanced technical and soft skills and they have gained experience at university of initiating and completing IT projects with multiple stakeholders.

Internships

Internships completed as part of tertiary education are often conducted under the Work-integrated learning (WIL) pedagogy. WIL started as Cooperative Education in 1906 by Engineering Professor Herman Schneider at the University of Cincinnati. He argued that alternating education and practical experience each trimester created the optimal environment for student learning (Sovilla & Varty, 2011). WIL has grown from these foundations to incorporate similar models such as the four year BE adopted by VUW, with work experience over typically two summers, industry participation as guest speakers and as clients in third and fourth year team based projects.

Many IT internships are arranged through an industry based, not-for-profit partner, Summer of Tech (2018). The program is independently run and accepts all IT students, regardless of institution or qualification. The program actively polices industry "poaching" of students as potentially dishonest to students and unfair to other industry participants who support industry focused tertiary education. However each year a number of BE students return from internships and promptly switch to the shorter degree in order to graduate. When asked for reasons why a range of answers are offered, but common is that industry views a fourth year as not adding value compared to a year of work experience.

Hearing "we will employ and pay you now" is obviously attractive, however, there is no local research-based evidence to prove or disprove the narrative that students will be better off without completing the more advanced qualification.

Previous Research

Previous research conducted by this faculty asked industry what they are looking for in IT graduates. In that research two industry representatives stated they use the internship program as a recruitment tool and encouraged their interns to drop the four year BE to start full time employment (interviews conducted by Stevens, Jan 2016). The key findings of this previous research (Stevens & Norman, 2016), are repeated here to provide additional context:

1. In-house technical training is widely used to advance graduate skills and teach new technologies. Tertiary education providers are not typically expected to teach specific technologies in the face of rapid innovation and industry change, but graduates should be able to relate new concepts to their existing knowledge and learn rapidly.

2. Soft skills contribute significantly to individual learning, team performance, client relations and awareness of the business context. Most employers consider these soft skills to be untrainable in the work-place, making soft skills a critical hurdle for employment.

3. Short term pressure on employers for technical skills can result in the need for soft skills being overlooked. This has resulted in students being influenced by industry to forgo studies intended to develop soft skills.

The Research Question

We seek to explore the career outcomes of BSc and BE graduates over the last six years. To identify what added value BE graduates have experienced to make the extra year of study worthwhile. The question at the heart of this research is:

Do Engineering and Computer Science graduates experience different early career outcomes?

METHODOLOGY

This research was granted Ethics approval by Victoria University of Wellington, approval number 024762.

Grounded Theory

Grounded theory is a process which aims to generate a substantive, explanatory theory from data. Rather than using empirical methods of theory establishment and verification, Grounded Theory instead looks to create and develop a theory through the iterative gathering, examination, and interpretation of data. The process of constant comparison of new data with previously gathered data is achieved by coding, categorizing and refinement, allowing a theory to emerge from the data. This theory may be informed by data from sources such as; interviews and surveys, existing research and potentially the researcher's own knowledge and experience (Glaser & Straus, 1967).

The particular approach followed is constructivist in nature. Rather than attempt to nullify biases it was considered important to involve any existing understanding of the substantive area to aid interpreting gathered data and to inform understanding of the context (Charmaz, 2006). We found no local data on this topic, so the first step was to acquire initial data through a survey and to then test and explore that data through interviews with respondents. From this process we sought a deeper understanding of the topic with a view to generating an initial substantive explanatory theory.

Graduate Career Survey

In December 2017, a graduate career survey was sent to 495 graduates from the School of Engineering and Computer Science since 2012, eliciting a 24% participation rate. The respondents were, 66% BSc and 34% BE graduates. This survey looked to provide insights into graduate career outcomes over multiple graduate cohorts, including salary, overseas work, workplace mobility and responsibilities. The survey consisted of sections on Demographics, Education and Employment. Both quantitative and qualitative data gathered provided insights for later interviews.

Demographics

The respondents' genders were reported as; Male 79%, Female 20% and Non-binary 1%. Respondents identified with 20 unique ethnicities with numerous respondents identifying with multiple ethnicities. The major ethnic groups represented were; NZ European / Pakeha 70%, Chinese 11%, Māori / Pacifica, 9%, English 6%, European (not English) 7%, Asian (not Chinese) 6%, Indian 4%.

Fifteen percent of graduates work overseas, spread across Australia 6%, North America 4%, Europe 3% and South East Asia 2%. The balance in NZ, live in; Wellington 71%, Auckland 9%, Hamilton 2% and 3% in smaller NZ cities. Two thirds of respondents completed their degree before the age of 25, just over a quarter completed from the ages 25 to 30 inclusive, and one in twenty completed their degree after the age of 30.
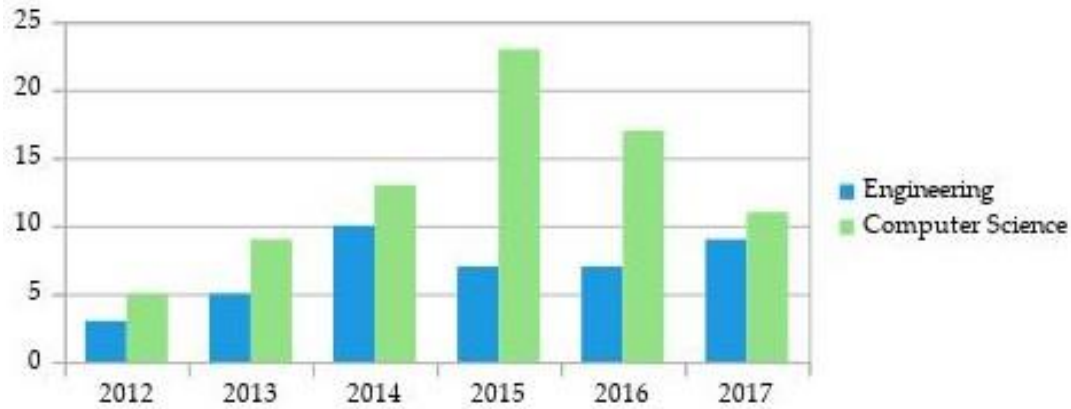
FIGURE 1: Responding graduates from 2012 to 2017.

Team based projects, the reported number undertaken by Graduates
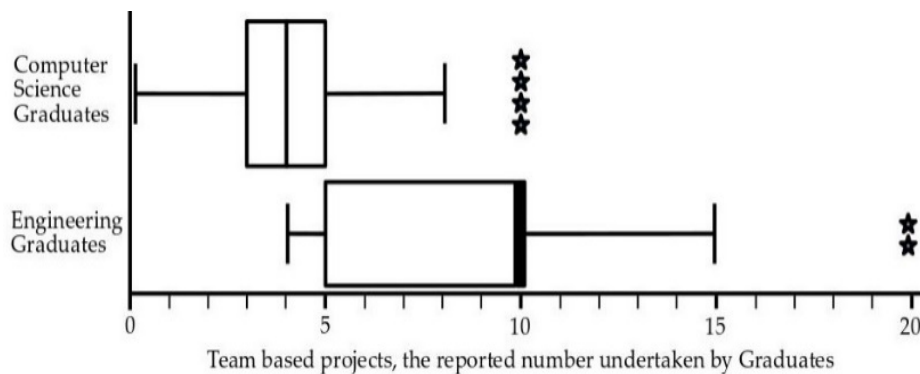
FIGURE 2: Graduate experience with team based projects. Whiskers show IQR. The mode for Engineering graduate team-based projects is 10.

Education

Most respondents had completed High School, 4% had a previous trade qualification and 6% had a previous degree.

Responses were received from every year (figure 1) and this data is used to tentatively show trends across all graduates, however the sample size across some years is small, meaning caution should be used in interpreting results.

Introducing the Engineering degree ten years ago brought about changes in teaching practices as the school adopted many more team-based projects for experiential learning. The resulting graduates report completing numerous team-based projects (figure 2), but BSc graduates report significantly fewer team-based projects than BE graduates.

Graduates were asked to comment on their choice to complete a fourth year of study or not; including a potential fourth year of Computer Science. Over half of BSc graduates stated they already had a job offer. The rest cited; cost, insufficient grades, personal reasons or a desire to leave the University system.

The following quotes from the survey are representative of BSc graduates whom chose not to pursue a fourth year:

> Experienced individuals in IT industry advised that this would not be a large factor in my hiring over another candidate that had honors.

I did not think the honors year would be valuable to my career. At this point I was already working in the industry when I made the decision. Having spent some more time in the industry, I feel validated in the decision and would make it again. I would have preferred an Engineering degree, but I think the opportunity cost of studying another year was exceptional.

Didn't see any benefit when we were being picked up for work as 3rd years.

Many BE graduates saw the Engineering degree as a form of differentiation from BSc graduates, a way of competing for better jobs and salaries. These comments are representative:

Honors project looked interesting and potentially good for CV, was keen to dive deeper into my subject and be challenged.

I did honors because it was part of the BE degree and I wanted to get an engineering degree. BSc would have been fine too but I think doing engineering was going to open more doors for me so that's what I stuck with.

There were a lot of different reasons I did my honors. To complete what I started, and being of only a small cohort to do so (with a number of my friends). The engineering degree was important to me (in terms of accreditation, knowledge of professional practice etc.), which implied honors. There were many subjects of interest in fourth year which I wanted to do and many skills that I wanted to learn (academic writing, meta-modeling).

With over half of BSc students receiving job offers, re-examining figure 2 highlights that a number of BSc graduates (10%) completed similar numbers of team-based projects as BE graduates. We interpret this as students completing team-based projects as BE students and subsequently exiting with a three year BSc degree.

Finding Employment

Most respondents (87.7%) are either in postgraduate education or started employment in the IT industry before or shortly after graduating. 2.8% are recent graduates (graduates in 2016 or 2017) looking for IT work. Of those remaining; 5.7% started employment within 12 months, 0.9% within 24 months and 2.8% are in employment in other fields. Excluding recent graduates still looking for work, after two years 97.4% of respondents report being in work relevant to their degree.

Workplace mobility is high, 50% of BE graduates and 41% of BSc graduates have held positions in two or more IT companies since graduating. However, there appears to be no correlation between salary and mobility, indicating perhaps the reasons for mobility may be less tangible factors such as promotions, responsibility, new challenges or travel.

Salary

Average reported salaries for graduates working in IT was NZ$78k (US$58.5k, n=85, SD NZ$29k), excluding those with postgrad qualifications. Those in NZ averaged NZ$72k (US$54k, n=69, SD NZ$25k), while graduates in Asia, Australia, Canada, US and Europe average NZ$104k (US$78k, n=16, SD NZ$30k). The exchange rate used is NZ$1.00 to US$0.75.
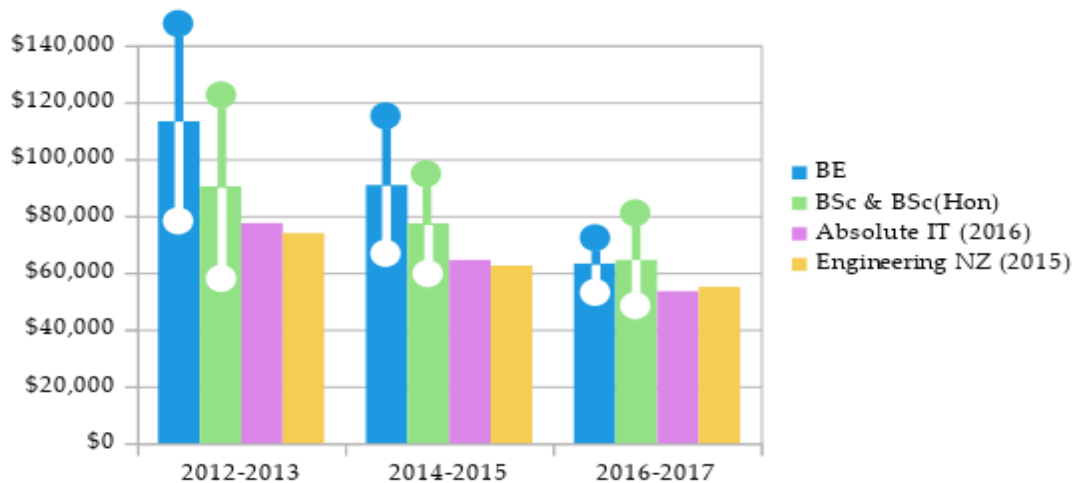
FIGURE 3: Average salary reported by graduates capped in 2012-2013, 2014-2015, 2016-2017, including standard deviation bars. In figure 4 this information is repeated year by year. Y axis is NZ$.
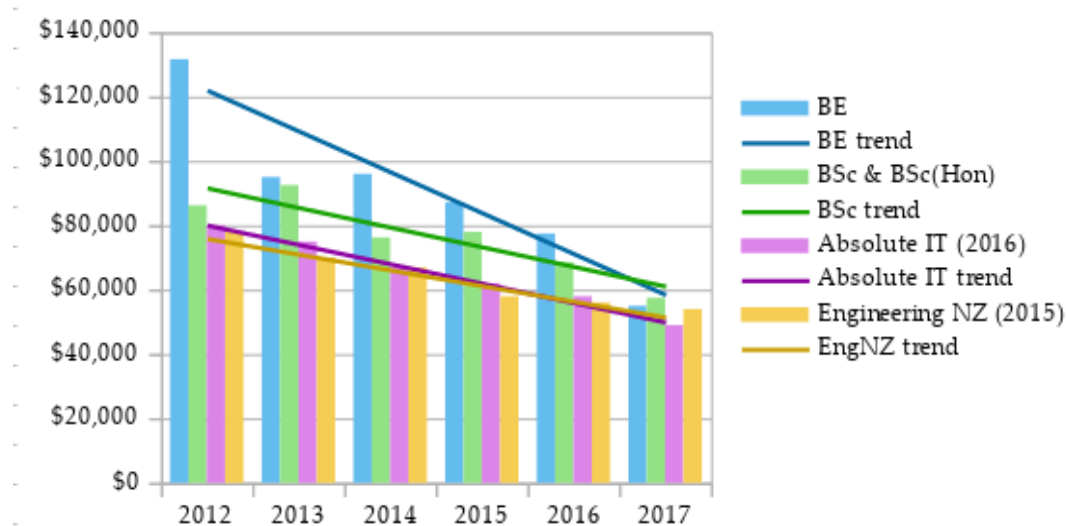
FIGURE 4: Average salary reported by graduates by capping year. The data points for Engineers in each of 2012, 2013 are too few to draw strong conclusions unless aggregated, see figure 3. Y axis is NZ$.

Graduate salaries, excluding those with postgraduate qualifications, are compared across graduating years in figures 3 and 4 alongside independent salary data sourced from Absolute IT (2016) for the IT sector and Engineering NZ (2015) for the Engineering sector. It is immediately apparent that responding graduates on average earn more than the national medians for both IT and Engineering graduates. In part this will be due to location, Wellington consistently leads both national salary surveys used, however this does not completely explain the discrepancy.

Taking Software Developer as a representative IT career, the lower, medium and upper quartiles are respectively; $72k, $89k and $100k (Absolute IT, 2018). Year one, BE and BSc both start in the lower quartile. Year five, BSc graduates reach the median. In contrast, BE graduates approach the median in year three, in year four, they approach the top quartile.

In the first year, figure 4 shows both sets of graduates are paid similarly. The industry narrative to students, claims to not value the fourth year of the Engineering degree and this result perhaps indicates the bias is wide-spread. After year one however, BE graduates appear to prove themselves faster than their peers as evidenced by higher salaries. Industry is not valuing the qualification, we therefore surmise that BE graduates are being paid more based on merit in the workplace.

Team-Based Project Experience

Teamwork is the norm in industry and effective communication is vital between team members, teams, clients, and other stakeholders. Relating this observation to figure 2 which show the number of team experiences undertaken by BE and BSc graduates we found those that undertook five or less team based projects earned NZ$75k (US$56.3k, n=57, SD NZ$27k), while those that undertook six or more earned NZ$84k (US$63k, n=28, SD NZ$31k), an 11% premium. When BSc graduates were examined in isolation the disparity is larger, respectively NZ$73k (US$54.8k, n=46, SD NZ$25k) and NZ$86k (US$64.5k, n=11, SD NZ$33k), an 18% premium. We infer that participating in six or more team-based projects may benefit earning potential regardless of qualification.

Responsibilities

A key word search through respondents' job titles and descriptions found those using the phrase *consult* (consultant, consulting) and *manag* (manager, managing) differentiated themselves with more responsibility and higher salaries. Both consultants and managers require solid technical knowledge and highly advanced soft skills to be effective.

	BE	BSc	Premium
consult, manag	$106k (n=10, SD $36k)	$81k (n=16, SD $29k)	31%
Others	$73k (n=18, SD $24k)	$73k (n=41, SD $26k)	0%
Premium	44%	10%	

FIGURE 5: Graduates self-identifying as consultants or managers, excluding those with postgraduate qualifications. Salaries are in NZ$

FIGURE 6: Soft skills reported by graduates as important for their current and next roles

Graduates identifying with consulting and managing (figure 5) form 31% of respondents working in IT that provided job descriptions and salaries, excluding those with postgraduate qualifications. 36% of responding BE graduates are engaged in management and consulting activities, earning on average a 31% salary premium compared to BSc peers in similar occupations.

Graduates' Desired Soft Skills

Previous research sought to identify what soft skills our local industry looks for in new graduates (Stevens & Norman, 2016). In this research we examined whether there is a correlation between those skills and the skills that recent graduates are using, or anticipate they will use in their next role.

It is apparent from figure 6, that some graduates see the need for technical skills reducing in their next role, while the need for verbal and written communication skills is still high. Graduates need to be team players and self-motivated but in the future they expect leadership, mentoring, stakeholder management, and interpersonal skills to become more important. These are traits useful in team leadership and management roles and their perceived importance matches both our earlier research on soft skills and the salary data analysis that suggests industry pays more for these soft skills.

INTERVIEWS

Over January and February 2018, 19 interviews were conducted. The participants were selected from survey respondents to represent a range of experiences and to facilitate a Grounded Theory exploration. Of the ten BSc graduates interviewed, seven had been enrolled in the BE. Reasons for not continuing with the BE included a desire to leave university or take up a job opportunity. However, of those who finished the BE many did so to differentiate themselves from their peers. In both cases graduates were largely content with their choice of graduating qualification. One graduate observed that "for programming jobs [the BE] doesn't matter but helps transition out of a purely technical role". Several graduates felt employers do not understand the differences between the degrees and what they entail.

Many BSc graduates expressed a lack of interest in fourth year courses as being too theoretical in nature and less relevant to the workplace. This contrasted with several who completed fourth year courses and found core concepts useful in the workplace. One graduate noted "you never really use what you learned...But the concepts are useful pretty much everywhere, even if you don't really notice". While in general graduates found the explicit technical skills learned at university to be largely inapplicable to their current roles, they found base concepts and having learned "how to learn" to be transferable. For example, languages learned at university may not be used, however experience of learning new languages is very useful. One graduate observed "If you know the concepts, the language is easy to pick up".

Soft and transferable skills were consistently identified by graduates as the most useful skills followed by a conceptual understanding of a broad range of topics. Several graduates had taken papers outside the IT curriculum which had significant writing components. They found these usefully developed soft skills such as formal writing and investigative thinking. Some BSc graduates stated, in hindsight, they wished they had known the usefulness of some of the topics covered by the BE or in 400 level courses, such as project management, user experience design and client interaction.

Most graduates found initial jobs through an industry partner program such as Summer of Tech or through personal connections developed during their studies, such as industry participation in group projects at university or attending industry organized events. Several graduates discussed companies in Wellington which actively promote graduating as soon as possible to take up a position. Only one talked of receiving an explicit prompt rather than a tacit offer.

A few of the interviewees had attained career advancement beyond what they found industry normally expects of someone with less than 5 years of experience. One stated their HR department was reluctant to allow a promotion. These graduates attributed rapid advancement to having a mindset oriented towards the big picture rather than the day-to-day. One commented this is about "knowing why you're doing something, not just what you're doing". Having an understanding of your work within the company is desirable, organizing and orienting yourself to place company goals at the fore. In later interviews, when exploring breadth versus depth of knowledge, graduates generally preferred breadth to depth. Graduates felt they can always delve deeper into a specific area, but having an understanding of the wider context is invaluable both to learning quickly and interacting with experts in other

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technical fields. One participant expressed that focusing on a small set of technologies may limit future opportunities. Another suggested that a large range of knowledge, even if shallow, allows flexibility when communicating with stakeholders.

Interviewees prompted on learning soft skills typically said they are difficult to teach and need to be developed through experience. This experience can be gained either at university or in the workplace, but the person has to be interested, engaged and able to make mistakes. A couple of graduates noted the university has a safety-blanket of sorts that is not easily found in industry, which is less tolerant of project failures or breakdowns in team communication.

Almost all graduates noted the value of the group projects they participated in, despite problems with simulating the workplace in a university environment. Having an introduction to team-work when money and customer patience is not on the line provides valuable experience to draw on later. Graduates also noted that in the working world people almost never work alone on a project and having to work with colleagues you do not agree with is a reality. Learning to work well with different people is necessary, a graduate observed that "group projects are good at teaching you how to work with people, particularly difficult people", while another stated "being able to experiment with and try things, learn and fail without jeopardizing the company or losing money...It's a kinda fail-safe environment". Having experience of industry clients in third and fourth year team projects was seen as a relatively safe introduction to interacting with clients in the workplace. It was commonly noted that team-based course assessment was impacted by the variety of student motivations, skill levels and difficult personal interactions.

Greater experience of team work in tertiary education is noticeable in the workplace. It was felt the right personal mindset and attitude is the largest factor in team-work, but this is perhaps honed by having had more opportunity to practice. As seen in figure 2, a BE graduate has had significantly more team-based project experience than the typical BSc graduate.

DISCUSSION

It is clear that industry values all the IT graduates surveyed, as reflected in; salaries paid, very high employment rates, and industry's pro-active recruitment of graduates after three years. It is the last point, taken perhaps to extremes, that causes concern, the industry narrative to interns that a fourth year at university is a waste of time. To a degree students may be uncritical of this narrative, offered without evidence, and are making choices in an information vacuum. Also concerning is that it conflicts with industry's narrative to central government and the University, that work-ready graduates with a balance of advanced technical and soft skills are highly desired.

We are perhaps not surprised that better educated graduates with previous industry relevant work experience are recruited by local industry faster and over time rewarded better. However in the face of the conflicting industry narratives and finding there is no local research-based evidence to support either position, this research sought to fill a gap.

Given the local IT industry prides itself on teaching specific technical skills in depth, we wonder if the industry view is founded on perceptions that a fourth year duplicates this effort. This may be true with the BSc with Honors. In contrast, the BE imparts breadth of technical knowledge, professionalism and management, real world work experience and many group projects. However graduates note that industry awareness of, or interest in, the two qualifications is limited.

We found it surprising that local industry appears to be ignoring a graduate's qualification as an indicator of recruitment potential. Local industry appears content to treat tertiary graduates the same regardless of their educational experience and passively wait for graduates to prove their merit in the workplace. We observe that not being aware of the differences in the educational experience is perhaps leading to industry inefficiencies when recruiting and developing top talent.

Responding BE graduates identified with consulting and managing at higher rates than BSc graduates, and they are paid on average significantly more than their peers. Industry appears to reward based on workplace merit rather than a qualification, consequently we infer that something about the experience of completing an Engineering degree has created the effect of Engineering graduates being paid more on merit than their peers. This may be because industry tends to avoid the workplace risk associated with providing experiential opportunities for developing soft skills while BE graduates graduate with workplace experience, a large amount of teamwork and have managed several projects to conclusion.

This research has three primary limitations;

- Researchers and participants are all from the same institution and may have unconscious biases. The Grounded Theory approach and basing findings off data and interviews, should help to mitigate bias (Charmaz, 2006).

- The sample size when stretched across 6 years means some findings should be treated with caution. In analysis we sought trends, which will mitigate some, albeit not all concerns.

- The findings may be limited to the local context. Similar research by other tertiary institutions may be useful.

As a faculty we may draw some lessons from this research. First it contributes to validating the faculty's move ten years ago to adopt the Washington Accord and WIL as the basis for a new IT Engineering degree. Second, graduates report that industry is largely oblivious to the benefits of the BE over the BSc. Graduates have to "prove their merit" on the job before industry will believe they are more capable. Third, we need to better communicate the long term benefits of advanced education to third and fourth year students. These benefits are not self-evident to students being presented with job offers.

CONCLUSION

This research examines the narrative presented by some in local industry to students. "Do not stay for the fourth year, you do not need it to get a job in the IT industry and you will not be paid any more." The research is informed by collecting the experience and views of past graduates with up to six years of industry experience.

We find both aspects of this narrative true. You do not need a degree to get a job in the local IT industry. As detailed in the background, a robust local education industry exists that enables employment in as little as three months study. It is also true that locally our faculties IT graduates tend to start in industry on similar salaries, albeit higher than industry average.

After the first year however graduates who have completed a four year BE report a higher average salary than graduates with a three year BSc. As the industry narrative is they do not pay IT Engineering graduates more because of their qualification, we infer Engineering graduates after a year's experience, are being paid more based on merit.

Are Engineering graduates all smart, talented people? We believe there are many factors that determine individual outcomes and given the local IT industry is comprised of smart, talented people, many of whom do not have a tertiary qualification, it would be counter-intuitive to claim the smartest students do an Engineering degree. This perhaps leaves education content as a major factor contributing to BE graduates success in industry.

The authors considered experiential team based learning may be a key factor and we found undertaking six or more team projects in a learning environment appears to benefit later salaries. But other factors, such as industry applicable soft skills acquired during the BE, also appear to contribute to higher salaries. Of responding BE graduates, 36% are engaged in management and consulting activities, earning on average a 31% premium compared to BSc peers in similar occupations.

REFERENCES

Absolute IT (2016). Remuneration Report January 2016. Retrieved Feb 2018, from https://www.absoluteit.co.nz/industry-reports/

Absolute IT (2018). Remuneration Report January 2018. Retrieved Feb 2018, from https://www.absoluteit.co.nz/industry-reports/

Charmaz, K. (2006). Constructing grounded theory: A practical guide through qualitative research. *Sage Publications Ltd, London*.

Duderstadt, J. J. (2007). Engineering for a changing road, a roadmap to the future of engineering practice, research, and education.

Engineering NZ (2015). IPENZ Remuneration Survey Snapshot 2015. Retrieved Feb 2018, from https://www.engineeringnz.org/resources/remuneration-engineers/

Glaser, B. & Strauss, A. (1967). *Discovery of grounded theory: Strategies for qualitative research*. Chicago. Aldine.

International Engineering Alliance (2018, January 17). Washington Accord Signatories. Retrieved from http://www.ieagreements.org/accords/washington/signatories/

NZ Ministry of Business, Innovation and Employment (2017), Building a Digital Nation. Retrieved Feb 2018, from http://www.mbie.govt.nz/info-services/science-innovation/digital-economy/building-a-digital-nation.pdf

Summer of Tech (2018). Retrieved Feb 2018, from https://www.summeroftech.co.nz

Sovilla, E. S., & Varty, J. W. (2011). Cooperative and work-integrated education in the US, past and present: Some lessons learnt. *International handbook for cooperative and work-integrated education: International perspectives of theory, research and practice*, 3-15.

Stevens, M., & Norman, R. (2016). Industry expectations of soft skills in IT graduates: a regional survey. In *Proceedings of the Australasian Computer Science Week Multi-conference* (p. 13). ACM.

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Innovative models of work-integrated learning: features, enablers and challenges

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ABSTRACT

Work-integrated learning (WIL) is a national priority and a strategic directive for Australian universities. For greater engagement and to build capacity for WIL, there is a need to identify emerging WIL models, enabling flexibility with optimal outcomes for all stakeholders. This Australian Technology Network (ATN) funded project explored and identified emerging WIL models such as micro-internships, WIL in Incubators and other approaches that overcome numerous constraints to engagement, particularly for Small to Medium Enterprises (SMEs).

This paper reports on the initial findings of the first phase of the project. This preliminary qualitative phase comprised three iterative stages which together provided a strong foundation to inform initial findings (Creswell, 2012) regarding emerging models of WIL. A range of data collection methods were employed, including a literature review, workshops and WIL community of practice meetings with project participants including industry partners, the ATN WIL Community of Practice, selected WIL practitioners, and students. Through these research approaches the project has identified numerous examples of WIL which have subsequently been clustered into five emerging WIL models that are becoming increasingly prevalent in the tertiary sector. This paper outlines these models and summarises defining features, enablers, challenges and opportunities characteristic of these emerging models.

Contemporary trends informing WIL design and implementation emerged from the research. Features of emerging WIL models were identified, with approaches to adapting WIL to suit diverse discipline contexts. Furthermore enablers, challenges and opportunities in the implementation of these WIL models that respond to the changing nature of work were documented.

INTRODUCTION

Enhancing student employability and improving graduate outcomes has become a key priority for Australian Universities with the Australian Government, as well as Australian peak industry groups, monitoring graduate outcomes and questioning the capabilities and skills of university graduates and their ability to be successful in the rapidly changing labour market (Hagel, Brown, Mathew & Tsu, 2014; Australian Higher Education Industrial Association [AHEIA] & PriceWaterhouseCoopers [PWC], 2016). Embedding work-integrated learning (WIL) into curriculum, whereby students engage and network with industry resulting in enhanced student work readiness, has gained greater traction with university leadership as a mechanism to meet this challenge. Further evidence of a national focus on WIL is the development of a National WIL Strategy (Universities Australia [UA], Australian Chamber of Commerce and Industry [ACCI], The Business Council of Australia [BCA], & Australian Collaborative Education Network [ACEN], 2015) through a collaboration between peak Australian industry associations: BCA,

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ACCI, Australian Industry Group (AiG), UA, and ACEN, the peak body for WIL in Australia. This Strategy seeks to enhance and grow WIL opportunities and programs across Australia through a range of approaches focused on enhancing partnerships between industry and universities, building capacity in both sectors, and providing support, investment and appropriate regulatory settings (Business Higher Education Forum [BHEF], 2013). Increasing collaboration between Universities and Industry is seen as key driver of innovation, enhancing the national economy and bringing benefits to organisations involved (AiG, 2018; UA, 2018).

This expansion of WIL in Australian universities has resulted in increasing competition for WIL opportunities and the emergence of some innovative WIL approaches aimed at broadening engagement with industry, accommodating growing numbers of students and preparing students for a dynamic and constantly evolving workplace in the Australian economy characterised by an increased focus on entrepreneurship and innovation (Withers, Gupta, Curtis & Larkins, 2016; Australian Government, 2015).

This project, funded by the Australian Technology Network (ATN), aimed to investigate innovative approaches to WIL and identify emerging models that are effective in advancing graduate employability through industry engagement and real-world learning. This inaugural study identified innovative WIL models such as micro placement, online projects or placements, and WIL in Incubators and Startups, along with other contemporary approaches. The project partners were all part of the ATN group of universities, RMIT University, Curtin University and Queensland University of Technology (QUT). Key partners in the project included two peak Australian Industry bodies: ACCI and the AiG. The project focused on models of WIL that overcome constraints to engagement, particularly for small to medium enterprises (SMEs) with fewer than 200 employees. SMEs comprise a large proportion of the business sector in the Australian economy, and remain largely untapped in supporting WIL partnerships with universities (Phillips KPA, 2014). With minimal resources, small numbers of staff, and restricted funding, it is difficult for SMEs to engage in WIL activities. (Phillips KPA, 2014). Project deliverables have identified trends, enablers and success factors to realising these emerging models.

BACKGROUND

WIL is acknowledged as an important strategy in Higher Education with recognition that, when embedded in the student experience, WIL enhances graduate employability (Rowe & Zegwaard, 2018). However, traditional WIL approaches such as work placements, are resource intensive, placing additional demand on industry partners (Patrick, et al 2009, Atkinson, Misko & Stanwick, 2015). The limitations and challenges for SMEs in hosting and supporting students during traditional WIL activities is one of many deterrents to their engagement (Jackson, Ferns, Rowbottom & McLaren, 2017). The growth in student numbers at university has placed additional demands on industry partners as the number of students seeking placements and the duration of WIL placements has shown substantial increase in recent years (PhillipsKPA, 2014; Harvey, Coulson, Mackaway & Winchester-Seeto, 2016). Competition for placements is further exacerbated by non-traditional areas such as business and management, pursuing WIL placements for their students. Increased competition for WIL placements places students from minority groups such as international students and those with disabilities at a disadvantage. These students typically required more support from mentors in an industry setting, thereby adding pressure to an already overloaded system (Gribble, 2014; Peach et al., 2016).

The adequacy of current WIL practices for preparing students to face an uncertain and volatile workforce is also raising questions. In particular, it is predicted that a greater percentage of graduates will move into portfolio careers upon completion of their studies (Helyer & Lee, 2014). In contrast to traditional professional career pathways, success in a portfolio career requires graduates with a diverse range of skills that equip them for the uncertainty and rigours of entrepreneurial endeavours (AiG, 2016; Bridgstock, 2012). Inter-professional education and working across different disciplines has been identified as an area of need in health professions as it is rarely addressed by current models of WIL (South Eastern Sydney Local Health District, 2013).

In response to these challenges, tertiary institutions are experimenting with new models of WIL. Developments in technology have enabled more rapid connections, both nationally and internationally, which has broadened opportunities for students to liaise with fellow students, supervisors and employers globally (Beeson, 2016). As

governments provide funding to stimulate start-up businesses and business incubators (e.g., Boosting Business Innovation Program, 2016) universities are capitalising on this investment by looking for associated placement or project opportunities. Universities are also reaching out to more diverse partners, for example, community groups and small and medium enterprises (Gribble, 2016). Additionally, in response to industry feedback, universities are becoming more flexible with the duration and timing of placements in an effort to accommodate the needs of an already stretched industry sector.

A recurrent theme in the literature is the challenge for universities to successfully engage with SMEs (Atkinson et al., 2015).

"If WIL experiences are to become mainstream in university degrees, then placements and mechanisms for these will need to be tailored to suit the needs of Australian SMEs" (Philips KPA, 2014, p. 98). Although SMEs constitute 90% of employing businesses in Australia, they are far less likely than large corporate organisations or government offices to provide WIL opportunities for students (Phillips KPA, 2014). A mismatch between the needs of universities and those of SMEs is a key reason for the lack of engagement from SMEs. Inflexible university scheduling, prescriptive timing and duration of WIL placements, the type of student activities, available staff time for student supervision and support, impact on the capacity of SMEs to engage in WIL (Atkinson et al., 2015). Recognition of and willingness to work around these disparities are necessary for successful engagement between universities and SMEs.

The project aims to build capacity in universities by showcasing innovative WIL models and encourage greater awareness by industry, particularly SMEs, of strategies for effectively engaging with universities to support WIL activities and overcome existing barriers. This paper outlines the emerging WIL models, their features, enablers and challenges identified through national and international networks.

RESEARCH APPROACH

This paper reports on the initial finding of the first phase of the project. This first qualitative phase comprised three iterative stages which together provided a strong foundation to inform initial findings (Creswell, 2012) regarding emerging models of WIL. A range of data collection methods were employed over three stages, including a search of contemporary literature, interactive workshops, and webinars with WIL practitioners, and interviews with WIL practitioners, students and industry partners. These multiple sources of data enabled and supported a rich perspective, which in turn, enabled robust thematic analysis (Guest, MacQueen & Namey, 2012).

Stage one involved a search of contemporary literature, spanning the period 2012 to 2017, to identify emerging WIL strategies and their key features. Searches included peer-reviewed academic literature, grey literature such as government and industry reports (e.g., PhillipsKPA, 2014; AiG, 2016; Edwards, Perkins, Pearce, & Hong, 2015) and conference proceedings (e.g., ACEN, WACE) that have the advantage of shorter publication times. Online blogs and event information from the internet also provided leads on emerging models. A matrix was created to map these WIL strategies and their key features. The common features of these WIL strategies were then reviewed and categorised to create an initial set of emerging WIL models. Tentative descriptions of the models were developed to inform collaborative inquiry activities undertaken in the second stage of the research.

Stage two involved the exploration of these emerging models with university WIL practitioners through ten international, national and local workshops, webinars and WIL communities of practice meetings. These events attracted in excess of 450 participants. Attendees at these forums were asked to review short descriptions of WIL strategies identified in stage one and share new strategies from their own practice and contexts to consider key features, success factors and challenges. Participants were also asked to consider how these strategies aligned or did not align with the initial set of emerging models. Data from these workshop activities was collated and analysed to inform the review and refinement of the emerging models, their features and challenges.

Stage three involved further in-depth consideration and analysis of the emerging models through 39 semi-structured interviews with WIL practitioners, industry partners and students who were involved directly with emerging WIL strategies. Interview participants were identified during research stage one and two and through

national and international WIL communities of practice. Three sets of predetermined open-ended questions were developed to guide the interviews with WIL practitioners, students and industry partners. These questions and other questions emerging from the dialogue between interviewer and interviewee helped illicit key features of the emerging strategies, approaches to their design as well as the consideration of challenges and success factors from the participants' perspectives. Participants were encouraged to be open, thorough and detailed in their descriptions and reflections (Kvale 2007). Interview data was then analysed and key features, challenges and success factors mapped. A thematic analysis of the mapped interview data was used to further refine the emerging models and associated descriptions of their features, enablers and challenges.

FINDINGS

Contemporary trends informing WIL design and implementation emerged from the research. The iterative process of workshops and interviews culminated in validating the data arising from the literature reviews. The project has identified numerous examples which have been clustered into five emerging models of WIL that are becoming increasingly prevalent in the tertiary sector. The models are outlined below along with the defining features, enablers, challenges and opportunities for implementation for each model.

Micro-Placements:

Micro-placements typically involve short periods in the workplace ranging from two to ten days where students work individually or in teams on highly focused projects. Micro-placements occur in a diverse range of sectors, usually in small to medium companies and startups.

Online Projects or Placements:

Online projects or placements involve students and industry working online and may be geographically-dispersed. Students communicate via a variety of digital platforms and technologies which may not include any face to face interaction.

Hackathons/Competitions and Events:

Events typically involve students working in teams on one-off intensive activities for and/or with industry partners or with university based activities. Universities commonly partner with external events, hackathons, festivals or competitions to provide students with industry or community engaged experiences. In some cases this engagement can involve multidisciplinary teams of students. Hackathons are specific events in which a range of stakeholders team up to create projects, solve problems, and develop pitches or software over a short period of time. In most cases hackathons are focused on a particular theme, application type or challenge, are sponsored and co-designed with industry and often hosted by Universities. Hackathons are often competitive, with teams presenting their results to judges.

Incubators and Startups:

An incubator is a workspace that provides support for startups including mentoring, information, networks, office space and resources for the early-stage development of new business ventures. WIL students can be placed in incubators to support ventures.

A startup is an entrepreneurial venture which is typically a young, small and newly emerged business that aims to create a new product, process or service to meet a need that is not currently being offered elsewhere in the market. The first stages of a startup are commonly financed and can attract further support once it has proved its potential. Increasingly WIL students are undertaking placements or projects in or for startup businesses.

Consulting:

Consulting involves students (individually or in teams) providing consultancy services and information to others, including other students, industry partners and community organisations. Consulting activities are facilitated through the university.

Features of Emerging Work-Integrated Learning Models

Fifteen common features were identified across the various emerging models. As identified in the methodology section, the process of gathering and mapping examples of emerging models of WIL through a review of literature and consultation with various stakeholders was then analysed by themes. The features that described the common characteristics of these models are outlined in Table 1 clustered across three key areas: stakeholder engagement, design elements impacting on the WIL activity and the emergence of student and industry or community as partners in co-designing WIL activities.

TABLE 1: Key features of emerging models of work-integrated learning

Areas	Features
Stakeholder Engagement	• Involving multi-educational sectors
	• Community engaged
	• Engaging alumni
	• Increased use of brokers/third parties
	• Broad/deep partnerships with host organisations
	• Spanning multiple universities or institutions
Design Elements	• Engaging multiple disciplines
	• Intra/Entrepreneurial elements
	• Scalable and sustainable
	• Flexibility in duration, location and space
	• Coach/mentor elements
	• Geographically dispersed
	• Investment elements
Co Design Partners	• Co-designed with industry or community
	• Co-designed with students

Enablers

Workshops and interviews with students, host organisations and university staff identified a range of enablers associated with the successful implementation of these emerging models. Table 2 provides an overview of the enablers.

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TABLE 2: Key enablers identified with implementing emerging work-integrated learning models

Key Enablers
Entrepreneurial approach of industry/community partners: establishing trust and willing partners to engage in designing flexible WIL approaches.
Preparation of stakeholders: managing expectations and ensuring roles, responsibilities and expectations explicit and clear for all stakeholders.
Proactive engaged students: encouraging students to be keen, try something new, learn new skills, network and engage with industry proactively and in different ways.
Scope clarity: clarity around the scope of the task or activity, the processes involved and maintaining good communication between stakeholders.
Leadership support: support from within the university to be able to achieve the flexibility around curriculum and the allocation of resources required.
Broader range of industry and community partnerships: creative leveraging of established and willing host organisations to partner in innovative and deeper ways including a greater engagement with SMEs and the community sector.

Challenges

Initial analysis of the data identified some specific challenges associated with the emergence of these WIL models. These are highlighted in Table 3.

TABLE 3: Key challenges identified with implementing emerging WIL models

Key Challenges
University processes and logistics: emerging models often challenge the existing processes, systems and curriculum. Challenges include timetabling issues with multidisciplinary teams, working with time frames that suit host organisations and resources required to implement these models. Flexibility of the curriculum to include hackathons, events or multiple short WIL activities is also problematic
Workload and recognition: university staff workload and recognition for their involvement in WIL remains a challenge.
Staff capability: closer and deeper engagement between universities and industry/ community is often a feature of emerging WIL models and requires university staff to be adept at managing these relationships and the various technology platforms or systems used in some of these WIL models
Sustainability: transitioning these emerging models from a pilot or initial successful implementation, driven by passionate staff and collaborative partners, into business as usual is problematic. Additionally scaling the model to cope with the numbers of students engaging in WIL in Australian Universities also presents challenges.

These project findings will inform the development of range of guidelines and resources to support all stakeholders and enhance engagement with these emerging models of WIL which will be developed in the next phase of the project.

DISCUSSION

This project has focused on identifying emerging WIL models, associated features, enablers and challenges to better understand the models and provide evidence to inform both the design and implementation of different industry

engaged WIL activities. The project has successfully identified the many creative and innovative WIL partnership models that are currently being implemented across Australia and more broadly. There are models that involve very short placements or projects with partners, sometimes completely online, often with a wider range of organisations. There are also models that include deeper partnerships with host organisations or leverage involvement in innovative ways including the significant increase in the use of hackathons and leveraging engagement with events or competitions to provide WIL experiences. Other models involve students acting as consultants providing discipline related information to host organisations organised through their universities.

The emerging models identified along with the associated features, significantly expand the capacity of universities to provide students with authentic industry engaged learning experiences. These models also overcome many long standing barriers and challenges to engaging a broader range of industry and community groups including small to medium enterprises (SMEs). There is some evidence of increased engagement with SMEs, but there is capacity for more growth. WIL activities linked to startups and incubators and focused on entrepreneurship are occurring, but not in great numbers and appear to be more aspirational at this stage.

Many enablers identified for the emerging models, such as communication and preparation of stakeholders (Patrick, et al 2009; O'Shea, 2014), are similar for more traditional forms of WIL. However with emerging WIL models there appears to be a stronger need to establish clarity with stakeholders around scope, roles, and expectations, including clarification of ownership of intellectual property. Another key enabler is the critical involvement and endorsement from university leadership, especially in the establishment phase, to support implementation of newer models. This support can involve dedicating resources, allocating seed funds, or supporting the streamlining of processes to achieve the flexibility required, particularly in curriculum design and administrative processes. The increased use of one off events and competitions has been achieved by enhanced collaboration with partners utilising combined expertise and industry knowledge to co-design and operate the WIL models.

This project has identified several different themes related to these innovative models. Challenges of implementing traditional models of WIL are numerous and well documented (Patrick et al., 2009). Many of the challenges such as resourcing, workload and recognition are also associated with newer models relate to logistical operations within the University. In addition these WIL models highlight the need for staff capabilities around technologies for online WIL models, or familiarity with current industry practices. In some instances, staff lack underpinning skills and capabilities such as project management or technical skills, and are either unfamiliar with or lack the flexibility for the newer ways of working with industry partners. Co-designing WIL activities requires a mindset that goes beyond the traditional focus on mutual benefit, to a more involved and complex interaction, where clearly articulating and negotiating the scope and purpose of the activity is critical. Interacting with small, often under-resourced community groups requires skill and sensitivity. Establishing new WIL models involves different rules of engagement with an increasingly broader range of industry partners including growing numbers of community and not for profit organisations. Some emerging WIL models involve deep long term partnerships with high profile organisations, which includes relationship management over the longer term, requiring focus and skilled communication and negotiation.

In order for students to proactively and successfully engage with these new models, intense briefing and preparation is required where roles, rights and expectations are clearly articulated. Diverse cohorts of students (e.g., international students) may have different needs for adequate preparation to participate. Industry/community partners also need to fully understand their role in these models, as they may be unfamiliar with the tasks required of them. Therefore to be successful, these emerging models of WIL need to be supported with resources for preparing all stakeholders to engage in these different approaches.

Ensuring that these WIL models remain sustainable,and that they also can be scaled beyond initial implementation, presents a range of challenges within the resource constrained environment of universities. Additionally, ensuring that engagement by industry and community partners isn't too onerous, and identifying the benefits of engagement through exercising robust evaluation is critical. The rise in engagement with one-off events, competitions and

hackathons, as well as increased use of student teams working on projects for industry and community partners, is a notable response by the sector to the increased demand for WIL, the limited number of placements available, and the necessity to find avenues to both significantly scale and sustain WIL opportunities.

CONCLUSION

Innovative, sustainable, and scalable models of WIL are essential to enable universities to service a more diverse and larger student cohort. The newer models identified through this project, enable universities to respond to the changing nature of work and workplaces resulting from increased globalisation and automation, by equipping students with the skills required. This project has identified five emerging WIL models with a range of associated features that are evident in the many highly creative examples of WIL being implemented across Australia and abroad. This demonstrates that the Australian tertiary education sector is adapting and innovating to respond to both the changing nature of workplaces and the increased demand from government, industry and students.

A key project finding is that universities are partnering with a much broader range of organisations, including smaller companies and community groups, and leveraging that engagement for creative WIL models. This engagement includes greater innovation from industry in WIL and involvement by industry, and increasingly students, in the co design of WIL activities. The project findings showcase the increased willingness of diverse industry and community organisations to proactively partner with universities, particularly for shorter, less resource intensive WIL activities. These WIL activities overcome many of the long standing constraints to engagement. This trend, however, is putting pressure on universities to adopt more flexible processes and enable a more agile curriculum, as well as identifying distinct skill sets and preparation required by all stakeholders to effectively develop, proactively engage with, and sustain these emerging collaborative models. Data from this project will inform the development of resources which will go part way to supporting universities, students and industry in meeting the challenges these emerging models pose. The role of leadership in universities to enable the changes required to address these challenges and to build staff capability will be pivotal to success. Additionally, further support and information to assist industry and community engagement by industry is also required.

REFERENCES

Atkinson, G., Misko, J., & Stanwick, J. (2015) Work integrated learning in STEM disciplines: employer perspectives. Retrieved from http://www.chiefscientist.gov.au/wp-content/uploads/NCVER_WIL-employer-perspectives.pdf

Australian Government. (2016). National innovation and science agenda report. Retrieved from https://www.innovation.gov.au/page/national-innovation-and-science-agenda-report

Australian Higher Education Industrial Association [AHEIA] & Price, Waterhouse Coopers [PWC]. (2016). Australian higher education workforce of the future. Retrieved from http://www.aheia.edu.au/cms_uploads/docs/aheia-higher-education-workforce-of-the-future-report.pdf

Australian Industry Group [AiG] Workforce Development. (2016). Uni students – good news for your business. Retrieved from http://cdn.aigroup.com.au/Workforce_Development/FactSheets/Employer_guide_UniStudents.pdf

Australian Industry Group [AiG] Influence and Policy. (2018). Developing the Workforce for a Digital Future Addressing critical issues and planning for action. Retrieved from https://cdn.aigroup.com.au/Reports/2018/Developing_the_workforce_for_a_digital_future.pdf

Beeson, M. (2016). On the difficulty of being a world citizen. The Conversation. Retrieved from http://theconversation.com/on-the-difficulty-of-being-a-world-citizen-67660

Bridgstock, R. (2012). Not a dirty word: Arts entrepreneurship and higher education. Arts & Humanities in Higher Education, 12(2–3), 122–137. https://doi-org.dbgw.lis.curtin.edu.au/10.1177/1474022212465725

Business-Higher Education Forum [BHEF]. (2013). The national higher education and workforce initiative: Forging strategic partnerships for undergraduate innovation and workforce development. Retrieved from http://www.bhef.com/sites/default/files/BHEF_2013_playbook.PDF

Creswell, J. (2012). Educational Research: Planning, conducting, and evaluating quantitative and qualitative research (4th ed.). Boston, USA: Pearson Education.

Edwards, D., Perkins, K., Pearce, J., & Hong. J. (2015). Work Integrated Learning in STEM in Australian universities: Final report. Retrieved from http://www.chiefscientist.gov.au/wp-content/uploads/ACER_WIL-in-STEM-in-Australian-Universities_June-2015.pdf

Gribble, C. (2014). Employment, work placements and work integrated learning of international students in Australia. International Education Association Australia. Retrieved from https://www.ieaa.org.au/documents/item/257

Gribble, C. (2016). Enhancing the Employability of International Graduates: A Guide for Australian Education Providers. Retrieved from https://www.ieaa.org.au/documents/item/547

Guest, G., MacQueen, K., & Namey, E. (2012). Applied thematic analysis. Thousand Oaks, CA: Sage.

Hagel, J., Brown, J.S., Mathew, R., Wooll, M., & Tsu, W. (2014). The lifetime learner: A journey through the future of postsecondary education. Deloitte University Press. Retrieved from https://www2.deloitte.com/insights/us/en/industry/public-sector/future-of-online-learning.html?ind=74

Helyer, R., & Lee, D. (2014). The role of work experience in the future employability of higher education graduates. Higher Education Quarterly, 68(3), 348-372. https://doi-org.dbgw.lis.curtin.edu.au/10.1111/hequ.12055

Kvale, S. (2007). Doing interviews. London, UK: Sage.

Jackson, D., Ferns, S., Rowbottom, D., & McLaren, D. (2017). Improving the work-integrated learning experience through a third-party advisory service. International Journal of Training Research, 15(2), 160-178. http://dx.doi.org/10.1080/14480220.2016.1259005

O'Shea, A. (2014). Models of WIL. In S.Ferns (Ed.), HERDSA Guide: Work Integrated Learning in the curriculum (pp. 7-14). Milperra, NSW: Higher Education and Development Society of Australasia.

Patrick, C.J., Peach, D., Pocknee, C., Webb, F., Fletcher, M., & Pretto, G. (2009). The WIL Report- A National Scoping Study. Office for Learning and Teaching. Retrieved from http://www.olt.gov.au/resource-wil-work-integrated-learning-griffith-2009

Peach, D., Moore, K., Campbell, M.., Winchester-Seeto, T., Ferns, S., Mackaway., & Groundwater, L. (2016). Building institutional capacity to enhance access participation and progression in work integrated learning (WIL). Final Report. Office for Learning and Teaching. Retrieved from http://www.olt.gov.au/project-building-institutional-capacity-enhance-access-participation-and-progression-work-integrated

Phillips KPA, (2014). Engaging employers in work integrated learning: Current state and future priorities. Retrieved from https://docs.education.gov.au/system/files/doc/other/phillipskpa-wil-research-report.pdf

Rowe, A., & Zegwaard, K. (2017). Developing graduate employability skills and attributes: Curriculum enhancement through work-integrated learning. Asia-Pacific Journal of Cooperative Education, Special Issue, 2017, 18(2), 87-99. Retrieved from

South Eastern Sydney Local Health District (2013) The Sutherland Chronic Care Student Led Clinic; Increasing Clinical Placements by Scoping Student Led Services for People with Chronic Disease. Final Report Submitted by South Eastern Sydney Local Health District. p. 1-29

Universities Australia [UA]. (2018). Clever collaborations: The strong business case for partnering with universities. Retrieved from www.clevercollaborationswebversion_universities Australia_2018.pdf

Universities Australia, Australian Chamber of Commerce and Industry, Australian Industry Group, the Business Council of Australia and the Australian Collaborative Education Network. (2015). National strategy on work integrated learning in university education. Retrieved from: cdn1.acen.edu.au/wp-content/uploads/2015/03/National-WIL-Strategy-in-university-education-032015.pdf

Withers, G., Gupta, N., Curtis, L., & Larkins, N. (2016). Australia's comparative advantage. Retrieved from https://acola.org.au/wp/PDF/SAF01/SAF01%20full%20lo%20res.pdf

Efficacy of work-integrated learning: Pre and post perceptions among co-operative education students

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ABSTRACT

Student perceptions and experiences in work integrated learning represent valuable information and feedback for educators and employers to implement and improve their WIL programs. A study conducted at a university in Thailand explored differences in perceived levels of autonomy in student work skills at the beginning (pre) and on completion (post) of their placement. The research replicated an Australian study using the Work Skills Development (WSD) framework model (Bandaranaike & Willison, 2009, 2016), translated into Thai, among a random sample of 588 co-op students in different programs. Student perceptions were assessed through a set of survey questions that identified levels of autonomy for work skills, from highly structured direction and guidance from the supervisor to working within self-determined guidelines. This study employed paired sample t-test and analysis of covariance (ANCOVA) procedures to compare and analyze the pre- and post-placement performance of co-op students. The statistical results indicated that there are significant differences in the mean scores for the pre- and post-performance. The mean values of the levels of the post-performance are higher than the pre-placement performance in all skills. The program difference in work skills is significant between the groups when ANCOVA was applied using pretest results as covariates. The results of this study are useful to educators and employers in that it highlights the role of WIL in Thailand and focuses on the strengths and weaknesses of co-operative education students.

Keywords :Work Skills, Work-Integrated Learning, Cooperative Education, Employability, Pre and Post analysis

INTRODUCTION

One of the aims of achieving a degree at a higher education institution (HEI) is enhancing the prospects of employability. Graduates exiting these institutions are required to possess the requisite knowledge, skills and capabilities to enter the world of work successfully. Potential employers expect graduates to apply the skills acquired from their studies to the work setting (Butcher, Smith, Kettle, & Burton, 2011). Work Integrated Learning (WIL) is a highly effective pedagogic method to support a seamless transition from HEI to work. There is global recognition by HEIs on the importance of WIL for preparing graduates with employability skills. For example, Jackson (2013, 2015) refers to integrating classroom and workplace learning where students apply theory to practice, engage in self- reflection to improve work skills and engage in professional practice. Accordingly, student perceptions and experiences of WIL are relevant to successful development and implementation of WIL pedagogy. However, WIL programs vary widely in each context, they across the globe are concerned with providing quality programs and assuring learning (Khampirat & McRae, 2016; Khampirat & Pop, 2017). Not all co-op students are wholly successful in their WIL (Little & Harvey, 2006) since the effectiveness of co-op students and a WIL program are anticipated to result from complex relationships between the characteristics of institution, supervisor, student, organizational environments and etc., where the student performance receive influenced by these contexts

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(Khampirat & McRae, 2016). This study therefore explores differences in perceived levels of autonomy in student work skills at the commencement (pre) and on completion (post) of their WIL placement.

OBJECTIVE

The objective of this study is to assess the effectiveness of WIL on the work skills performance of co-operative education students at a university in Thailand.

The study attempts to answers for the following questions: (1) Is there a statistically significant difference between the students' mean scores, of their perceived levels of autonomy in work skills performance at the beginning (pre) and completion (post) of their work placement? (2) Is there a statistically significant difference between the students' mean scores in post placement performance on removing the mean scores for pre-placement.

BACKGROUND LITERATURE

A key purpose of WIL is empowering graduates with comprehensive skill sets needed by potential employers (Coll et al., 2009; Coll & Zegwaard, 2006). Students are expected to apply these skills sets to tasks in real work settings. Skills will be enhanced by exposure to a working environment and a better understanding of what are the expected performance outcomes by the employer currently and in the future (Jackson, 2013). It is for these reasons that WIL is an effective pedagogical method to equip students with industry-relevant skills.

It is debatable whether WIL is a panacea to all of the challenges of developing employable graduates. Jackson (2013) argued that WIL might improve students' soft skills rather than their actual work task performance. The investigation of Ibrahim, Zulkafli, Mohammad Shah, and Amran (2017) concluded that the soft skills acquired during WIL programs can help in developing self-esteem. Some studies have found that WIL can develop students' self-efficacy (Freudenberg, Cameron, & Brimble, 2010; Reddan, 2016; Subramaniam & Freudenberg, 2007). However, there are differences in the skills acquired from the workplace and HEI. Ward (2017) reported that five soft skills that employers most want, such as oral and written communication, marketing, proficiency in Microsoft office, attention to detail, and problem solving. Crebert, Bates, Bell, Patrick, and Cragnolini (2004) and Freudenberg, Brimble, and Cameron (2001) highlighted the need for communication, problem solving, analysis and teamwork skills to be developed at university. Students should also be made aware of their importance and are given opportunities to practice them throughout their learning program and in authentic workplace settings.

During work placement or employment, students may develop some generic and hard skills in the workplace, including leadership, entrepreneurial skills, assuming responsibility and making decisions, critical thinking, problem solving, and ethical awareness ethical standards (Crebert et al., 2004). In Dwesini's study (2017), employability skills gained from WIL are: self-confidence, communication (oral and written), team work, professionalism, time management and computer skills. Participants in this study attribute the enhancement of these skills to WIL exposure. That is, many of the outcomes associated with WIL are higher-order metacognitive skills (Krathwohl, 2002), including human skills, organizational skills, information skills, and knowledge and skills in subject, which are important for employability (Khampirat, 2017). At its most generally important level, WIL involves students in developing: understandings about work, skilful practices, efficacy beliefs, as well as metacognitive capabilities (Knight & Yorke, 2003).

One can expect difficulties for students for conceptualizing social responsibility and accountability, and demonstrating these in the workplace. Some students are critical of classroom learning as not adequately preparing them for their placement, particularly in their ability to use technology and speak in public audience, with clients and co-workers (Jackson, 2015). Although WIL is reported to lead to significant improvement in work skills, variations in the degree to which skill outcomes improve may indicate certain skills are more malleable than others in the work environment. They also highlight the lack of focus on certain skill types before and during placement both of which should be considered in the design of WIL programs.

METHODOLOGY

Participants

This research replicates an Australian study on pre and post placement perceptions of WIL students using the Work Skills Development (WSD) Framework model (Bandaranaike & Willison, 2010). The original [English] survey instrument was translated to Thai. A total of 588 male and female co-operative education students, from four programs and in the final year of their Bachelor's Degree participated in this study (Table 1).

Measures

Using the WSD model, student perceptions were assessed (Appendix I, Table A-1) through a set of survey questions that identified levels of autonomy (LoA) from highly structured direction and guidance from the supervisor to working within self-determined guidelines, for each of the six work skills (Bandaranaike, 2017; Bandaranaike & Willison, 2010):

- Initiative / Motivation to Engage
- Knowledge and Adaptation to Technology & Resources
- Understanding Role and Desired Outcomes
- Using Reflective Practice to Monitor Performance
- Synthesizing and Analyzing Issues
- Communication and Teamwork

Using reflective practice, each student identified their perceived LoA at the commencement [Pre] and completion [Post] of their placement. The conceptual framework of the study is illustrated in Figure 1.
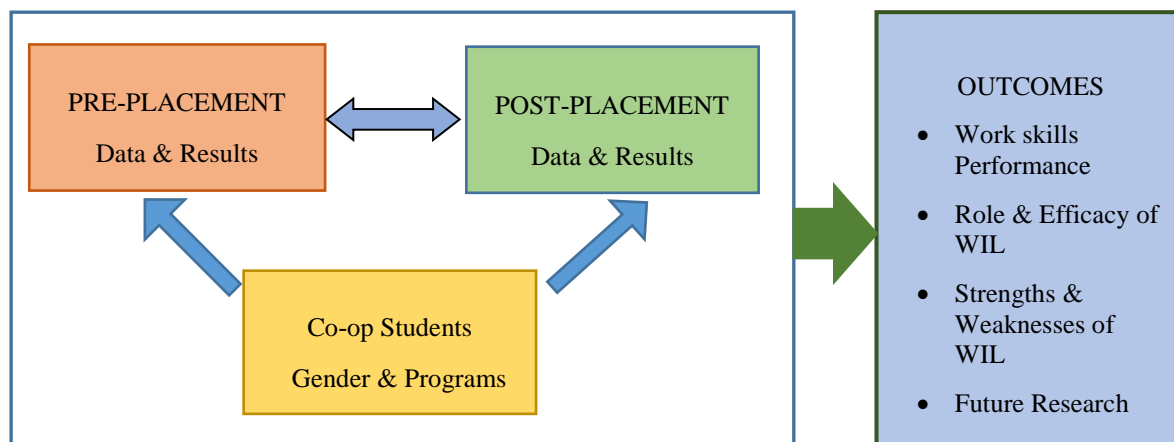
FIGURE 1: The Conceptual Framework of the Study

Data Analyses

Data was analyzed using SPSS software and quantitative analysis. Descriptive statistics was used to analyse the characteristic of participants. Inferential statistics, with the dependent (paired) t-test was used to test the gap between pre- and post-placement scores with Cronbach's Alpha reliability to measure internal consistency. Analysis of Co-Variance (ANCOVA) was used to evaluate whether the means of the dependent variables were equal across levels of independent variable, while controlling for the effects of other continuous variables that are not of primary interest.

Procedures

Data collection was completed by the researcher and five other research assistants and two support staff from the Co-op units .Students took approximately 20-30 minutes each to complete the survey .81.82% (588/710) of the distributed questionnaires were answered and completed. The data was then recorded using SPSS software with data screening and cleaning prior to analysis .

TABLE 1: Cooperative Education Student Sample [N=588]

		Frequency	Percentage
Gender	Male	237	40.31
	Female	343	58.33
	n/a**	8	1.36
	Total	588	100.00
Program	Engineering	249	42.35
	Social Technology	257	43.71
	Agriculture	77	13.10
	Public Health*	3	0.51
	n/a**	2	0.34
	Total	588	100.00

* Public Health was excluded in the ANCOVA analysis because participants less than 30.

** no identification of gender/program

ANALYTICAL RESULTS

Perceived Competency in Work Skills

The dependent t-test results indicated that there was a significant difference in all six work skills between the mean scores in perceived levels of autonomy in work skills at the beginning (pre) and completion (post) of placement. In general, all co-op students perceived they had better understanding of each of the six work skills after completing (post) work experience (Figure 2).
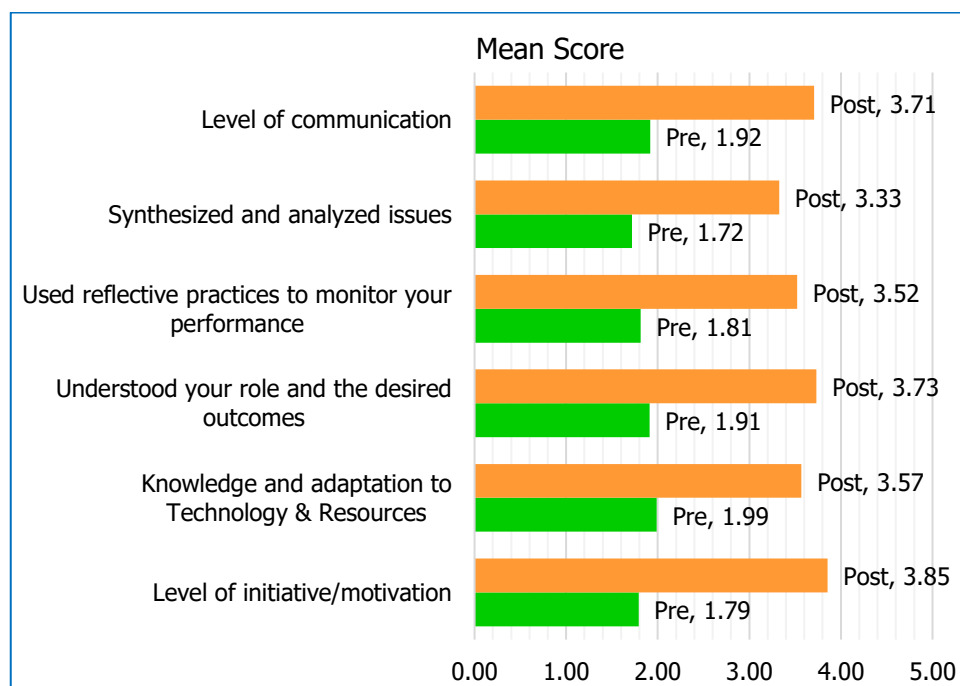
FIGURE 2: Comparison between the mean values for each work skill

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Of the work skills examined, maximum improvement was in "initiative/motivation" (mean difference = 2.06, p<.00), followed by "understood your role and the desired outcomes" (mean difference = 1.82, p<.00), "level of communication" (mean difference = 1.79, p<.00), "used reflective practices to monitor your performance" (mean difference = 1.71, p<.00), respectively. Whereas the least improved skill on co-op student's perceptions were "synthesized and analyzed issues" (mean difference = 1.61, p<.00) and "knowledge and adaptation to technology & resources" (mean difference = 1.58, p<.00). The values of mean and results of dependent t-test are given in Table 2.

While the statistical significance in the differences between the students' mean scores of their perceived levels of autonomy in work skills performance at the beginning (pre) and completion (post) of their work placement was significant, the gap between pre and post placement scores measured by a t-test, also revealed significant differences (df) for the above-mentioned categories ranging from 569 to 572 (Table 2).

TABLE 2 :Perceived work skills between pre and post placement and the results of testing of mean difference and after removing difference attributable to pre co-op work skills.

	Work skills	Pre-placement		Post placement		Mean Diff. (Post - Pre)	Paired samples t-test	ANCOVA	
		Mean	SD	Mean	SD			F-test	Partial Eta Squared
1	Level of initiative/motivation	1.79	1.04	3.85	0.99	2.06	38.15**	3.35*	0.01
2	Knowledge and adaptation to Technology & Resources	1.99	0.93	3.57	1.08	1.58	29.49**	2.21	0.01
3	Understood your role and the desired outcomes	1.91	0.90	3.73	1.11	1.82	35.81**	0.15	0.00
4	Used reflective practices to monitor your performance	1.81	0.97	3.52	1.12	1.71	30.11**	3.70*	0.01
5	Synthesized and analyzed issues	1.72	0.92	3.33	1.17	1.61	28.54**	0.09**	0.00
6	Level of communication	1.92	0.98	3.71	1.07	1.79	34.61**	0.64**	0.00

Note = * :p < .05, = ** p < .01

Influences on Perceived Performance

Computing a change score (post-placement score minus pre-placement score) after removing the mean scores for the pre-placement using ANCOVA, compared the mean difference of the students' performance between three groups (Information Technology, Engineering, and Agriculture students).

F-test scores revealed in Table 2 indicate that the program difference in "level of initiative/motivation" and "used reflective practices to monitor your performance" were significant between the groups (p<.05) when ANCOVA was applied to compute a change score using pretest results as covariates. However, the effect size coefficients (d = .01) were small. Information Technology and Engineering students increased the levels of autonomy in "level of initiative/motivation" than Agriculture students. While developing autonomy for "used reflective practices to monitor your performance" was almost higher for Engineering student than Information Technology and Agriculture students. The result of the ANCOVA was not significantly different (p>.05) for "knowledge and adaptation to Technology & Resources", "understood your role and the desired outcomes", "synthesized and analyzed issues", and "level of communication"

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DISCUSSION

This investigation provides support for the effectiveness of WIL on the work skills performance as follows:

a) Initiative and motivation is a necessity for successful work performance .Participants in the study showed a significant improvement as a result of post placement in adapting to their role, identifying future goals and projects .Initiative and motivation can be acquired exclusively in a real work setting.

b) Co-operative education students in this study were able to use technology and resources to generate information, show an understanding of technology and resources and a high degree of sensitivity in the application of these .These are skills that can largely be acquired in the work setting .They are also valued by employers who invest heavily in technology and resources to become competitive in the delivery of goods and services.

c) Participants were able to understand their role, evaluate information with some guidance, match theory to practice, fill information gaps and acquire lifelong learning skills, significantly between in the post placement phase as compared to pre-placement.

d) Co-operative education students displayed reflective work skills acquired through placement .They are able to acquire information and establish roles, master methods and practices, monitor and evaluate, deliver projects and meet goals, and articulate innovative strategies when compared to pre-placement assessments .This further demonstrates the value of WIL in preparing students for the world of work.

e) In terms of synthesizing and analyzing issues, co-operative education students showed significant skills improvement in terms of analyzing problems, working with data independently, applying critical thinking skills, initiating changes and extrapolating outcomes .There is an expectation from employers that these higher skills orders should be inherent in university graduates .These skills are acquired substantially through student placement.

f) There are significant differences between pre and post placement in terms of level of communication, namely, communication information, understanding roles, assertiveness and confidence, understanding workplace culture and professional ethics, negotiating and respecting others .Post placement as part of a WIL program imbibes co-operative education students with these skills, which are also vital to successful work performance.

Based on the findings in this study, they are in agreement with Abery, Drummond, and Bevan (2015), who concurred that WIL enables students to acquire confidence, build knowledge and skills, and attain the ability to self-reflect on whether they have contributed to improved productivity in the workplace .Their study has found that students perform better in their major subjects during and after work placement and they are able to understand and apply theoretical constructs better upon their return to university .In addition, Abery et al. (2015) stated that WIL students are able to reflect on outputs of work placement and feel more prepared for work, regardless of the industry or workplace they may find employment .They can adapt to different workplace environments .These are precisely generic skills that WIL fosters to create "employable graduates ."

Since having good work skills is not only important for occupation, but it can also have a positive effect on students' life skills (Ibarraran, Ripani, Taboada, Villa, & Garcia, 2012). Having effective mentorship system is one of the key strategy for developing student's work skills (Ramirez, 2012). On-the-job training, coaching and mentoring are considered particularly beneficial by students from all disciplines (Jackson, 2015). When students are given more responsibility, provided with different challenges and a broader range of problems for analyzing and solving (Jackson, 2013), they are able to acquire employability skills, effectively perform, and add value to their organizations and personal life.

Strengths of the Study: (a) Scoring rubrics are especially well-suited for assessing complex facets .(b) The use of various statistical tests ensured that the findings were empirically-informed .(c) The categories and their respective items were content valid. (d) The high degree of reliability in the findings.

Limitations of the Study: This study is based on self-report data which may be impacted by participant bias.

CONCLUSION

This research has contributed significantly to the assessment of pre and post- work skills performance of cooperative /WIL students, using an established WIL assessment model, and validating the results via statistical testing .It has also highlighted the strengths and weaknesses of WIL pedagogy .This research can be extended further by detailed research into each of the work skills -initiative/motivation, adaptation to technology, role functions, reflection, performance; critical analysis, and communication .

REFERENCES

Abery, E., Drummond, C., & Bevan, N. (2015). Work Integrated Learning: What do the students want? A qualitative study of Health Sciences students' experiences of a non-competency based placement. Student Success, 6(2), 87-91. doi:10.5204/ssj.v6i2.288

Bandaranaike, S. (2017). The Work Skill Development [WSD] framework: Work- ready competencies for today and tomorrow. Paper presented at the Short paper presented at the International conference on Models of Engaged Learning and Teaching (I-MELT), Adelaide, South Australia. https://www.adelaide.edu.au/rsd/imelt/papers/BandaranaikeIMELT2017paper.pdf

Bandaranaike, S., & Willison, J. (2010). Work skill development framework: An innovative assessment for work integrated learning In M. Campbell (Ed.), Proceedings of the ACEN National Conference 2010, Perth, WA, Australia, 27 September - 01 October 2010 (pp. 1-19). Queensland, Australia: ACEN.

Butcher, V., Smith, J., Kettle, J., & Burton, L. (2011). Review of good practice in employability and enterprise development by Centres for Excellence in Teaching and Learning. York, UK: Higher Education Academy for HEFCE.

Coll, R. K., Eames, C., Paku, L., Lay, M., Hodges, D., Bhat, R., . . . Martin, A. (2009). An exploration of the pedagogies employed to integrate knowledge in work-integrated learning. Journal of Cooperative Education & Internships, 43(1), 14-35.

Coll, R. K., & Zegwaard, K. E. (2006). Perceptions of desirable graduate competencies for science and technology new graduates. Research in Science and Technological Education, 24(1), 29-58.

Crebert, G., Bates, M., Bell, B., Patrick, C.-J., & Cragnolini, V. (2004). Developing generic skills at university, during work placement and in employment: graduates' perceptions. Higher Education Research and Development, 23(2), 147-165. doi:10.1080/0729436042000206636

Dwesini, N. F. (2017). The role of work integrated learning (WIL) in enhancing employability skills: Graduate perspectives. African Journal of Hospitality, Tourism and Leisure, 6(2), 1-9.

Freudenberg, B., Brimble, M., & Cameron, C. (2001). WIL and generic skill development: The development of business students' generic skills through work-integrated learning. Asia-Pacific Journal of Cooperative Education, 12(2), 79-93.

Freudenberg, B., Cameron, C., & Brimble, M. (2010). The importance of self: Developing students' self efficacy through work integrated learning The International Journal of Learning, 17(10), 479-496.

Ibarraran, P., Ripani, L., Taboada, B., Villa, J. M., & Garcia, B. (2012). Life skills, employability and training for disadvantaged youth: Evidence from a randomized evaluation design. IZA Discussion Papers 6617: Institute for the Study of Labor (IZA).

Ibrahim, H. I., Zulkafli, A. H., Mohammad Shah, K. A., & Amran, A. (2017). Building self-esteem through work-integrated learning. International Journal of Learning and Teaching, 3(1), 73-77. doi:10.18178/ijlt.3.1.73-77

Jackson, D. (2013). The contribution of work-integrated learning to undergraduate employability skill outcomes. Asia-Pacific Journal of Cooperative Education, 14(2), 99-115.

Jackson, D. (2015). Employability skill development in work-integrated learning: Barriers and best practice. Studies in Higher Education, 40(2), 350-367. doi:10.1080/03075079.2013.842221

Khampirat, B. (2017). Development of an instrument for the assessment and strategies of learning outcomes of undergraduate engineering students. Bangkok, TH: The Thailand Research Fund.

Khampirat, B., & McRae, N. (2016). Developing global standards framework and quality integrated models for cooperative and work-integrated education programs. Asia-Pacific Journal of Cooperative Education, Special Issue, 17(4), 349-362.

Khampirat, B., & Pop, C. (2017, June). Labour market needs and graduate competence: An examination of the gap between employer expectations and new engineering graduate performance in Thailand. In K. E. Zegwaard & M. Ford (Eds.), Refereed Proceedings of the 20th WACE World Conference on Cooperative and Work-Integrated Education: World Association for Cooperative Education (WACE), Chiang Mai, Thailand, 5-8 June 2017 (pp. 109-118). Hamilton, NZ: University of Waikato.

Knight, P., & Yorke, M. (2003). Learning, curriculum and employability in Higher Education. London, UK: Routledge.

Krathwohl, D. R. (2002). A revision of Bloom's taxonomy: An overview. Theory Into Practice, 41(4), 212-218. doi:10.1207/s15430421tip4104_2

Little, B., & Harvey, L. (2006). Learning through work placements and beyond. Sheffield, UK: Centre for Research and Evaluation.

Ramirez, J. J. (2012). The intentional mentor: Effective mentorship of undergraduate science students. Journal of Undergraduate Neuroscience Education, 11(1), A55-A63.

Reddan, G. (2016). The role of work-integrated learning in developing students' perceived work self-efficacy. Asia-Pacific Journal of Cooperative Education, Special Issue, 17(4), 423-436.

Subramaniam, N., & Freudenberg, B. (2007). Preparing accounting students for success in the professional environment: Enhancing self-efficacy through a work-integrated programme. Asia-Pacific Journal of Cooperative Education, 8(1), 87-102.

Ward, M. (2017). The 5 soft skills that will get you hired - and how to learn them. Retrieved from https://www.cnbc.com/2017/04/26/the-5-soft-skills-that-will-get-you-hired--and-how-to-learn-them.html

APPENDIX I

TABLE A-1: Facets of WSD Work Skills and Levels of Autonomyused in the Study

Facets of Work Skills	Levels of Autonomy
Initiative/Motivation to Engage	1 = Required high degree of guidance to adapt to Role] Placement [2 = Was able to identify Role with some degree of guidance 3 = Adapted to Role independently, with very little guidance 4 = Adapted to role easily and was able to give feedback 5 = Identified future goals & projects for the industry, while fulfilling original role requirements
Knowledge and Adaptation to Technology & Resources	1 = Used basic technology /resources with a high degree of guidance to find & generate information 2 = Used technology/resources with some degree of guidance to find & generate information 3 = Used technology/resources independently to find & generate a range of information 4 = Showed complete understanding and mastery in choice of technology/resources right from the beginning 5 = Showed a high degree of sensitivity in the application of a range of technology/resources to generate information
Understanding the Role and the Desired Outcomes	1 = Evaluated information at a minimum level in understanding your role 2 = Evaluated information with some degree of guidance to generate knowledge 3 = Critically evaluated information to match theoretical & practical knowledge 4 = Critically evaluated information & filled gaps to generate knowledge 5 = Critically evaluated & used knowledge to generate lifelong learning skills
Using Reflective Practices to Monitor Performance	1 = Used simple reflective practices to organise information and establish role 2 = Used existing structures of reflective practices to master methods and practices 3 = Used own reflective practices to evaluate and monitor performance 4 = Used reflective practices to deliver clear projects and goals 5 = Used reflective practice to articulate vision, goals & innovative strategies
Synthesizing and Analyzing Issues	1 = Applied a simple structure to understand existing solutions 2 = Applied a structured format to synthesize & analyze existing data & knowledge 3 = Worked independently to synthesize & analyze a range of resources 4 = Applied critical thinking and worked collaboratively to produce innovative solutions 5 = Applied sophisticated critical thinking and analysis to initiate change & extrapolate outcomes
Communication and Teamwork	1 = Required highly structured guidelines to communicate information 2 = Required some degree of guidance to understand role and communicate with others 3 = Demonstrated confidence and assertiveness in communicating information 4 = Communicated independently showing high degree of understanding of workplace culture & professional ethics 5 = In communicating information, you negotiated & asserted your own values while respecting the contribution of others

Source :Bandaranaike & Willison, 2009, 2016.

More than developing graduate attributes: The added value of work-integrated learning

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ABSTRACT

Work-integrated learning (WIL) has attracted considerable attention as an instrument for enhancing professional practice and developing work-readiness in graduates. It is widely considered as a point of difference in developing graduate employability by enhancing skill outcomes through an authentic learning experience. This paper focuses on student insights of the added value of WIL and their development of personal and professional graduate attributes. Thematic content analysis was undertaken of students' reflections (n=271) of their perceived learning outcomes and overall experiences from their sport management and coaching WIL experiences at Massey University. The findings show that enjoyment, achievement and reinforcing career decisions added value to the student's experiences. Gratitude for the support and mentoring of workplace and academic supervisors was also evident. Development of personal attributes involving self-management, enterprise, and effective communication were important learning outcomes. Professional development of a community of practice and leadership responsibilities were also highlighted.

Keywords: Reflective practice, pedagogy development; graduate attributes

INTRODUCTION

The New Zealand Tertiary Education Commission (TEC)'s 2014-2019 strategy emphasises the importance that graduates gain both transferable skills and specific qualifications that are matched to labour market demand; specifically, to ensure there are better employment outcomes for graduates and investments in education (by students, employers and Government). Massey University's strategic plan "Road to 2025" highlights the need "to enable our students to support their life-long learning and develop their preparedness for employment in a global context" and to "actively enhance career and employment outcomes for student by developing a new, integrated approach to applied learning" (Massey University, nd). However, practical implications are that while the employability emphasis aligns well with government and university agendas, graduates need to be prepared for complex and dynamic workplaces, and to be future ready for careers that arguably are yet to exist. Programs need to reconsider the curriculum learning outcomes that should be imperative for university education in the twenty-first century (Fleming & Haigh, 2017). The purpose of this paper is to examine the added value of WIL through student insights of their journey to be a graduate.

Graduate Attributes

Graduate attributes are considered to be generic skills, qualities and understandings that are developed by students (Precision Consultancy, 2007). This publication and a more recent analysis of 36 of 40 listed universities on the Australian Universities website identified the four most common graduate attributes across the higher education sector (Hall, Pascoe & Charity, 2017), namely communication, global citizenship, discipline specific knowledge and lifelong learning. Communication and global citizenship are also included within Massey's employability characteristics, along with three others; namely enterprise, self-management and exercising leadership.

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Broad definitions of these five attributes are as follows:

- Self-management: Working independently, taking responsibility for personal actions such as planning and organization, having the confidence and self-awareness to plan and realise goals and ambitions, and being adaptive to respond to changing situations

- Enterprise: A combination of individuality, creativity, and leadership that enables a culture of innovation, risk taking, and opportunism, enabling entrepreneurship and facilitating knowledge transfer.

- Global Citizenship: Engaging ethically and efficiently in the professional context and also understanding and engaging with diverse communities and cultures in a global context.

- Information Literacy: The ability to know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand, and to communicate that information effectively through oral, written, or visual methods in order to inform, motivate, and effect change

- Exercising leadership: Ability to work confidently and collaboratively with a group of people, and as a leader when necessary, including encouraging and motivating team members toward a shared vision to achieve goals.

Background and Context

WIL and sport are natural curriculum partners, given the applied and vocational nature of the various contexts (Agnew, Pill& Orrell, 2017; Fleming & Ferkins, 2011). Graduate feedback has indicated that to enhance employability in the sport and recreation industry, Work-integrated learning (WIL) programs need to be designed so that students are provided with opportunities to facilitate the development of various competencies (Fleming & Ferkins, 2006; Fleming, Martin, Hughes, & Zinn, 2009; Martin, Fleming, Ferkins, Wiersma & Coll, 2010).

> In this context, attributes that are highly valued include the ability and willingness to learn, enthusiastic participation (passion for sport), use of initiative/self-sufficiency, and personal organizational skills. Success in this industry relies on relationship building/ developing professional networks as well as teamwork and cooperation (Martin, 2013, p. 131).

WIL programmes seek to provide graduates with a comprehensive industry skill set desired by potential employers (Fleming et al., 2009), and for success in the workplace (Bell, Crebert, Patrick, Bates & Cragnolini, 2003). The evidence provided in this project regarding the development of attributes such as oral and written communication skills, self-confidence, and customer relationship management demonstrates again the broad range of learning experiences and opportunities possible from the practicum experience.

The sport management and coaching practicum at Massey University is a compulsory full year course, where students are based at a sport organization and work on a specified project for a minimum of 180 hours. A learning contract is agreed upon by the student, the supervisor within the organization and the academic supervisor responsible for coordinating the practicum at the University. This contract provides "detailed overview of the practicum, including expectations, responsibilities and assessment" (Martin & Leberman, 2005, p. 19). Reflective practice is the primary pedagogy employed to integrate knowledge in WIL settings (Coll et al., 2000). Students keep a reflective journal composed of a brief synopsis (diary type format) outlining "the duties performed, work behaviour and reflections on all activities that take place throughout the practicum experience" (Fleming & Martin, 2007, p. 117). The journal entails more than just listing experiences; it includes revisiting feelings and re-evaluating the experience, as suggested by Boud, Cohen and Walker (1993). Schön's (1983) notion of the 'reflective practitioner' is particularly applicable to the WIL process. He argued that reflective practice is a learned skill most effectively introduced through an experiential component (Schön, 1987; 1991).

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METHOD

The research aimed to examine WIL student's reflections of their learning outcomes and overall experiences from their sport management and coaching practicum. Experiential learning is a cyclical process that involves observation, reflection and action (Dewey, 1938). Dewey (1938) advocated the value of experiential learning, but argued not all experiences are educative. He suggested that learning occurs as a result of problem solving and requires thinking and reflection guided by educators. The experiential learning model follows a cyclical process involving concrete experiences, observation, reflection, evaluation and future action (Kolb, 1984), or 'learning by doing'. The WIL student's reflective journal entails revisiting feelings, re-evaluating the experience (Boud, Cohen & Walker, 1993) related to activities undertaken, learning and link to theory.

Understanding student's perceptions helps to inform and change teaching practice through increased focus on specific graduate attributes and a broader range of added value aspects of WIL programmes. In this case study we undertook a Thematic Content Analysis (TCA) (Braun & Clarke, 2006) of all the available students' post-practicum reflections (n= 271) from those who had undertaken Massey's sport management and coaching practicum between the years 2007 and 2016. [1] The Word documents (final reflective journal entries) all followed a similar structure, which included sections where student were asked to reflect specifically related to their perceived WIL learning outcomes and overall experience. The documents were not part of any course assessment but were initially collated to provide detail of practicum placements and learning outcomes for future students to reference. The fact that all of the available documents were available for inclusion in the project strengthened the power of the analysis. A low risk ethics application was approved. Students who participated in the practicum were enrolled at the time in either: a Bachelor of Sport & Exercise (58%; Major in Management & Coaching), a Bachelor of Business Studies (36%; Major in Sport Business Management) or another qualification (6%).

Data Analysis

Each individual's document was uploaded into Nvivo11 and coded separately. Thematic Content Analysis (TCA) involved searching for common themes based on the model of analysis described by Braun and Clarke (2006). A theme or node[2] hierarchy was created by aggregating and merging to align with higher level nodes. The learning outcomes section and the overall experience section were combined together for coding because in many instances, the students did not respond as though they were separate sections. This content was coded in the first instance in a deductive manner against the five Massey employability characteristics (enterprise, global citizenship, information literacy, self-management and exercising leadership). If additional themes emerged from the coding analysis this was also included in an inductive manner as new themes. Some importance was placed on the frequency or variety of the most salient themes. The counts were recorded for each coded references made (how many separate bits of information were coded) rather than numbers of people coded meaning that an individual's content could be coded to more than one theme or to more than one place in an overall hierarchy of comments.

Credibility and Dependability

Various quality assurance activities have been deployed across the project to ensure the credibility and dependability of the thematic analysis. These include:

1. An independent coder provided an objective view of the data and minimised any potential for coding bias by anyone closely associated with the programme.

2. Use of NVivo 11, Computerised Assisted Qualitative Data Analysis Software (CAQDAS) permitted the orderly creation of nodes that could then be grouped and sub-grouped into themes. The inclusion of demographic variables that provided a modest level of further analysis and cross checking of participant responses.

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[1] 299 students had participated in the practicum over this period however only 271 of the post-practicum reflections were available for analysis.
[2] The term node is used with NVivo to denote a theme or subtheme.

3. Reflexivity through peer reviewing the process, coding structures and the themes developed throughout the process.

RESULTS AND DISCUSSION
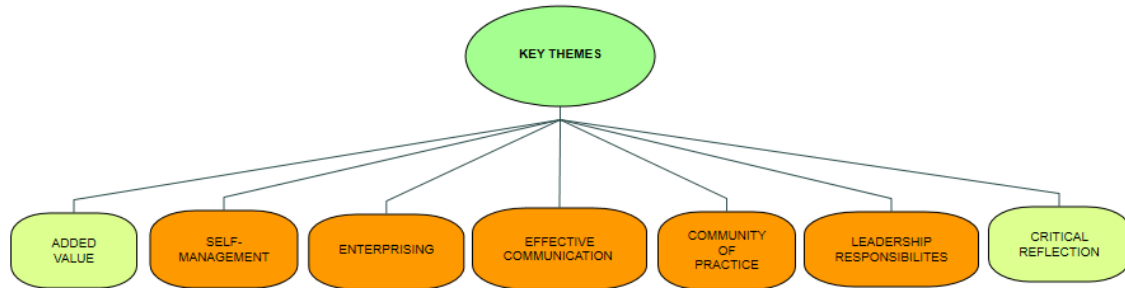
The themes derived from the TCA include aspects of added value, and broadly follow the five Massey employability characteristics; however, some needed a slight adjustment and a sixth theme, critical reflection, emerged from the analysis. From the student's reflections, we were able to identify that the WIL process involved developing: self-management, enterprising individuals, a community of practice, effective communication, and leadership responsibilities as specific attributes, which when melded together, define an optimal WIL outcome through the tripartite partnership between the employer, the teacher, and the student. The focus of this paper is the student insights of the added value of WIL along with their development of personal and professional graduate attributes.

Added Value

The added value of these WIL experiences in terms of students' future careers is highlighted by the following quotes.

> A successful practicum placement can have a significant influence on future prospective employment, as the skills that are demonstrated are relevant and valid in the current sporting environment.

> It is a privilege to be afforded the chance to work within a sporting organisation, take the chance with two hands and make the most of it, this will be the most influential aspect of your university life, but only if you let it!

"Added Value" was the second most frequent theme (26% of all comments). These comments describe benefits such as enjoyment, reinforcing employment decisions, as well as also expression gratitude to both academic and the employment supervisor or organisation.

> My practicum experience has been the highlight of my university studies, and I believe this role has truly equipped me with the necessary skills and knowledge to confidently pursue a career in the sporting and marketing industries.

> This practicum has allowed me to grow as an individual and gain the necessary skills required to add value to any organization in the sports industry I may be a part of in the future.
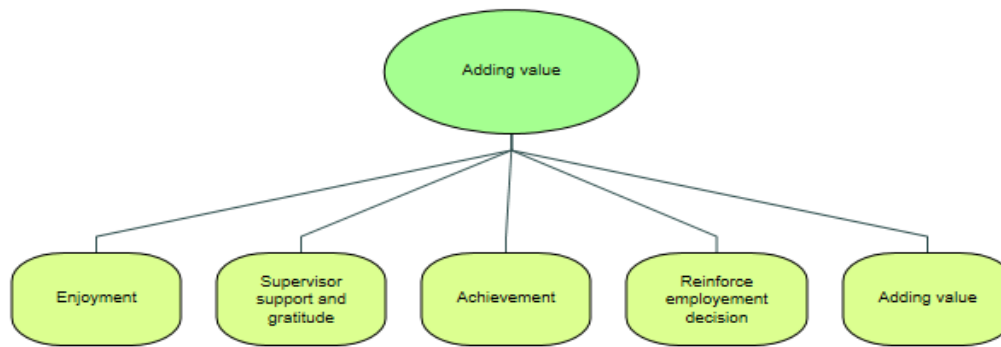
Overall many students were able to express the view that they had added value to their placement organisation through their experiences, skills and attributes; as well as adding value to themselves in terms of the skill learning, enjoyment and networks developed during their WIL placement.

> I am now confident that I can add value to any organisation in the sport management and coaching industry from my experiences and look forward to entering into the workforce.

> This practicum experience has been inspirational and provided me with skills, knowledge and direction for future sport management roles.

Students frequently reported that they enjoyed taking part in the practicum experience. The opportunity to participate in an authentic learning experience with real activities and outcomes is clearly resulting in an experience that is both stimulating, enjoyable and rewarding.

> I have also learned that I really enjoy being in this industry. Being put into a real organisation helped me learn more about who I am as a person and that I would really enjoy working/managing in sport.

> I was very unsure of whether I would enjoy having a career in sport management but now I realise that this is what I would like to do.

Not only was the experience enjoyable for the students, it was also a valuable learning experience.

> The practicum experience is one that I won't forget and I will take the skills I have learnt in my practicum with me into my future.

> The practicum experience has been the most enjoyable and practical aspect of my university degree and I look forward to using the skills I have learnt for the rest of my working career.

However, one student did note that although the WIL experience had been enjoyable, they would change career. This is a useful finding and an honest reflection of an experience that in a way has still been worthwhile.

> Unfortunately, although I have thoroughly enjoyed working in the sports industry I have come to realise that the sports management career isn't for me

The value of both supervisor and academic support was noted, as important mentors who undertake professional guidance, give direction and care, but also provide insight and encourage independence for the students to learn and develop a range of skills. The dominance of comments about the workplace supervision as opposed to the academic supervisor reflects a change in the relationship, representing a departure from the standard academic environment into the workforce.

> All of the staff were so easy to get to know, and I felt that through trying to present myself in a professional manner, I gained the respect from them early on. They gave me direction when it was needed and there were always rewards at the end of the day.

Academic supervisor:

> They have been a great support throughout the experience and have certainly made being a distance learner a little easier. Their easy but fair approach to the uniqueness of my situation has been great and I couldn't hope for any more in a paper administrator.

> They have made this practicum process as smooth as possible for me. They have worked really hard to assist me and my academic needs wherever they can.

Many students were able to reflect on the view that the practicum reinforced sport management as a career choice.

> The opportunity of a work placement allows students to consider their options and reinforce their career choice, which is highlighted in the following typical student response.

> Overall my practicum experience has been an extremely enjoyable one. It has opened my eyes to the fact that working in a sporting organisation is definitely what I want to do in the future.

Having the opportunity to learn and apply skills in the industry that student want to work in the future has been particularly valuable, as noted in the following quotes.

> From this practicum I learnt that the sport industry is definitely the industry I want to work in. I learned valuable event management aspects such as planning, sponsorship and volunteer coordination.

> I have made a big step up this year in actually getting out there and putting concepts into work. It has been good to learn more about the sporting industry, as this is the industry which I want to be a part of in the future.

Done well, WIL benefits each stakeholder within the tripartite relationship. Many students' set-up employment opportunities whilst on WIL placements due to the development of a range of additional competencies or work-based knowledge that is not as easy to learn through conventional means. The workplace benefits by having a student on placement, as they bring new skills or innovative ideas, along with providing assistance and expertise for ongoing related projects (Martin & Hughes, 2009).

Competencies are the qualities or extent to which the students develop the necessary ability or knowledge to do something successfully. Essentially WIL provides opportunities to enable individuals to apply academic theory to a "real world" setting/environment, with individuals able to test out the extent of their skills/competencies linked to interpersonal attributes. A particular strength of the WIL experience is the ability to enhance those "soft skills" that could not be learnt in the classroom environment (Fleming, Martin, Hughes, & Zinn, 2009). The following quotes highlight that these WIL experiences are about both personal and professional development.

> I have been provided with plenty of professional development and self-management opportunities which have increased my enjoyment in the role and equipped me with valuable sport management skills.

> I have learnt so much about the sporting event management world and how it all works, [the sport] as an organisation, as well as learning just as much about myself throughout the process.

These work experiences reinforce the students' commitment to the roles, passion for sport and pursuing a career in the industry. Enthusiastic participation has also been highlighted by sport management graduates as an important attribute for employability (Fleming et al., 2009), and the students have also noted their passion to be involved in the future.

> It requires a lot of passion for the sport and I found this passion within myself, taking on a lot more responsibilities than I initially wanted. It reinforced that I have a passion and drive for this industry and provided me learning experiences.

Students also highlighted to other potential students the importance of being passionate about their involvement in the sport industry.

Without a passion for sport and personal improvement, you will struggle in the sporting industry. Without passion, you will not be willing to work hard to achieve certain objectives for the organisation. Without the willingness to achieve personal improvement, your own development will suffer.

CONCLUSIONS AND IMPLICATIONS

A key aspect of WIL added value is the students' perceived contribution coupled with enjoyment of the experience. An overwhelming feature of many of the placements was enjoyment of the experience, gratitude and thankfulness coupled with reaffirming their likely employment pathway it the future. The findings reinforce the importance of a learning process that facilitates leadership and reflective work-based experiences that link theory to practice. It was a credit to some that they were able to reflect in this way as they looked back on their placement experience. Increasingly, the WIL experience is providing a point of difference for students in enhancing their employability from tertiary education institutions Overall, specific alignment with Massey University's employability characteristics is noted through this curricular WIL activity, but the outcome is likely to be subtly different for each qualification. We argue that whilst the WIL experiences help in the development of a community of practice', global citizen and life-long learning are also likely to be on-going attributes developed later in a career rather than as a graduate. However, the enterprise of these students is evident in the added value of the WIL experience, 'The most beneficial and rewarding part of my university experience'.

REFERENCES

Agnew, D, Pill, S., & Orrell, J. (2017). Applying a conceptual model in sport sector work integrated learning contexts. Asia-Pacific Journal of Cooperative Education, 18(3), 185-198.

Bandaranaike, S., & Willison, J. (2015). Building capacity for work-readiness: Bridging the cognitive and affective domains. Asia-Pacific Journal of Cooperative Education, 16(3), 223-233.

Bandura, A. (1988). Organizational application of social cognitive theory. Australian Journal of Management, 13(2), 275–302.

Bell, B., Crebert, G., Patrick, C. J., Bates, M. & Cragnolini, V. (2003). Educating Australian leisure graduates: Contexts for developing generic skills. Annals of Leisure Research, 6(1), 1- 19

Boud, D., Cohen, R., & Walker, D. (Eds.). (1993). Using experience for learning. Buckingham, UK: Open University Press.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Eesearch in Psychology, 3(2), 77-101.

Coll, R. K., Eames, C., Paku, L., Lay, M., Ayling, D., Hodges, D., Ram, S., Bhat, R., Fleming, J., Ferkins, L., Wiersma, C., & Martin, A. J. (2009). An exploration of the pedagogies employed to integrate knowledge in work-integrated learning. Journal of Cooperative Education & Internships, 43(1), 14-35.

Dewey, J. (1938). Experience and education. New York, NY: Collier Books.

Fleming, J., & Ferkins, L. (2011). Cooperative and work integrated education in sport studies. In Coll, R. K. & K. E. Zegwaard (Eds.). International handbook for cooperative and work-integrated education (2nd ed. pp. 179-188). Boston: World Association of Cooperative Education

Fleming, J., & Ferkins, L. (2006). Enhancing student employability: A New Zealand case study of cooperative education in sport. In N. Becket & P. Kemp (Eds.), Enhancing graduate employability in business and management, leisure, sport and tourism (pp. 98-105). Newbury, UK: Threshold Press.

Fleming, J., & Haigh, N. J. (2017). Examining and challenging the intentions of work-integrated learning. Higher Education, Skills and Work-Based Learning, 7(2), 198-210.

Fleming, J., Martin, A. J., Hughes, H., & Zinn, C. (2009). Maximizing work integrated learning experiences through identifying graduate competencies for employability: A case study of sport studies in higher education. Asia Pacific Journal of Cooperative Education, 10(3), 189-201.

Fleming, J., & Martin, A. J. (2007). Facilitating reflective learning journeys in sport cooperative education. Journal of Hospitality, Sport, Tourism, Leisure and Education, 6(2), 115-121.

Freudenberg, B., Cameron, C., & Brimble, M. (2011). The importance of self: Developing students self-efficacy through work integrated learning. The International Journal of Learning, 17(10), 479-496.

Gardner, P. (2017). Flourishing in the face of constant disruption: Cultivating the T-professional or adaptive innovator through WIL. In T. Bowan & M. Drysdale, Work Integrated Learning in the 21st century

Hall, M., Pascoe, D., & Charity, M. (2017). The impact of work-integrated learning experiences on attaining graduate attributes for exercise and sports science students. Asia-Pacific Journal of Cooperative Education, Special Issue, 2017, 18(2), 101-113.

Jackson, D. (2013). The contribution of work-integrated learning to undergraduate employability skill outcomes. Asia-Pacific Journal of Cooperative Education, 14(2), 99-115.

Kolb, D.A. (1984). Experiential learning: Experience as the source of learning and development. Englewood Cliffs, N.J.: Prentice Hall.

Martin, A. J. (2013). Reflections on 20 years of practicum, partnership & practice. Asia Pacific Journal of Cooperative Education, 14(3), 89-98.

Martin, A. J., Fleming, J., Ferkins, L., Wiersma, C, & Coll, R. (2010). Facilitating and integrating learning in sport studies cooperative education. Journal of Hospitality, Leisure, Sport & Tourism Education, 9(1), 24-38.

Martin, A. J., & Hughes, H. (2009). How to make the most of work integrated learning: For students, academic supervisors and workplace supervisors. Wellington: Ako Aotearoa.

Martin, A. J., & Leberman, S. I. (2005). Keeping up with the play: Practicum, partnership and practice. Asia-Pacific Journal of Cooperative Education, 6(2), 17-25.

Martin, A. J., Rees, M., & Edwards, M. (2011). Work integrated learning: A template for good practice. Supervisor's feedback. Wellington: Ako Aotearoa.

Massey University. (2017). The road to 2025. Palmerston North, New Zealand: Massey University.

Precision Consultancy. (2007). Graduate employability skills. Retrieved from http://aces.shu.ac.uk/employability/resources/GraduateEmployabilitySkillsFINALREPORT1.pdf

Reddan, G. (2017). Enhancing employability of exercise science students. Asia-Pacific Journal of Cooperative Education, 18(1), 25-41.

Reddan, G. (2016). The role of work-integrated learning in developing students' perceived work self-efficacy. Asia-Pacific Journal of Cooperative Education, 17(4), 423-436.

Reddan, G. (2015). Enhancing students' self-efficacy in making positive career decisions. Asia-Pacific Journal of Cooperative Education, 16(4), 291-300.

Subramaniam, N., & Freudenberg, B. (2007). Preparing accounting students for success in the professional environment: enhancing self-efficacy through a work integrated learning program. Asia-Pacific Journal of Cooperative Education, 8(1), 87-102.

Schön, D. A. (1983). The reflective practitioner. New York: Basic Books.

Schön, D. A. (1987). Educating the reflective practitioner: Toward a new design for teaching and learning in the professions. San Francisco: Jossey-Bass.

Schön, D. A. (1991). The reflective practitioner: How professionals think in action. Aldershot, Hants., UK: Arena.

Tertiary Education Commission (2014-2019). Strategy. Retrieved 1 March 2017 from http://www.education.govt.nz/further-education/policies-and-strategies/tertiary-education-strategy/

T-summit (2017). What is the T. Retrieved August 1, 2017 from http://tsummit.org/t

Wenger, E, McDermott, R.; & Snyder, W. M. (2002).Cultivating communities of practice Boston: Harvard Business Press.

Yorke, M. (2004). Employability in higher education: What is it, what it is not. Higher Education Academy. Retrieved 1 March 2017 from https://www.heacademy.ac.uk/resource/employability-higher-education-what-it-what-it-not

Yorke, M. (2010). Employability: Aligning the message, the medium and academic values. Journal of Teaching & Learning for Graduate Employability, 1(1) 2-12.

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Decolonizing work-integrated learning

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INTRODUCTION: THE OPPORTUNITIES

In 2015, the Truth and Reconciliation Commission of Canada released its report on the history, impacts, and legacies of the residential school system in Canada. Along with 6 volumes of material, the Commission produced a list of 94 Calls to Action to identify and guide the work to be done to move the country towards reconciliation. Many of the calls refer specifically to education and training for professionals (Truth and Reconciliation Commission of Canada, 2015).

At the same time, it is important to remember that reconciliation is only one part of the process of repairing and rebuilding relationships between Indigenous peoples and Canadians. As labour market analyst Shauna MacKinnon (2015) argues,

> The full social and economic inclusion of Aboriginal people will require much more than improved participation in the labour market. Nonetheless, social and economic outcomes can be improved through labour market participation, and it can have far-reaching and intergenerational implications for individuals and families who have been socially and economically excluded. The Aboriginal population is growing and is increasingly being recognized as an important source of labour in Canada's future. This will require that policy makers, educators, and employers consider how to better respond to the needs of Aboriginal people in general, and those who have been socially and economically marginalized in particular (p. 6).

While acknowledging the potential contributions of increased labour market participation, MacKinnon also raises a concern about the potential to limit this approach to a focus on labour market outcomes. In particular, such a narrow emphasis runs the risk of attempting to reshape participants to fit programs rather than building programs to meet both the needs and the aspirations of Indigenous people and communities, and we think that this is an important reminder in the context of work-integrated learning (WIL) as well.

Education is often presented as a panacea for the challenges faced by Indigenous communities, including but not limited to employment and income. Kovach (2009), stresses that this is "a strategy that certainly matters, but by itself it is insufficient. Welcoming Indigenous students but not allowing for learning, scholarship, and research that is congruent with Indigenous paradigms is simply a nuanced variation of a past strategy" (p. 163) one based on assimilation of Indigenous peoples into mainstream society. For Kovach (2009), a key challenge arose around differing views of the role of education; she writes that,

> From a government perspective, post-secondary education was largely a policy mechanism, with subsequent educational programming seen as an initiative to bridge the equity gap between status Indians and mainstream (non-Indigenous) society. This differed substantially from the Indigenous community's perspective of education as a foundational right that should simultaneously serve culture and minimize socio-economic disparity (p. 161).

To be successful and meaningful, an approach to post-secondary education for Indigenous students and communities, including work-integrated learning, must move away from a focus (explicit or not) on assimilation toward one that respects self-determination at personal and collective levels. Kirkness and Barnhardt (1991) stress that "While improved job opportunities alone may provide sufficient motivation to keep some students interested,

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in the case of many First Nations students, these 'jobs' are often linked to aspirations with much broader collective/tribal considerations, such as exercising self-government, or bringing First Nations perspectives to bear in professional and policy-making arenas" (p. 5). In this sense WIL, like post-secondary education in general, must reflect Indigenous values of respect, relevance, reciprocity, and responsibility (Kirkness & Barnhardt, 1991).

This research builds on earlier work undertaken to identify factors contributing to successful Indigenous international WIL exchanges (Ramji, McRae, Hancock, & Kines, 2016), and recognizes the need to work in different ways in order to serve students seeking such experiences. Our approach is motivated by a recognition that programs need to be designed to meet the needs of students, rather than vice-versa; failing to do so will replicate the very issues that we are trying to resolve. Writing from the perspective of labour policy, MacKinnon (2015) shares similar concerns:

> While we like to think that we have learned from past mistakes, we continue to repeat them by trying to fit Aboriginal people into Eurocentric development models that ignore the deep and lasting damage caused by our past mistakes. Full social and economic inclusion will first require an acknowledgment of this, followed by meaningful systemic changes that reach far beyond labour market policy (p. 174).

In undertaking this work, we understand *policy* expansively — as referring both to governmental policy and institutional policy. At the same time, her call for acknowledgment of the shortcomings of the past approaches and for structural changes resonate with calls for decolonization.

DECOLONIZATION: THE CONTEXT

While Kovach's expertise is in Indigenous research rather than experiential or work-integrated learning, we think that her understanding of the relationship between postsecondary education and improved outcomes for Indigenous students and communities offers an important perspective on the work to be done and the opportunities it brings. In particular, her emphasis on the role that building relationships play in decolonization of education links both to the insights from Kirkness and Barnhardt (1991) and to emerging practice in WIL. For Kovach (2009), the work of building relationships that support this approach "begins with decolonizing one's mind and heart" (p. 169). She argues that undertaking this process "means exploring one's own beliefs and values about knowledge and how it shapes practices. It is about examining whiteness. It is about examining power. It is ongoing. It is only after carrying out this personal and institutional examination that scholars and disciplines can be in a position to acknowledge Indigenous knowledge and what it means in changing an organizational culture" (p. 169).

At the same time, she offers a caution about focusing on short-terms goals at the expense of Indigenous perspectives on the need to ensure that the work is expansive enough to meet the needs of Indigenous communities, particularly around issues such as "Aboriginal rights, cultural longevity, and the responsibility of educational institutions within that larger discussion" (p. 162). Echoing these concerns, MacKinnon (2015) identifies some of the aspects of this more expansive approach:

> Decolonization of the education system, as part of a process to undo some of the damaging effects of colonial policies, … would include a new curriculum that critically examines the value base of colonialism and its inherent contrast to collectivist versus individualist pursuits generally, and to the values and beliefs of colonized Indigenous peoples more specifically. It will also require fundamentally changing educational institutions at all levels, embracing Indigenous knowledge, and adapting programs and program delivery to more appropriately respond to and engage with Aboriginal students, and all students, in a meaningful way… (p. 70).

Kovach (2009) summarizes the work to be done as ensuring that institutions strive "to bring not only Indigenous bodies but Indigenous knowledges into the academy" (p. 158), arguing that "As an Indigenous presence surfaces within Western universities, it brings with it all that is Indigenous: thought, custom, culture, practice, and self. ... [/] There is an understanding that inclusion of Indigenous knowledges requires multiple strategies for reconsidering the existing system" (pp. 156-157). For her, the process of opening spaces for Indigenous approaches and ways of being "is about acknowledging an Indigenous cultural worldview and identity, which has long been

a site of contention in this land. It is about recognizing the unique situation of Indigenous people that differentiates this group from other minorities. To this end, historical relations must be acknowledged or else transformative efforts will be blocked" (p. 158).

MacKinnon (2015) discusses the legacy and ongoing impacts of these historical relationships both on employment and on wider factors:

> In light of the statistics that show Aboriginal people to be doing comparatively poorly on a number of indicators, it is important that interventions be built from an understanding of the historical context that has shaped their lives….Rather, these [challenges] are directly related to the damaging legacy of colonialism, systemic racism, intergenerational poverty, and the many challenges that intergenerational poverty creates (p. 40).

While both Kovach and MacKinnon see value in post-secondary education, they each caution that approaches taken by institutions must be responsive to the historical contexts and the current needs and aspirations of Indigenous people and communities. For example, Kovach (2009) argues that

> Indigenous access to post-secondary education is critical, yet such education must not infringe on Indigenous peoples' ability to preserve their culture. Infusing Indigenous knowledges into the academy occurs only because of transformative efforts by Indigenous peoples committed to ensuring Indigenous access to a relevant post-secondary education. … In this effort, they have implemented multiple strategies to ensure that higher learning (involving both pedagogy and methodology) is not a mechanism of assimilation but a tool for cultural survival (p. 162).

Ensuring that post-secondary education can be used by Indigenous people and communities as a tool for their cultural survival entails for MacKinnon (2015) the recognition that

> Understanding the importance of decolonization — including reclaiming of cultures as a critical form of learning that strengthens self-awareness and [/] self-esteem and builds much-needed positive social networks — is important for policy makers concerned with the social and economic outcomes of Aboriginal people in Canada. This is especially so at a time when education and training is increasingly tied to the needs of industry, and governments are not inclined to invest in a comprehensive network of programs that are not explicitly market focussed (pp. 72-73).

She focuses on two aspects of decolonization: of the classroom or program experience, and of the curriculum and program content (both individual identity and structural/historical aspects (pp. 73-76), and draws on interviews with participants to illustrate their experiences in training programs (ch. 5).

An example of the work of Indigenous educators and allies to provide relevant job preparation opportunities for Indigenous students is the LE,NONET suite of programs at the University of Victoria in British Columbia, Canada.

LE,NONET AT UNIVERSITY OF VICTORIA

LE,NONET offers an integrated suite of services and programs with the aim of supporting Indigenous students. These include bursaries (based on identified financial need), a leadership and mentorship program (Campus Cousins), and academic programs including experiential learning opportunities (both on campus and in Indigenous communities). The services and programs offered build upon work done as part of a 4-year research project, funded by the Canadian Millennium Scholarship Foundation (Hunt, Lalonde, & Rondeau, 2010). The researchers characterize the work undertaken in this way:

> During the consultation process, the central question of success emerged as the main focus of the project: What constitutes success in [Indigenous] [3] students and communities, and how can post-secondary institutions support [Indigenous] students to succeed on their own terms? Several key elements were identified as vital to the development of programs to support [Indigenous] student success: affirm the

[3] The report of the LE,NONET project uses "Aboriginal," but in the time since its publication UVic has switched to using "Indigenous."

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student as a whole person, using a holistic approach; acknowledge and reinforce [Indigenous] identity; foster [Indigenous] community; value [Indigenous] practices and ways of knowing; support students financially; and raise the awareness of university staff and faculty of how to make the learning environment more welcoming. Moreover, participants in the project development process emphasized that, in researching the impact of the program, it would not be enough to tally increases in grade point average (GPA), rates of return, and graduation among LE,NONET program participants as compared to a pre-LE,NONET cohort or some other control group. It would be equally important to explore [Indigenous] students' concepts of success and to document the effects of the programs on the students' sense of self-worth, cultural identity, and belonging within the [Indigenous] and academic worlds" (Hunt et al., 2010, p. 6).

The research identified six key principles and best practices for programs and services supporting Indigenous student success: reciprocal learning, supporting Indigenous identity development, culturally relevant programming, community building, relationship building, and individualized programming (see Appendix 1).

UNIVERSITY OF VICTORIA INDIGENOUS INTERNATIONAL WIL EXCHANGE: THE CASE STUDY

Building on the work being done at UVic and in surrounding Indigenous communities, particularly the LE,NONET experiential learning programming and UVic's Co-operative Education Program and Career Services (Co-op & Career), and drawing on the six values identified in the research project, the LE,NONET team worked with Co-op & Career colleagues to develop an international Indigenous WIL exchange program. With financial support from the Canadian Queen Elizabeth II Diamond Jubilee Scholarship program, Indigenous students from UVic had the opportunity to complete a WIL term at the University of Newcastle's Wollotuka Institute in Australia, while students from the Wollotuka Institute completed an academic term at UVic followed by a community internship (Ramji et al., 2016).

As with all students who embark on an international WIL term (UVic students completed 345 international WIL placements in 2016/17), the outgoing students participated in a pre-departure preparation course. In addition to the logistical and risk management aspects of international travel, this course incudes a component of UVic Co-op & Career's Intercultural Competency Development Curriculum that is based on Earley and Ang's cultural intelligence framework (McRae & Ramji, 2017).

Cultural intelligence (CQ) is one's ability to be effective in intercultural contexts (Earley & Ang, 2003). The motivational, cognitive, meta-cognitive, and behavioural dimensions of CQ are powerful tools that can help students develop capability to be effective in intercultural interactions (McRae & Ramji, 2011; McRae & Ramji, 2017; McRae, Ramji, Lu & Lesperance, 2016, Livermore, 2015). Cultural intelligence prompts one to reflect on the following questions:

- What motivates me to succeed in this intercultural encounter or context? (CQ-Drive, the motivational dimension)

- What knowledge do I need to succeed (CQ Knowledge, the cognitive dimension)

- How can I plan for this experience so that I can be successful? (CQ Strategy, the meta-cognitive dimension)

- What behavioral adaptations, if any, do I need to take to enhance my chances of success? (CQ Action, the behavioural dimension)

This curriculum has enabled students engaging in international WIL placements to anticipate challenges they may encounter as a result of cultural differences, and prepare themselves to be effective in these circumstances (McRae & Ramji, 2017). The UVic Indigenous students participating in this exchange completed this course. They also completed the LE,NONET Preparation Seminar which prepares students to work within Indigenous communities while exploring ethical considerations when undertaking these projects. In preparing the students in this way, the exchange program recognizes the diversity of Indigenous student participants, who come from various levels of understanding and experience with Indigenous ways of knowing and being, dependent on their identity and

upbringing. A traditional Indigenous farewell ceremony was also conducted to send them off in a culturally appropriate way with blessings from Elders.

During the WIL term, the students were supported by UVic and Wollotuka staff to ensure that they had a meaningful learning experience and met their learning objectives. A competency framework enabled the students to develop their core competencies (such as personal management, research analysis, etc.) and their intercultural competencies.

Upon return to UVic, the students received a traditional Indigenous welcome ceremony with blessings from Elders, engaged in debriefing sessions with UVic staff, and presented their learnings and reflections at a gathering of Indigenous Elders, students, faculty, staff and members of the local Indigenous communities. They also completed co-op work term reports where they reflected on their international experience. Finally, an important component of the program was the connection to the incoming exchange student from Australia that students were introduced to and developed friendships with, resulting in an effective peer support system for students in their host countries.

THE RESEARCH STUDY

> There is much to be learned from speaking with those who have participated in training programs, and many are willing to share their experiences. … Learning of the positive experiences through conversations with training graduates provides hope. It also provides instructive lessons for policy makers. (MacKinnon, 2015, p. 163).

The UVic Indigenous International WIL Program is unique in that it combines current trends in WIL, internationalization, and Indigenization. The intersection of these three trends in this program, and the unique characteristics of WIL, international WIL and Indigenous WIL present an opportunity for unique and valuable programming as well as a challenge that presents great risks if not planned and executed correctly. This research study, for which human ethics approval was obtained, provides insight into critical success factors for UVic's Indigenous International WIL Exchange Program. Our preliminary analysis is based on interviews with two of the first three participants who travelled from UVic for a WIL placement at the Wollotuka Institute at the University of Newcastle in Fall 2016.[4]

METHODOLOGY

In-depth qualitative research was used to collect and analyze data from two participants to gain rich understandings of the value of Indigenous-to-Indigenous WIL experiences and how to build a successful Indigenous International WIL program. The study explored the program elements before, during and after the student experience that helped them prepare for their international WIL experience, the experience itself, and the outcomes.

KEY THEMES EMERGING FROM THE RESEARCH

By using the LE,NONET key principles and best practices as a framework, we can begin to explore ways to decolonize WIL. The key themes that emerged from the interviews are summarized below.

Reciprocal Learning

The students identified reciprocity as a shared cultural value between Indigenous people in both countries, and a strategy to assist them in their future intercultural encounters. They reported that giving back knowledge to those who were sharing with them was very important. They found that sharing their own stories, traditions, and experiences in Canada helped to begin a reciprocal sharing relationship.

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[4] The first UVic participant, who also completed a placement at the Wollotuka Institute in Fall 2015, was not included in the research.

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Supporting Indigenous Identity Development

The students' own Indigenous identity was strengthened by reflecting on their own rationales for being in Australia, the impact of their presence, what it means to be an Indigenous person, and how to enter someone else's territory in a good way. They felt stronger as an Indigenous person by sharing their own cultural teachings and through the realization of how much cultural knowledge they had to share, particularly the relationship to the land and how to engage with the land, plants and animals. Furthermore, they deepened their own knowledge of the similarities and differences between two international Indigenous cultures by comparing the Indigenous experience in Canada to that in Australia. They highlighted Indigenous ways of knowing the importance of learning protocols and how to be respectful and ask questions in a culturally appropriate manner.

Culturally Relevant Programming

The culturally relevant content of the LE,NONET Preparation Seminar course that the students took prior to prior to departure helped prepare them to apply theory and methodologies on how to conduct work and research in Indigenous communities in a respectful manner. The Co-op course helped with logistical aspects of their travels, but the students did not realize the value of the intercultural competency aspect of the course, despite the fact that it was intended to provide them with a framework by which they could navigate cultural differences, including Indigenous cultures.

Upon arrival in Australia, a welcome to the territory was held to welcome them to Australian Indigenous land and acknowledge the students were a part of their new community. The students identified similarities with Canada, as Australian Indigenous people also experienced disconnection from their communities, culture, language, and land due to the colonial legacy. This experience reaffirmed the similarity of Indigenous peoples' relationship to the land and the animals, and a respect for Elders as knowledge keepers for their language, culture and history. The Elders took the students out onto the land to culturally significant sites, shared stories, and introduced them to others. One student reported the most significant part of the experience was learning about the Australian Indigenous culture, oral history, creation stories, the animals, and the land. Indigenous relationships between people and the land is an integral part of Indigenous ways of knowing and being.

Community Building

Having strong mentors during their stay made a positive difference and helped the students grown and learn. Mentors also influenced the students' conduct in future community engagements, and how they will support and mentor others who participate in the future. Students engaged in on-campus community-based experiences, including barbecues, time with Elders and peers, and participation in health focused programs. Of greater significance were the off-campus community-based opportunities, such as visits to Indigenous communities; a mission visit where health, language, and economic development programs were shared; and Elder led land-based opportunities providing the students with Indigenous cultural teachings such as viewing cave paintings, the sharing of dreaming and creation stories, and knowledge about plants and animals and how to navigate safely on the land.

An important requirement of the Queen Elizabeth Scholarship Program is the community engagement component where students have opportunities to develop their leadership, project management, and intercultural competencies. The students reported initially feeling overwhelmed by this part of their exchange, but one student said it was the most beneficial and rewarding part of the exchange. They really appreciated getting out of the office and having a chance to engage with community.

The community building opportunities enriched and enhanced the exchange by allowing opportunities to speak to the local Indigenous people. The students plan to use the experience they gained in their future Indigenous community engagements by being respectful Indigenous travellers, applying their community building skills, and remembering the importance of sharing as much as possible with the community they are working with as well as the community they are coming home to.

Relationship Building

Lifelong relationships were built with Australian hosts, and both parties were able to identify similarities between cultures and the history of colonization. Mental health was improved and feelings of isolation were decreased by developing friendships, spending time with Elders, and acknowledging the gift of receiving cultural teachings. Sharing Indigenous ways of knowing and being was accomplished by developing relationships and establishing trust. Building relationships with Elders was essential for the students as they shared cultural protocols and provided support. Peer relationships were key, as they included the students in meetings, events and land-based opportunities. One student reported that even though the work experience was beneficial, the impromptu conversations with people was even more important. Building and maintaining a relationship with the previous Australian international exchange student was identified as a key connection. Another way that relationships were formed was through the International student hostel where the students lived during their exchange, as they connected with other Indigenous international students.

Individualized Programming

Both students had self-directed work terms. The first, an Environmental Studies student, focused on a pond restoration proposal, worked on online lectures, and conducted some lectures with the other Canadian international exchange students. The other student was from Anthropology and worked on researching and adding Indigenous curriculum in four different departments and delivered lectures to undergraduate classes. As part of their program requirements, they both created a self-directed community engagement project, and delivered lectures in Aboriginal Studies classes in several high schools. They focussed on similarities and differences in Indigenous cultures and issues for Indigenous people in Canada.

IMPLICATIONS

Holding information sessions with previous program participants was very helpful and was a deciding factor for students to participate. Prior to departure an Indigenous specific preparation course is very helpful to allow students an opportunity to reflect on what it means to be Indigenous and how to conduct oneself in a culturally appropriate way in Indigenous communities. It was evident that the Co-op course needs to be more explicit about the value that the cultural intelligence framework provides within the context of Indigenous cultures. The course was not assessed as helpful by the students because they felt it was geared towards a regular exchange rather than an Indigenous specific one. While the students may not yet appreciate the usefulness of this framework, their learnings (based on the themes that emerged, and the experiences they shared) lend themselves well to this framework, and anecdotal evidence suggests that they did in fact develop their cultural intelligence during their experience. The students' understanding of the Indigenous cultures in Canada and Australia, their ability to think through cultural differences and have effective interactions with Indigenous and non-Indigenous communities in Australia, one could argue, demonstrated their CQ in action.

Elder participation is key to providing support for students. Having a key point of contact for co-op staff and advisors both at the students' own institution and the receiving institution makes an easier transition to the new environment. Both students had previous international experiences, which assisted them to make friends quickly to counteract isolation, homesickness and loneliness upon first arriving to their new environment. The Queen Elizabeth Scholarship was crucial to provide access to this opportunity, and they would not have been able to go without this financial assistance. Building a relationship with the previous Australian international exchange student was really beneficial, as this person became their main support when they arrived, with introducing them to others, showing them around, and helping them get set up.

MOVING FORWARD: THE WORK TO COME

Undertaking the work of decolonization means not only changing how we think but also what we do and how we do it. In the context of WIL, and based on the LE,NONET values and knowledge gained through our preliminary analysis of the LE,NONET international Indigenous exchange, we have identified three areas that we think will

benefit from specific, intentional attention and provide opportunities for professional development for WIL practitioners. As Kovach (2009) notes, "…engagement with Indigenous knowledges means engagement with Indigenous peoples, communities, and cultures. In many instances it may demand taking direction from Indigenous communities" (p. 172)

Changing Assumptions and Expectations

In many ways, the work of decolonization challenges practitioners to put their cultural intelligence into action as they think through the development of Indigenous programming and how they can be developed with due respect given to Indigenous cultural values and teachings. The extent to which we are motivated to decolonize our programs (CQ Drive) will determine the effort we will make to understand Indigenous cultures and their values and teachings, a key component of developing one's CQ Knowledge. This will in turn determine how we plan Indigenous programming (CQ Strategy), including checking our assumptions and adjusting our understanding when actual experiences differ from expectations. While much of the research shared earlier in this paper speaks to the assumptions that are often made when thinking about Indigenous peoples, a direct outcome of this research project has already highlighted the need to make more explicit the applicability of the cultural intelligence model to this Indigenous exchange in the Co-op course (CQ Action).

Changing Language

In order to change the language of WIL we must move away from referencing Indigenous peoples education and economic circumstances from a deficit model approach and shift to strength-based approaches that value Indigenous knowledge and paradigms, specifically Indigenous cultural competency.

The results of this research spoke to the effectiveness of the LE,NONET principles and best practices in providing a meaningful experience for the students. Reflecting back on the initial conversations during the conceptualization stage of the UVic Indigenous International WIL program, and what has been achieved to date, the value of reframing challenges as opportunities cannot be underestimated. What seemed like challenges in the early days worked out as we addressed issues that came up with the new program. These challenges provided opportunities for improvements, and has resulted in all staff, particularly the non-Indigenous staff involved in this project with great learning about the Indigenous ways of knowing and being. The focus on the spiritual experience exhibited by students' connection to the land and ancestors has inspired us to think about how we can make all our programming spiritually rewarding – an example of strength-based Indigenous knowledge and a good first step toward decolonizing WIL.

Changing Work-Integrated Learning

WIL programs have certain key aspects and programmatic components (Khampirat & McRae, 2016), (McRae & Johnston, 2016) that can be examined with the intention to decolonize. The key aspects for WIL programs include considerations of pedagogy, the experience, assessment and reflective practises. This project demonstrated the importance of including Indigenous content in the preparatory pedagogy that typically focusses on preparing students for a WIL experience. Including Indigenous content also involves supporting Indigenous knowledge development throughout the experience and opportunities to share knowledge gained in the spirit of reciprocal learning. The WIL experience needs to provide meaningful opportunities for the application of disciplinary knowledge and the development of skills and attributes and in addition provide opportunities for Indigenous students to engage with the land, Elders and Indigenous community in order to strengthen the Indigenous student's identity development, self-determination and Indigenous networks. Assessment opportunities should be culturally safe, relevant to all aspects of the experience and conducted by someone who has a respectful relationship with the student in addition to an understanding of the context of the WIL experience. WIL reflection requirements might include reflections with a broader community than the student and their WIL coordinator. The learning gained from the WIL experience might be shared with fellow students, Elders, and Indigenous community members.

Programmatic components of WIL programs include considerations made by the institution, the employer host organization and the student before, during and after each experience (Khampirat & McRae, 2016). In addition to these components, institutional staff and non-Indigenous employers and students would benefit from Indigenous cultural safety training, such as offered at the University of Victoria. This training helps non-Indigenous people consider their own beliefs and practices and work towards the challenging task of decolonizing one's mind and heart.

To ensure WIL experience success, support structures to ensure cultural safety such as mentors, Elders, and peers, and additional financial resources should be put in place. Extra efforts should be made to build and maintain mutually respectful relationships with students that are based on an understanding of Indigenous cultural practices and colonial history and that acknowledge the prevalence of racism and the long term effects of intergenerational poverty (Kovach, 2009; MacKinnon, 2015). Finally, the institution must ensure that Indigenous students have WIL experiences that re-inforce, not undermine, their Indigenous identity. Employers might provide welcoming events, connect students with Indigenous community members and Elders in addition to providing relevant experiences. Employers might offer students opportunities to engage with the land and participate in community-engagement initiatives in addition to their work responsibilities.

CONCLUSION: A DECOLONIZED WORK-INTEGRATED LEARNING

In a decolonized WIL program indigenous students and communities would experience a welcoming, respectful, relevant and mutually beneficial program. Such a program would provide expected positive outcomes from WIL such as the strengthened understanding of disciplinary knowledge, the development of skills and abilities as well as the additional outcome of Indigenous students who have a deepened their sense of identity, strengthened their agency and expanded their indigenous network. Indigenous students with these capabilities will have increased capacity to contribute to the wellbeing of their communities, to the knowledge in the academy and to the further dismantling of the damaging legacy of colonialism.

REFERENCE

Earley, P. C., & Ang, S. (2003). Cultural Intelligence: Individual Interactions Across Cultures. Stanford, CA.: Stanford University Press.

Hunt, S., Lalonde, C. E., & Rondeau, Y. (2010). Supporting Aboriginal Student Success: Report of the LE, NONET Research Project: University of Victoria.

Khampirat, B., & McRae, N. (2016). Developing global standards framework and qualtiy integrated models for cooperative and work-integrated education programs. Asia-Pacific Journal for Cooperative Education, 17(4), 349-362.

Kirkness, V. J., & Barnhardt, R. (1991). First Nations and higher education: The four R's—Respect, relevance, reciprocity, responsibility. Journal of American Indian Education, 1-15.

Kovach, M. (2009). Indigenous methodologies: Characteristics, conversations, and contexts: University of Toronto Press.

Livermore, D. (2015). Leading with Cultural Intelligence: The real secret to success. New York, NY: American Management Association.

MacKinnon, S. (2015). Decolonizing Employment: Aboriginal Inclusion in Canada's Labour Market: Univ. of Manitoba Press.

McRae, N., & Johnston, N. (2016). The development of a proposed global work-integrated learning framework. Asia-Pacific Journal for Cooperative Education, 17(4), 337-348.

McRae, N., & Ramji, K. (2011). Enhancing cultural intelligence through cooperative and work-integrated education. In R. Coll & K. Zegwaard (Eds.), International Handbook for Cooperative and Work-Integrated Education (Second ed.). Lowell, MA: World Association for Cooperative Educaiton, Inc.

McRae, N., & Ramji, K. (2017). Intercultural competency development curriculum: A strategy for internationalizing work integrated learning for the 21st century global village. In M. D. a. T. Bowen (Ed.), Where are we headed: work-integrated learning for the 21st century global village: Emerald Publishing.

McRae, N., Ramji, K., Lu, L., & Lesperance, M. (2016). Developing Global Ready Graduates: The CANEU-COOP Experience. Asia-Pacific Journal of Cooperative Education, Special Issue, 17(4), 377-386.

Ramji, K., McRae, N., Hancock, R. L. A., & Kines, L. (2016). Indigenous WIL Exchange: Lessons from the University of Victoria, Canada — University of Newcastle, Australia Experience. Paper presented at the 2nd International Research Symposium on Cooperative and Work-Integrated Education.

Truth and Reconciliation Commission of Canada. (2015). Honouring the Truth, Reconciling for the Future: Summary of the Final Report of the Truth and Reconciliation Commission of Canada. Retrieved from https://www.google.ca/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwiR99DupOLYAhUD-2MKHUz8C2gQFggpMAA&url=http%3A%2F%2Fwww.trc.ca%2Fwebsites%2Ftrcinstitution%2FFile%2F2015%2FFindings%2FExec_Summary_2015_05_31_web_o.pdf&usg=AOvVaw17n_j6qnkGYX9dtYop-DTa.

LE,NONET Key Principles and Best Practices

Reciprocal Learning	Students have opportunities to share their thoughts, knowledge, and experiences, as well as to learn from the skills and knowledge of professors, staff, mentors, and other students. Students have as much to offer as they have to gain and to know that their perspective is valued.
Supporting Indigenous Identity Development	Students feel seen and respected as Indigenous people. Students from diverse backgrounds and identity perspectives (rural, urban, culturally grounded, displaced, Métis, First Nations, Inuit, and other) are valued and supported. Indigenous identity is multifaceted and complex, and this diversity is given room to grow.
Culturally Relevant Programming	Cultural activities and knowledge are integrated into programs for students. This includes the use of local traditional practices, involvement of local elders, and the incorporation of students' own cultural teachings into the program activities.
Community Building	Indigenous students are provided with a space in which a sense of community is facilitated, encouraged, and supported. Students have opportunities to build ongoing connections with Indigenous faculty, staff, and other students on campus, as well as with the broader Indigenous communities off campus. Community is developed out of a sense of being cared for, nurtured, valued, and embraced as a whole person; extended family is also welcome, including children and partners.
Relationship Building	Students develop lasting relationships with Indigenous faculty, UVic staff, community members, and other students. Relationship building is seen as a central part of program delivery, including continuation of staff in key positions. Staff and faculty develop meaningful connections with students that are nurtured from year to year.
Individualized Programming	An intersectional understanding of individual students' lives includes taking cultural practices, community needs, academic area of study, personal learning needs, and other factors into account. Programs include opportunities for students to develop their own strengths and interests, and allow enough flexibility for students to succeed on their own terms.

(Hunt et al., 2010, p. 106)

Identifying work-integrated learning capacity building needs of academics in faculties of education at South African universities

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ABSTRACT

The growing interest in best practice and staff capacity development in terms of work-integrated learning (WIL) resulted in the publication of the South African policy that guides staff capacity development in the Technical and Vocational Education and Training (TVET) sector (RSA, 2013).. According to this policy, the lecturers' certification and professional development should include both school-based teaching practice and industry-based WIL. This requirement had implications for staff in education faculties of universities as these faculties have to design and offer staff development programmes and qualifications for the TVET staff. The current challenge for South African universities is that the focus of teacher education has been on school-based teaching practice and not on industry-based WIL. This challenge resulted in a national WIL capacity building intervention by the Teacher Education Directorate of the South African Department of Higher Education and Training (DHET), in collaboration with the European Union (EU). The purpose of the intervention was to enable 14 South African education faculties to strengthen the development of the WIL component of TVET staff qualifications through coordinated national training workshops. This paper presents the research findings on industry-based WIL capacity building needs of staff in education faculties that were identified during the first workshop of the College Lecturer Education Project (CLEP), using focus group interviews. The purpose of the needs analysis was to use the needs to plan and conduct capacity building workshops that could not only be responsive to identified staff needs but also be effective in terms of enabling staff in education faculties to develop a national WIL curriculum framework for TVET staff qualifications. Qualitative research approaches were used to collect and analyse data. The research findings highlighted numerous WIL capacity building needs as well as the need for staff capacity development in terms of industry-based WIL. The paper calls for the development of international collaborations to strengthen the WIL components of staff qualifications for both the TVET and university sectors. Such initiatives could contribute to effective and efficient planning and implementation of WIL by staff in order to enhance students' employability skills and provide an enabling environment for students to make a significant contribution to economic growth and social development of their countries.

Keywords: Capacity building; Professional development; Work-integrated learning; Teacher Education

INTRODUCTION

In South Africa there is a growing interest in staff capacity building and best practice in terms of work-integrated learning (WIL). This interest stems from a general belief that, if WIL is planned and implemented effectively and efficiently, students' employability skills are enhanced and students become work ready upon graduation. As staff are responsible for effective and efficient planning and implementation of WIL, staff development through WIL-related formal qualifications in the Technical Vocational Education and Training (TVET) sector is encouraged. Staff capacity development in the TVET sector is guided by the policy framework for TVET lecturers (RSA, 2013). This policy framework requires that lecturers' certification and professional development includes both school-based teaching practice and industry-based WIL. This requirement has implications for staff in education faculties of universities as education faculties have to design and offer staff development programmes and qualifications for the TVET sector. The challenge is that the focus of teacher education in education faculties of South African

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universities has been on school-based teaching practice and not on industry-based WIL. In response to this challenge and the shortage of educators in the TVET sector, the Teacher Education Directorate of the Department of Higher Education and Training (DHET), in collaboration with the European Union (EU), developed and funded a College Lecturer Education Project (CLEP) to enable South African education faculties to strengthen the development of the WIL component of TVET staff qualifications. This project provided opportunities for 14 universities to come together and develop a national WIL curriculum framework for TVET staff qualifications through participation in coordinated WIL national workshops that are planned to run from March 2017 to March 2020.

WORK-INTEGRATED LEARNING

Within the Technical and Vocational Education and Training (TVET) context, Work-integrated learning (WIL) has been identified as a pedagogical approach for enhancing student employability. According to Schmidt, (1999) employability skills that should be enhanced through WIL include solving complex multidisciplinary problems, working successfully in teams, exhibiting effective oral and written communication skills and practising good interpersonal skills. The importance of preparing students to enter the world of work through WIL in the post school education and training system has been documented by several authors (Cole and Thompson, 2002; Evers, Rush and Berdrow, 1998; Martin, Milne-Home. Barrett, Spalding and Jones, 2000; Peddle, 2000). It is generally accepted that, if WIL is well-planned and implemented effectively and efficiently, students' employability skills are enhanced and students become work ready upon graduation. WIL is defined by the Council on Higher Education as an umbrella term to describe curricular, educational and assessment practices, across a range of academic disciplines that integrate formal learning and workplace concerns. The integration of theory and practice in student learning is seen as occurring through a range of WIL approaches. Examples include: action-learning, apprenticeships, cooperative education, experiential learning, inquiry learning, inter-professional learning, practicum placements, problem-based learning, project-based learning, scenario learning, service-learning, team-based learning, virtual or simulated WIL learning, work-based learning, work experience, workplace learning, and so on (CHE 2011).

With the introduction of the revised South African National Qualifications Framework as a single integrated system comprising of thee sub-frameworks, work-integrated learning is also included as an integral component of various vocationally oriented qualifications in the Higher Education Qualifications Sub-Framework (HEQSF). (CHE, 2013::16).

The guidelines for WIL practice are documented in the South African legislative framework and official documents that include the Higher Education Qualifications Sub Framework (HEQSF), the White Paper on Post School Education and Training, the National Skills Development Strategy 111 and the Council on Higher Education.

The Higher Education Qualifications Sub Framework (HEQSF) (2012: 49) states that

> Where the entire WIL component or part of it takes the form of workplace-based learning, it is the responsibility of the institutions that offer programmes requiring credits for such learning, to place students into appropriate workplaces. Such workplace-based learning must be properly structured, properly supervised and assessed.

The National Skills Development Strategy 111 highlights the need for higher education institutions to enter into agreements with Sector Education and Training Authorities (SETAs), and other stakeholders in order to increase opportunities for workplace learning This strategy also makes it clear that it has become necessary to make university degrees 'work-relevant' and to produce graduates that would, in time, supply the workforce with the skills needed to drive economic growth (Department of Higher Education and Training, 2011).

STAFF DEVELOPMENT

As staff are responsible for effective and efficient planning and implementation of WIL (which is a cornerstone for TVET), the need for staff development through formal qualifications in the TVET sector is documented (RSA, 2013;

Cosser, 2010; Wessels, 2005). It is generally accepted that, for the education and training system to provide quality WIL programmes (Baldwin and Rosier, 2017), requires high quality teachers to enhance the quality of teaching and learning (Cosser, 2010). In line with this view, Wessels (2005: 51) points out that it is essential for academic staff to "monitor the progress of the students in terms of pre-defined learning objectives for the programme, in order to maintain an effective system of work-integrated learning." Staff capacity development in the South African TVET sector is guided by the policy framework for TVET lecturers (RSA, 2013). This policy framework requires that lecturers' certification and professional development includes both school-based teaching practice and industry-based WIL.

This requirement has implications for staff in education faculties of universities as education faculties have to design and offer staff development programmes and qualifications for the TVET sector. The challenge is that the focus of teacher education in education faculties of South African universities has been on school-based teaching practice and not on industry-based WIL. In response to this challenge and the need for qualified educators (European Union, 2014) and relevant curriculum (Gamble, 2006), in the TVET sector, the Teacher Education Directorate of the Department of Higher Education and Training (DHET), in collaboration with the European Union (EU), developed and funded a College Lecturer Education Project (CLEP) to enable South African education faculties to strengthen the development of the WIL component of TVET staff qualifications. This project provided opportunities for 14 universities to come together and develop a national WIL curriculum framework for TVET staff qualifications through participation in coordinated WIL national workshops that are planned to run from March 2017 to March 2020. The WIL workshops aim at building capacity that responds to the growth and development of all stakeholders (Egbo (2011). It is envisaged that such qualifications will lead to improved WIL staff practice which will, in turn, enhance student employability in the TVET sector.

TRAINING NEEDS ANALYSIS (TNA)

Much has been written on the importance of identifying training needs before any training intervention is implemented **(**Cekada, 2010; Bowman and Wilson, 2008; Brown, 2002). An identification of training needs is regarded as the first step that is usually followed by course planning, delivery and evaluation. Training is therefore viewed as a planned and continuous process that is designed to meet staff training needs through increasing knowledge and improving skills, which, in turn, enable organisations to improve their performance and adapt to any new change (Iqbal and Khan, 201; McClelland, 2002).Without this first step, there can be no evidence that the whole training process was correctly designed (Anderson, 1994; Bowman and Wilson, 2008, Goldstein 1993). Studies suggest that only when there is a match between training needs and the content of training, can beneficial outcomes to organizational performance be realized (Van Eerde, et al, 2008)

The research findings on the purpose of conducting training needs analysis indicate that some studies conduct TNA for training plans, goal setting, employee development, managing change, career development, knowledge, skills, and attitude, learning motivation, cost effectiveness, and performance appraisal. These nine major human resource management and development areas reveal different uses of TNA (Iqbal and Khan 2011).

In terms of TNA models, studies make a distinction between the organisation-task-person analysis framework (O-T-P model) which arises from an investigation of training needs to meet organisational needs, task or job needs, through to the particular needs of the individual or person, and the performance analysis model which considers gaps between expected and current performance as needs for training (Clarke, 2003; Holton et al., 2000). .

THE NEED FOR WIL PARTNERSHIPS

Several studies regard partnerships as central to WIL **(**Du Plessis, 2013; DHET, 2013; HRDC, 2014). In line with this view the South African Department of Higher Education and the Human Resource Development Council for South Africa (HRDC) (2014) encouraged partnerships between all stakeholders to ensure that the outcomes of the TVET sector are achieved. Such stakeholders include Higher Education Institutions (HEIs), industry, TVET colleges, government departments and international partners (DHET, 2013). There are increasing calls for collaborative development of programmes that will benefit TVET lecturers and students. These calls are in line with enthusiasm

around the world for greater participation and active involvement of the wide variety of interest groups in order to address the social and economic needs of the people (Teichler 2000; Foster and Stephenson 1998; Garrick and Kirkpatrick 1998). Such enthusiasm stems from a belief that co-operative generation and application of knowledge and expertise could contribute to finding solutions to local, national and international demands. An integrated holistic approach to development that focuses on the facilitation and strengthening of partnerships towards achieving holistic and sustainable development, is recommended (Wessels, Mosime and Seitheisho, 2000. According to Mullinix (2001) partnerships are becoming an essential component of educational reform.

THEORETICAL FRAMEWORK

This paper supports the notion that WIL is rooted in the theories of constructivism and experiential learning that place emphasis on the importance of learner involvement, experience and engagement. Literature regards experiential learning as the pedagogical foundation for WIL because WIL connects students' experience to reflection and analysis in the curriculum, and transforms learners by helping them revise and enlarge knowledge and alter their practice.

RESEARCH APPROACH

A qualitative research approach was used in an attempt to answer the following research question: Why is WIL staff capacity development necessary, and what form should it take? (How should it be offered)?

It was envisaged that the research findings would indicate the extent to which staff in education faculties need WIL capacity building and the manner in which the WIL capacity building intervention should be conducted.

Data Collection

Focus group interviews were conducted with staff in education faculties of 14 South African universities who were selected to represent their universities in the college lecturer education project of the Teacher Education Directorate which forms an integral part of the South African Department of Higher Education and Training. The interviews were designed and conducted in relation to staff professional development needs in terms of WIL.

Purposive sampling was used to select the participants for this study. In this case the participants were academics from the faculties of education of universities that are required by the DHET to build capacity and integrate industry-based WIL in new professional programmes and qualifications for TVET college lecturers. The entire population cannot therefore be studied because of feasibility and cost constraints, and hence, a representative sample should be selected from the population of interest for observation and analysis (Kothari, 2004:65). t was vital to explore the needs of the participants to ensure relevant planning of a national WIL capacity building initiative.

RESEARCH FINDINGS

Understanding WIL Capacity Development Needs of Staff in Education Faculties

The following section presents the research findings that attempted to provide answers to three questions:

The first question required the participants to indicate if they needed capacity development in terms of WIL or not and to provide reasons for their answers. The responses of the participants indicated that staff in education faculties of universities needed WIL capacity building. Various reasons that were given include:

- To enable the participants to develop and offer the WIL components of TVET staff qualifications that are being designed with the intention to offer them in 2020.

- To gain theoretical knowledge on teaching, learning, assessment and curriculum in WIL

- To enhance the participant's teaching, learning, assessment and curricular practices in WIL

- To learn about innovative teaching, learning, assessment and curricular practices in WIL

- To learn through reflection on teaching, learning, assessment and curricular practices in WIL

- To produce knowledge on teaching, learning, assessment and curricular practices in specific disciplines/professional programmes

- To initiate and maintain WIL partnerships

- To comply with the 2013 policy on certification and professionalization of staff in the TVET sector which does not only promote teaching practice but also industry-based WIL.

When the participants were asked to indicate what they would like to learn to enable them to plan, facilitate and assess industry based WIL effectively and efficiently they mentioned the following needs:

Planning Work-Integrated Learning

- To liaise or create networks with industry or establish a working relationship with industry.

- To go and observe what is happening in industry

- To integrate industry knowledge and practice into the lesson plan.

- How to incorporate learning from workplace into the curriculum when the lecturer returns from industry / To ensure relevance of university curriculum to industry

- To understand the legislative framework for WIL

- "I am interested to know how the government expects us to do WIL and why"

- Various ways, processes and procedures for preparing college staff and workplace mentors.

- Development of WIL/WBE materials

- To understand the theoretical/ conceptual framework for WIL

- Alignment of theoretical learning with practice-based learning.

- Curriculum design and development for WIL.

- Understand the difference between teaching practice and industry-based WIL

Facilitating Work-Integrated Learning

- Innovative teaching and learning methodologies – how to present learning content in creative ways.

- Curriculum administrative skills – filling lesson plans, designing and filling moderation

- plans, preparation of evidence

- Techniques to bring industry into the classroom – bringing industry experts into the classroom.

- Ways to enhance WIL through community engagement

- Development of WIL Strategies at universities and the structures that support WIL

- Understand curricular and pedagogical implications of work-integrated learning

Assessing Work-Integrated Learning

- WIL assessment systems, processes and procedures used by lecturers and workplaces

- How to design and manage practical assessments and integrated assessments/ Designing effective assessment tools for WIL

- Involvement of industry stakeholders in curriculum development and assessment.

Managing and monitoring Work-Integrated Learning

- Development of institutional policies

- Legal aspects of WIL, for example, Signing of MOUs, Service level agreements and other legal documents

- Computer skills for laying out WIL learning materials/logbooks

- Information sharing and advocacy for WIL

- Computer skills to layout WIL learning materials/logbooks

- Understand relevant ICTs or facilitating and managing WIL

- Gain an understanding of human resource-related topics that are linked to Skills Development Fund, and WIL philosophy and other WIL related concepts (e.g., Service learning)

- Develop quality management systems for WIL

Initiating and Maintaining Work-Integrated Learning Partnerships

- Engagement with employers and other stakeholders – creating partnerships,

- How to maintain sustainable WIL partnerships

- How to involve partners and make university offerings relevant and produce college lecturers that are competent to facilitate WIL.

Conducting Work-Integrated Learning Research

- How to measure the impact of WIL

- Conducting International research on best WIL practice for benchmarking purposes

- Investigate modern technology used in industry and ensure its availability in classroom settings.

- Career progression and the creation of pathways for lecturing staff

- Resources that are needed for WIL

- Funding models for WIL

- The responses of participants to the question that attempted to find out how they would like capacity building to be offered indicated that staff in education faculties prefer the following modes of delivery:

- WIL capacity building workshops

- Short courses on industry-based WIL that provide opportunities to interact with industry

- Block sessions to be conducted during holidays or at designated times of the year.

- A combination of contact sessions and online independent learning

DISCUSSION

From the research findings it is clear that staff in education faculties have a long list of capacity building needs in terms of WIL. Such needs cover a wide spectrum of WIL practice which has been categorised in this study into WIL planning, WIL facilitation, WIL assessment, WIL management / monitoring, WIL partnership management and WIL research. This paper therefore calls for the promotion of WIL as an effective teaching and learning approach for staff development programmes and qualifications.

 The need for WIL staff capacity development has implications for students and the country because the theory of change in this case begins with staff.in education faculties. This paper therefore uses the following theory of change: If effective WIL capacity development is provided to staff in education faculties of universities, then high-quality

WIL programmes and qualifications will be developed and offered to TVET college staff, and then TVET college staff will deliver high quality WIL that will develop student employability skills and graduate attributes for self-employment. Such graduates will in turn have a significant contribution to South Africa's socio-economic growth and social development.

This paper raises the following questions in an attempt to stimulate debate and suggest possible solutions to the challenge faced by staff in education faculties of South African universities:

1. How should effective WIL capacity development be provided to staff in education faculties of universities?

2. Who should be involved in capacity building?

3. How should education faculties restructure or create WIL structures to plan, facilitate, assess and manage both teaching practice and industry-based WIL and comply with the 2013 Policy on the certification and professionalization of TVET College lecturers?

As the WIL practice is complex and involves multi stakeholder partnerships in a changing world of work, partnerships for WIL staff capacity development are crucial to enable the staff to integrate learning that takes place in an academic environment with workplace learning (RSA, 2013; Martin and Hughes, 2009). As suggested by Martin and Hughes (2009) and Atkinson, (2016), the student, academic supervisors, and employers have collective responsibility for the integration of learning through WIL, and should draw upon their training as educators, their personal experiences and WIL research programs. The staff should be able to plan, facilitate, reflect and monitor WIL in collaboration with relevant external partners. The collective responsibility for integrating academic and workplace learning through WIL can therefore only be successful through robust WIL partnerships at national and international levels.

CONCLUSION

From the above discussion it is clear that staff capacity development in terms of WIL is necessary for staff in education faculties and that there is a need for education faculties of South African universities to develop the WIL components of TVET staff qualifications to enable TVET colleges to have well qualified staff that could design, teach, assess and review educational programmes and make them responsive to national needs.

From the staff capacity development needs it is evident that WIL staff capacity development programmes should include modules that could enable staff to:

- Analyse HET mission, context and legislation with regard to WIL

- Interpret and design WIL programmes and modules

- Design, develop and implement assessment of WIL

- Design and implement experiential learning in a workplace

- Mediate and facilitate Work-Integrated Learning

- Manage Work-Integrated facilitation

- Mentor and advise learners for Work-Integrated Learning

- Moderate Work-Integrated assessment

- Conduct research into Work-Integrated Learning

This paper suggests that national and international partnerships are crucial for the success and effectiveness of WIL staff capacity development and therefore calls for collaboration in terms of WIL staff capacity development programmes.

REFERENCES

Anderson, G. (1994), A Proactive Model for Training Needs Analysis, *Journal of European Industrial Training*, Vol. 18 No. 3, pp. 23-28

Atkinson, G. (2016). *Work-based learning and work-integrated learning: Fostering engagement with employers.* National Centre for Vocational Education Research (NCVER). Retrieved from www.ncver.edu.na

Baldwin, C. & Rosier, J. (2017). Growing future planners: A framework for integrating experiential learning into tertiary planning programs. *Journal for Planning Education and Research, 37*(1), 43-55. Doi: 10.1177/0739456X16634864

Bowman, J. And Wilson, J. (2008), Different roles, different perspectives: perceptions about the purpose of training needs analysis, *Industrial and Commercial Training*, Vol. 40, No. 1, pp.38 – 41.

Brown J., (2002), Training needs assessment: A must for developing an effective training program, *Public Personnel Management*; Vol.31, No. 4; pp 569-578

Cekada, L. (2010), Training Needs Assessment: Understanding what employees need to know, *Professional Safety,* Vol. 55, No. 3, pp. 28-33

Clarke N. (2003), The politics of training needs analysis, *Journal of Workplace Learning*, Vol. 15, No. 4. pp 141-153.

Cole, L. and Thompson, G. (2002), Satisfaction of agri-business employers with college graduates they have hired. NACTA Journal 46 (1) 34-39.

Cosser, M. (2010). The skills cline: higher education and the supply-demand complex in South Africa. Higher Education, 59(1), 43-53.

Council on Higher Education (CHE). 2011. *Work-integrated learning: Good practice guide, HE Monitor No12*. Pretoria, South Africa: Council on Higher Education.

Department of Higher Education and Training. (2011). National Skills DevelopmentStrategy (NSDS) III. Pretoria, South Africa.

Egbo, B. 2011. *Teacher capacity building and effective teaching and learning: A seamless connection*. Proceedings of the 2011 International Conference on Teaching, Learning and Change of the International Association for Teaching and Learning (IATEL).

European Union. (2014). *TVET college lecturer education annex report*. Luxembourg: European Commission

Evers, F.T., Rush, J.C. and Berdrow, I. (1998). The bases of competence. Skills for lifelong learning and employability. San Francisco, CA: Jossey-Bass.

Gamble, J. (2006). Theory and practice in the vocational curriculum, in: M. Young & J. Gamble (Eds.) *Knowledge, curriculum and qualifications for South African Further Education.* Pretoria: HSRC Press.

Goldstein, I.L. (1993), *Training in Organizations: Needs Assessment, Development and Evaluation.* 3rd ed., Monterey: Brooks/Cole.

Holton, E., Bates, R. and Naquin, S. (2000) Large-scale Performance driven Training Needs Assessment: A Case Study, *Public Personnel Management*. Vol. 29 No. 2, pp 249-268.

Human Resource Development Council for South Africa (HRDC). 2014. *Forging TVET college partnerships – implications for the post-school education and training system*. hrdcsa.org.za/wpcontent.

Iqbal M Z and Khan, R.A (2011) "The growing concept and uses of training needs assessment: A review with proposed model", Journal of European Industrial Training, Vol. 35 Issue: 5, pp.439-466.

Martin, A.J., Milne-Home, J., Barrett, J., Spalding, E. and Jones, G (2000). Graduate satisfaction with university and perceived employment preparation. *Journal of Education and Work 13 (2) 201-213.*

McClelland S.D. (2002) *A Training Needs Assessment for the United Way of Dunn County   Wisconsin.* (Master dissertation, University of Wisconsin-Stout, Menomonie, WI, USA)

Mullinix, B.B. 2001: Nurturing Partnerships: a Southern African continuum of flexible stages in partnership development, Current Issues in Comparitive Education, 3(2)

Peddle, M.T. (2000). Frustration at the factory: Employer perceptions of workforce deficiencies and training trends. Journal of Regional Analysis and Policy 30 (1) 23-40.

Schmidt, S.J., (1999). Using writing to develop critical thinking skills. North American Colleges and Teachers of Agriculture Journal 43 (4) 31-38.

South Africa (SA). (2013). *Policy on professional qualifications for lecturers in technical and vocational education and training.* Government Gazette, 576(36554).

Teichler, U. 2000: The relationship between higher education and the world of work. *South African Journal of Higher Education*. 14 (2). 19-22.

Taylor, P.J., O'Driscoll, M.P., Binning, J.F. (1998), A new integrated framework for training needs analysis, *Human Resource Management Journal*, Vol. 8 No.2, pp.29-50.

Van Eerde, W., Tang, K. and Talbot, G. (2008) The mediating role of training utility in the relationship between training needs assessment and organizational effectiveness, *The International Journal of Human Resource Management*, Vol. 19, No. 1, 63-73

Wessels, M. (2005). *Experiential Learning*, Lansdowne; Juta.

Wessel, S.J., Mosime, P. and Seitheisho, D. 2000: Holistic integrated development: A proposal to CHESP, Bloemfontein: Mucpp.

The value of interpersonal and intrapersonal competencies in cooperative education across disciplines

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ABSTRACT

As educators at a US cooperative (co-op) education university, we expect that our students will develop and use discipline-specific skills on co-op. Yet recent attention to the role of interpersonal and intrapersonal competencies in students' college success (National Academies of Sciences, Engineering, and Medicine, 2017), has led us to ask more generally what skills and competencies students actually use on the job and what skills are most valued by employers. Our research addresses these questions for students within the College of Arts & Sciences (CoAS) at Drexel University. Our analysis relies on responses from AY 2015-16 co-op evaluation surveys and represents students from 20 majors for a total of 721 students. Our data come from qualitative coding of student and employer written responses to questions posed about the co-op experience. We explore statistical differences when our data is analyzed by gender and international status. Students reported that communication, interpersonal, intrapersonal, and professional (described here as "relational") skills and competencies were the ones they used most on the job and wanted to develop further; employers also identified these areas as being both sources of strength and weakness. At CoAS, these findings have resulted in the development of an online course intended to support the development of relational skills for students on their first co-op. Our article highlights the importance of these skills to students and employers and explains how data from co-op evaluations can lead to curricular change.

INTRODUCTION

Drexel University is a large (26,000 students), private, comprehensive research university located in Philadelphia, Pennsylvania. Drexel's cooperative education program (co-op) combines traditional academic study with a six-month cooperative education work period in either a five year, three co-op plan of study or a four year, one co-op, plan of study. Educational experiences such as co-op are often termed work-integrated learning (WIL) in the literature; we will be using both terms as appropriate. WIL provides the opportunity for students to develop broader skill sets within the university curriculum through both classroom and workplace contexts (e.g., Jackson, 2015). Drexel's co-op program is coordinated by the Steinbright Career Development Center (Steinbright) on campus. Our study results from a newly enriched partnership between the assessment specialists at Steinbright and CoAS faculty and suggests a model for integrating co-operative education with course-based pedagogy.

Assessment Initiative

A recent initiative to more closely link cooperative education and the academic program within CoAS resulted in closer examination of students' co-op experiences in relation to their academic preparation. This research project was undertaken by faculty and administrators within CoAS with the support and guidance of the Steinbright assessment division. Our project team consisted of faculty liaisons from English (Author 1), Communication (Author 2), Chemistry (Dr. Daniel King), Biology (Dr. Monica Togna), and the Assistant Director of Program Assessment & Operations for Steinbright (Ms. Joann Ott). Prior to our study, the prevailing characterization of the relationship between co-op and academic learning at Drexel was transactional and linear: the theory was that students learn discipline-specific skills in the classroom, go on co-op and use and refine these skills, and come back

again to deepen their skill set for the next co-op. Earlier assessments of writing and intrapersonal skills carried out in the department of English & Philosophy (Nulton & Peckham, 2018) led us to question both this characterization of the relationship between co-op and courses and the relative importance of discipline-specific skills on co-op compared with broader relational competencies. We began by reviewing the literature linking WIL and relational skills.

Skills and Competencies in Work-Integrated Learning

Over the past few decades, accountability initiatives have focused on the outcomes of higher education, often framed in terms of graduates' skills and abilities to enter the workforce successfully in an age of globalization (Vidovich, 2001/2010).

In Australia, government and business have emphasized the need for a broader set of skills ("generic" or "employability" skills) such as communication, teamwork, and planning, separate from technical or disciplinary knowledge (Barrie, 2006; Freudenberg, Brimble, & Cameron, 2001). In the US and European contexts, skills such as critical thinking, written and oral communication, and problem-solving have typically been described as "soft skills," whose economic value (Balcar, 2016) and importance in the 21st century workplace is emphasized (Hart Research Associates, 2013; Davidson, 2016). Other skills and competencies, such as ethics, career orientation, intercultural competence, civic engagement, communication, and teamwork (the "interpersonal" and "intrapersonal" competencies) have been identified as important college learning outcomes in the US context (National Academies of Sciences, Engineering, and Medicine, 2017, p. 16).

The nature of these skills and their classification vary throughout the literature, depending on national and economic framing. We began the study without preformed categories of skills or competencies but with a general question about the role of various skills and competencies in students' experience in co-operative education.

As we began, our initiative dovetailed with the call by the National Academies of Sciences, Engineering and Medicine (2017) to assess the value of interpersonal and intrapersonal competencies to students' college success. We took this call as a way to organize and interpret our findings. Thus in our paper we refer to interpersonal skills and competencies (used for successful interactions among people) and intrapersonal skills and competencies (related to knowledge of self-actions, motivations and emotions) as relational skills and competencies.

As a university with a well-established co-operative education program, we saw the opportunity to investigate students' uses of a broad set of skills and competencies within the co-operative education setting as the first step in a larger research project to investigate these skills and competencies in college success.

Our research questions were the following:

1. What skills and competencies do students actually use on co-op?

2. What skills and competencies do students want to work on when they return from co-op?

3. What skills are most valued by employers?

4. What skills are considered most in need of improvement by employers?

5. Do the data show differences by gender or national status?

We examined these questions from students within CoAS at using student responses from Academic Year 2015-2016.

METHODS

All students who return from a six-month co-op must complete a survey about their co-op experiences to get credit for their co-op experience. Steinbright manages and administers the questionnaires, collects and stores the data, and provides data to colleges and departments as requested. There is a core set of questions developed by Steinbright that all students answer at the end of their co-op experiences; each college within the university can add college-specific questions to these core questions.

The data we analyzed consists of responses to open-ended questions administered to CoAS students (Stu-1, Stu-2) and co-op employers (Emp-1, Emp-2). These questions are listed below.

Questions for students:

1. Stu-1. What are the top five skills that you used in your co-op experience?

2. Stu-2. When you return to classes, what are the top five skills where you will most focus your efforts?

Questions for employers:

1. Emp-1. What are the students' strengths?

2. Emp-2. What are the students' weaknesses/areas for improvement?

The 2015 data were examined by specific cohorts:

1. Co-op cycle

   a. co-op

   b. co-op

   c. co-op

   d. Only one co-op (students on a 4-year plan of study in which only one co-op is taken in the third year of study)

2. Area of study, grouped into Science, Technology, Engineering, and Mathematics ("STEM") disciplines, Humanities and Social Sciences ("HUM/SS"), and Psychology ("PSY")

   a. Humanities and social science majors include Anthropology, Communication, Criminal Justice, English, Global Studies, History, Philosophy, Political Science, Sociology

   b. STEM majors include Biology, Chemistry, Environmental studies & sciences, Geology [5], Mathematics, and Physics

   c. Psychology majors. Psychology was considered separately because of its size as a department and because the nature of its programs shared qualities with both STEM disciplines (having clinical co-ops) and HUM/SS disciplines (with non-lab co-ops).

3. Nationality, grouped into

   a. US citizen

   b. Non-US citizens (US permanent residents were not included in this analysis)

4. Gender

   a. Female

   b. Male

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[5] There was no Geology co-op in AY 2015.

The demographic breakdown of this population is given in Table 1, below. Table 2 shows area of study by gender.

TABLE 1: Demographic Breakdown of Population

Gender		Nationality		Area of study	
Female	450	US citizens	644	STEM	392
Male	268	International	62	HUM/SS	238
				PSY	88
	718*		706**		718

TABLE 2: Area of Study by Gender

Area of study	Female	Male	Total
HUM/SS	157 (66%)	81 (34%)	238
STEM	221 (56%)	171 (44%)	392
Psych	68 (77%)	20 (23%)	88
TOTAL	446 (62%)	272 (38%)	718

*These figures are unique students; total numbers in analyses vary based on variation in response rates (some answers were left blank) and (3) students who had two simultaneous part-time co-op experiences.

**Resident aliens (12) are not included in nationality figures though they are included in other analyses.

DATA ANALYSIS

Responses to questions Stu-1, Stu-2, Emp-1 and Emp-2 were coded in-vivo coding using the Atlas.ti coding program. In-vivo coding is a standard process of analyzing text by identifying words and phrases used in the text and then creating coding queries from them to apply to new texts. The in-vivo coding began by identifying the most common responses from students; after analysis and discussion by the researchers, these responses were merged to create the following skill areas upon which we will report: communication, professionalism, interpersonal skills, intrapersonal and discipline-specific skills.

Establishing Macro Categories

The responses given by students and employers were phrased in many different terms that were then grouped into macro categories. For example, terms such as "speaking effectively," "doing presentations," communicating with my boss," "being clear in emails," and "checking in" were classified as communication ("COM") skills. The category of "communication" captured the importance of clear oral or written communication.

The category of "professionalism" ("PRO") refers to habits that make an employee effective in a given work environment; these include characteristics such as timeliness, appropriate dress, and getting approval for time off and are represented by terms such as "show up on time," "multi-task," "manage my work effectively," "dress for work," "finish on time," etc.[6]   The category of "inter-personal" (INTER) includes references to teamwork and coworkers and included terms such as "meeting with my team," "teamwork," "how to get along with others," and "working on a group project."

The category of "intra-personal" (INTRA) included references to greater self-understanding, an ability to monitor and reflect upon the self. Sample terms are, "patience," "try to be less stressed," "work on my motivation," and

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[6] **Professionalism** is comprised of inter and intra personal skills. It can be defined as the culmination of intrapersonal competencies (curiosity, showing up on time, grit, courage, diligence, etc.) and interpersonal competencies (appropriate dress, appropriate teamwork, appropriate estimation of office hierarchies and interaction styles). While the category is a mixture of inter and intrapersonal skills, the way that students and employers speak of professionalism creates a separate category that relates to understanding and adapting to shared work expectations. The issue of overlapping categories of "intra" and "inter" competencies because of their interrelated nature was also recognized by the National Academics, p. 35.

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"being independent."

The category coded as "discipline-specific" (DISC) skills is comprised of references to specific terms that refer to disciplinary knowledge or skills. Examples of skills include, "used western blot," "data analysis," "speaking mandarin," and "using SPSS."

As is the nature of qualitative coding, we created boundaries for categories that overlap to some degree. Our coding decisions were guided by the language that students and employers used to discuss skills.

Coding Decisions

There are two important differences to the open-ended questions that students and employers were asked. Students were asked to list five skills and employers were asked generally to discuss the student's strength(s) and weakness(es). Additionally, the employer responses (Emp-1, Emp-2) was complicated by their audience. Student responses were written for and read by only themselves and their co-op advisors (employers did not see their responses) while the employer responses were created to be viewed by the co-op students as part of co-op professional development. Employers, then, knew that they were writing to both students and the co-op office; knowing that students would read their comments seems to have directed their responses in ways we will discuss.

Coding of Skills

Although students were asked to name five skills that they used on co-op or wanted to work on after co-op, often they named more than one skill from a particular category (they might say that they used communication and writing skills, for instance, which would both be coded as "communication," or they might name titration and western blots as two skills, which would both be coded as "discipline-specific"). In our coding, each code is awarded only once for each student response, although a student response could contain more than one code. That is, a student response could be coded for "communication," and "discipline specific" but not "communication" and "communication." When students did name more than one skill within the same category it was coded only once. To confirm that no categories were over or underrepresented by this coding decision, the authors ran a query by absolute counts of each word or phrase that made up the total count for each code; the results were proportional to the original counts. Therefore, we are confident that our data findings accurately reflect the nature of student responses.

RESULTS: STU AND EMP

Table 3 gives the results of responses to question Stu-1: What were the top five skills that you used on your co-op experience?

TABLE 3: Response to STU-1: Top 5 skills used on co-op by % of student listing skills

Skills used	COM	PRO	INTER	INTRA	DISC
Average (n=708)	83%	68%	39%	31%	35%
Males (n=263)	78%	65%	34%	26%	39%
Females (n=449)	85%	72%	41%	34%	35%
US citizen (n=634)	82%	71%	38%	32%	36%
Other citizen(n=62)	85%	54%	43%	25%	33%
1 co-op (n=191)	75%	72%	36%	34%	36%
2 co-op (n=182)	84%	70%	36%	30%	36%
3 co-op (n=200)	84%	67%	37%	27%	43%
Only co-op (n=139)	88%	69%	44%	33%	28%
STEM N=384	77%	69%	34%	29%	48%
HUM/SS (n=241)	90%	71%	40%	29%	24%
Psych (n=87)	84%	69%	47%	46%	22%

Table 4 gives the results of responses to question Stu-2: When you return to classes, what are the top five skills where you will most focus your efforts?

TABLE 4: Response to STU-2: Top skills to focus on when returning to class by percentage of students listing skills

Skills return:	COM	PRO	INTER	INTRA	DISC
Average (n=708)	72%	66%	41%	26%	27%
Males (n=263)	65%	66%	37%	21%	35%
Females (n=449)	74%	69%	41%	29%	24%
US citizen (n=635)	70%	70%	38%	27%	27%
Other citizen (n=62)	82%	47%	51%	18%	28%
1 co-op (n=191)	67%	69%	43%	25%	32%
2 co-op (n=182)	75%	70%	29%	28%	27%
3 co-op (n=200)	67%	63%	39%	24%	29%
Only co-op (n=139)	77%	70%	48%	28%	20%
STEM (n=385)	65%	70%	38%	23%	35%
HUM/SS (n=241)	81%	64%	39%	27%	18%
PSYCH (n=87)	68%	73%	46%	33%	26%

Analysis of STU-1 and STU-2

Our predominant finding is that for all students, discipline-specific skills (35% overall) were identified as being used significantly less than communication skills (83%; $p<.0001$) or professionalism skills (68%; $p <.0001$). Further, the top skills desired upon return by students show that communication was identified significantly more than discipline-specific skills (72% to 27%; $p <.0001$) as were professionalism (66% to 27%; $p<.0001$) and interpersonal skills (41% to 27%; $p <.0001$).

Subgroup Analyses

There are differences in subgroup responses that we continue to analyze. For now, we simply note that there are significant differences between responses of various cohorts.

First, the responses of males and females differ. Females reported using skills in all categories more than males did, with the exception of discipline-specific skills.[7] The following skill areas showed significant differences (with significance levels set at $p\leq.05$): Communication (85% to 78%; $p= 0.02$); intrapersonal skills (34% to 26%; $p = 0.03$); and professionalism skills (72% to 65%; $p = 0.05$). Females also reported using interpersonal skills more frequently than males, but not significantly.

Second, gender differences were also evident in students' intentions upon return. Females indicated the intention to focus on communication and intrapersonal skills significantly more than males did upon return ($p=.006$ and $p=.018$ respectively) whereas males wanted discipline-specific skills significantly more than females upon return (35% to 24%; $p=.002$).

Third, we examined differences between the responses from US citizens and citizens of other countries.[8] For most of the skill areas, the differences in reported usage were small. The largest differences reported were in the use of intrapersonal skills and professionalism skills, with US citizens reporting a greater, but not significantly so, use of intrapersonal skills. Only in the area of professionalism skills was there a significant difference between these groups, with US students stating they used professionalism skills more than international students (71 to 54%), $p=0.0056$. We take this issue up in the discussion. Differences between the two groups of students are greater when

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[7] Females write somewhat more, on the average, in listing skills used (females have an average word count of 17 to male's 14; in skills desired upon return, females have an average word count of 17 to males' 13. Employers write about males and females at about the same level: listing strengths for females at an average of 39 words/answer compared to males 36 words per answer; and for weaknesses, 36 words for females compared to 37 words for males.

[8] For the purpose of this analysis, we did not include the responses of those who indicated they were residents of the country but not US citizens (e.g., permanent residents) because the numbers were too small for an independent analysis.

we analyze skills wanted on return to the classroom. Compared to domestic US students, international students want to focus more on communication (p=0.0469) and interpersonal skills (p = 0.0455) whereas US students want to focus more on professionalism (p=0.0002).

Finally, we found differences by area of study. Students in the STEM fields list use of discipline-specific skills twice as much as those studying humanities and social sciences (48% to 24%; P<.0001). Still, this use of discipline-specific skills is relatively low for both groups; students in the STEM fields list communication and professionalism as the top two skills used on co-op just as the HUM/SS and PSY groups do. Further, STEM students identify using communication skills significantly more than they identify using discipline-specific skills (77% to 48%; P<. 0001). Upon return, STEM students want to focus on communication skills more than discipline specific skills; (65% to 35% P<.0001) and more on professionalism than discipline specific skills (70% to 35%; P<.0001); interpersonal or intrapersonal skills were identified with the same statistical frequency as discipline specific skills.

Responses to EMP-1 and 2

Employer responses to questions of students' strengths and weaknesses are given in Tables 5 and 6.

TABLE 5: Employer responses to EMP-1: What are the student's strengths? reported by student category

Strengths cited:	COM	PRO	INTER	INTRA	DISC
Average (n=401)	49%	75%	52%	77%	35%
Male (n=142)	46%	72%	48%	75%	39%
Female (n=260)	50%	74%	55%	78%	31%
US citizen (n=361)	48%	72%	52%	76%	33%
Other citizen (n=35)	50%	91%	47%	84%	41%
1 co-op (n=122)	48%	73%	44%	75%	25%
2 co-op (n=94)	57%	80%	60%	72%	48%
3 co-op (n=102)	44%	67%	58%	79%	38%
Only co-op (n=84)	44%	74%	48%	81%	26%
STEM (n=210)	42%	74%	48%	77%	37%
HUM/SS (n=135)	54%	71%	55%	75%	31%
PSYCH (n=59)	57%	76%	59%	79%	34%

TABLE 6: Employer responses to EMP-2: What are the student's weaknesses/areas for improvement, reported by student category

Weakness cited:	COM	PRO	INTER	INTRA	DISC
Average (n=374)	47%	69%	34%	62%	18%
Male (n=136)	43%	69%	31%	56%	18%
Female (244)	48%	68%	34%	66%	19%
US citizen (n=333)	46%	67%	33%	65%	19%
Other citiz (n=33)	53%	80%	40%	40%	17%
1 co-op (n=117)	51%	66%	35%	60%	18%
2 co-op (n=87)	42%	68%	33%	58%	26%
3 co-op (n=96)	42%	69%	26%	64%	19%
Only co-op (n=76)	50%	72%	40%	69%	10%
STEM (n=190)	42%	64%	33%	58%	21%
HUM/SS (n=125)	55%	77%	34%	61%	15%
PSYCH (n=57)	40%	63%	33%	81%	15%

Analysis of EMP-1 and EMP-2

Our first major finding is that employers focus on the discipline-specific skills much less in their discussion of their student employees—both as strengths and weaknesses—than they do other skills. In strengths, for example, the employers commend communication (49%), interpersonal (52%), and especially professionalism (75%) and

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intrapersonal (77%) skills much more than the discipline specific skills (35%). This is true even for the STEM students, who get the most positive comments for discipline specific skills among the disciplines (37%) but still have their other skill areas praised more often: communication (42%), professionalism (74%) and intrapersonal skills (77%).

Employers underplay the role of discipline-specific skills in their discussion of student weaknesses as well, with discipline-specific skills identified as weakness overall 18% of the time compared to communication (47%), interpersonal (34%), professionalism (69%) and intrapersonal (62%) skills. In the discussion, we will consider how skill areas could be identified by employers both as strengths and as weaknesses as the data show. The main point we underscore here is that for employers, relational skills are more important to employers than discipline-specific skills.

Analyses by cohort show some differences by gender, national status, and co-op cycle. Employers commended males for their discipline-specific skills more than they did females, but commended females somewhat more in all other skill areas. None of these differences was statistically significant. Females were cited as having weak intrapersonal skills more often than males (66% to 56%) at a marginal significance level of $p=0.0540$; we are exploring whether this difference is best attributed to differences in skills or differences in cultural norms that make relational skills more associated with females and therefore more visible when employers comment (see Hong, 2016).

Employers also praised international students for discipline-specific skills more often than domestic students (41% to 33%) as well as noting their intrapersonal skills (84% to 76%) and, especially, their professionalism skills (91% to 72%; $P=0.0149$) more often, but only professionalism was significantly different. International students were more often cited as having weaknesses in communication, professionalism, and interpersonal but none of these differences reached statistical significance. US students were identified as having significantly more weaknesses than international students in intrapersonal skills (65% to 40%; $P=0.0047$).

Analysis by co-op cycle shows some significant differences. The cohort with the highest praise for discipline-specific skill use is the group of students on their second co-op (2 co-op) group, at 48% (n=94). This is a significant difference compared to the 1 co-op group (25%; n=122; $P = 0.0005$). The 2 co-op students are also commended by employers significantly more for their interpersonal skills than the 1 co-op group (60% to 44%; $P = 0.02$). These data suggest that students' skill sets in the second co-op cycle are stronger as judged by employers. Are these skill sets stronger because of the co-op experience, the academic experience, or general development? One relevant comparison is between the students who choose to experience only one co-op, which typically occurs in their year at Drexel, and the students who take 3 co-ops who are in their 2 co-op, which also typically occurs in their third year. Despite the similar age and academic experience, employers rated the "only one" co-op students' interpersonal skills as a strength less often than they did those of the 2 co-op group (48% (n=84) to 60% (n=94).; $P= .1096$ n.s.) Although this finding did not reach statistical significance in this data set, it is an area for us to pursue with larger numbers in the future as it supports a hypothesis that the first co-op experience itself helps to account for the growth in interpersonal skills.

DISCUSSION

Employer ratings of student performance in WIL can be difficult to interpret. Students on WIL are both students and employees; supervisors may see one or the other of these roles as primary and the WIL experience itself as primarily benefitting the company vs. benefitting the student (Drewery, Pretti, & Gardner, 2017). Jackson (2018) reviews the assessment issues in WIL generally and recommends providing standards to employers for evaluation.

Our employer responses are also difficult to interpret and show the need for more explicit guidance in rating. Employers frequently rated skills as both strength and weakness of students. For example, when rating students overall in the category of Professionalism, 75% of the employers recognized this as a strength while 69% also identified it as a weakness. Common sense would lead us to expect inverse proportions: when attribute X is rated

high as a strength, it should be rated low as a weakness. In trying to understand the meaning of our data, we were able to make several conclusions.

First, we can say with certainty that discipline-specific skills are identified by employers as a strength and/or a weakness far less than relational skills. Perhaps these discipline-specific skills are simply taken for granted (if you hire a lab worker you assume she can do the work), but we doubt that is the primary reason for the results. It seems that what becomes most salient in a six-month co-op position are the many other personal and interpersonal competencies that make a worker a successful employee within an interpersonal workplace rather than specific disciplinary knowledge.

We also believe that the audience for the responses affected the results and helps to account for the counter-intuitive data. As we mentioned, employer responses are both voluntary and shared with the students. Knowing that their comments would be shared with students, employers often shaped their negative responses in the typical American evaluation genre, where a negative evaluation comes after or between positive comments. The following example shows the attributes of this type of response.

> [Example 1] "While xx is very quick to complete tasks and study visits, I would like to see him have more of a detail-oriented approach during high stress times. It is important to be efficient, not just quick. But overall, this was not a big issue, rather it is an area to hone further in his future positions and it did not largely impact his work here negatively."

This example shows how an employer's response could contain a category coded for both a strength and a weakness. In this example, for instance, both the positive "quick to complete tasks" and the negative "would like to see him have more of a detail oriented approach" are aspects that would be captured by the code professionalism. Thus, while the negative comment also capture the positive attribute, the coding remains unchanged (strengths and weaknesses are coded independently using the same code words, so data for each category is unique).

A second common feature of the negative comments is when the same skill is identified as both a strength and a weakness, as Example 2 below shows:

> [Example 2]: X could strengthen her organizational skills as is relates to her project work. That's not to say that she isn't organized, but simply an area she [needs to] strengthen to be even more effective and efficient."

Again, the code "professionalism" would be captured once for both the positive and negative aspect of this comment under the "weakness" coding data.

As presently configured in our data, the employer responses are not as easy to interpret as the student responses. In our college advisory committee, which includes both CoAS faculty and Steinbright assessment staff, we are continuing to explore how we can capture employer feedback more usefully. In addition, we are continuing to explore genre features of the employer responses including how their audience shapes their content.

Quantitative Versus Qualitative Data

One of the challenges with free response questions is the time commitment required to analyze data. While the automated in-vivo coding process we utilized drastically cut down on processing time, it was still important to the research group to see if a similar data were available using quantitative survey questions. The student and employer co-op surveys instruments include 15 competency-based questions based on the Drexel Student Learning Priorities (DSLPs). The DSLPs include six core intellectual and practical skill areas and five experiential and applied learning areas. After reviewing the quantitative data for 2015 for CoAS, we found that on average 83% of students rated themselves 4 (good) or 5 (excellent) on a 5-point Likert scale for these 15 competency questions. Likewise, less than 5% of students rated themselves a 1 (Poor) or 2 (Fair) in all categories. Responses showed very little differentiation among groups or co-op cycles, suggesting that the nature of the scaled question leads to regression to the mean and sub-optimal data acquisition. Thus, this quantitative data tells us very little about the skills and competency levels of students. Similar results were found on the employer evaluation Likert questions: a majority of the responses to the "strength" question rated students 4 or 5 range with means very similar over the various co-op cycles.

The research group concluded that looking at the qualitative free response questions allowed us to gain a better understanding of both skills used and needed (students answers) and strengths and weaknesses (employer answers). We found that students and employers were less likely to rate a competency low (1 or 2) on a Likert scale but were willing to express that skill as a challenge in a free response format.

CONCLUSIONS

Our data support several conclusions:

1. Co-operative education is a site where relational skills are named as having been used by students and employers far more than discipline-specific skills. Both students and employers focus on relational skills as skills used, skills to develop upon return, and important strengths and weaknesses more than discipline-specific skills. This is true for students and employers within the STEM fields as well as the HUM/SS and PSY fields.

2. Gender differences are seen in the student reports of "skills used" as well as "skills to focus upon on return." The employer data showed fewer significant differences by gender. The inclusion of Psychology into the HUM/SS further increases female to male differences between HUM/SS and STEM, and we will continue to explore these differences.

3. Differences by nationality status were evident most prominently in the reports by students of professionalism skills. International students did not claim to use professionalism skills at the level that US students did, nor did they want to pursue those skills as much upon return as US students did, yet the employers' reports characterize professionalism as a strength of international students. Their reports lead us to conclude that international students' professionalism skills were more developed than those of domestic students. Earlier research on international students' writing (Nulton & Hoekje, 2014) identified significant cohort differences within the international student population at Drexel. We plan further cohort analysis on the co-op data to understand the international student experience more fully.

4. Students in 2 co-op cycle are judged stronger by employers in a range of skills compared to those in 1 co-op cycle, These data argue for the value of the first co-op in establishing basic skills. Future analyses will focus on defining developmental equivalencies among cohorts to isolate the effect of co-op experience on skill growth.

5. Qualitative data analysis provides insights into student and employer experiences that are not available via quantitative data analysis.

NEXT STEPS: INTEGRATING DATA AND PEDAGOGY

The major finding in our data is that students across the disciplines within CoAS identify professional, communication, intrapersonal and interpersonal skills—relational skills–as the most important skills that they use on co-op and want to improve upon their return. Employers, too, are far more focused on these skills—both as strengths and weaknesses—than they are on discipline-specific skills.

Our data call for a re-evaluation of the role of relational skills within the college curriculum as part of preparation for the workplace. We think of these skills and competencies as broadly integrated skills underlying workplace success. A recent research initiative in the US context by the National Academies of Science, Engineering and Medicine indicates that these competencies have a role in student academic success as well. Their review examined eight sets of competencies in relationship to college success: "sense of belonging," "growth mindset," and "utility goals and values," "conscientiousness," "academic self-efficacy," "intrinsic goals and interest," "prosocial goals and values," and "positive future self" (National Academies of Science, Engineering, & Medicine, 2017, pp. 5-6). Several of these constructs have a direct relationship to the kinds of skills and competencies we have discussed here for the workplace. For example, "professionalism" has its correlate in "conscientiousness" as it embodies characteristic of hard work, persistence, and self-control. Intrapersonal competencies can include many of the "growth mindset" qualities of learning from mistakes and responding to failure as well as "intrinsic goals and

interests." In short, we see any initiative to support a broader set of workplace skills as also potentially contributing to the skills and competencies needed for academic success. The project reported here is the first step in this larger study.

Our data about the importance of relational skills within the co-operative education context led to the development of a pilot one-credit online course that was offered by Author 1 to CoAS students on co-op during the 2018 spring-summer co-op cycle. The course is a partnership between CoAS and Steinbright and relied on student observations and analysis of their workplace experiences. This course was designed to encourage reflection by students on their behaviors and attitudes in relation to specific, real-time work experiences. Reflection is central to experiential learning within higher education (Harvey, Coulson, & McMaugh, 2016) and has been a focus in WIL research (e.g., Bandaranaike & Willison, 207; Jackson, 2017; Larkin & Beatson, 2014). In this pilot course, we began to create a dialogue that we hope will foster both awareness of and ease with the relational work skills that play an important role in workplace and potentially college success. The employer and student survey data are not yet available for the students in this pilot course. However, students self-reported that the course helped them to pay attention to their workplace environment and their own emotions and sense of self while learning in ways that they would not have without the structure of the course. We look forward to analyzing the course evaluations and survey data when they become available and are confident that the structure of the course will be beneficial for future students.

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REFERENCES

Balcar, J. (2016). Is it better to invest in hard or soft skills? The Economic and Labour Relations Review 27, 4: 453-470.

Bandaranaike, S. & Willison, J. (2017). Building learner autonomy into work-integrated learning: Challenges for the 21st Century. In K. Zegwaard & M. Ford (Eds.). (pp. 1-9).

Barrie, S. (2006). What we mean by the generic attributes of graduates. Higher Education 51, 2: 215-241.

Davidson, K. (2016). Employers find 'soft skills' like critical thinking in short supply. The Wall Street Journal, August 30, 2016. Retrieved from https://www.wsj.com/articles/employers-find-soft-skills-like-critical-thinking-in-short-supply-1472549400

Drewery, D., Pretti, J. & Gardner, P. (2017). Parameters of a "good" professional experience: Employer perspective. In K. Zegwaard & M. Ford (Eds.), pp 71-78.

Freudenberg, B., Brimble, M. & Cameron, C. (2001). WIL and generic skill development: The development of business students' generic skills through work-integrated learning. Asia-Pacific Journal of Cooperative Education 12, 2: 79-93.

Hart Research Associates. (2013). It takes more than a major: Employer priorities for college learning and student success. Association of American Colleges and Universities and Hart Research Associates. Retrieved from https://www.aacu.org/sites/default/files/files/LEAP/2013_EmployerSurvey.pdf

Harvey, Coulson, & McMaugh, A. (2016). Towards a theory of the ecology of reflection: Reflective practice for experiential learning in higher education. Journal of University Teaching & Learning Practice 13, 2: 1-20.

Hong, R. (2016). Soft skills and hard numbers: Gender discourse in human resources. Big Data & Society July-December 2016: 113.

Jackson, D. (2018). Challenges and strategies for assessing student workplace performance during work-integrated learning, Assessment & Evaluation in Higher Education, 43,4: 555-570, DOI: 10.1080/02602938.2017.1378618

Jackson, D. (2017). Developing pre-professional identity in undergraduates through work-integrated learning. Higher Education 74:833–853. DOI 10.1007/s10734-016-0080-2.

Jackson, D. (2015). Employability skill development in work-integrated learning:

Barriers and best practice. Studies in Higher Education 40, 2: 350–367, http://dx.doi.org/10.1080/03075079.2013.842221

Larkin, I. & Beatson, A. (2014). Blended delivery and online assessment: Scaffolding student reflections in work-integrated learning. Marketing Education Review 24, 1: 9-14.

National Academies of Sciences, Engineering, and Medicine. (2017). Supporting students' college success: The role of assessment of intrapersonal and interpersonal competencies. Washington, D.C.: The National Academies Press. doi: https://doi.org/10.17226/24697.

Nulton, K. & Hoekje, B. (2014). Using assessment as a flashlight: Exploring the recesses of uneven writing skills. Conference on College Composition and Communication (CCCC). Indianapolis, IN. March 21, 2014.

Nulton, K. & Peckham, I. (2018) Writing program assessment, attitude, and construct representation: a descriptive study. In M. Poe & A. Inoue. (Eds.), Writing Assessment, Social Justice, and the Advancement of Opportunity. Colorado: WAC Clearinghouse.

Nulton, K. & McEachron, D. (2014) Using reflective analysis to integrate co-operative education into academic curricula. International Symposium on Cooperative & Work-Integrated Education (WACE) conference proceedings.

Vidovich, L. (2001). That chameleon 'quality': The multiple and contradictory discourses of "quality' policy in Australian higher education. Discourse: Studies in the cultural politics of education 22, 2 (published online 01 Jul 2010 https://doi.org/10.1080/01596300120072400

Zegwaard, K. E. & Ford, M. (Eds.) (2017). Refereed Proceedings of the 20th WACE World Conference on Cooperative Education 2017, Chang Mai, Thailand. University of Waikato, Hamilton, New Zealand: World Association for Cooperative Education (WACE).

Marketisation and consumerism in higher education: The student as both consumer and producer in personal branding

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ABSTRACT

Neoliberal rationality has led to the marketisation and consumerism of Higher Education with universities central to the development of fit for purpose graduates. Marketing Principles are evident where universities have to sell themselves, students are increasingly viewed as consumers of their products, and yet the students are also responsibilised with the need to manage self-hood and sell themselves to the market place. The digital age provides freedom to explore and promote multiple selves, connecting human-brand narrative and as an agentic human branding tool in the constructing of self. However, students are often caught in the tensions between social and symbolic capital in the image they present of themselves both online and offline and through their informal networks.

This work draws on the Bourdieu's Theory of Practice and compares the concept of personal brand equity with that of symbolic capital. It provides an account of a pilot study carried out to explore the ownership of students in shaping their personal branding and understand the relationship between 'habitus', 'agency' and in building 'brand-me' from a student perspective when seeking placements and graduate career progression. The pilot study consisted of qualitative one-to-one interviews with students in Higher Education and incorporated a 'soft systems' methodology using Rich Pictures to support the interviews. The findings of the pilot study suggest that that there is merit to promote further understanding of the valued forms of 'career capital' with students in shaping 'Brand-Me' in order to have points of parity and of difference.

Keywords: Brand-Me; Bourdieu; Personal branding; career capital; habitus

INTRODUCTION

The context of this research paper relates to the field of student placement in Higher Education with the focus on personal branding with students in periods of transition from student to employee as part of their career trajectory. It suggests that students could consider themselves as producers or as a 'product' requiring promotion and positioning in a way that a brand would differentiate from the competitors in the market place of employability and in developing 'brand-me'. This should be of consideration in support of the transition from student through placement to graduate and future career planning. As an offer of explanation, I will set out some of the policy and politics that is framing marketisation and consumerism in higher education, and the problemisation of personal branding and self-marketing in a digital age.

LITERATURE REVIEW

There has been demand from government and university regulators to respond to the employability agenda (HEFCE, 2011) and the focus of employability policy is predominantly based on neoliberal marketisation principles which have been framed from the 1980's 'social revolution'. This has shaped the shift for the purpose of Higher Education with universities central to the development of 'fit-for-purpose graduates for the knowledge economy and economic prosperity as a whole (Olssen & Peters, 2005). It has shaped the shift in terms of power, role and responsibilities in relationships between the State, employers, universities, students, and young people, in the

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production of 'human capital' (Yorke &Knight 2007) and the dominance of the 'consumer' construction (Brooks, 2017). Morrison (2017) suggests that the change in the funding base of undergraduate level Higher Education outlined in the 2011 HE White Paper was a clear expression of the commodification of Higher Education in England; in effect, a concerted attempt to create a market within higher education and its use of state financial levers and construction of young people as *consumers* of a higher education "product". Brooks (2017) explores this further reviewing English policy documents, which highlights the construction of students as 'vulnerable dependents' and 'thwarted consumers' rather than empowered consumers. The newly introduced Teaching Excellence Framework (TEF) seeks to incentivise and reward universities (expressed as achieving Gold, Silver and Bronze standards) for excellent teaching (BIS, 2015) to provide better signalling for employers as to which providers they can trust to produce 'highly skilled graduates', and indicators for prospective students. It is also seen as an increasingly aggressive neoliberal economic discourse to drive up standards within the sector as institutions that cannot attract students would have to change (DBIS, 2011). Williams (2011) suggests that universities encourage students to act as consumers by making demands and having their voices heard by expecting students to complete course evaluation forms, attention on the student experience giving them rights but no responsibilities and their parents as co-consumers. The development of employability skills may be by learning through placements which are a common feature of university programmes (BIS, 2011) and it is widely accepted that the students greatly value their placement role which makes a substantial contribution to their work-readiness, professional accreditation, employability and academic maturity. Harper Adams is typical to other universities, where the measure of successful student outcomes and gains articulated by the graduate employment rate and much importance based on this along with National Student Survey (NSS). Neoliberal rationality has led to a situation where universities (as producers) are having to 'sell themselves' on the market for institutional survival with students (as consumers) invited to select the 'product' best suited to their needs (Gewirtz, 1996, p. 289) and where the collectivist principles which underpinned education systems in the 1960s and 1970s have been replaced by the process of marketization. Self-marketing and personal branding is largely absent from marketing curricula in higher education and marketing texts and when it is, it is often (Alves et al, 2016; Atwong, 2015; Seaman & Tinti-Kane, 2013) undertaken from mostly a consumer rather than producer focus. Thus, in vying for positions for placement and employment, students are also producers having to promote themselves to the employers in the market place. Therefore areas of enquiry into self-identity, self-verification and self-making are worthy of further exploration in connection with the concept of brand-me and the marketing of self. The experiences of young people have changed quite radically over the last three decades and individualistic values and lifestyles (Furlong and Cartmel, 2007) have intensified in which people put themselves at the centre of their plans and reflexively construct their social biographies with '*individuals encouraged to perform as "Me &Co", selling themselves on the market place'*. Self-marketing consists of those varied activities undertaken by individuals to make them known in the market place, usually for the purpose of gaining employment. Personal branding (also known as self-branding) has a different nuance. This has been built on the cry of Tom Peters (Peters 1997, p. 83) that '*our most important job is to be head marketer for the brand called You'* with the key premise that everyone has a personal brand and with what he called a '*sign of distinction'* where the individual is encouraged to look inside themselves to discover key identifying attributes *'your unique promise of value', 'the core you'* and construct a compelling personal brand statement around this set of attributes to *'extract, express and exude'* (Arruda, 2017).

In marketing terms, a product (or student) may be broken down into bundles of benefits or values that mean different things to different 'buyers' (or employers) and may have several layers to its product anatomy. These layers would consist of firstly the core product (human being/agent), secondly the specified or tangible product (the expected qualifications, skills expected for the role, income level), thirdly the augmented product (personality, social and cultural capital, additional benefits such as hobbies, background above the expectations of the role) and fourthly the potential product (what could be achieved in the future such as with further training) which all in part make up career capital in the field of the market place. Applying the concepts of marketing to individuals where a product has both intangible and tangible attributes (Brassington and Pettit, 2013, p. 206), individuals can be defined as a brand with differentiating features (Aaker, 1991) with a brand 'promise' of authenticity (de Chernatony et al, 2013, p. 31) and encompassing expectations and perceptions from other people. These collective attributes of

augmented product anatomy combine to create a bundle of benefits of both functional and emotional values, the 'brand promise' which shapes the personal brand equity and in the development of 'Brand-Me'. Meeting consumer/customer needs is the main tenet in honouring the Marketing Principles, and therefore, the challenge for an individual is to offer themselves as a *product* shaped by consumer requirements. This consumer-orientated approach is often the premise of career advisors, encouraging the self-marketing of students to attain better skills to make them more attractive on the job market. However, personal branding encourages individuals to discover what they have to offer, in effect a self-audit, and then 'promote' this as a branded package to the target market. Shepherd (2005) suggests that the 'inside-out' process attempting to encapsulate the current strengths and uniqueness of the individual in relation to the market and Schon (1983) with reflective practice.

Self-promotion could be viewed as a crucial element to the success of getting the job one wants and to create a clear profile and attractive personal brand (Wust, 2014), but the perceptual nature of a personal brand also provides evidence of complying, or not with the accepted measures of social capital to match the rules of the game. These rules determine the amount, type and level of resources or capital the *agents* (students) need to have in order to participate and succeed in the *game* of securing a placement or position of employment upon graduation. Bourdieu's Theory of Practice (Bourdieu, 1977, Bourdieu, 1986) relating to field, capital and habitus is considered, where the interrelationship between the habitus and field is noted as 'doxa' being the '*preverbal taking for granted… because agents never completely know what they are doing that has more sense than they know'* (Bourdieu, 1990: 68*)* may be applied. The intangible features, of everything a person does, how they speak, how they appear and dress, how they behave, the contacts they make, sends signals which come together to create an image and shape a personal brand.

In addition to the commodification of education as mentioned earlier, the self is commodified through technology and individuals can create a mediated human brand image beyond that of curriculum vitae, blogging and commenting on others (Kedzior, 2016; Belk, 2013; Schroeder, 2013). Today's youth are often called 'digital natives' because of the seemingly effortless way they engage with all things digital (DBMLWG, 2009, Media Smarts, 2016) and use of social media in building social capital offers 'customized sociality' in the millennial generation through practices of 'bridging and bonding capital'. The 'nonymous' online media environment such as Facebook acts to scaffold engagement between parties and identity construction (Zhao et al, 2008, Manago and Vaughn, 2015) and the anchorage and authenticity of an online projection depends on the overlap between the online and offline networks. Encouraging a positive culture around social media and managing online digital footprint may also play a part in shaping a personal brand. The avid use of social media by young students in today's society display what Goffman (1959) described as interaction coherency whereby the actors (students) foster impressions that reflect well upon themselves and encourage the others, by various means, to accept their preferred definition, in effect a 'front'. Indeed, in attempting to promote 'brand-me' or display valued forms of 'symbolic capital' to stand out when applying for a job or placement position. Social networking profiles and showing a professional image can boost a candidates' chance for a job (Harris and Rae, 2011, p. 16) whilst keeping it authentic, honest and to present who they really are, to 'Be-You'. Moore et al (2017) proposed that individuals with a strong self-verification focus communicated this in a more fluid way and perceived as more authentic by employers. However, the use of social media also offers the potential for the blurring of lines between personal and professional use and the opportunity for "non-controllable" factors to lead to abuse and tension for young people where others are doing the branding and where a perceived negative image or 'digital shadow' may have been created through others' personal ethics. Unlike Goffman's observations, often there is no back stage where the hidden person can be themselves outside of their role or self-created identity. Evans (2010) emphasises the importance for the student to be a 'professional digital citizen' and in managing ones 'digital footprint'.

The digital age provides freedom to explore multiple selves and in terms of marketing, brands are often segmented for different target markets, therefore should a student be encouraged to have one brand or multiple brands for differing target audiences. Perceived as being inauthentic may be a result of failed segmentation as different brand identities clash and create a mixed message. A key branding precepts is that a brand should be simple, clear and consistent, and rather than having multiple brands which may cause confusion, conflict, contamination or dilution.

Labrecque et al, (2011) propose a sequence of brands and reinvented as the persons' life stages alter and adjust brand positioning to suit that new identify or audience. This may cause tension with youth of the Millennium who are used to constructing and living with multiple personas and social lives whether they can construct a brand image for business purposes that is centered on the 'real' or 'authentic' self and without contradiction in living the brand and when observed by others. Shepherd (2005) suggests this may be likened to a new world of *'personal engineering'* and the drive to 'Be You or Brand You' may in fact lead to an emasculated self where branding advice seems to discourage expressing multiple personalities or goals. Similar to actors on Goffman's (1959) stage, this leads me to query to what extent students choose their props (pictures, dress) to create meaning through self-presentation to others and are they cognisant of it; and how to use a technology-integrated pedagogical approach for students' self-branding development allowing for self-reflection and self-discovery beyond just enabling students to better market themselves. Marketing intersects with the narrative power of the selfie (Eagar and Dann, 2016) where it can be used to encapsulate and craft the self as a human brand image and is both *mimesis*, (the showing of self as a character in action – presentation of self) , and *diegesis* (the telling of the unseen things-, feelings and actions - the narration of self). The trend of using memes[9] as part of social media is perceived as a means of demonstrating authentic self, whilst 'othering' the belief and intended as parody commentary. Eagar and Dann (2016) explored the genre classification of selfie-ing and how selfies are an agentic emerging human branding tool in self-construction (or self- destruction) that aids individuals in presenting their self as a visual multifaceted public identity through the conscious editorial selection of images in the process as part of the production or promotion of oneself to mass audience. An industry specific perspective (Parmentier, 2013) using field specific social and cultural capital to 'fit in while standing out' would be more target orientated. The fragmentation of traditional social structures, orders and norms has enabled individuals to create an unbounded virtual self and connecting human–brand narrative to others through social media and to demonstrate the materialistic self through the assemblages (Giddens, 2013; Kedzior, 2016, Lee & Cavanaugh, 2016) in addition to self-gratification and display attributes of both material and symbolic meaning in the marketer constructed brand image.

In the neoliberal era of marketization, students in Higher Education are consumers in a commodity market place where they are expected to respond in line with marketing principles. Yet, students are also products in the market place to sell and expected to have an authentic brand image grounded in their unique set of attributes, and 'work your quirks' (Arruda (2017). For Placement Managers this presents a challenge in how to best support students in the transformation from student to placement employment and subsequent career progression requiring them to have an understanding of the entry conditions to different positions, or the 'rules of the game' (Bourdieu, 1997). So that they may both 'stand out and fit in' (Parmentier, 2013) having competitive 'points of parity' and also 'points of difference' in the development of 'Brand-Me'. In doing so, the development of 'Brand-Me' and an awareness of the valued forms of capital should be a consideration in support of the transition from student through placement to graduate and future career planning.

METHODOLOGY

The pilot study used qualitative in-depth interviews as developed by Strauss & Corbin (1998) within the boundaries of issue of Placement at Harper Adams University with the main objective to: Explore the ownership of students in shaping their personal branding and understand the relationship between 'habitus', 'agency' and building 'Brand-Me' from a student perspective.

The student perspective was taken from students from the agri-food related sector in their second year of studies (pre-placement) and in the process of applying and securing positions, along with students who are post-placement in their final year of studies. Incorporating the drawing of pictures (Ciuccarelli, 2016, Berg & Pooley, 2013) in the pilot study with individuals as part of one to one qualitative interviews was considered to fit with the interpretivist methodological approach and to explore whether Rich Pictures can be an analysis tool which allows us to understand what an individual thinks about when preparing for placement /employment and in shaping 'Brand-

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[9] Memes – an image, video, piece of text etc. typically humorous in nature that is copied and spread by internet users often with slight variations, acts as a unit for carrying cultural ideas, symbols or practices /or element of culture or system of behaviour passed from one individual to another by imitation or other genetic means

Me'. The analytical framework for art and devised by Carney (1994 in Bell & Morse, 2012) in Table 1 was used in the pilot study to appraise using this method with Rich Pictures with individuals.

TABLE 1: The analytical framework for art as set out by Carney (1994) and how it could apply to Rich Pictures (Bell & Morse, 2012).

Step	Name of step	Notes	Rich Pictures
1	Locate the style	Not the art-historical context and its characteristic features upon which the content of the piece depends	The content of the RP; the problem or system being analysed
2	Descriptive Features and Structures	Note the descriptive features and structures in the piece. For example, the colours, shapes, arrangements, textures, brush strokes and thickness of lines	Content of the RP; the use of colour, shapes, drawings etc.
3	Primary Aesthetic Features	Presence of any representational, expressive and exemplified features.	Are any features dominant in the picture? Perhaps because they are placed more centrally or drawn larger and in bolder lines.
4	Value Features	These encompass aspects of both form and content. For example, the relationships of features in the picture.	Linkages between the elements of the RP; whether the components are isolated or grouped
5	Low-level Interpretation	The meaning or the content of the picture in its basic form	The overall content of the picture; is it narrow in focus or does it encompass many points?
6	High-level Interpretation	Brings together the low-level interpretations along with such things as the artist's oeuvre, declarations made by the artist about the work and the art in an historical context.	Note the points made by the team when presenting the RP during a plenary. Are the points in the RP? How rich is the description given.
7	Critical Judgement	Whether the picture has (or lacks) aesthetic value to a degree and whether the artwork has more (or less) value than another.	Some overall sense of the quality of the RP which emerges from all the above.

MAIN FINDINGS

The opening question asked the students to 'tell me about your placement planning and career journey to date' as a function to set the respondents at ease, to undertake a light exploration of aspects to do with concepts around agency and capital and provide some context around their placement and career journey. When asked what did they think helped them to secure the role, their answers appeared to reveal a positive understanding of the 'rules of the game' and influence of their habitus and background on how it helped them to secure their role as evidenced with comments such as:

Because I could empathise with farmers, talk to anybody….. Being brought up on a farm environment…and that did probably help' S1; and 'also good communication skills with other workers….so in the farming industry you have a certain language farmers communicate with' S3; 'they would automatically assume I was a South African and stereotyped…. the guy I had an interview with said he had the same problem when he was in university … that there is a sort of stigma around South Africa that we are arrogant….but he was like I'll give you a chance… S4.

Social strategies are the ways people make conscious rational choices although may be unconscious of their beliefs. Where students have grown up in a social context of a family in which farming or self- employment is high will have experienced social learning and have influence on their thinking, attitudes and behaviour. The influence of family back-ground and relational support and as Jaskiewicz (2015) calls entrepreneurial legacy and entrepreneurial bridging was evident in influencing two of the students: ...when I graduate my dad will be at

retirement age… and we have scope to change the business, umm... and he's very keen for me to be involved' S1; and also: 'I have used my dad as a role model basically and that's what has finally put me in the right path. S3.

In order to explore the cluster of values that make up symbolic or career capital with students seeking a placement or career the students were asked 'What it is about you as an individual which may contribute to you securing a placement position or chosen area of work and the steps you take to prepare for placement and career. This line of questioning sought to elicit and explore aspects that relate to their own assessment of their skills and confidence, aspects that relate to personal branding/ what may constitute symbolic capital or career capital / augmented product features and steps they take to promote themselves and their brand equity. Using Rich Pictures method provided the opportunity for the interviewees to consciously and subconsciously clarify their thoughts, a form of 'probing' and puts them in control of the interview: they are telling me and helping me to understand, and as Gillham (2003) suggests they are 'owning' the interview and the 'content' whilst I controlled the direction and order of the topics covered. Upon completion, the students were asked describe their thoughts, and this reflection enabled me further exploration of the content and focused the interviewee on the essence of what has been drawn and also what is behind the Rich Picture. The Rich Pictures for each student were very different and represent different concerns and backgrounds (see Figures 1-4 in Appendix 1). The step by step analytical framework method for art as devised by Carney (1994) and used by Bell and Morse (2012) with groups (as shown in Table 1) was used to appraise the Rich Picture for each interviewee and is compiled in Table 2 (see Appendix 1). The analysis of the Rich Pictures using the format devised by Carney looks at the criteria and merits for each picture drawn. Bell (2012) used the format to analyse Rich Pictures drawn by a group, whereas, the Rich Picture method was used with individuals for this pilot and this made a difference, as in the plenary session, it allowed individual quotes to be included as part of the high-level interpretation along with explaining the nuances associated with colours and certain images.

The influence of Harper Adams, institutional capital, the university itself was mentioned by all four students and a key step in acquiring academic capital, in gaining confidence, using relevant modules, professional contacts, networking and support in securing a placement or career management: Harper gives me the education and qualifications and that gives me confidence' S1. 'The university is the most important because I came here to university to get a career, I mean it's a route for the industry I suppose… and come for the links and contacts'S2. I always research the company, any articles, good publicity bad publicity, what their research and development there may be. Facebook as well, and see if I know anyone in the company, because there is so many ex Harper students. You go to an interview and it's 'oh I went to Harper!' so that's the first thing I do' S3.

The influence of family and background as social and cultural capital were values raised by the students in influencing and preparing them for their placement and career and also concurs with Jaskiewicz et al (2015): I had to take in a lot of considerations from family' and 'Green is for my grass roots sort of establishment' S1.'Sheep –I 'm passionate... getting a couple of sheep of my own that's when I became more interested in the farm and actually generally agriculture as well so this has been part of the process of the career'S3. 'I am not from a farming background and don't have the necessary contacts that other people have. S2.

The students were asked what other methods, other than your CV do you use to promote yourself? One student kept a portfolio 'like a hard copy journal'(S1) which included minutes of meetings, speeches and marketing campaigns and evidence of work that had been undertaken previously. The use of social media (Facebook, Twitter and LinkedIn) in preparing for placement and career management was not evident in the Rich Picture drawings or using any other means of promotion. LinkedIn was something that all were considering of using in the future: I don't have but it is something I am thinking about of establishing' S1; 'I have LinkedIn from when I was at XXX but I don't really understand how I would use it from a student perspective' S2; and further explained as: 'I suppose I see LinkedIn as a tool for when people are already in employment whereas Facebook we have grown up with it through school and we never saw it as a promotional tool. S4.

In an attempt to gain an understanding of their understanding of 'Rules of the Game' students were asked 'In the positions you are interested in, what it is that employers are looking for?'. Personality was one of the values

mentioned, as well as being adaptable, independent and hardworking: Likeable personality… if asked to do something you could just get on with it', and 'capability of adaptability, independence and fitting in with the company' S1. The aspect of being able to 'fit in' was expressed in another way by student who had faced several rejections or 'struggles in the field' commented ' I felt that maybe I wasn't prepared for the working world, but maybe it's that you don't fit with the stigma of the company that's looking for' S4.

The questioning format in the one-to-one interview deliberately avoided the use of the term 'Brand-Me' in the interview in order to tease out if this was a concept that they were aware of. Evidence of personal branding, making conscious decisions of self- promotion above that of devising Curriculum Vitae had not become apparent as evidenced by their comments. Therefore in order to gain an understanding of the students' perception of the concept Brand-Me the students were asked to do another Rich Picture activity and asked the question 'If you had to describe or consider yourself as a brand, Brand-Me, what is it about you that would be part of your brand and how would you go about promoting Brand-Me, how would you display that?. Upon completion, the students were asked to describe their thoughts, and this reflection enabled further exploration of the content and focused the interviewee on the essence of what has been drawn and what is behind the picture. The series of steps as shown in Table 1 (devised by Carney, 1994) was used again to appraise the Rich Pictures (see Figures 5-8 and Table 3 in Appendix 2) for context and content. A common theme across all four students was the desire to reflect their personality, 'be portrayed as bright bubbly and happy…. Bring in happy ray' S1 linking their personality to a creating a logo: 'so with the logo in the middle, …and kind of having it bright and colourful, because, I feel like I have a bright personality' S3; and linking personality with personal identity : 'Friendly, adaptable, and African - they call me Saffa which is South Africa which would probably play a role in my identity' S4.

The paradox of students having to both 'stand out': 'I like to stand out as in if I have tried to do something I will make sure I have tried my absolute best'.S3; 'And that's basically where the rat race came in, to try and stay out of the rat race and become your own person' S4, and 'fit in' was raised by the students in their responses: ' I would be different, I could fit in and get on with anybody, but.. I can be my own person and not afraid to speak out' S1; and 'the blue tie is probably the Harper stigma, being at Harper you feel you have to be dressed in tweed and in a specific way; whereas moving to London, it was smart but in a different way, you were in a suit every day as opposed to the country' S4.

How Brand-Me could be portrayed was more difficult for the students to explain, S1 said they would 'try to be coherent and everything linked' however, the irony is that their Rich Picture was very eclectic (see Table 3 and Figure 5). On the other hand, S2 found it very hard to explain how to portray Brand-Me and paused several times in the verbal answer and yet, had a very clear Rich Picture, albeit in two halves and expressing the career capital values as being part of the product anatomy with several augmented features, the only student to do this (see figure 6). Clothing and appearance were mentioned by two of the students as being a way to portray Brand-Me which would also apply to Goffman's observation (1959) in how people enact to create conformity or impression: 'I suppose in the way you dress maybe? like colourful, I suppose, yeah going back to my bought dresses for placement, I bought two black dresses for the two that I did not get, yet the red one, I did get so, like being colourful bold in clothing, umm also having the right clothing…' S3; and   'I don't know how to explain this. Your brand is your appearance really and if you come away well- presented everything else builds towards that mentality' S4.

The questioning explored further whether in promoting yourself are there particular things you would pick out about you in an attempt to tease out any further dimensions of habitus, background / augmented features that the students placed a value. What was of interest was the sense of taking ownership of their personality: 'To make me stand out, to make people see my true personality. Things like timekeeping were less considered' S1; and also: 'To be successful you have to just embrace who you are and be able to run with it rather than fit into the mould' S4. What one may take from this was in a sense, to be able to 'Brand-Me', you need to 'Be You' which suggests being more agential than 'fitting in' and part of brand equity.

DISCUSSION

The Rich Pictures appeared to offer an expression of the inner life or 'soul' of the individual – whereby the students put great conscious effort into the pictures which highlighted the unconscious during the plenary session and teased out a level of thinking and knowledge which was not evident in the initial verbal questioning. It was evident from the student feedback that the analysis, which emerges in a Rich Picture, is not an end but a beginning, and that it provides the information for the next step in a process and thus, Rich Pictures do have transience. The framework used by Bell and Morse (2012) as an exploratory means in appraising the rich pictures was useful to gain understanding. However, '*Next steps to develop Brand-Me'* could be included in the framework and there is still the requirement for transcribed notes and substantive content to be analysed and categorised for each individual to disentangle their thoughts tease out higher level understanding. The pilot research showed a subconscious awareness of the 'rules of the game' and the interrelationship between the habitus and field.

CONCLUSION

What was evident from the pilot research was that the students used very few tools in their 'toolkit' (other than CV) in attempting to highlight their attributes. The Rich Picture analysis displayed their sense of understanding of agency and taking ownership of their personality and their view that to be able to 'Brand-Me', you need to 'Be You' which suggests being more agential than 'fitting in' and part of brand equity. The blurred lines and tensions in social and symbolic capital between personal and professional use of using social media to be a professional digital citizen and concern over 'digital shadow' where they are subject to others' branding of them has limited their willingness to use social media in a positive proactive way and shape their personal brand. Whilst it is not the role of the university to mould students in how to sell themselves as human capital for the market place, there is a role in offering pedagogic support to students in seeking placement and employment. Its success is in providing student agency to develop understanding of how employability is constructed and realised in students' social interactions. There is merit in exploring further the affinity and tensions between the concept of personal brand equity and whether students see themselves as responsible, active agents in the market of employability as producers as well as consumers.

REFERENCES

Aaker, D.A. (1991). Managing Brand Equity: Capitalising on the Value of a Brand Name. New York: Free Press.

Alves, H., Fernandes, C., and Raposo, M. (2016). Social media marketing: A Literature Review and Implications. Psychology & Marketing. Dec 2016, Vol. 33 Issue 12, pp1029-1038.

Arruda (2017). Website of William Arruda. The Personal Branding Guru. http://williamarruda.com/willisms-2/. [Accessed online September 6 2017].

Atwong, C. (2015). A Social Media Practicum: An action-learning approach to social media marketing and analytics. Marketing Education Review. Vol.25, No1 .pp27-31.

Belk, R. (2013) "Extended self in a digital world", Journal of Consumer Research, Vol. 40 no. 3, pp 477-500.

Bell, S. and Morse, S. (2012). How people use rich pictures to help them think and act. http://epubs.surrey.ac.uk/745796/1/How%20people%20use%20rich%20pictures%20to%20help%20them%20think%20and%20act%20-%20SPAR.pdf. [Accessed 10 December 2016].

Berg, T., and Pooley, R. (2013). Rich pictures: collaborative communication through icons. Systems Practice Action Research 26: 361-376.

Bourdieu, P. (1977). Outline of a Theory of Practice. Cambridge: Cambridge University Press. https://monoskop.org/images/7/71/Pierre_Bourdieu_Outline_of_a_Theory_of_Practice_Cambridge_Studies_in_Social_and_Cultural_Anthropology_1977.pdf [Accessed 31 March 2016]

Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.) Handbook of Theory and Research for the Sociology of Education (New York, Greenwood), 241-258.

Bourdieu, P. (1990). The Logic of Practice. Oxford: Polity Press.

Brassington, F., Pettitt, S. (2013). Essentials of Marketing. 3rd edition. Essex: Pearson Education Limited.

Ciuccarelli, P., (2016). Turning visualisations into stories and 'big pictures' (in Information Graphics eds. Rendgen, S., Ed Wiedmann, J). Italy: Taschen.

De Chernatony, L., McDonald, H.B., and Wallace, E. (2013). Creating Powerful Brands. Oxon: Routledge

Department for Business, Innovation and Skills (BIS). (2015). Fulfilling our Potential: Teaching Excellence, Social Mobility and Student Choice https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/474227/BIS-15-623-fulfilling-our-potential-teaching-excellence-social-mobility-and-student-choice.pdf . [Accessed January 6 2016].

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Cooperative and Work-Integrated Education,
Stuttgart, Germany

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Department for Business, Innovation and Skills (BIS). (2011). Supporting Graduate Employability: HEI practice in other countries. BIS Research paper Number 40. June 2011. London: BIS.

Digital Britain Media Literacy Working Group (2009). DigEuLit – a European Framework for Digital Literacy (2005), and Jenkins et al., (2006) Confronting the Challenges of Participatory Culture: Media Education for the 21st Century. http://www.newmedialiteracies.org/files/working/NMLWhitePaper.pdf. [Accessed July 12 2017].

Eager, T., and Dann, S. (2016). "Classifying the narrated #selfie: genre typing human-branding activity". European Journal of Marketing, Vol.50 Issue: 9/10, pp1835-1837. https://doi.org/10.1108/EJM-07-2015-0509. [Accessed online July 03 2017].

Evans, L., (2010). Social Media Marketing: Strategies for Engaging in Facebook, Twitter & other Social Media. USA: Que Publishing.

Gewirtz, S. (1996). Market discipline versus comprehensive education. A case study of a London comprehensive school struggling to survive in the education market place', in J. Ahier, B. Cosin and M.Hales (Eds) Diversity and Change. Education Policy and Selection. London: Routledge.

Giddens, A. (2013). The Constitution of Society: Outline of the Theory of Structuration. John Wiley & sons, New York.

Gillham, B. (2003). The research interview. London: Continuum.

Goffman. E. (1959). The Presentation of Self in Everyday Life. United States: Anchor books. https://monoskop.org/images/1/19/Goffman_Erving_The_Presentation_of_Self_in_Everyday_Life.pdf [Accessed 31 March 2016]

Harris, L. and Rae, A. (2011). Building a Personal Brand Through Social Networking. Journal of Business Strategy, 32, 5, 14-21.

HEFCE (2011), Opportunity, Choice and Excellence in Higher Education, HEFCE, Bristol.

Jaskiewicz, P., Combs, J.G., and Rau, S.B. (2015). Entrepreneurial Legacy: Towards a theory of how some family firms nurture transgenerational entrepreneurship', Journal of Business Venturing, Vov.30, pp.29-49.

Kedzior, R., Allen, D., Schroeder, J. (2016). "The selfie phenomenon – consumer identities in the social media marketplace", European Journal of Marketing, Vol. 50 Issue: 9/10 pp.1767-1772, https://doi.org/10.1108/EJM -06-2016-1363 [Accessed online July 3 2017].

Labrecque, L., Markos, E. and Milne, G. (2011). Online Personal Branding: Processes, Challenges, and Implications. Journal of Interactive Marketing. Volume 25. pp 37-50.

Lee, J. and Cavanaugh, T. (2016). Building your brand: The integration of infographic resume as student self-analysis tools and self-branding resources. Journal of Hospitality, Leisure, Sport and Tourism Education. Volume 18. pp 61-68.

Manago, A., and Vaughn, L. (2015) Social Media, Friendship, and Happiness in the Millennial Generation. In M.Demir (ed.), Friendship and Happiness. https://www.reserachgate.net/publication/283736261_Social_Media_Friendship_and_Happiness_in_the_millenial_Generation [Accessed online April 2017].

Media Smarts (no date). Digital Literacy Fundamentals. http://mediasmarts.ca/digital-media-literacy-fundamentals/digital-literacy-fundamentals. [Accessed July 12 2017].

Moore, C., and Lee, S. (2017). Authenticity key to landing a job. Available online at: http://www.ucl.ac.uk/news/news-articles/0617/220617-Authenticity-key-to-landing-job (Accessed 26 June 2017)

Morrison, A. (2017). The responsibilised consumer: neoliberalism and English higher education policy. Cultural Studies – Critical Methodologies, 17 (3), pp197-204.

Olssen, M. and Peters, M. (2005), 'Neoliberalism, higher education and the knowledge economy: from the free market to knowledge capitalism', Journal of Education Policy, Vol 20 No. 3, pp. (313-345).

Parmentier, M.A., Fischer, E. and Reuber, A. (2013), "Positioning person brands in established organizational fields", Journal of Academy of Marketing Science, Vol. 41 No.3 pp.373-387.

Peters, T. (1997). The brand called you, FastCompany, 10, pp 83.

Schon, D. (1983). The reflective practitioner: How professionals think in practice. New York, NY: Basic Books.

Schroeder, J. (2013). Snapshot aesthetics and the strategic imagination", in Visible culture, No.18, available at: http://ivc.lib.rochester.edu/portfolio/snapshot-aestheitcs-and-the-strategic-imagination/ [Accessed July 4 2017].

Seaman, J. and Tinti-Kane, H. (2013) Social media for Teaching and Learning. Pearson Learning Solutions and Higher Education. http://www.pearsonlearningsolutions.com/assets/downloads/reports/social-media-for-teaching-and-learning-2013-reoprt.pdf. [Accessed online April 4 2017].

Shepherd, I. (2005). From Cattle and Coke to Charlie: meeting the Challenge of elf marketing and Personal Branding, Journal of Marketing Management, 21: 5-6, pp 589-606. http://dx.doi.org/10.1362/0267257054307381. [Accessed online September 5 2017].

Strauss, A., and Corbin, J. (1998). Basics of qualitative research. Techniques and Procedures for Developing Grounded Theory. 2nd Ed. London: SAGE Publications Ltd.

Williams, J. (2011) Constructing consumption: what media representations reveal about today's students. Chapter 14. In: The Marketisation of Higher Education and the Student as Consumer. 2011. Editors Mike Molesworth, Richard Scullion and Elizabeth Nixon. Oxon: Routledge.

Wust, P. (2014) Self-Branding: Success Through the "Me" Brand. Available online at: http://learn.citrixonline.com/rs/citrixonline/images/353EN_WP_Self-Branding-Success-Through-the-Me-Brand.pdf (Accessed 28 April 2016).

Yorke, M., & Knight, P. (2007). Evidence-informed pedagogy and the enhancement of student employability. Teaching in Higher Education, 12, (2) 157-170.

Zhao, S. Grasmuck, S and Martin, M. (2008) Identity construction on Facebook: Digital empowerment in anchored relationships. Computers in Human Behaviour. Vol.24, issue 5, September 2008, pp 1816 -1836.

Fig 1. S1-Preparing

Fig 2. S2- Preparing

Fig. 3. S3-Preparing
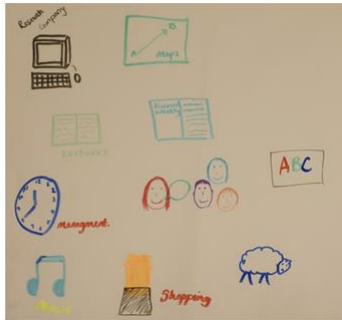
Fig.4 S4-Preparing

TABLE 2: Carney's (1994) framework for critiquing art and its application to Rich Pictures in preparation for placement Figures 1-4.

	Name of step	RP figure 1- S1	RP figure 2 –S2	RP Figure 3- S3	RP Figure 4 – S4
1	Locate the style	Context is around 'self' preparing for employment.	Context is clear that it is preparing for placement and career management	Context is not evidently clear that it is in preparing for employment.	Context is about job seeking.
2	Descriptive Features and Structures	Picture has a number of components, all centred on a diagram of a person and constructed like a mind map. Good use of colour.	Picture is solely comprised of words, centred on the topic and constructed like a process map. Good use of colour in words and lines.	Picture has a number of components with good use of colour. The pictures scattered around the sheet without the appearance of order or lines.	Picture has a number of components, some related and with good use of colour.
3	Primary Aesthetic Features	The picture has a large centre image of 'self' and many images connected from these using pink lines in an organised structure with descriptive titles to each image. Images of the globe, a CV, Money, microphone at the top, family home and Harper Adams with a double line, a building to the right depicting future opportunities. To the bottom left is a cluster of images showing people, briefcase, and computers relating to the placement. To the left were images depicting family farm, past experience and also career development.	The picture has three themes – University is placed at the top, Personal at bottom right and Career management to the left and each with the same level of boldness. Each title area has further arrows and words explaining the process. No images are used at all.	The picture has a number of colourful images scattered around the sheet without the appearance of order or lines. The top half shows images of a computer, a map, lecture notes and farmers weekly. The bottom half shows images of people, a clock, letters ABC, musical notes, a dress and a sheep.	The picture is covered with colourful images and words spread over the entire sheet. There does not appear to be an order to the picture, and looks very eclectic. The eye is drawn to the centre of the sheet to the words, CV and Covering letter written in red beneath which are red arrows and red crosses next to an image of a door, a blue tie, a book showing studies, pink stick people with a cross, an image of a phone with a cross, the word 'poultry' with a cross and a map of Africa with a cross. A red arrow is besides this leading to the careers office and an image of an avocado with a green tick and the words Personal development in red and Tesco in blue positioned next to a building. The top right of the picture has the word 'Confidence'' written in red and surrounded by images of stick people, a car, an aeroplane, people giving a presentation and the words: presentation skills; travel?; and home?? .To the top left of the picture there are red ticks next to a document, wine bottle and glasses, a graduation image a set of books and the words: aspirations, graduation.

4	Value Features	The images have been sequenced into clear spaces using pink connecting lines to self and titles for each image in purple on the right side and in red on the left side.	The three themes are written in large capital letters (University and Personal in red, Career management in purple) and appear to be distinct from each other with a cluster of items for each, and some showing a process. There is connectivity between the three themes.	The images are all isolated no grouping, lines or connectivity shown.	Apparent groupings are not immediately evident. However there are some clear linkages in parts of the picture if starting from the centre of the picture where the words are in red and following the red arrows from here. This then takes the story to the right and upwards.
5	Low-level Interpretation	The picture has a strong focus on the theme and the person is very much the focus of the story.	'University' has the most topics flowing from it covering lectures, lecturers, assignments, HAU reputation and contacts, and careers advisors showing a process from this to giving ideas, placement adverts, assignments, viewing job ideas and what is available. 'Personal' has arrows linking up to University and across to Career Management and shows items around using holidays, building skills, interview preparation, building a good CV. 'Career Management' links to gaining a placement which further leads to a grad. scheme, choosing particular modules to study and speaking with other students to gain knowledge of jobs. This also links o the process of gaining a placement in the 'University' section.	The picture has numerous images, but also plenty of spaces between the images. Not much of a story appears to be told here.	The picture has a strong focus on the theme, covers many points and the red crosses and ticks and question marks show some negativity, consideration and success in the story.
6	High-level Interpretation	During the plenary, the lines in pink were chosen for being strong minded; the blue lines being importance of Harper and family; the pale blue globe explained as being *'dreamy and hazy'*, green colour showing grass roots , whilst the red titles depicted coping areas, firm areas and the influence of the YFC placement.	During the plenary, the colours were said to have had no meaning and the desire to not use pictures. The topic areas Personal and University are joined together *'because it's what you make it isn't it'*.	During the plenary, the story came much more apparent and alive and explanations provided for each image revealing an organised process to preparing for career. The top half was more about researching the company, using lectures and farmers weekly and maps to check job areas, always talking to people, importance of time management and having determination after being diagnosed with dyslexia (noted by ABC). The musical notes depicted building confidence and singing 'powerhouse ballads', the dress depicted always going shopping for an interview outfit; the sheep was described as '*a passion which I put to my career as well'*.	During the plenary, the picture was divided into two halves starting with the CV and moving to the right and upwards. The red crosses depicted rejection after rejection in the interview process and blaming having an African background for these rejections. The success (green tick) with an avocado company and Tesco led to greater confidence and job offer. Whether to travel, go home, or work were future decisions as depicted by the images and words in the top left of the picture.
7	Critical Judgement	A strong RP that tells a clear, coherent and focussed story.	A RP which does address and provides an insight to the issue and a story, but does not reveal more than the words shown.	A strong RP when the images are discussed in context. Without the narrative, the images do not tell a coherent story.	A strong RP that tells a difficult and successful story and enriched by the narrative.

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Fig. 5. S1-Brand Me

Fig. 6. S2-Brand Me

Fig. 7. S3- Brand Me

Fig. 8.S4-Brand Me
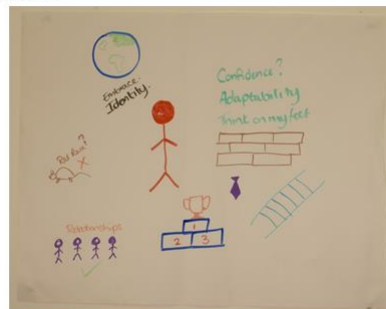
TABLE 3: Carney's (1994) framework for critiquing art and its application to Rich Pictures in Brand-Me Figures 5-8.

	Name of step	RP figure 5- S1	RP figure 6 –S2	RP Figure 7- S3	RP Figure 8 – S4
1	Locate the style	Context is not evidently clear; it seems to be about a female.	Context is clear that it is about brand me and self-promotion.	Context is about something being colourful and bold.	Context is about different aspects about a person.
2	Descriptive Features and Structures	Picture has a number of components with good use of colour. The pictures are scattered around the sheet without the appearance of order or lines.	Picture is in two halves, an image of a person on the top half and a diagram of product anatomy on the bottom half. Good use of colour in words and lines.	Picture has a number of components with good use of colour which are assembled around one large central image.	Picture has a number of components with good use of colour which are assembled around one large central image.
3	Primary Aesthetic Features	The picture has a number of colourful images scattered around the sheet without the appearance of order, grouping or lines. There are no dominant features other than having a female stick person appearing 4 times in the picture. The top half shows images of a sun, smiley face, cloud and clock. The middle section shows a large briefcase, a stick person holding a briefcase, a row of stick people, lightbulb and box. The lower part of the picture has a row of animals of different species with one highlighted by a yellow circle, a red stick person by a bus, a purple stick person on their own and a purple stick person by a sun.	The top half shows a blue stick person with long hair with a speech bubble saying 'I'll have a go at anything'. Beside to the left is a list of three bullet points saying the words: hardworking; good communicator; and strong attention to detail. The Product anatomy has four circles, the first saying: potential employee; the second with attributes of age, health and availability to work. The third describing personality attributes; and the fourth saying: potential to be a very valuable employee.	The picture has a number of colourful images surrounding a central dominant image with large letters A and G in a box with a border in a rainbow of colours. Two pink arrows point towards the box saying the words: colourful; and bold. On the right hand side are images of a speech bubble below words saying, communicate with others; beneath are images of wheat, cattle and sheep and the word saying, farming background. On the bottom right an image of a large smiley face. On the left hand side is a hammer and nail with the word hardworking beneath and connecting by an arrow to a money sign above saying: value for money.	The picture is covered with colourful images and words spread over the sheet. There does not appear to be an order to the picture, and looks very eclectic. The eye is drawn to the centre of the sheet to an orange coloured stick man. On the right hand side the words, confidence, adaptability and think on my feet are written in green above a brown brick wall. Below is a purple tie and blue ladder. beneath the stick man is a winner podium with a trophy on the top. To the left hand side is a group of purple stick people with the word, relationships above. On the left is a race with a red cross beside it and at the top of the page is a globe with the words, embrace, and identity, written in black beneath.

4	Value Features	The images are all isolated no grouping, lines or connectivity shown.	The two halves of the picture are distinct, no connectivity shown.	The large central colourful image is the main focus of the picture and surrounded by colourful images with some connectivity to the centre and with each other.	The images are all isolated no grouping, lines or connectivity shown
5	Low-level Interpretation	The picture has numerous images, but also plenty of spaces between the images. Not much of a story appears to be told here.	The picture is very precise in showing values pertaining to 'Brand –Me' in mainly a professional capacity and limited personality conveyed.	The picture has several images surrounding the main image and a sense of colour, happiness and hardworking emanates from the picture and attempt to portray a story about brand -me.	The picture has several images surrounding the main image and a sense of striving, ambition, to be a winner, to climb, and sense of confidence emanates from the picture and attempt to portray a story about brand -me.
6	High-level Interpretation	During the plenary, the story came much more apparent and alive and explanations provided for each image revealing perception of brand me but not portrayal of brand me. The stick people represented confident me, professional me, fun person me and opportunity seeking me not waiting for a bus. The row of animals depicted independence and explained as '*I don't follow the crowd…to fit in and also own person to speak out*'; and images at the top right depicted imagination, thinking outside the box and good timekeeping. The lack of connections was explained that '*they are all stand alone, yes they are all intertwined but I see them as different things as I go about my daily life*'.	During the plenary, the colours were said to have had no meaning. The three bullet points were said to be the '*winning combination*'. Little more was added to describe the picture.	During the plenary, the central colourful box was explained as a logo and that the colours were a deliberate choice in attempting to display a colourful and bold personality explained as '*I like to stand out*'.	During the plenary, the first image explained was the globe and to '*You are who you are, embrace who you are and run with it*' and the theme of having a winner mentality to '*put yourself first and to always build includi*ng relationships'.
7	Critical Judgement	A RP that provides an insight to the students' self-perception of brand me, but only with the benefit of narrative. It does not tell an obvious coherent story that portrays 'brand-me'.	A strong RP which attempts to portray brand-me, but does not reveal more about the student than the words shown.	A strong RP attempting to portray brand-me.	A RP that pulls some images together that provides an insight to the students' self-perception and an attempt to portray brand me.

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An effective decentralised model for cooperative and work-integrated education: The case of a university of technology in South Africa

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ABSTRACT

The practice of Cooperative & Work Integrated Education (CWIE) in an institution can be attained through various models ranging from a centralised or a decentralised models to an integrated model, which is a combination of the two. A centralised model in the central office takes responsibility for the placement and monitoring of all the university's students. This model offers limited interaction with the academic departments. In a decentralised model, on the other hand, academic departments operate the co-operative education function within themselves and often results in various practices within one institution. Lastly, an integrated model is a combination of the two in which the central office plays a coordinating role as well as a partnership management role across the institution while the academic departments manage the academic project associated with work-integrated learning (WIL).

According to Engel-Hills et al (2010), there are a wide range of CWIE practices along a continuum from theoretical to more practical forms. It is worth noting that CWIE is not restricted to workplace learning and that it includes, but not limited to, learning from experience. Most Higher Education Institutions (HEIs) worldwide make use different models to manage CWIE. Irrespective of which model and process is used, it is crucial that an appropriate policy and Quality Management System for CWIE is in place to ensure that the intended outcomes are achieved. This paper depicts a case of a university of technology to an effective decentralised CWIE model, showcasing and sharing the policies and practices of the model.

Keywords: Experiential Learning, Work-Integrated Learning, Co-operative Education, Centralised and Decentralised, Policy, Practice.

INTRODUCTION

Higher education is perceived as the vehicle for ensuring an academically sound, skilled and productive work force. Debatably, best practice is achieved through establishing a well-designed WIL structure and policy as well as maintaining partnerships between community and industry to benefit students, institutions, employers and the community. Higher Education Institutions (HEIs) have become more focused on quality of teaching and learning and the provision of high-quality education experiences for students in WIL. HEIs are also recognising the educational impact of WIL which is becoming increasingly popular in higher education settings.

Researchers have indicated that HEIs worldwide make use of different models to manage CWIE. Some use a centralised model where the central office under the leadership of a Director takes responsibility for all co-operative education functions across the institution. Some institutions practice a decentralised model in that it manages the function within itself. The last model which institutions also make use of is a centralised – decentralised (integrated) model. Under this model, the central office, led by a Director is made up of different Placement Officers who manage the placement function for students across academic departments and faculties.

Regardless of the model used, it is crucial that an appropriate policy and quality management system for WIL is in place to ensure that the intended outcomes are achieved and also the best practice for WIL is followed.

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LITERATURE REVIEW

Perspectives of Work-Integrated Learning in the Literature

Both South African and international literature review has indicated wide-range approaches to what is known as 'Cooperative and Work Integrated Education (CWIE)', 'Work-Integrated Learning' (WIL), 'Co-operative Education' or 'Experiential Learning'. WIL is typically defined as an umbrella term to describe curricular, educational and assessment practices, across a range of academic disciplines that integrate formal learning and workplace concerns. The integration of theory and practice in student learning can occur through a range of WIL approaches, apart from formal or informal work placements (The Council on Higher Education, 2011). WIL is an umbrella term referring to an experience where students are exposed to authentic and relevant contexts indicative of the workplace where they apply theory to practice (Council in Higher Education, 2011). The WIL agenda has emerged as a high priority for universities (Cooper, Orrell, & Bowden, 2010).Work-Integrated Learning is also defined as "career-focused learning which integrates theoretical knowledge with workplace practical application, within a vocationally designed curriculum" (Patrick et al 2008).

Even though WIL is defined in various ways, all definitions have one thing in common: theory meeting practice, where students are presented with the opportunity to integrate their academic theoretical knowledge with real-life work situations. Through WIL, students get to demonstrate their abilities to potential employers. Students are presented with challenging tasks during their WIL period in order to enable them to develop and cultivate their careers to their highest potential. The purpose of WIL is to improve employability and develop competence such as the ability to apply knowledge and skills to the demands of the workplace.

WIL speaks directly to the vision of the South African White Paper on Post – School Education and Training (2014) which emphasizes on the crucial role of workplace learning. In 2014 Minister of Higher Education and Training, Dr Blade Nzimande emphasised that the role players for WIL such as the youth, Sector Education Training Authority (SETA), universities and TVET Colleges, should work closely with the industry in the post-school system.

Effective WIL can play a significant role in the readiness of graduates to contribute to the world of work (Coll & Chapman, 2000). Universities are expected to offer relevant vocational education which enables students to engage with the world of work, within the National Development Plan (Department of Higher Education and Training, 2012) strategies of inclusive socio-economic development and job creation.

CWIE Policies and Strategies in South Africa.

The initial National Skills Development Strategy (NSDS, 2001) was formulated to address the gaps in workplace skills development and based on this initiatives, the Higher Education Qualifications Framework (HEQF, 2007), the Quality Council for Trades and Occupations (QCTO, 2009) and White Paper for Post-School Education and Training (2013) gave policy emphasis to WIL implementation for vocational qualifications. Despite the great developments made in implementing WIL across South Africa, WIL has been practiced by a policy. Many institutions have been implementing WIL within their institutional policy frameworks.

The South African Higher Education system is strongly influenced by professional councils, many of which contribute to curriculum development and assessment of student learning and competence in their respective occupational fields (CHE, 2011). Engel-Hills et al. (2010) also highlight that the alignment between work and education implied in WIL is not restricted to work placement. There are many different WIL practices along a continuum from theoretical to more practical forms.

Many institutions already have policies in respect of WIL or related practices, it is hoped that institutions will align their institutional policies to an agreed national policy. A number of government policies introduced over the last few years in South Africa have emphasised the centrality of WIL (Blom, 2014).

Co-operative Education

There seems to be lack of consensus with respect to the definition of co-operative education, however, the definitions that exist all concur on the fact that co-operative education is an educational strategy that integrates academic learning with learning through productive work (Groenewald T. 2003). There are various forms of co-operative education such as internships, job shadowing and experiential learning.

Co-operative Education Models

Wilson (1997) identified three models through which the management of Co-operative education can be classified: centralised, decentralised, and centralised-decentralised model.

Centralised Model

This model comprises a central co-operative education office that is responsible for the placement and coordination of experiential learning across the institution. In this model, the institution uses a single set of co-operative education policies that apply to all programmes. While administratively convenient, this model renders the co-operative education programme isolated from the academic departments that it serves.

Decentralised Model

In a decentralised model, each academic department manages its own co-operative education model. Often, this results in a number of programmes within one institution. Wilson (1997) argues that both these models have their own strengths. He asserts that the centralised model offers strong administration of the co-operative education programme while the decentralised model puts a strong emphasis on the academic issues (Wilson, 1997).

Centralised-Decentralised (Integrated) Model

The centralised-decentralised model, also often referred to as an integrated model, seeks to attain the benefits of both the centralised and the decentralised models (Wilson, 1997). This model is characterised by:

1. A central co-operative education office which sets the co-operative education agenda for the institution and establishes co-operative education policy that applies across the institution, and

2. A system where the coordinators are in faculties.

This model eases the tensions that often exist between administration and quality management of co-operative education.

WORK-INTEGRATED LEARNING PRACTICE – BEST PRACTICE

WIL includes a range of workplace experiences and practices. It is based on particular education models such as Experiential Learning, Service Learning, Cooperative Education and curriculum design approaches that include internships, work placements, project based work (Gardner & Bartkus, 2014).

Best practice for WIL is also distinguished from Service Learning (SL) in that the objectives of SL tend to have a broader focus, such as on development of social responsibility, civic engagement and personal transformation. Further, SL often takes place in community settings with the dual aim of strengthening communities and contributing to student learning outcomes (Gardner & Bartkus, 2014)

Sachs, Rowe, and Wilson (2016), shared the following characteristics of good practise in WIL:

- *Effective and successful* – has proven its strategic relevance as the most effective way in achieving specific outcomes; it has been successfully adopted across a number of sites and contexts and has influenced individuals and/or stakeholders in a robust and consistent way

- *Mutual benefit* – all stakeholders (employers, industry groups, students, academics, universities) gain reciprocal and mutual benefit

- *Reciprocity and trust* – partnerships are developed and sustained on the basis of trust and respect

- *Authentic* – students are involved in experiences that replicate workplace requirements and expectations

- *Inclusive* – all students have equal access to full participation

- *Applied learning* – that links campus theoretical learning to workplace requirements and practices

- *Replicable and adaptable* – has the potential for replication and is therefore adaptable for transfer to other contexts to achieve similar objectives

- *Monitoring and evaluation* – provides the basis for the collection of evidence to improve WIL activities and outcomes

- *Integration* – activities can be integrated into the curriculum through clearly established objectives and outcomes to ensure consistent application of theory into practical situations in the workplace

- *Innovation* – 'doing things differently' with WIL practices at universities.

RESEARCH METHODOLOGY

This report draws on two sources of evidence:

1. University of Technology position paper on WIL 2009

2. Case studies derived from practice around WIL implementation - Desktop research to gain more information on WIL practices.

The position paper, while relatively short (between ten and twenty eight pages) provides readers with the opportunity to gain a sense of stimulated discussions that lead to the development of a WIL model for the institution. The document is aligned to the institution's academic planning framework (2010 to 2020) that spells out the institutional position on some forms of WIL (CPUT, 2010).

Background of the Research

The aim of this paper is to depict a case of a university of technology to a decentralised Cooperative & Work Integrated Education model, showcasing and sharing the policies and practices of its model. It seeks to provide insight of model how WIL is managed practiced.

Research Approach

A qualitative research was followed for this study. The qualitative method consisted of open-ended information that the researcher gathered (Creswell & Clark, 2007). A qualitative method allows the researcher to obtain the respondents' perspectives while allowing for the description of the respondents' social context (Struwig, Struwig, & Stead, 2001). The qualitative method for this research comprised of a semi-structured interview between the researcher and the manager co-operative education. In the case of this research, the qualitative method took the form of interviews.

Face-to-face and telephone interview were conducted between the researcher and key informants including director for Centre for Community Engagement and Work-Integrated Learning (CE&WIL), Co-operative Education Manager as well as fiv of the academic staff. This method was chosen for its advantage to give the researcher an opportunity to collect primary data, explore deeper and ask for follow-ups where necessary. It also allowed the researcher to argue whether the practice had been truthful in his/her responses through the rating of the interviewee.

Effective Decentralised Model and Good Practice as Derived from the Case Studies.

The merger of two former Technikons in South Africa resulted in the formation of an institution that found itself practicing a range of co-operative education models between 2005 and 2008.

Prior to the merger, the institutions had a centralised – decentralised (integrated) model. Under this model, the central office, led by a Director comprised of five Placement Officers who managed the placement function for students across academic departments. In addition, one staff member was designated a Co-op Coordinator and had a dual reporting line to both the academic HOD and the Co-op Director. The central office staff were designated Co-operative Education Placement Officers and took responsibility for the work preparedness of students, soliciting placement opportunities and placing the students. Academic departments allocated the monitoring and assessment of the students to various academic staff members.

The Central office maintained a working relationship with the rest of the academic departments. In the case of the one Co-ordinator with a dual reporting line, the staff member took responsibility for the entire spectrum of the function. In terms of the institution's designation, the staff members were designated administrative staff.

On the other hand, the other heritage institution had a centralised model where the central office, also under the leadership of a Director took responsibility for the co-operative education function for three faculties. One faculty practiced a decentralised model in that it managed the function within itself. The staff at the central office were designated WIL Coordinators and took responsibility for the full spectrum of activities ranging from student orientation, placement and academic assessments. All the staff were designated academic staff.

With the merger of the two institutions, and successively, the coordination of the co-operative education function, the resulting model was one that portrayed a mixed model. Those staff members that had been WIL Coordinators continued with their original responsibilities as did the Placement officers. The one faculty from one heritage institution also continued to manage co-operative education within itself.

In 2007, stemming from a series of internal and external reviews, it became clear that there was a need to conceptualise a model that would (1) be uniform across the institution, and (2) satisfy the need to strengthen the quality management of the portfolio. In response to this need, it was necessary to initiate a process of change into one institutional co-operative education model which is decentralised model. This move was to ensure that curriculum issues (e.g., alignment of work experience to learning outcomes, assessment, etc) related to experiential learning are carried out in collaboration with, and reported to academic heads of departments who are well-placed to carry out these functions. (CPUT, 2011).

The decentralised model is led by the Co-operative manager, Co-operative Education administrator, Graduate recruitment administrator, Employability Improvement facilitator, SETA Project officer and two WIL students as interns. Co-operative Education unit is responsible of establishing of strategic partnerships that result in the creation of experiential learning opportunities for students in the work place, collaborating with employers, youth organizations, national and international bodies, and all other interested stakeholders on matters relating to student employment. Ensuring that the Co-operative Education policy is implemented appropriately across the institution and also ensuring that matters that affect the function of co-operative education and experiential learning, institutionally are addressed as well as managing information pertaining to provide a holistic view of institutional practice on WIL (CPUT, 2011).

This model consist six faculty WIL Coordinators and 52 WIL placement/Co-operative Education Coordinators who are responsible of coordinating and organising workplace activities including workplace approvals for their suitability, liaising with workplace supervisors, visiting students while they are doing their Experiential Training, arranging for mentoring an assessment processes, and generally overseeing and supporting students in the workplaces all these Coordinators are based in faculties reporting to the Head of Departments.

After the change from centralised to decentralised the institution did not have a WIL Policy. It has a Co-op and a Community Engagement policy. There was a need for a WIL policy that is inclusive of all relevant forms of WIL that will also provide the framework to support and push in WIL into the curriculum at the University.

In 2013, the institutional policy was approved by the SENATE Committee to ensure that Workplace-Learning outcomes are relevant and effective, by providing a framework and criteria for the improvement of quality and service delivery provision. The new WIL Policy speaks a clearly institutional approach to WIL. The framework

clearly defines WIL at the institution as "a methodology of curriculum design that integrates academic learning (including theoretical, problem-based and project-based learning) at CPUT with industry-based and/or community-based learning that is structured, monitored and assessed to meet the outcomes of a learning programme (WIL Policy, 2013).

CONCLUSION

A well designed WIL practice is of benefit to the students, the institution, employer as well as the community. It is important to have an appropriate WIL policy in place for institution to ensure that the intended outcomes are achieved. Through proper WIL students bring new ideas and innovation to industry government and community.

REFERENCE

Adrian Thornhill, P. L. (2000). Managing Change A Human Resource Strategy Approach. England: Pearson Education Limited.

Blom, J. (2014). Towards a Policy Framework for Work Integrated Learning. The Africa Journal for Work-Based Learning.

Bryman, A., & Bell, E. (2007). Business research methods (2nd ed.). New York: Oxford University Press Inc.

Burke, W. W. (2002). Organization Change: Theory and Practice. United Kingdom: SAGE Publication.

Cape Peninsula University of Technology. (2009). Position Paper on Work Integrated Learning. Cape Town: CPUT.

Cape Peninsula University of Technology. (2013). Policy of Workplace Learning & Service Learning. Cape Town: CPUT.

Cape Penisula University of Technology. (2009). Position Paper on Work Integrated Learning.

Coll, R ,K.& Chapman, R. (2000). Choices of Methodology for Cooperative Education researchers. Asia-Pacific Journal for Cooperative Education.

Creswell, J. and Clark, V. (2007). Designing and Conducting Mixed Methods and Reaserch. Thousand Oaks: Sage.

Creswell, J., & Clark, V. (2007). Creswell, J.W. and Plano Clark, V.L., 2007. Choosing a mixed methods design. Designing and conducting mixed methods research, pp.58-88.

Cummings, T. &. (1997). Organisation Development and Change (6th ed.). Cincinnati: Southewesterrn.

Department of Higher Education and Training. (2009). Quality Council for Trades & Occupations. Pretoria: DHET.

Department of Higher Education. (2010). National Development Plan. Pretoria: DHET.

E, H. (2004). Finding your way in qualitative research. Pretoria: Van Schaik.

Elena P. Antonacopoulou, Y. G. (2001). Emotion, Learning and Organizational Change: Towards an integration of Psychoanalytic and other Perspectives, Journal of Organizational Change Management (Vol. 14 lss). London UK: MCB UP Ltd.

Engel-Hills, P., Garraway, J., Jacobs,C., Volbrecht, T. & Winberg,C. (2010). Position Paper on Work Integrated Leaning. Cape Town: CPUT.

Gardner, Bartkus. (2014). A Reference guide to Work- Education experience. Asia- Pacific Journal for Cooperative Education.

Groenewald, T. (2003). The Contribution of Cooperative Education in growing talent. Asia-Pacific Journal for Cooperative Education.

Groenewald, T. (2003). The contribution of co-operative education in growing talent.

John Pendlebury, B. G. (1998). The Ten Keys to Successfull Change Management. Pennysylvania State University: Wiley.

Mabey, S. (1995). Strategic Human Resource Management. Oxford: Blackwell.

Marius Meyer, E. B. (2004). Organisational Development and Transition in South Africa (2nd ed.). Durban: LexisNexis Butterworths.

McCalman, J. ,. (1992). Change Management: A Guide to Effective Implementation. London: Paul Champman.

Nykiel. (2007). Hnadbook of marketong research methodologies for hospital and tourism. New York: The Harwoth Hospitality and Tourism Press Inc.

Osman, H. &. (2010). Evidence based practice: An implementation for health care organisation. Burlington: Jones & Barlet Learning.

Robert A. Patron, J. M. (2008). Change Management: A Guide to effective Implementation (3rd ed.). Los Angeles, London, New Delhi, Singapore: SAGE.

Sach, J. & Clark, L. (2017). Imagining a curriculum for an engaged University. Learning through Community Engagement: Vision and Practice in Higher Education.

Self, D. R. (2007). Organizational change-overcoming resistance by creating readiness. Emerald Group, 11-13.

Singh, K. (2010). Organisation Change and Development (2nd ed.). New Delhi: Excel Books.

Struwig, M., Struwig, F. & Stead, G. (2001). Planning, Reporting & Designing Research. Cape Town: Pearson: South Africa.

Struwig, M., Struwig, F., & Stead, G. (2001). Planning, reporting & designing research. Cape Town: Pearson South Africa.

Thomas G. Cummings, C. G. (2009). Organizational Developement & Change. USA: CENGAGE Learning.

Tonder, C. L. (2004). Organisational Change Theory & Practice (1st ed.). Pretoria: Van Schaik.

Wellman, K. (2004). Research Methodoloty for Business and Administrative Sciences (3rd ed.). Cape Town: University Press.

Wilson, J. (1997). Creating and initiating a cooperative education program. . World Association for Cooperative Education.

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Introduction of cooperative and work-integrated education in Asia: Implementing the German DHBW model in Thailand and China

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ABSTRACT

In 1974, the 'Berufsakademie' or 'University of Cooperative and Education' in the state of Baden-Württemberg, Germany, was established to construct a model of cooperative and work-integrated education. The unique characteristic of this public university is the participation of companies and institutions in the successful dual teaching and learning principle. Therefore, this model differs from that of traditional German higher education institutions. Today, nine main locations and three branch campuses, combined with a close network of over 9,000 partner companies, form the basis of the Duale Hochschule Baden-Wuerttemberg (DHBW), which is structured as a state university.

The DHBW's internationalization strategy focuses on the support of its cooperative partners in the global environment through two pillars: development of specific customized programs at the DHBW and dual study programs abroad. The high employability of its graduates has increased the interest for its academic model in various countries across the globe. Motivated by the global expansion of its industry partners, the study model has already been implemented, both partially and fully, in several countries.

This paper seeks to explore the prerequisites and challenges associated with the successful implementation of the DHBW model in Asia. The cases of two universities in Thailand and in China are analyzed, namely, Walailak University in the Thai Province Nakhon Si Thammarat and Southeast University's Chengxian College in the Jiangsu Province of the People's Republic of China. The focus of the paper is on the themes of practical experience and industry cooperation, which are destinctive success factors of the DHBW.

INTRODUCTION

Internationalization has been the subject of study and comment in a range of academic fields, including cooperative and work-integrated education. The relationship between internationalization and cooperative and work-integrated education is both complex and dynamic, as demonstrated by the variety of topics presented and published by the World Association for Cooperative and Work-integrated Education (WACE). The acceleration of globalization in the last decades has intensified debates about internationalizing cooperative and work-integrated education (Reinhard, Satow & Sisco, 2007; Reinhard, 2006). Moreover, within the current era of globalization, market challenges have taken centre stage. Market forces and corporate management ideas influence the way universities are being operated worldwide (Reinhard, Satow & Sisco, 2007; Slaughter & Leslie, 1999). One important development is the increased pace of the internationalization of cooperative and work-integrated learning programs at institutions of higher education, particularly in Asia.

In 1974, a university of cooperative and work-integrated education in the state of Baden-Wuerttemberg, Germany, was established. This model, now known as the Duale Hochschule Baden-Wuerttemberg (DHBW), is unique to that of other German higher education institutions offering work-integrated learning programs or work placements. In order to be enrolled at the DHBW, students must possess a university entrance qualification and

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additionally a contract of employment with a partner company of the DHBW for the duration of their studies. The participants of this cooperative and work-integrated education or work-integrated learning model are thus both students and employees. A close network of over 9,000 partner companies forms the basis of industry cooperation at the DHBW.

The DHBW model has been successfully replicated in the Latin American region, where it has been implemented at nine universities in four countries, namely, Columbia, Equador, Peru and Mexico (www.dhla-online.com, 2017). This experience has shown the potential of exporting the DHBW model internationally. Further work has been undertaken to explore the opportunities and limitations for implementing the DHBW model in the Asia-Pacific region. This paper will focus solely on research conducted by the DHBW, in the context of Thailand and China.

In order to understand how cooperative and work-integrated education models can be implemented in such countries, it is important to understand the political, economic, and cultural background (Kato, 2005). Compared to Germany, for example, Thailand and China are countries in transition to a knowledge economy. Moreover, Thailand is a military monarch society whereas China's political system is dominated by the Communist Party.

Regarding graduate employability, Thailand lies behind the neighboring countries of Indonesia, Malaysia and the Philippines (UNESCO Bankok, 2012). The infrastructure already exists in Thailand, to enable further development of cooperative and work-integrated education. Albeit offering principally short duration practical experiences, over 100 Thai universities offer some form of cooperative and work-integrated education to their undergraduates (Reinhard & Pogrzeba, 2016). This is underpinned by the active cooperation of over 13,000 sponsoring companies (TACE, 2015). Furthermore, the cooperative and work-integrated education system is divided into nine regional cooperative and work-integrated education networks, that work with the institutions and industry in their respective regions to enhance the profile of cooperative and work-integrated education as a best practice model.

In China, the Double World Class University Plan launched in September 2017 is a project promoting selected universities, with the aim of furthering previous work on creating world-class universities, in order to meet international standards. By doing so, the politicians have made the relevance of higher education for the labor market a focus. At the China Development Forum in 2014, the Ministry of Education announced a plan to convert 600 universities into polytechnics to offer more practice-oriented study programs (Sharma, 2014). The government hopes that the approach of combined support for research universities and high quality technical education institutions will provide better qualified graduates for the specific needs of the Chinese economy and will help reduce the unemployment rate of university graduates.

RELEVANT LITERATURE

The German scientific council published a positioning paper, detailing the terminology associated with cooperative and work-integrated education (Wissenschaftsrat, 2013). The terminology includes dual studies, cooperative education, accompanied work- integrated learning, and practical integrated learning. Such definitions are commonly used in academic circles in Germany.

The National Qualifications Framework (Thailand NQF) refers to cooperative and work-integrated education in terms of dual vocational training, dual vocational education, workplace-based internships, work-integrated learning programs, workplace internships and collaborative partnerships (National Qualifications Framework, 2014). The Thai Association for Cooperative and work-integrated education (TACE), established in 2011, refers to cooperative and work-integrated education in their literature (TACE, 2015). The Thai Walailak University, on which this paper is based, uses terms such as work-based learning, cooperative and work-integrated education and cooperative work-integrated education (Srisa-an, 2014; Walailak University, 2013).

Traditionally, China's focus in higher education has been on increasing the reputation of its universities and on catching up with international academic standards. However, more recently, the Chinese government has encouraged its universities to move towards more practice-oriented study programs, called technical and vocational higher education (Sharma, 2014). The terminology used is applied learning or polytechnics. The latter

reflects the objective to produce more technically trained graduates who are urgently needed in the strongly growing economy.

Internationalization of cooperative and work-integrated education is a focus of many institutions in the tertiary sector. Internationally-recognized organizations, such as the WACE, were founded in order to promote the internationalization of cooperative and work-integrated education (Reinhard, Satow & Sisco, 2007; Franks & Blomqvist, 2004). International co-op programming, international co-op placements, international cooperative and work-integrated education, and globalization of cooperative and work-integrated education are frequently referred to in academic literature (Reeve, 2004; Coll, Pinyonatthagarn & Pramoolsook, 2003). The meaning of export education ranges from agencies consulting students, while studying abroad, to establishing partnerships with universities and companies in the area of vocational training. Export education also refers to educational services that are offered on a commercial basis in other countries, with students studying within a cooperative and work-integrated education program either in their home university or at a university abroad (Reinhard, Satow & Sisco, 2007).

In a work by Coll, Pinyonatthagarn, and Pramoolsook (2003) exploring Thai student perceptions of international placements, the authors explain that one of the primary benefits to students from international cooperative and work-integrated education was the improvement of their communication skills, "specifically their English language skills" (p. 3). In addition, the Thai students acknowledged a better understanding of cultural differences and how those differences can impact workplace practices.

The Chinese government acknowledges the benefits of international academic collaborations. Despite official attempts to restrict the use of imported textbooks that promote Western values (Levin, 2015), there are many initiatives that support international exchange of students and faculty and establish relations between Chinese and foreign universities. However, foreign universities cannot offer degrees on their own in China. Strict regulations are imposed and monitored by the Chinese Ministry of Education. A Chinese partner institution is a mandatory component of international academic activity in China. A Joint-Venture University is a legally independent academic entity and the highest level of institutional independency. An example of this international collaboration is the Chinese-British Hi'an Jiatong Liverpool University in the city of Suzhou. An alternative organizational approach is one that establishes a legally dependent institution at a Chinese university. The Sino-German University for Applied Sciences at Tongji University is an educational project that falls under this category (CDHAW, 2018).

METHODOLOGY

Case studies can be focused on gathering explorative, forecasting, descriptive, and explanatory characteristics (Heimerl, 2007). In the context of this paper, a descriptive case study was developed, to establish the current state of cooperative and work-integrated education at the two target institutions. Yin (2009) refers to single- and multiple case design. The paper focused on the latter, in order to produce two comparable elements to the case study, drawing on the experiences of Thailand and China.

By capturing the wide range of cooperative and work-integrated education practices in a descriptive multiple case study design, the authors had the opportunity to discuss and analyze the results, emanating from both of the countries. The ultimate aim was to assess the possibilities and limitations for exporting and adapting the German DHBW model at the two target universities in Thailand and China and produce recommendations for implementation (Schögel & Tomczak, 2009).

Unstructured interviews with working groups and industry representatives were undertaken to acquire the necessary data forming the basis of the two descriptive case studies for Thailand and China. The data from the resulting case studies was categorized according to the defining features of cooperative and work-integrated education, as outlined by Reinhard and Pogrzeba in their research on the key success factors of the DHBW model (2016). Two of these defining features, namely practical experience and industry cooperation, will be examined in more detail in this paper.

DISCUSSION

The experiences acquired in analyzing and implementing parts of the DHBW study model in Thailand and China may help to examine whether the model of the DHBW can be introduced in other Asian countries.

Practical Experience

DHBW students are employed by the same sponsoring company for the duration of their studies. This ensures a constant relationship between the student, their sponsoring company and the DHBW. The acquisition of practice and theory is achieved through an alternating model of semesters at the university and the sponsoring company. The supporting curriculum seeks to link the content of the academic element to the role that is undertaken during practical semesters.

The situation in Thailand varies insofar that students of cooperative and work-integrated education programs participate in periods of practical experience with different sponsoring companies over the course of their studies. The Walailak Management School Tourism & Hospitality Industry Program works closely together with associations, companies, government organizations and local communities to provide cooperative and work-integrated education programs for its students. All the cooperative and work-based learning trimesters are supported by its partners. Students gain theoretical knowledge and work-related experience, which enables to develop their capability from an entry to supervisor level. The experiential element is a compulsory part of their degree studies. The nature of the practical experience in the second year mirrors the parallel method, in that the activities are part practical, part academic. Work-based learning projects are also a component of the third study year, in addition to three paid cooperative and work-integrated education trimesters, in the third and fourth study years, where the students work full-time at their sponsoring companies. This element of the program mirrors the alternate method of cooperative and work-integrated education, whereby students spend part of their time exclusively at their sponsoring firm and part of their time at the university (Pinpetch & Baum, 2009; Walailak University, 2013).

In Taicang, the DHBW model was established in the field of industrial engineering, because the Chinese subsidiaries of German companies were in need of highly skilled young workers. They wanted to be able to train their own young professionals on a academic level in combination with practical work-experience. As most of the companies involved know the DHBW model from their headquarters, they requested the same format at the Chengxian College in China. Therefore, students have employment contracts with one company for the entire three-year Bachelor program. However, as the Chinese educational systems requires a Bachelor program to comprise of four years, the students spend their first study year in a traditional academic setting. During their first academic year they are selected by the companies to complete the study years two, three and four in the newly created cooperative and work-integrated education program. These three years are structured in the same format as the DHBW model with three-month academic semesters followed by three-month practical training at their partner company.

Industry Cooperation

Partner companies at the DHBW enjoy a close relationship with the university in three areas. Firstly, they recruit and train undergraduates enrolled at the university. Secondly, they actively participate in developing the DHBW study model to meet industry requirements in the future. Partner companies are represented in nearly all decision-making bodies at the university, working with the university to produce curricula, which meet internationally recognized standards, while providing industry with the skills it need to succeed commercially. The DHBW model attracts companies from a wide range of industry sectors, both in private and state ownership, from a variety of locations in Germany and abroad. The size of the partner company also varies from multinational corporations to small and medium-sized enterprises. Thirdly, lecturers from industry are employed to bring real world practical experiences to the classroom.

Partner companies play different roles at the Walailak Management School Tourism and Hospitality Industry Program. A number of representatives from the tourism industry are involved in the curriculum evaluation and revision processes. The management and/or representatives of sponsoring companies, associations and clubs in the tourism industry are encouraged to provide feedback, discuss improvements, and engage in additional activities, both directly and indirectly, related to the cooperative and work-integrated education initiative. In addition, several prime financial sponsors from industry help support and provide facilities and services during the cooperative and work-integrated education trimesters, that is, classrooms, meeting rooms, management dormitory, kitchen and restaurant facilities, in addition to performing site inspections, with the aim of maintaining uniform standards. The Tourism and Hospitality Industry Program at the Walailak Management School places great importance on the role of industry, such as hotels, resorts and travel and tour companies, in shaping the practical experience of their students. This was achieved in 2013 through the incorporation of work-based learning projects into the curriculum, where industry sponsors work with academic staff from the university to impart the up-to-date and industry relevant skills and experience in the tourism industry.

In China, four parties are involved in the project to achieve a successful implementation. The local municipal authorities provide the required infrastructure and coordinate the academic project. The main actors are the companies and the Chengxian College offering the program. The curricula of the cooperative and work-integrated education programs are jointly developed by the companies and the college. They are based on study programs offered at the DHBW and adjusted in order to meet the local legal requirements and the educational demands of the corporate sector. The DHBW has a consulting role to ensure that quality standards are fulfilled. The DHBW will also be involved in a train-the-trainers program, which will enable professionals from partner companies to provide lectures on their areas of expertise.

While many educational initiatives in China have been launched by the central government, the implementation of cooperative and work-integrated education in Taicang is based on the demand of German companies for specific practical skills. More than 200 German companies have founded Chinese subsidiaries in the municipality. Robust economic growth requires a growing labor force of skilled workers. As the the city currently does not have a university, the People's Government of the City of Taicang had to find an academic partner that was willing and capable to offer cooperative and work-integrated education. The Chengxian College is an entity of the Southeast University in Nanjing that belongs to the top-ranked universities in China. In a joint approach of the college and the corporations under the guidance of the DHBW, industrial engineering was identified as the pilot project. This study program combines engineering and management contents. The first student cohort started their dual study program in 2017 with the official opening ceremony of the "Sino-German Dual Bachelor Training Program" in September 2017.

CONCLUSIONS

The Thai and Chinese case studies revealed that two factors are essential to the successful implementation of the DHBW model of cooperative and work-integrated education in Asia. Firstly, the format of the practical experience needs to be repeatedly linked to and in parallel to the theoretical component of the course. This has been achieved, for example, at the Walailak Management School through a rotation, where the activies are part practical, part academic, in addition to work-based learning projects. At the Chengxian College, practical experience has been achieved through the launch of the Sino-German Dual Bachelor Training Program, which closely follows the DHBW model of undertaking both practical and theoretical phases. Repeated professional experience ensures that the acquired theory can be applied in a practical setting, therefore, meeting the requirements of industry for skilled, employable graduates. Secondly, the level of industry cooperation, demonstrated by their commitment to developing undergraduates in cooperation with universities, active in cooperative and work-integrated education is an essential component for supporting the provision of practical experience. In the example of the Chengxian College, German companies with Chinese subsidiaries are engaged in a joint venture with the DHBW, to recruit undergraduates for the industrial engineering pilot, with the aim of producing skilled graduates to meet the needs to the local economy. Furthermore, the Walailak Management School demonstrates by the involvement of the

tourism industry in curriculum evaluation and revision that the theoretical content continues to meet those needs in the future.

The experiences shown at the target universities in Thailand and China reflect how the DHBW model can be successfully implemented, albeit on a limited level, for example in Thailand in the hotel management branch and in China in the area of industrial engineering. There is scope for further expansion of the DHBW model into other disciplines at the Walailak Management School and the Chengxian College, and indeed to other institutions offering cooperative and work-integrated education in Thailand and China or in other Asian countries. This is demonstrated by the wide application of the model at the DHBW in Germany, in disciplines, such as business administration, media design and future engineering technologies, such as the renewable energy sector.

However, the level of success experienced in implementing aspects of the DHBW model at the target universities in Thailand and China cannot be generalized. Further research, drawing on the experiences of a wider focus group of univerisities in the two countries, would be needed to test the suitability of the DHBW model on a national level.

The rapid internationalization of the higher education sector, coupled with the globalized economy, will nonetheless continue to assist the process of exporting the DHBW across national boundaries, and particularly in the Asia Pacific region, which continues to show potential for rapid economic growth.

REFERENCES

CDHAW (2018). Homepage of the Chinesisch-Deutsche Hochschule für angewandte Wissenschaften. Retrieved from: http://cdhaw.tongji.edu.cn/de/content.aspx?info_lb=1&flag=1

Coll, R.K., Pinyonatthagarn, D., & Pamoolsook, I. (2003). The internationalization of cooperative and work-integrated education: A Thailand perspective. *Asia-Pacific Journal of Cooperative Education, 4*(2), 1-6.

Franks, P.J., & Blomqvist, O. (2004). The World Association for Cooperative and work-integrated education: The global network that fosters work-integrated learning. In R.K. Coll & C. Eames (Eds.), *International Handbook for Cooperative and work-integrated education* (pp. 283-289). Boston: World Association for Cooperative and work-integrated education.

Heimerl, P. (2007). Fallstudien als forschungsstrategische Entscheidung, in: Buber,R. & Holzmüller, H. H. (Eds.) *Qualitative Marktforschung. Konzepte –Methoden – Analysen,* Wiesbaden: Gabler, 381-400

Kato, T. (2005). Establishing cooperative and work-integrated education as an integral part of the undergraduate curriculum at Ritsumeikan University. *Asia-Pacific Journal of Cooperative Education, 6*(1), 7- 12.

Levin, D. (2015). China Tells Schools to Suppress Western Ideas, with an Exception. *The New York Times.* Retrieved from: https://www.nytimes.com/2015/02/10/world/asia/china-tells-schools-to-suppress-western-ideas-with-one-big-exception.html

National Qualifications Framework (2014). *National Qualifications Framework.* Bangkok: Office of the Education Council, Ministry of Education.

Pinpetch, S. & Baum, T. (2009). Development of Cooperative and work-integrated education in Tourism and Hospitality Industry: Issues in the Context of Thailand. *Thai Journal of Cooperative Education, 1*(2), 21-42.

Reeve, R.S. (2004). The internationalization of cooperative and work-integrated education. In R.K. Coll & C. Eames (Eds.), *International Handbook for Cooperative and work-integrated education* (pp. 189-206). Boston: World Association for Cooperative and work-integrated education.

Reinhard, K. (2006). Berufsakademie in Germany: Can this work-integrated learning program serve as an effective model in higher education institutions in western and eastern countries? *Asia Pacific Journal of Cooperative Education, 7*(1), 16-21.

Reinhard, K. & Pogrzeba, A. (2016). Comparative cooperative education: Evaluating Thai models on work-integrated learning, using the German Duale Hochschule Baden-Wuerttemberg model as a benchmark. *Asia-Pacific Journal of Cooperative Education, 17*(3), 227-247.

Reinhard, K. Satow, L. & Sisco, L. (2007), Internationalizing cooperative education: An introduction to the Berufsakademie Ravensburg's work integrated partnership with the multinational company SAP Incorporation. *Asia Pacific Journal of Cooperative   Education, 2007, 8*(2), 109-119

Schögel, M. & Tomczak, T. (2009). Fallstudie, in: Baumgarth, C., Eisend, M. & Evanschitzky, H. (Eds.). *Empirische Mastertechniken. Eine anwendungsorientierte   Einführung in die Marketing- und Managementforschung.* Wiesbaden: Gabler, 77- 105

Sharma, Y. (2014). Major reform as 600 universities become polytechnics. *University World News, 324.*

Slaughter & Leslie (1999). Academic Capitalism: Politics, Policies, and the Entrepreneurial University. Baltimore, MD: Johns Hopkins University Press.

Srisa-an, W. (2014). *Development of Cooperative and Work-Integrated Education (CWIE) in Thailand and ASEAN.* Thai Association for Cooperative and work-integrated education (TACE), Bangkok.

TACE (2015). *Internal document produced at the Suranaree University of Technology.* Thai Cooperative and work-integrated education Standard for Universities/Higher Education Institutes.

UNESCO Bangkok (2012). Graduate Emploability in Asia. Retrieved from: http://www.unescobkk.org/resources/e-library/publications/article/graduate-employability-in-asia/

Walailak University (2013). *Internal curriculum document produced by the Walailak Management School.*

Wissenschaftsrat (2013). *Empfehlungen zur Entwicklung des dualen Studiums: Positionspapier.* Berlin: Wissenschaftsrat.

Yin, R. K. (2009). *Case Study Research. Design and Methods,* 4. Aufl., Applied Social Research Methods Series, Bd. 5, Los Angeles: SAGE

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A trinational comparative cooperative education study, developing best practice for cooperative and work-integrated education, in Germany, Australia and South Korea

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ABSTRACT

Australian, German and South Korean universities face a common challenge - preparing graduates for employment. Ultimately, the objective is to produce graduates with the necessary work-based skills to become productive members of the workforce. It is apparent that the feasibility and success of advancing cooperative and work-integrated education relies on the motivation and expertise of academics and industry practitioners, in addition to the presence of an appropriate supporting infrastructure and corresponding levels of investment.

The research outlined in this paper considers the relative benefits of alternative cooperative and work-integrated education practices on a trinational level. The research team conducted an independent review of the opportunities for cooperative education in the three countries, mapped the benefits of the respective models and identified best practice. The team was able to document challenges and formulated solutions, by drawing on the experience of academics and industry. Focusing on the wide range of cooperative and work-integrated education practices in this study provided the opportunity for a robust test of existing theory, regarding the acquisition of graduate attributes through workplace experience. The intention of the research is to create a broader understanding of best practice for cooperative and work-integrated education and provide guidance for academics and practitioners in developing programs for work-integrated learning. The resulting outputs will shape future policy, at the university and company level, and in doing so support the efforts of academics and industry practitioners. This will ultimately lead to an increase the efficiency and effectiveness of investments in cooperative and work-integrated education.

INTRODUCTION

German, Australian, and South Korean universities face a common challenge - preparing graduates for employment. Ultimately, the objective is to produce graduates with the necessary work-based skills to become productive members of the workforce. Graduate employability has become an important indicator for measuring the value of a university education (Burke, Scurry, Blenkinsopp, & Graley, 2016). Employability is one of the most important objectives of international education policies, both in the East and the West (Helmrich, Zika, Kalinowski, & Wolter, 2012; Ministry of Education, 2015). Many universities in Germany, Australia, and South Korea are now offering degree programs that offer varying levels of cooperative or work-integrated experiences, with the aim of enhancing graduate employment prospects. The research outlined in this paper considers the relative benefits of alternative cooperative and work-integrated education practices on a trinational level, drawing on the experiences of three universities in Germany, Australia and South Korea.

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BACKGROUND TO COOPERATIVE AND WORK-INTEGRATED EDUCATION IN GERMANY, AUSTRALIA AND SOUTH KOREA

Germany is internationally recognized for its cooperative and work-integrated education offerings, both at the vocational level and in higher education. The Baden-Württemberg Cooperative State University, known in Germany as the Duale Hochschule Baden-Württemberg (abbreviated to DHBW), is regarded as a pioneer cooperative and work-integrated education. Its first dual study diplomas were offered in the early 1970s, emanating from the so-called Stuttgart model, the capital of the German state of Baden-Württemberg. The Stuttgart model was developed by the state government of Baden-Württemberg, in collaboration with three key regional employers, namely Daimler-Benz, Bosch and Standard Electrics Lorenz. The model constituted a response to the shortage of skilled graduates, capable of applying their acquired academic knowledge in a business setting. The DHBW provided the means of combining practical professional experience with a polytechnic qualification. However, despite the existence of the DHBW, there was said to be an education schism in that virtually no institution offered vocational qualifications at the university level as a form of education and career progression (Baethge, 2006). The advent of the Bologna and Copenhagen agreements harmonized the tertiary and vocational offerings with other European nations, enabling the state of Baden-Württemberg to change the legal status of the DHBW in 2009. The vocational diploma was elevated to a three-year Bachelor qualification and the state-run DHBW assumed the status of a university. With such organizational changes, the education schism was said to be broken in the sense that the DHBW was structurally a hybrid, drawing on the US-American university model, while providing a substantial vocational element to the qualifications offered (Powell & Solga, 2011).

In Australia, as was the case in Germany, an education schism exists between universities and vocational institutes, referred to as technical and further education providers (TAFEs). Whereas universities offer bachelor and postgraduate degrees, TAFEs grant certificates and diplomas and focus on developing specific practical skills, in accordance with national competency standards. This distinction is important because it represents a fundamental difference in the purpose of TAFEs and universities. University education was traditionally reserved for academically-orientated students. This contrasts with those who left secondary school in grade 12 (or earlier) to enter vocational training. Since the 1980s, university education has become the default choice for many students after high school. So now twice as many students go onto university education compared to the TAFEs, and most of those will be entering university directly from secondary education. An inherent challenge in the Australian education system, resulting from this development, is the historical reliance on TAFEs to provide cooperative and work-integrated education. The majority of students attending university, as a result, have limited opportunities to gain practical experience, either prior to or during their studies.

The University of the Sunshine Coast (USC) is, in comparison to the DHBW and by Australian standards, a comparatively 'young' university. It opened in 1996 to provide opportunities for tertiary education for the Sunshine Coast, a rapidly growing region in Queensland. Originally formed as a University College, it was granted full university status in 1999.

After the Korean war in 1950, South Korea was one of the poorest countries in the world. GDP per capita was less than 100 USD and the nation received at total of 4.6 Billion USD in foreign aid (Ministry of Education, 2015). All that was left after the Korean war were poverty on one hand and despair on the other. The nation had nothing but its human resources to rebuild the devastated industries. The government invested in educating and training human resources and utilized their physical and mental talents to promote industrial growth. The educating of industry professionals fostered through industry-university cooperation contributed to the "Miracle on the Han River", which symbolized the rapid transition of the South Korean post-war economy from a developing to developed status (Ministry of Education, 2015). As a result, Korea achieved GDP per capita of over 27,000 USD within half a century, and became the only nation in the world to transform from an aid-receiving nation to an aid-providing nation (Ministry of Education, 2015). Government policies for cooperative and work-integrated education focus on improving university systems, while fostering students' job capacities and creativity, through cooperation between universities and industries. The South Korean government has supported this process by

continuously expanding its policy framework for cooperative and work-integrated education, through the establishment and revision of relevant legislation.

Hanyang University ERICA has introduced Industry-Coupled Problem-Based Learning (IC-PBL) that allows students to solve problems faced by industry, during the course of a semester, by studying problem scenarios based on collaborations between professors and industry.

LITERATURE REVIEW

Common Definitions of Cooperative Work-Integrated Education

The term cooperative and work-integrated education is a term created by the World Association of Cooperative Education (WACE) to encompass the many words used in academic literature to describe the various forms of education with a work-integrated learning element. The German author, for example, frequently uses the terms dual studies, dual study model and cooperative education (Reinhard & Pogrzeba, 2016; Reinhard, Pogrzeba, Townsend & Pop, 2016; Minks, Netz & Völk, 2011). In contrast, the Australians tend to refer to work-integrated learning, work-based education, and professional and vocationally-orientated faculties (Willcoxson & Wynder, 2010; Willcoxson, Wynder & Laing, 2009). The South Koreans have coined other terms to describe cooperative and work-integrated education, such as co-op experience, industry-university cooperation, and industry-academy-related education (Hanyang University ERICA, 2017).

Employability

The impact of cooperative and work-integrated education on employability skill development is being discussed in current literature, and has contributed to the evaluation process of existing cooperative and work-integrated education programs (Hall, Pascoe, & Charity, 2017; Lloyd, Clark, Hammersley, Baker, Rawlings-Sanaei & D'Ath, 2015; Messum, Wilkes, Peters, & Jackson, 2017; Reddan, 2017). Employability is defined as possessing the right skill set, to meet the needs of industry and is a pre-requisite for graduates in successfully entering the labor market on completion of their studies (Bridgstock, 2009; Holmes, 2013; Jackson, 2016). In contrast, Yorke (2010) argues that employability refers to the required skill set, but does not guarantee employment. He introduces the concept that work-readiness is also necessary, in order to increase chances of employment. In essence, employability and work-readiness are so closely interrelated that they should not be considered exclusive to one another (Sachs, Rowe, & Wilson, 2017). Employability should also be differentiated from the term employment outcomes, which include factors such as attaining employment after graduation (Burke et al., 2016; Zegwaard & McCurdy, 2014). It is clear, however, that the rapidly changing economy increasingly calls for cooperative and work-integrated education programs, in order to meet the changes in qualification and competence requirements (Berthold, Leichsenring, Kirst & Voegelin, 2009; Heidenreich, 2011).

METHODOLOGY

A trinational comparative study of cooperative and work-integrated education, comparing the German, Australian and South Korean models, was conducted in 2017. Research within cooperative and work-integrated education can be achieved through qualitative or quantitative methods. Quantitative methodologies are statistically based and their outputs are analyzed in order to test a theory or hypothesis. A qualitative approach was considered better suited as a methodological approach for the comparative research outlined in this paper. A qualitative methodology allows the collation of verbal descriptive data, in order to form a much more context rich and detailed picture of a complex situation (Nykiel, 2015; Eames, 2011).

Case Study Development

To address the explorative research question and to access the interpretative level of data analysis, a multi-case study approach to the qualitative methodology was selected (Strübing, 2008). This study is based on an empirical case study approach. It investigates the current phenomena, associated with universities of cooperative and work-integrated education in Germany, Australia and South Korea, in a real-life context (Yin, 2009). The research team

identified analogue phenomena, which includes information aimed at describing the reality of cooperative and work-integrated education in each of the three target countries (Froese, 1983). This was achieved through comprehensive national and international literature analysis. Secondly, members of the research team completed a detailed questionnaire, with open-ended questions, drawing on their own expertise and the knowledge of their colleagues, who are directly engaged in the cooperative and work-integrated education element of their respective study models. The questionnaire was completed by three universities, in each of the three countries that already provide cooperative and work-integrated education as part of their study programs. The intention was to create a representative view of the cooperative and work-integrated education in the respective countries, from the perspective of the three universities. Thirdly, the German and South Korean team members conducted a workshop, in order to share important information on cooperative and work-integrated education. This third step was necessary, due to the research team having little previous experience of cooperative and work-integrated education in South Korea, within higher education.

A Trinational Comparison

The descriptive, multi-case study design set out in this paper seeks to provide concrete replicable insights, in the three target countries, into the factors necessary for a cooperative and work-integrated education model, which optimizes graduate employability (Yin, 2009). For the purposes of the paper, these factors are referred to as success factors and form the basis of the comparative trinational study. The success factors were derived from the coding of the analogue phenomena flowing into the case studies (Eckert, 2004; Reinhard et al, 2016). Once the success factors were established, comparative methodologies were used to benchmark the respective study models against each other (Nykiel, 2015; Zabeck, 1966). The ultimate aim of the study is to set out concrete recommendations for the future development of cooperative and work-integrated education in Germany, Australia and South Korea, based on the experiences of the three target universities.

RESULTS

The practical element of the DHBW study model is compulsory for all students, regardless of which bachelor degree program they are taking. A prerequisite to studying at the DHBW is a contract of employment for the entire duration of the degree program, between the partner company and the student. To ensure legal consistency and fairness, the DHBW provides a standard contract template. The partner company can stipulate the level of remuneration and holiday entitlement for the three-year course, in alignment with their own company practices. The DHBW stipulates the frequency and duration of practical and theory semesters. This commonly occurs on a three-month rotation, with the practical element covering half of the duration of the three-year bachelor degree course. An advantage to the rotating method is that the content of the practical element and the intervening theory are dovetailed, to allow the skills learned in lectures to be applied to a subsequent phase working in industry, or vice versa.

Many courses at the USC seek to expose students early in their studies to the realities of their future careers through simulations and real-world-oriented assignments. This is difficult, however, when university educators do not have extensive industry experience. In some tourism courses students contribute to projects or events that occur over a limited period. More substantial opportunities for cooperative and work-integrated education are provided for a few students through an internship course. Enrolment is limited by availability; it requires a willing industry supervisor and a placement involving 96 hours of relevant work activities over a 12-week period that aligns closely with the university's semester dates. Finding willing and appropriate industry partners is one of the most difficult challenges to providing meaningful cooperative and work-integrated education opportunities for business students at the USC. In addition, the internship must be completed concurrently with other courses. Although there is some flexibility to complete the 96 hours of supervised activity within a concentrated period, it still needs to be managed within the constraints of the student's other courses (lectures, tutorials, and assessments).

South Korean universities want their students to have experience in industry. Typically, most of the students who participate in cooperative and work-integrated education spend less than two months at a company, as the nature

of their studies restricts them to using the summer and winter vacation periods. The ratio of students spending a whole semester at a company is not large. The South Korean Ministry of Employment and Labor is seeking to expand cooperative and work-integrated learning by operating a program similar to the DHBW model, where the students alternate between attending classes at the university and working in industry. Currently, about 20+ universities are participating in the program. In some cases, the participating companies do not bear any costs for providing practical experience, as the level of government funding is significant. Despite governmental financial support, which encourages the university to actively participate in cooperative and work-integrated education, in many cases practical field experience is not yet reality for many South Korean students. Government strategy promotes the development of curricula that reflects industry needs. Some universities have more recently appointed an industry advisory board for each of its majors, so that industry can participate in the reorganization of the curriculum and the field practice.

The DHBW study model is supported by a wide range of companies in diverse industry sectors. DHBW students are completing their practical experience in not only companies with a global presence, but also with small and medium enterprises. DHBW partner companies, regardless of their size and global reach, are able to clearly identify the needs of their respective industries in collaboration with the university. This is reflected in the cooperative and work-integrated education curriculum offered to undergraduates. Partner companies participate in of the majority of decision-making bodies at the DHBW. Due to this close level of collaboration between the DHBW and its partner companies, the graduate employment rate at the DHBW stands at over 85% (Duale Hochschule Baden-Württemberg, 2017). This is defined as graduates, who have gained a contract of employment, either with their partner company or another company, on graduation.

In Australia, defacto work-integrated learning has developed in some professions as firms hire first-year students to take entry-level positions (with low pay). Although completing their studies as part-time students delays the higher salary given to graduates, it achieves similar outcomes to those achieved by the formal programs offered by the DHBW. A notable difference is that the student is not receiving credit toward their degree for the industry experience that they are receiving through their employment.

In South Korea, youth unemployment is becoming a social problem. The population of South Korea is over 50 million, and the university entrance rate is over 70% (Korean Educational Development Institute, 2016). There are 200 four-year universities and 136 professional junior colleges. More than half a million students graduate each year, but finding work with a good company is not easy. If the employment rate exceeds 70%, a university is considered excellent in terms of employment. Measures to address the employment issue in South Korea are focused on developing cooperative and work-integrated education. Unlike the DHBW example, where the initiative is shared jointly by industry and the university, the South Korean government is taking a leading role through projects such as the Leaders in INdustry-university Cooperation (LINC) program. Fifty-five universities out of the 200 offering a four-year degree were selected through a series of performance evaluations, based on their interest and engagement in cooperative and work-integrated education, and cooperation with industry. After analysis of the LINC project outcomes, the Ministry of Education launched LINC+ in 2017. The program will end in 2022. The goal of LINC+ is to innovate the university education system and to activate cooperation between universities and industry.

CONCLUSIONS

The study shows that the commitment of industry partners and government can be differentiated by monetary and non-monetary support. Such support impacts directly on the employability of graduates of cooperative and work-integrated education programs. Monetary support includes financing of cooperative and work-integrated education initiatives, driven by government policy. This form of support is clearly present in the case of South Korea, where the Ministry of Education actively promotes the expansion of cooperative and work-integrated education through the LINC and LINC+ projects on a national level, in order to improve the employment prospects of their young population. In contrast, the Australian Government includes factors related to work-integrated learning in its funding model for universities. In Germany, European Union policy, related to the modernization of

Europe's higher education systems, seeks to meet the employability objectives of the labor market on a continental level. Monetary support can be provided via industry in the form of regular remuneration for students undertaking a practical element to their studies. DHBW students receive a monthly salary for the entire duration of their studies, which means that they can concentrate fully on acquiring the necessary theoretical and practical skills required to enhance their employability. Non-monetary support includes the active participation of industry in the decision-making bodies of their respective partner university in order to ensure that the curriculum meets the needs of industry. In Australia some industry bodies and professions, such as accounting, primary and secondary education, and nursing, specify university content to meet their requirements for associate membership or accreditation. These professional bodies can be powerful lobbyists for the allocation of university resources, for example by establishing expectations for student/ staff ratios and staff educational levels. The provision of opportunities for practical experience in industry is also an example of non-monetary support. In the case of the DHBW, industry partners take the initiative in recruiting their students for the entire duration of their studies. This industry-driven approach provides work-ready graduates for the workforce, as opposed to the models in Australia and South Korea, which generally place the onus on the student and university to organize practical placements.

The research demonstrates that the greater degree of practical experience in industry, relative to the theory acquired, the more closely the learning outcome is aligned to the employment criteria of industry. The rotating model, as offered at the DHBW, allows students the opportunity to apply their acquired theory in a broader practical setting. Students can cement their professional knowledge, at the same partner company, while contributing to the goals of their company. The level of credit points awarded for the practical element at the DHBW increases the degree of commitment to cooperative and work-integrated education. In contrast, the lower emphasis on practical experience is reflected in the lower level of credits awarded in Australia and South Korea. As a consequence, the importance of the degree of practical experience is underplayed by the university, industry and students alike in comparison to the DHBW. The timing of the practical element is important, in that it should be planned in such a way that the students can concentrate fully on the requirements of their practical phase. The DHBW offers fixed semesters, throughout their three-year degrees, which allows students to immerse themselves not only in their work, but also fully experience the business culture of their partner company. The use of holiday periods, such as in South Korea, to complete practical phases is an alternative, but the timeframe is often too short for students to consolidate their knowledge and contribute to their company. The concurrent nature of internships, as experienced at the USC, presents a challenge for students to manage their study load while working.

The research indicates that both government and industry commitment are central to the effort to increase graduate employability. Examples of government policy, whether that be on a continental or national level, have shown that through providing funding, infrastructure or even the platform to identify the skills, competencies and qualifications, the needs of industry in the future can be met. By delivering these skills, competencies and qualifications through cooperative and work-integrated education programs, the employability of graduates will be enhanced. However, without industry commitment, in the form of providing opportunities for practical placements and contributing to the formulation of curricula, graduates will lack the necessary experience and industry-theory-based knowledge in order to satisfy the overall needs of industry. Such graduates will be neither employable nor work-ready. Recognition of the importance of the practical element in higher education, both in terms of providing multiple opportunities to gain professional experience and accruing credit points for this aspect, is key to creating a graduate cohort who are ready to enter the labor market and contribute to their employer on graduation. It also ensures that all parties, namely the student, university and industry, are fully committed to achieving the goal of employability.

REFERENCES

Baethge, M. (2006). *Das deutsche Bildungs-Schisma* [PDF document]. Retrieved from http://www.sofi-goettingen.de/fileadmin/Textarchiv/Vortrag-Martin-Baethge-19-07-06.pdf

Berthold, C., Leichsenring, H., Kirst, S. & Voegelin, L. (2009). Demographischer Wandel und Hochschulen: Der Ausbau des Dualen Studiums als Antwort auf den Fachkräftemangel. Gütersloh.

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

Burke, C., Scurry, T., Blenkinsopp, J., & Graley, K. (2016). Critical perspectives on graduate employability. In M. Tomlinson & L. Holmes (Eds.), Graduate employability in context (pp. 87- 107). London: Palgrave Macmillan. doi: 10.1057/978-1-137-57168-7_4

Duale Hochschule Baden-Württemberg, Präsidium (2017). *Presentation slides.* Stuttgart, Germany: DHBW Stuttgart.

Eames, C. (2011). Researching in cooperative education: How a practitioner met the challenge. In: P. L. Linn, A. Howard, & E. Miller (Eds). Handbook for research in cooperative education and internships (pp. 71-97). Mahwah, NJ: Lawrence Erlbaum Associates

Eckert, S. (2004). Grounded Theory als methodische Konzeption für wirtschaftswissenschaftliche Forschungsprojekte. *Wirtschaftswissenschaftliches Studium, 12*, 694-699.

Froese, L. (1983). Bildungstrukturen in Ost und West. In Froese, L. *Ausgewählte studien zur vergleichenden erziehungswissenschaft. Positionen und probleme.* Muenchen: IGI.

Hall, M., Pascoe, D., & Charity, M. (2017). The impact of work-integrated learning experiences on attaining graduate attributes for exercise and sports science students. Asia-Pacific Journal of Cooperative Education (Special Issue), 18(2), 101-113.

Hangyang University ERICA (2017). Work-Integrated Learning.

Heidenreich, K. (2011). Unternehmensbefragung: Erwartungen der Wirtschaft und Hochschulabsolventen. Deutscher Industrie- und Handelskammertag e.V. (Eds.). Berlin. https://www.uniheidelberg.de/md/journal/2011/11/hochschulumfrage2011.pdf

Helmrich, R., Zika, G., Kalinowski, M., Wolter, M. I. (2012). Engpässe auf dem Arbeitsmarkt. Geändertes Bildungs- und Erwerbsverhalten mildert Fachkräftemangel. Neue Ergebnisse der BIBB-IAB-Qualifikations- und Berufsfeldprojektionen bis zum Jahr 2030 in BIBB Report. Nr. 18/12. Bonn.

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

Jackson, D. (2016). Re-conceptualising graduate employability: The importance of pre professional identity. Higher Education Research & Development, 35(5), 925-939. doi: 10.1080/07294360.2016.1139551

Korean Educational Development Institute (2016), Statistical yearbook of education .

Lloyd, K., Clark, L., Hammersley, L., Baker, M., Rawlings-Sanaei, F., & D'Ath, E. (2015). Unintended outcomes of university-community partnerships: Building organizational capacity with PACE International partners. Asia-Pacific Journal of Cooperative Education, 16(3), 163-173.

Messum, D., Wilkes, L., Peters, C., & Jackson, D. (2017). Senior managers' and recent graduates' perceptions of employability skills for health services management. *Asia-Pacific Journal of Cooperative Education (Special Issue), 18*(2), 115-128.

Ministry of Education (2015). *Booklet on Industry-University Cooperation of Korea.*

Minks, K.-H., Netz, N. & Völk, D. (2011). Berufsbegleitende und duale Studienangebote in Deutschland: Status quo und Perspektiven. *Forum Hochschule, 11.* Hannover.

Nykiel, R. (2015). Handbook of Marketing Research Methodologies for Hospitality and Tourism. New York, NY: Routledge.

Powell, J. J. W. and Solga, H. (2011). Why are higher education participation rates in Germany so low? Institutional barriers to higher education expansion. *Journal of Education and Work, 24*(1), 49-68.

Reddan, G. (2017). Combining quality work-integrated learning and career development learning through the use of the soar model to enhance employability. *Asia-Pacific Journal of Cooperative Education (Special Issue), 18*(2), 129-139.

Reinhard, K., Pogrzeba, A., Townsend, R. & Pop, C. A. (2016). A comparative study of cooperative education and work-integrated learning in Germany, South Africa, and Namibia. *Asia-Pacific Journal of Cooperative Education, 17*(3), 249-263.

Reinhard, K. & Pogrzeba, A. (2016). Comparative cooperative education: Evaluating Thai models on work-integrated learning, using the German Duale Hochschule Baden-Wuerttemberg model as a benchmark. *Asia-Pacific Journal of Cooperative Education, 17*(3), 227-247.

Sachs, J., Rowe, A., & Wilson, M. (2017). Good practice report WIL. Report undertaken for the Office of Learning and Teaching. Retrieved from http://www.olt.gov.au/resource-good-practice-work-integrated-learning

Strübing, J. (2008). *Grounded Theory. Zur sozialtheoretischen und epistemologischen Fundierung des Verfahrens der empirisch begründeten Theoriebildung.* Wiesbaden: VS Verlag für Sozialwissenschaften.

Willcoxson, L. and Wynder, M (2010) The relationship between choice of major and career, persistence, and experience of university" *Australian Journal of Education*, 54(2), Article 4.

Willcoxson, L. Wynder, M., and Laing, G. (2009) "A whole-of-program approach to the development of generic professional skills in a university Accounting program." *Accounting Education: An International Journal*, special issue on Enhancing Generic Skills. 19(1-2), 65-91.

Yin, R. K. (2009). Case Study Research. Design and Methods, 4th Eds., Applied Social Research Methods Series, Bd. 5, Los Angeles: SAGE

Yorke, M. (2010). Employability: Aligning the message, the medium and academic values. *Journal of Teaching & Learning for Graduate Employability, 1*(1) 2-12.

Zabeck, J. (1966). Ansätze einer Vergleichenden Berufs- und Wirtschaftspädagogik. In: K.

Abraham, A. Dörschel, & K. Herberts (Eds). Jahrbuch für Wirtschafts- und Sozialpädagogik (pp. 207-213). Heidelberg: Quelle & Meyer.

Zegwaard, K. E., & McCurdy, S. (2014). The influence of work-integrated learning on motivation to undertake graduate studies. *Asia-Pacific Journal of Cooperative Education, 15*(1), 13-28.

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Automatic detection of tactics in team ball games and its application: Insights into a research project in the context of a cooperative university

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ABSTRACT

The Baden-Wuerttemberg Cooperative State University (DHBW) has a focus on education integrated research. I.e. the research activities of the DHBW are means to keep the knowledge of the lecturing personal up to date while the research activities are used as well to provide students with a context to apply their learned knowledge. This paper uses the example of research around automatic detection of tactics in team ball games to show the background of education integrated research at the DHBW. It is shown how the research topic is aligned with education content and the objectives of the cooperative partners. Furthermore, some of the results of the research activities are presented.

INTRODUCTION

The Baden-Wuerttemberg Cooperative State University offers a unique studying model in Germany (DHBW, 2018). Cooperating with more than 9000 industrial partners, all regular students of the DHBW are fully employed by one of the partner companies. The students have alternating theoretical phases at the university and practical phases with their employing company during their studies and they even earn study credits while they are working in their company.

The employing companies of DHBW's students belong to various industries, which results in a diverse mix of students in the cohorts and courses respectively. Thus, providing a perfect basis for looking into research problems, due to the various views resulting from the different backgrounds of the students. However, it is rather difficult to find research areas in which partner companies are not in competition. Sports is one of the fields which is suitable in this context because sports are mainly driven by non-profit organizations in Germany. If soccer (football) is excluded, then we rarely find competing partner companies, given the set of partner companies of the DHBW. Thus, we have chosen team handball as the context for our research project.

Team handball is a very fast game with full physical contact of the players who are not wearing any protectors. The goal rate easily exceeds one per minute. That is one of the reasons why it has become a popular sport in Europe. In Germany about 750.000 people are playing team handball in multiple leagues (DHB, 2017). The first German league (Handball Bundesliga) has an annual budget of approximately 80 million Euros. The top leagues in France and Spain even exceed that number. Top teams in France for instance, have an annual budget between 17 and 18 million Euros (DPA, 2016).

Team handball is at the starting point of digitalization. So far, there is almost no usage of sensors to automatically collect data of the players – particularly not during a game. Even the official game reporting of major leagues just recently switched to an online platform as a first step into digitalization (DKB HBL, 2018). Thus, third party providers are offering a service to collect and provide game information based on the manual collection of data, called scouting (Sportradar, 2015).

Since video based collection of information like in football (ChyronHego, 2016), and some sports in the USA (Morgulev, Azar, & Lidor, 2018), is too expensive and other sensor based information collection (Kinexon, 2017) is not yet applicable due to the size of the sensors, as well as cost and complexity of the equipment, automated

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information collection is rather rare in case of team handball. Hence, there are only some cases for which information of real handball games are being collected. Additionally, there is no recording of team or group tactics at all and thus a complete absence of insights based on the evaluation of tactics.

The project CoCoAnDa (coaching support by collecting and analysing data) is a research project in the context of team handball leveraging the special situation at the DHBW. The project is exploring latest sensor technology to collect information of players and teams, applies analytical methods to extract useful information, and provides the information via mobile apps to coaches to support them in their decision-making processes.

MAPPING THE RESEARCH CHALLENGES ONTO EDUCATION

The Curriculum's View

The event ratio of team handball is very high compared to other team ball games. For instance, it is not unlikely that games have a goal rate of more than one per minute. Consequently, players are moving fast, and the ball is passed very quickly. That leads to the side-effect that coaches are not able to track during a game which tactics were played and whether a single tactical move of the team or a group was successful or not. We assume that this observation is also true for other team ball games. Hence, the following approach cannot only be applied in the context of handball but for other team ball games as well.

A part of the CoCoAnDa project addresses the challenge to find an automated solution that allows to track the movement of players and to automatically detect tactics with a minimal amount of equipment and a minimal budget. There are existing solutions to the problem of tracking players as described in (ChyronHego, 2016) and (PlayGineering, 2018) but these solutions are too expensive to be used in Handball or any non-profit sports and they cannot detect tactics at this point.

To be able to integrate the research into our cooperative education, we first needed to map the challenges of automatically detecting tactics (the research areas) onto the educational fields of our curricula. As a first step, we used the business information systems curriculum of the DHBW (DHBW Stuttgart, 2017) to do this:

- Methods of system's analysis and design to do the requirements analysis and define an architecture for a system solution.

- Database design and programming for the management of collected information

- Distributed systems for the concept and design of the connection of sensors, apps and backend components.

- Business process management to model the processes and functions of a team handball coach.

- Programming to develop the needed mobile applications and the backend components.

- Project management for coordinating the work of multiple students

- Business management fundamentals to lay the foundation for calculating the business case of introducing a corresponding system.

- New concepts and methods which cover the aspects of data science and analytics.

It is obvious, that the challenges of automatically detecting team tactics in handball cover quite a significant part of the fields that we teach in business information systems.

The Cooperative Partner's View

We have the advantage of having students who are employed, and their employers are interested in getting their employees early in touch with real world problems.

The following sectors reacted positively when we presented the idea of involving their students in the research project CoCoAnDa:

- Companies offering consulting services and/or products around IoT because the collection and processing of sensor data is a direct match with their consulting portfolio. The students get practical experience regarding the challenges of using sensors for solving real-world problems.

- Companies offering consulting services and/or products in data science, because the mapping of the questions in team handball onto IT concepts is a perfect example for the tasks in data science. Employees get hands-on experience regarding the mapping of data onto meaning of the business level.

- Companies offering consulting services and/or products in data analytics, because the detection of tactics is very well suited to show how pattern matching can be applied to a real-world problem. Furthermore, the employees become familiar with tools for data analytics in the educational context.

- Companies which are offering application programming services, because the requirements analysis process in sports is a very good example for the challenge of mapping a domain specific language (sports terminology in this case) onto IT language and solutions. Furthermore, the students participate in a real development project with all aspects they will face later in the company's context.

- Non-profit organizations which have their focus on sports or particularly team handball (e.g., the Team Handball Federation of Baden-Wuerttemberg, HVW), because they would like to see their employees to be aware for upcoming (technical) changes in their domain.

Even though companies that do not belong to the categories mentioned above usually welcome the involvement of their students in projects like CoCoAnDa, because all aspects of digitalization are covered in the project, which is seen as an essential skill for all sectors.

Embedding Student Research in Lectures

A key aspect of DHBW's business information systems curriculum is the so-called "Project" in the 3rd year of studies. Nominally it is a lecture for the students to get practical experience with the theoretical methods they have learned. It allows to challenge a course of approximately 30 students with a set of topics. CoCoAnDa has used this format with three cohorts now focussing on the different aspects of the automated detection of tactics. The used approach was:

- Define a set of research challenges such that each challenge can be handled by a group of approximately 5 students.

- Split the course in teams of approximately 5 students and let them choose one of the challenges (or assign the challenges).

- Provide each group with enough knowledge to understand the challenge. Organize interviews with real-world experts and "customers" like coaches, players, club representatives, and other organizations researching in the field.

- Point them into a direction to look for first solutions.

- Force the groups to use a project management method.

Even though groups were never able to completely solve their challenge, they always solved at least a part of it and by that contributed to the overall solution. Through having multiple challenges in multiple groups at the same time with dependencies between the groups the students also became aware of the bigger context and the specific challenges of inter-team work.

STATUS OF COCOANDA

CoCoAnDa started with the development of two mobile apps for tablets to manually collect player and team information during a match and to provide the coach with an evaluation of the collected data during the very same match (rather than providing it after the match based on a post-analysis of the video material).

The latest student project evaluated multiple sensors to detect the location and the movement of players. An important insight was that the following information is needed to have a basis for the automated detection of team or group tactics:

- An identification of each player

- The location of the identified player in terms of two-dimensional coordinates. For which we need an accuracy of approximately 0.25 meters for the location.

- The location is needed at least every 0.5 secs for each player on the field and optionally the ball. I.e. the locations of a maximum of 14 players plus the ball need to be determined.

Given these requirements it turned out, that using only video equipment can solve the problem, but it is too complex and too expensive because of the number of needed cameras (PlayGineering, 2018). Using an Indoor Positioning System would work as well but has the similar conceptual shortcomings at this point (Kinexon, 2017). Thus, an alternative concept has been proposed which uses two cameras at the ceiling for the detection of the location of players in combination with an RFID based identification of the players.

In parallel, an additional concept has been developed which is based on a deep learning system for detecting team tactics. Since the sensors will produce a constant stream of 15 pairs of coordinates every half seconds, a single tactical movement can be treated as a sequence of these 30-tupels. We will start with a fixed sequence length of 15 seconds, assuming that a tactical movement will never take longer than 15 seconds (this needs to be verified and adjusted if needed). In addition, we can classify each of the sequences with the information about which tactical movement is contained in the sequence (if there is no specific tactical movement, it is classified as "free play").

With this, we can map the problem of detecting sequences with certain tactical movements, onto the classical deep learning classification approach. We will use a set of pre-classified sequences to train the system and another set of pre-classified sequences to test the model. Then we can apply the model to a continuous stream of the mentioned 30-tupels to detect tactical movements in the stream.

Currently, there is a group of students finalizing the concept and evaluating deep learning platforms for their suitability in this context. In parallel, a group at a partner university analyses video material of handball matches to provide us with a first set of pre-classified sequences that can be used to train and test a model.

The next group of students will then experiment with different deep learning approaches to evaluate different models and sets of parameters of the models. The long-term objective is to provide a publicly available model to detect team tactics in team handball which can be further enhanced by subsequent projects. Furthermore, the approach is not team handball specific but can be applied to other team ball games like soccer as well. The difference would be, that instead of 30-tupels as in case of team handball, we would need to handle 46-tuples in case of soccer. I.e. the difference is basically only the number of players on the field.

CONCLUSION

The project CoCoAnDa is a successful approach to involve cooperative students in a research project with a real-world-background. It has turned out that this approach is beneficial from multiple points of view:

- The academic perspective: applying previously learned methods

- The employer's perspective: real-world projects with hands-on experience and application of leading edge technology

- The research perspective: a continuous stream of multiple fresh views on research problems

The author is strongly convinced, that this combination of research and education should become a commonly used pattern to have a bi-directional flow of knowledge from research to companies via employed students and vice versa.

REFERENCES

ChyronHego. (2016). TRACAB Optical tracking - Product Information Sheet. ChyronHego.

DHB. (2017). *Das Unternehmen Handball stellt sich vor*. Retrieved from https://dhb.de/der-dhb/verband.html

DHBW. (2018). *Cooperative Education at DHBW*. Retrieved from http://www.dhbw.de/english/dhbw/cooperative-education-at-dhbw.html

DHBW Stuttgart. (2017). *Rahmenstudienplan Wirtschaftsinformatik*. Retrieved from https://www.dhbw-stuttgart.de/fileadmin/dateien/Wirtschaftsinformatik/WI_allgemein/Rahmenstudienplan_Application_Management.pdf

DKB HBL. (2018). *Liveticker*. Retrieved from http://www.dkb-handball-bundesliga.de/en/liveticker/dkb-hbl/liveticker/

DPA. (2016). *Start der EHF-Champions League: THW Kiel und SG Flensburg müssen Vollgas geben*. Retrieved from https://www.shz.de/14920136

Kinexon. (2017). *Real-time Performance Analytics*. Kinexon.

Morgulev, E., Azar, O. H., & Lidor, R. (2018, January 09). *Sports analytics and the big-data era*. Retrieved from International Journal of Data Science and Analytics: https://doi.org/10.1007/s41060-017-0093-7

PlayGineering. (2018). *Pioneers in Sports' Technology*. Retrieved from http://playgineering.com/

Sportradar. (2015). *Handball Scout Admin (HAS) Manual*. Sportradar AG.

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International internships: An investigation of international cooperative student experiences by partner institutions

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ABSTRACT

Students are increasingly considering expanding their cooperative experiences into the global environment. This paper investigates the experiences of students undertaking their internship capstone in other countries under the supervision of a partner institute and a participating industry sponsor. These experiences of German students interning in New Zealand (NZ), and NZ students interning in Germany offer an insight into the organisation required by the partner institutions and the comparative cultural and technical differences that these students have encountered. The international agreement between Ostbayerische Technische Hochschule (OTH) Regensburg, Germany, and the Eastern Institute of Technology (EIT), NZ, has already built a mutual framework of visiting lecturers teaching in each other's institutes, and a programme of hosting exchange students in each other's institutes. A natural progression of this partnership has now moved into the active recruitment and brokering of international internship opportunities for their respective final year Business and Information Technology (IT) students.

The benefits are evident personally to the students, which are discussed in this paper, but there are also clear benefits for EIT and OTH in terms of marketing opportunities for prospective students and enriching the learning environments. This paper explores the challenges faced by the Schools of Business and Computing at EIT as it pioneers the first two years of establishing internship options for final year German exchange students within NZ, and matching final year EIT degree students to industry sponsors within Bavaria, a federal state of Germany. A qualitative approach was taken for this study with data acquired from internship students involved, the key organising lecturers from each institute, and industry sponsors from each country. A number of student, staff and industry representative interviews were conducted along with a cultural appraisal of relevant literature in the global education field. A further overview of the macro benefits for the partner institutes in terms of marketing, and programme enrichment is also part of the conclusion. The paper may be useful as a template for other institutes on developing international internship opportunities through global partners.

INTRODUCTION

Close partnerships between tertiary institutions in different countries are best facilitated by close professional relationships between key representatives of the respective institutes (Erasmus, 2016). In this qualitative study a multi-faceted partnership between the Eastern Institute of Technology (EIT), New Zealand (NZ) and Ostbayerische Technische Hochschule (OTH) Regensburg, Germany is discussed with emphasis on cross-country information technology (IT) and business internships. This relationship between the two institutes has developed over the past four years and has included teaching block courses delivered face to face and online by EIT lecturers into OTH degree programmes, student exchanges in both directions in Bachelors and Masters degrees, and internship sponsorship and facilitation for students from both countries in their guest country. These cross cultural activities have been underpinned by a professional relationship of trust between the key representatives of both institutes and this has aided the exchanges beyond typical formal agreements. Research questions in this initial review

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included; what were the additional benefits of an international internship compared to an internship within their own country? What was the ease of organisation and resource needed to facilitate the internship? And to the coordinators and representatives of EIT and OTH; what are the enrichment and marketing benefits to the institute as a result of these international internship being successfully undertaken and being available to prospective students?

LITERATURE

For international students and exchange students, undertaking an internship within a degree can be an integral part of their overseas study experience (Ruhanen, Robinson, & Breakey, 2013). German students are more likely to have recent industry experience within their degree than NZ students and be more familiar with the internship model, often undertaken part-way through their studies compared with NZ students typically undertaking their internship in their final semester (Skelton, Westner, & Tinat 2016). Cross cultural sensitivity is also now considered to be a valuable attribute for students and graduates (Bandaranaike & Gurtner, 2016) and an international internship experience can help to build these skills and attributes. "An important objective of educational travel programs is to teach students how to bridge cultural distance" (van 't Klooster, van Wijk, & van Rekom, 2008, p.690). There appears to also be a broader benefit to the tertiary education provider in terms of how it is perceived by prospective students so "universities that provide work abroad options gain world-wide visibility, strengthen ties with major industry players, increase the flow of technology between the institution and industry, and position themselves to attract students who want a value-added education" (Elliot, Fujioka-Ito, Rademann, 2015, p.3).

METHOD

This introductory qualitative study, investigated the experiences of OTH Regensburg, Germany, students undertaking an IT internship as part of an international exchange in NZ under the academic supervision of EIT, and another German student undertaking their internship in NZ also under the supervision of EIT. The study also included two EIT, NZ, students undertaking their internships in Germany under the academic guidance of OTH Regensburg and their industry partners. The qualitative data was drawn from unstructured interviews with the students involved, email feedback during their internship and exchange experience, and reflective components within their internship reports. Further unstructured interviews and email feedback was obtained from both institute coordinators for their insight into the additional value (marketing and enrichment) that these international internships provide for their institutes. A brief description of the participants is included in this method section, however quoted comments are included in the themes within the discussion section to help with anonymity.

German student 1 (interning in NZ) undertook a full year exchange at EIT, NZ completing a double degree with transfer credit arrangements. His internship was in his second semester which was helpful for him as he had time in his first semester to become familiar with the NZ tertiary environment, choose an interesting IT internship that he preferred, and to get to know his lecturers and choose a suitable academic internship supervisor. His sponsor, HERA (New Zealand Heavy Engineering Research Association) NZ operates with a small staff, and so they are open to assistance from the industry and universities. For their research projects in mechanical engineering, HERA usually get assistance through their regular interns.

German student 2 (interning in NZ) This German student interned at a digital marketing company then stayed on working in NZ after her internship for a further two years, eventually returning to Germany to work.

NZ Student 1, undertook an internship in Germany at Krones, a large manufacturing company. He had already experienced a semester exchange in Germany in a previous year and so was well prepared for the cultural differences during his internship and second exchange to Germany. The interview process for admittance into this industrial internship took place via a four-way Skype interview involving the OTH coordinator, the EIT coordinator, the student, and two representatives from Krones. Fortunately for the student he had recently studied two particular IT systems – virtualisation and Powershell – and these were skills wanted by the company.

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NZ Student 2, undertook her marketing internship in Germany at Kuehne+Nagel assisting with supply chain and logistics planning under the academic supervision of OTH. This was a new initiative involving the School of Business, EIT and OTH, and so expanding the range of students beyond the field of IT.

DISCUSSION AND RESULTS

There were three main themes developed from the qualitative study including feedback from all participants. The first theme covered the student benefits which participants perceived that the international internship provided in addition to a home country internship. This theme adequately answered the research question seeking confirmation or otherwise of the benefits. All students participating in these international settings commented that they were more extended personally and academically than studying or working in their own country.

> For my personal benefit I also gathered experience how to live and work in a country with a different language and culture. HERA, gave me the opportunity to expand my professional experience, by working on IT projects in a company with international staff. [German student 1]

The development of their English and German language was also an acknowledged benefit by the student interns. However, the German students faced the challenge of using their second language (English), while the NZ students experienced mainly an English speaking environment in their workplaces.

> One of my aims was to improve my English and this aim was fulfilled through the day to day contact with English speaking people at work. Generally, my cultural experience has increased since I work at HERA through its international staff. However, the objective was not fully fulfilled as my main contact person is my supervisor who is also originally from Germany. Through all the tasks at HERA in which I was fully involved and informed I could develop a very good understanding around the tasks I have done. As a result, I think this objective of getting a better understanding of IT related business processes is definitely fulfilled. [German student 1]

The benefits cited by the student participants included typical graduate transition advantages with the country differences working in German students' favour by the requirements to be an "all-rounder" in a smaller setting, and the NZ students seeing the benefits of immersion in a larger industrial environment which they may not have experienced in NZ. Some students viewed their international internship not only in terms of opportunities in their new host country, but also as an opportunity to work in the future in new countries.

> The international internship semester not only allowed me to gain practical work experience in New Zealand but also prepared me very well for the workforce. The degree did not only open up the door to work for one of the "Big Four" professional services firms, but to also continue my journey beyond the borders of New Zealand. [German student 2]

Still within the theme of benefits to the students, the cultural differences were sometimes viewed with curiosity and amusement, but ultimately judged as a benefit due to acting as a catalyst for personal change.

> Kiwis always seem to enjoy work, have a positive attitude, are happy to help and share their knowledge while German workers do not seem to be so willing to help or share their expertise. German culture is much more direct, whereas in New Zealand, it was difficult to know if people are actually sincere since everyone seems happy and polite. Randomly talking to co-workers in Germany is not so acceptable. Another example of how the work environments differ is the way praise is given. Being praised by my boss in Germany is a highlight, something truly special, whereas, in New Zealand workplaces, it is expected practice to make people feel appreciated and keep them happy, so praise is given often. However, since it is given so lightly, I was never sure whether I actually did a good job or my boss is just keeping me happy and engaged. [German student 2]

Attitudinal changes and personal development were also discussed by the interns and this was seen as a particular benefit which the international nature of the experience particularly accelerated. One student appeared to still enjoy the newness of the entire experience well into her exchange internship. Another sub-theme within the benefits

theme was the experience of interacting with other international students and diverse staff in their campus and internship environment. The comment on dealing with uncertainty is supported by Hofstede's uncertainty avoidance dimension (Hofstede, 2011).

> Undertaking my internship in NZ has taught me to be open and try new things, even if it may result in failure. I'm now more relaxed to deal with a certain level of uncertainty. It has encouraged me to always keep learning and progress while keeping a positive attitude and supporting others. [German student 1]

> The past 3 months have been crazy! My favourite part of the whole experience has been the people who are on also on exchange from all over the world! It feels like I've known them for years and can't imagine not seeing them every day. Temperatures have now dropped with the average being about 2 degrees!! We had our first snow fall on Monday. The first Christmas market opened in the last week of November. Courses are coming to an end with exams in January. The classes are similar to EIT but they have a different teaching style with many professors choosing to still use BlackBoards rather than PowerPoints. [NZ student 2]

> As I live in Auckland with two locals in a flat and go once a week to the IT Management class on EIT's campus in the city centre, I can experience multiple facets of living and working in an international city environment. As NZ is a small country with many smaller organisations, interns and employees have a greater opportunity to work on a wide range of tasks rather than be restricted to a narrow specialised role. And so as I was able to work independently on a few projects where it was necessary to setup and configure software. [German student 1]

Industry representatives also communicated their support of the internship model, both domestic and international, and discussed the benefit of industry getting to know the intern over time and the prospect of gaining more suitable employees. Of course, the offer of ongoing employment after an international internship is not so common due to visa issues and that some students need to return to their home country to complete their qualification. Companies which were actively operating in the internship area appeared to be more receptive to international interns.

> Krones works closely with universities in order to recruit graduates as employees. The company offers students internships in a wide range of disciplines. That gives both parties a chance to get to know each other and is often the first step towards permanent employment at Krones. In this year, 770 students completed internships and 280 wrote their Bachelor's or Master's theses at Krones. (Krones, 2016, p.116)

The second theme emerging from the interviews and discussions was the issue of practical organisation and preparation for the overseas internship. Staff from OTH and EIT regularly visit each other's institutions often combining a conference attendance or teaching block to make the visit economically viable. Information sharing and marketing sessions are held by visiting staff to make students aware of the international exchange and internship availability. Exchange students who are studying or interning also speak at pizza lunches to share their experiences and to encourage the local students to consider an exchange in the partner institute or country. Students normally require additional funds for travel and accommodation above their normal student expenses in their home country. This may be met by parents, or other funding such as the DAAD (a German government-funded organisation aimed at encouraging exchanges between Germany and other countries) scholarships (DAAD, 2017). Where students are arriving at the beginning of their internship an interview process with the industry sponsor is sometimes required beforehand. This may take form of a multi-part skype interview with the host industry, host institute, the student, and in some cases the sending institute.

NZ Student 2, who undertook her internship in Germany at Kuehne+Nagel was encouraged in her preparation by another NZ student who was planning an exchange semester at OTH at the same time. So travelling together and supporting one another in the lead up to the internship semester ensured that the student was more committed and reassured. Typically exchange students to NZ from countries such as Germany are not primarily focused on working longer term in NZ and they normally return to their country of origin to complete their studies. This can sometimes be a barrier to employers accepting them as interns as NZ employers are often looking at the possibility of employing any intern immediately after the successful completion of their internship. This is likely to also be the

case with German employers or internship sponsors, however as internships are more embedded into normal practice for larger companies this may not be such a barrier. As there are frequent teaching exchanges and visits by staff between the two institutes, there is often the chance for students to meet staff from the partner institute which increases the trust and confidence for the students as they commit to international enrolment, travel and industry contractual arrangements. As travel is costly between Europe and NZ, a strong commitment is needed from the student and this may develop over months of arrangements. One recent case of a NZ student intending to pursue an offered internship in Germany saw the student unfortunately decline the opportunity after an internship had been offered and some arrangements had already been made. This experience highlighted to the respective coordinators that constant communication and ongoing steps of commitment are needed as coordinators work with the students. Although the staff at each institute spend considerable extra time on making arrangements for these international exchange internships, they appeared positive and enjoyed the facilitation experience, and could see the wider benefits for their institute.

> From my perspective I think this arrangement is absolute gold and look forward to strengthening this relationship. This is a life changing moment that we are able to offer to our students, a fantastic opportunity for them to be exposed to different cultures. This experience will allow the student to not only have a better understanding of the world and foreign cultures but also reflect and have a greater understanding of their own culture. All resulting in a more employable student. [EIT Staff 1]

The third, and final theme to emerge from interviews, conversations and report excerpts, was the aspect of the wider benefit to each institution in terms of enriching students' experiences, internationalising their institutions and their links to industry, and enhancing their marketing profile. This institutional benefit also appeared to be influenced by involved staff who experienced a fresh perspective in their careers and roles.

> We have also received numerous enquiries from current and prospective students since we have published these international opportunities that we as an institution can offer and so it assists the institute with our marketing strategy. [EIT Staff 1]

Staff involved in these international internships also experienced new opportunities to travel, observe their students development, and to learn about industry in other countries.

> Being involved in coordinating the OTH/EIT internships has also opened the door for me to travel to Germany, teach overseas, help with recruitment and mentoring of students, get involved in international Masters' thesis supervision, understand international companies, and this has given a new perspective on my overall role with all students and industry. [EIT staff 2]

Collaborative research opportunities are another potential benefit as staff and students often work closer together under unique conditions which lends itself to research opportunities as they share their experiences. One recent spinoff for the EIT/OTH partnership was joint research on shared international online courses (Skelton, Westner, Tinat, 2016).

CONCLUSIONS

By developing and maintaining an ongoing close relationship between two tertiary institutions, and having representatives who are normally involved in internship coordination work closely together, the likelihood of international internship exchanges are higher than a perfunctory formal relationship. The benefits are clearly evident for the students participating, and these personal benefits flow on to the institution by expanding other opportunities such as lecturer exchanges, standard student exchanges, site visits by travelling staff, and marketing opportunities for the institute. International internships are best arranged through tertiary partnerships, rather than directly by the student, for ease of facilitation and to overcome any geographical restrictions by governmental qualifications authorities.

The three themes which were discussed in the findings: 1. increased benefits from international internships, 2. the relative ease and consideration of arrangements with the right partnership, and 3. the wider institutional benefits

of international internships, ultimately addressed the research questions which aligned well with these findings. It is hoped that this paper would serve as an example for other similar arrangements between institutions in different countries. Further longitudinal research is envisaged as more examples of students undertaking internships overseas are tracked and observed.

REFERENCES

Bandaranaike, S., & Gurtner, Y. (2016) Integrating cross cultural sensitivity in the workplace: developing globally proficient professionals. Proceedings of the 2nd International Research Symposium on Cooperative and Work-Integrated Education, pp. 13-21. From: 2nd International Research Symposium on Cooperative and Work Educational, 12-15 June 2016, Victoria, Canada.

DAAD (2018). German Academic Exchange Service. Retrieved from https://www.daad.ac.nz

Elliot, G. & Fujioka-Ito, N. & Rademann, E. (2015). Developing Global Engineers through International Cooperative Education: The University of Cincinnati Model. Proceedings of the World Conference on Cooperative & Work-Integrated Education 2015 Conference. Kyoto, Japan.

Erasmus (2016). Strategic Partnerships. Retrieved from https://ec.europa.eu/programmes/erasmus-plus/programme-guide/part-b/three-key-actions/key-action-2/strategic-partnerships-field-education-training-youth_en

Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. Online Readings in Psychology and Culture, 2(1). doi:10.9707/2307-0919.1014

Krones (2016). 2016 annual report of Krones. Retrieved from https://www.krones.com/media/downloads/GB_2016_Konzern_e.pdf

Ruhanen, L., Robinson, R., & Breakey, N. (2013). A foreign assignment: Internships and International students. Journal of Hospitality and Tourism Management. 20(1), 1-4.

Skelton, D., Westner, M., & Tinat, J. (2016). Enhancing students' IS offshoring capabilities: An International blended teaching concept. In E. Erturk & M. Verhaart (Eds.),   CITRENZ 2016: Proceedings of the 7th Annual Conference of Computing and Information Technology Research and Education New Zealand, Wellington, New Zealand.

Van 't Klooster, E., van Wijk, J., Go, F. & van Rekom, J. (2008). Educational travel: The Overseas Internship. Annals of Tourism Research, 35(3), 690-711

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From work-integrated learning to learning-integrated work: Motivations and apprehensions of graduate apprentices

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ABSTRACT

Graduate Apprenticeship (GA) degrees bring new collaborations between universities and employers and new opportunities for apprentices—to gain a university degree, while also being in formal employment. In 2017, Scotland introduced funding for GAs: students are based in the workplace and undertake work-based learning as well as attending campus-based classes. To support students through four relatively intense years of study and employment, it is vital to understand their experience. Research workshops were held with computing students starting GAs to explore motivations and apprehensions—their aspirations and understandings of the challenges ahead. Workshops involved a short individual survey and a group Rich Picture session, a participant-centred tool for surfacing perspectives and mental models. To contextualise the data, a comparative study was conducted with computing students starting 'traditional' on-campus degrees. Both groups were primarily motivated by the goal of well-paid careers. The apprentices were worried about work-study balance and the challenges of fulfilling (even keeping) their jobs while passing university assessments. The comparison group were also worried about academic challenges and maintaining a healthy work-life balance; however, unlike the apprentices, they were worried about money and debt. This paper explores the apprentices' context through literature and policy and, with a focus on students' situated perspectives, reflects on the advantages and challenges of this new work-based learning model. The study aims to deepen understanding of how best to ensure apprentices fulfil their aspirations.

Keywords: Work-based learning; work-integrated learning; apprentices; rich pictures; computing

INTRODUCTION

In September 2017, the Scottish Government introduced Graduate Apprenticeship work-based learning degrees offered by selected universities. In terms of curriculum development, the degrees were to be employer-led to ensure a good fit of graduate skills and capabilities for industry. The apprentice is a full-time employee, also studying towards their degree, with universities implementing models such as day-release and block release. There was a requirement that the degrees should take the same length of time as traditional on-campus degrees, which in Scotland is four years. Policy documents established the required principles of work-based learning (SDS, 2016). These represent a shift towards meaningful recognition of learning in the workplace, or *learning-integrated work*. Similar degrees exist elsewhere, including the degree apprenticeship model in England and the German Dual System. Lester, Bravenboer and Webb (2016) recognise work-integrated learning as a continuum, from a traditional degree incorporating some elements of work experience to degrees "built around workplace learning on either an individual or a cohort basis" (p.8). Bravenboer (2016) emphasises the need for collaboration between universities and employers in designing apprenticeship degrees which facilitate academic, credit-bearing, workplace learning. While work-integrated learning as a means of enabling students to gain insights and learning from industry and workplaces is well understood, there has been little work to date from the perspective of the apprentices based in industry undertaking such programmes. This study set out to explore the motivations, aspirations, and concerns

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of new apprentices at a Scottish university, compared with those of students undertaking traditional fully on-campus degrees. The over-arching aim is to better understand apprentices' perspectives on their experience, in order to inform universities' approaches to the delivery of apprenticeship degrees.

CONTEXT

Literature addressing expectations of university study and the process of transitioning provides a good starting point for considering apprentices' perspectives. While the focus of this literature has been towards traditional fully on-campus students (referred to as 'on-campus' from this point on), the implications for apprentices can be assessed.

Expectations of University Study

Exploring how expectations of university study might differ for apprentices focuses attention on structural considerations that potentially affect apprentices and shape their expectations, either positively or negatively. Expectations of university study for on-campus students, with university as the context for learning and the social environment, are reasonably well-understood. For apprentices, where both university *and* the workplace act as learning and social environments, expectations are likely to be distinct. The nature of that distinctiveness has not been the subject of recent research.

Expectations of university are shaped by individuals' reasoning about whether or not to attend university (Kahu, Nelson & Picton., 2016). Cotê and Levine (1997) explored five non-exclusive reasons for attending university: to have a career and earn money; for personal development; to support others; because of family and friends' expectations; and as simply being better than alternative options. In their study, personal development/intellectual stimulation was the main motivation, followed by career. Those who could not find anything better to do were at risk of "wasting university resources" (p.240). Money, Nixon, Tracy, Ball, and Dinning (2017) found that students valued "having the chance of a new start and the opportunity to build skills and knowledge" (p.10). Balloo, Pauli, and Worrell (2015) surveyed first year students about their reasons for attending university; improving career prospects was seen as the most important reason, with improved quality of life and personal development also cited.

For many students the step to university is anticipated by both themselves and their families, as inculcated through years of schooling and cultural acceptance (Baker, 2014). For some, the choice of university may be pre-ordained, possibly even the subject discipline, through family practices and parental preferences (Gao & Ng, 2017). These students largely know what to expect, in general terms, through familial expectations and discourse, accompanying their long-term access to cultural and social capital (Bourdieu & Passeron, 1990). Indeed parental, sibling and acquaintance experience narratives can all shape expectations of university life. For others, such as those first in their family to attend university, imagining a university-self may be more challenging through, for example, not having role models to draw upon and being in possession of less relevant cultural capital. Whatever the route into university, expectations, aspirations and concerns are, in any case, experienced individually.

Jackson, Pancer, Pratt, and Hunsberger (2000) found that expectations of university study influenced students' adjustment to university. In particular, those who approached university study in a fearful way, with negative expectations and with little sense of agency, were more likely to suffer from depression and drop out. Kahu et al. (2016) present a framework recognising the wider sociocultural context of becoming a student. An educational interface is presented as the conduit between, on the one hand, institutional and student influences, and, on the other hand, academic and social outcomes. The educational interface is the result of student interactions with their university and includes four psychosocial constructs: self-efficacy, emotion, belonging, and well-being. There is an extensive body of work exploring these constructs for on-campus students (for example, Wäschle, Allgaier, Lachner, Fink, & Nückles, 2014; Thomas, 2012; Kahu et al., 2016). What is not yet clear, is how these constructs might relate to apprentices and their interactions with two distinct loci, workplace and university. How does self-efficacy play out across these two contexts, each of which require distinct (if inter-related) forms of performance? How are emotion and well-being experienced across each context? How do apprentices develop a sense of

belonging, and what aspects of belonging make a difference? Understanding apprentices' navigation of these issues can inspire universities to create environments that take account of both study and work, to best support apprentices to achieve positive outcomes.

Transitioning to University

Transition is a process of change from one life stage to another, a contextualised process individually experienced (Kralik, Visentin, & Van Loon, 2006; Chick & Meleis, 1986). The transition to university has been studied extensively, and several theoretical models proposed (summarised in Cheng, Barnes, Edwards, Corduneanu, & Koukou, 2015), including a model for mapping the formation of student identity (Briggs, Clark, & Hall, 2012). Briggs et al.'s (2012) model proposes a list of factors enabling the construction of a student identity, including activities universities can introduce (for example, sustained induction) but also recognises habitus (for example, Bourdieu, 1977), including early aspirations to be a student and imaginings of self as student. Identity is the answer to the question "who am I?" (Lawler, 2015). Self-identity needs to be reconstructed when new roles and responsibilities are assumed, through undertaking identity work (Holmegaard, Ulriksen, & Madsen, 2014). According to Ibarra and Petriglieri (2010, p.14) the "primary function of identity work is compliance with role requirements and their display rules." An individual's identity is challenged by significant life transitions, such as the transition from school to university or from school to work (Bridges, 2009), prompting identity work. In terms of the transition from work to study, Boudreau, Macdonald, and Steinert (2014) found that apprenticeship learning affords opportunities to construct new identities. Their participants cited learning environments and critical reflection as providing resources for identity work. Kasworm (2005) found adult learners experiencing changing student identities, influenced by their classroom interactions, their expectations of student behaviours, and their ongoing lived experiences in the home. Kasworm's work further developed into an adult undergraduate student identity (AUSI) model which locates co-construction of self as learner with co-construction of self as worker and family member—i.e., taking account of significant external experiences (Kasworm, 2010).

Multiple identities co-exist, for example, student and worker identities. The nature of on-campus and work roles and experiences will impact on the apprentices' self-identification. Balancing work and study is a challenge for both apprentices and on-campus students. The majority of on-campus students have part-time jobs to fund their studies (for example, Logan, Hughes, & Logan, 2016; McGregor, 2015). This juggling of study with work is less visible to faculty staff than the pressures of work on apprentices, where employers are involved in course design and delivery (Mulkeen, Abdou, Leigh, & Ward, 2017). For these courses, work-based learning is acknowledged through supported academic credit (Feldmann & Sprafke, 2015; Mulkeen et al, 2017). By comparison, paid work for on-campus students, which is unrelated to their degree, garners little academic appreciation, beyond generic recognition of graduate attributes (Gbadamosi, Evans, Richardson, & Ridolfo, 2015).

In the shift from work-integrated learning to learning-integrated work, the main questions to emerge from the literature concerning students' experiences are: how do expectations of university differ for on-campus students and apprentices; and how is student identity construction experienced by apprentices as they transition to combined work and study?

METHODOLOGY

To explore these questions, an approach was adopted to gather both individual and group perspectives, comprising a short survey (n=42) and a Rich Pictures (RP) exercise (n=42, resulting in 10 RPs). The Rich Picture is a method to enable participants to surface and explore aspects of complex situations, analysed through identification of recognisable icons together with audio recorded transcriptions allowing for thematic analysis (Bell, Berg, & Morse, 2016), and has been used previously to capture student expectations (for example, Berg, Bowen, & Smith, 2017). Cohort A participants were apprentices (n=22); Cohort B participants were on-campus students (n=20). At the time of the data collection, both cohorts were in their first semester of study. Cohort A completed the workshop as part of their induction day; Cohort B participated in a lunchtime workshop, later in the semester. The short survey was

designed to gather some information about the backgrounds of the participants and capture their main motivations to study.

Next, participants, in small groups, were invited to express their motives and perceptions, in pictures (RPs). This group RP exercise invited diagrammatic expressions of participants' hopes and concerns about their degree. Specifically, on one large sheet of paper per group, participants were asked to draw:

1. What are your aims and aspirations in this degree? (Picture your journey)

2. What do you hope to get out of it? (Picture yourself in the future)

3. What are you worried about? (Picture potential obstacles)

Students completed the drawing within 20-30 minutes then briefly described their pictures to the whole group. These descriptions were audio-recorded and transcribed. The exercise produced five RPs for Cohort A and five RPs for Cohort B.

Following university ethics procedures, the researchers completed a checklist to identify any issues and necessary actions. The actions identified concerned: informing participants and anonymising workshop data. Each participant signed an informed consent form, describing the research aims and method, the anonymisation and potential use of the workshop data, and their rights within the project.

FINDINGS

Survey Findings

The survey results gave an overview of the demographics of each group. Both groups were similar in terms of their self-identified social class and whether their parents had higher education. In each group, 45% designated themselves as working class or lower middle. For about 70% of each group, one or both parents had been to university or polytechnic. About 20% of each group were female. Only one student in each group reported non-white ethnic identity; a greater proportion of the on-campus group were from outside the UK (45%, compared to 13.6% of the apprentices. The apprentices were more diverse in terms of age; the on-campus cohort were mostly under 21 (and all under 25)—most of them had left school the previous summer. Nearly a third of Cohort A were over 26; having left school between 1981 and the preceding summer. Three apprentices had some experience of university; one had a degree. Some apprentices had been employed by their current employer prior to becoming a GA (half had been employed there for more than 18 months, including one who had been employed there for 28 years); some (18.2%) were recruited by the employer to become a GA. About a quarter of the on-campus group had a part-time job beyond university (2/5 of these were relevant to their degree); most of the others were looking for paid work.

The survey asked "What are your main aims in undertaking this [apprenticeship] degree?" and "What skills are you most keen to develop within this [apprenticeship] degree?" In terms of skills, the objectives of participants in both groups centred on coding/ programming). The on-campus students were more likely to specify social/ professional/ interpersonal skills, whereas more apprentices specified project management. This may reflect the content of the two cohorts' activities immediately prior to the workshop, specifically Cohort A's induction day sessions. The apprentices were more likely to phrase their aims in terms of benefits to their employer, e.g., "To develop my skills for me and [my] company" (Survey response, Cohort A).

The survey asked "What do you think will be the main challenge(s) for you?" Participants from both groups expressed concerns around learning and understanding. Cohort A anticipated challenges in terms of establishing a balance between work and study, (returning to) the academic environment, and maintaining their job for four years (one of the tenets of their degree). Cohort B, most of whom had left school in the last year, also mentioned dealing with a change in their circumstances, e.g., "The main challenges are most likely to be living away from home and studying a lot on my own" (Survey response, Cohort B).

RICH PICTURE FINDINGS

The RPs, together with the transcripts of the students' descriptions, were analysed to identify common themes and motifs across the pictures, including themes common to one cohort, but missing or different in the other cohort's pictures. The main themes to emerge from the RPs are categorised as: hazardous journey; the goal of academic success; the goal of material acquisition, and concerns The cohorts diverged a little in these concerns.. The source images are presented in Table 1 in the Appendices.

Hazardous Journey

The difficult or hazardous journey emerged as a theme from both cohorts. University study as a struggle and adventure was depicted variously through metaphors of climbing, diving, swamps, snakes, and games. Realistic student expectations have previously been linked to success (Lehmann, 2012, Jackson et al., 2000) so the depictions of endeavour, beset with uncertainties and challenges, suggests a good level of awareness and realistic expectations.

Academic Success

Academic success was depicted in terms of graduation, a good degree and A-grade exam scripts, though this did not seem to be, in itself, the end goal of the journeys. Rather, academic success was illustrated as leading to careers and material acquisition. Cohort B had fewer expressions of graduation (appearing in 2/5 RPs); indeed the pinnacle was generally seen as acquisition of a job related to their degree. Perhaps Cohort A were more assured of a good/specialised job; the requirement to achieving this being to succeed academically. When asked about the significance of the faceless figures in their picture (Cohort B RP2), the group said there was no intended message, however tie and glasses are recognisable symbols of worker identity (cf. Cohort A RP2), and this notably male figure is aligned to the external perception of work in the Information Technology sector, with the systematic under-representation of women (Kay, Matuszek, & Munson, 2015).

Material Acquisition

An end goal of wealth, as exhibited through material acquisitions (house, cars) and holidays, was a common feature in all RPs. The synecdoche dollar and pound icons represent money which is seen in Cohort B RP5 as the final destination in their hazardous journey. Recent research indicates a movement towards more transactional approaches to work, suggesting changes to work contracts and increasing reliance on freelance and flexible working as drivers for new attitudes to working life (Shaw & Fairhurst, 2008).

Concerns

Concerns about 'keeping up' were depicted in three RPs. For Cohort A the pictures depicted the challenges of work/study balance. For the on-campus students this was linked with finding time to sleep and concerns about money. In each case, academic failure was the consequence of not keeping up. "Being deported" was cited in a Cohort B RP. Money *worries* only featured in Cohort B RPs. Cohort B RP4 includes a pile of cash, crossed out, with "Broke" written underneath. The crossing out (in Cohort B RP4) is a form of prohibition icon, where the aim is to express clearly something forbidden or inaccessible (Berg et al., 2017). The steep-sided pool of debt in final year, with an unclear alternative path(depicted by the dotted line), is a strong icon showing money problems as a potential final barrier to reaching their destination.

DISCUSSION

The government's aim in introducing Graduate Apprenticeships is to grow a skilled workforce, aligned with the needs of industry. For universities, this involves a shift from promoting work-integrated learning for on-campus students, to bringing student apprentices in from their workplace to experience university study, while also recognising their workplace learning– that is, learning-integrated work. This study was designed to gain insights into the distinct expectations of apprentices, with questions designed to reveal whether expectations differed between apprentices and on-campus students, and to uncover how identity construction is experienced by apprentices as they transition to university study. Identity is an important consideration for universities, as it

impacts on learner behaviour. The data was analysed for evidence of identity constructs, and the themes to emerge are described below.

Shared Expectations of a Difficult Academic Journey

The academic journey, littered with hazards and perils, was a theme for both student groups. The shame of failing and the positive impact of a good degree have been found elsewhere in studies of student expectations (Berg et al., 2017). In a cross-institutional study of confidence and belonging, Yorke (2016) found male students to be more confident than females, and older students more confident than younger students. In addition to age and gender, class plays its part. For example, Lehmann's (2012) study of first-generation students from working-class backgrounds found a "heightened sense of uncertainty and worry" (p.541) amongst their participants regarding fitting in or integrating. In his study, opportunities for prior socialisation, holding well-defined and realistic career goals, and *chance encounters* at university played an important part in their successful completion. It is unclear what the equivalent of a *chance encounter* might be for apprentices, with fewer opportunities for interacting with academic staff and on-campus students.

Participants in this study expressed the ultimate aim of gaining a university degree to be the acquisition of nice homes and holidays. Lehman (2012) warns about student reliance on instrumental reasons to attend university which can deter students from integrating fully and lead to subsequent feelings of alienation. For the apprentices, one further instrument at play is the outcome for their employing organisations. Indeed, the apprentices, through the survey responses, were observed to hold expectations for themselves, as both individuals and employees. These centred on skills development, including a desire to acquire skills and apply them in the workplace.

Divergent Expectations

Concerns about academic performance were common across both cohorts, however, concerns about money were cited only by the on-campus cohort (B). Most of these participants were looking for term-time, part-time work. Part-time work and its impact on academic success has been explored extensively (for example, McGregor, 2015) and the advantages have also been well documented. In computing, employers have mentioned that any paid employment signals a positive work attitude (Smith & Smith, 2016). The context for these on-campus students is that overall student debt in Scotland is relatively static and manageable (Student Loans Company, 2017); however, students are likely to have been influenced by extensive media coverage of the situation in England where fees have increased significantly in recent years (for media examples, see David, 2016). In place of finance worries, the apprentices had concerns about meeting employer expectations through acquisition of new technical skills.

Student Identity in Transition

Skills-based identities, or future selves, were *desired* by the apprentices who looked forward to applying their new-found skills in their workplaces. Previous studies into possible selves (for example, Markus & Nurius, 1986; Pizzolato, 2007) recognise both desired selves and undesirable selves and notions of such balance has been found to increase persistence towards a goal (Oyserman & Markus, 1990). As not all apprentices have the same opportunities in their workplaces to try out new technical skills, with subsequent identity reconstruction as skilled worker, universities might consider how to realise the promise of meaningful work-based learning for all apprentices.

Both cohorts were experiencing transition to study; either as students new to university, or those returning to study after a lengthy period. Identity as a learner was observed through the survey and RP data. Apprentices and on-campus students expressed both positive and negative aspects of being a student. While academic success and failure were both depicted, other aspects of student identity, such as a scholar identity (e.g., learner engaging with library and academic staff) (Kram, Wasserman, & Yip., 2012), were not observed. Participants were surveyed in their first semester, with limited time and opportunity for identity work, so this is not unexpected. This is worthy of further exploration at a later stage of their courses.

The future selves of both groups of students, as depicted in the RPs, were relatively wealthy: owners of nice homes, and able to experience travel with the comfort of flying or cruising. The accessibility of such rewards aligns with Marks and Baldry (2009), who noted specific opportunities (or weaker boundaries) for social mobility among Information Technology workers.

LIMITATIONS AND FUTURE WORK

The sample size for this study is small for both cohorts. In the case of Cohort A, participation was part of a compulsory induction day, while Cohort B were encouraged to participate through small incentives. The findings will be shared with workplace mentors to raise awareness of the type of support that might be beneficial to ensuring apprentice success, in particular the tensions that might arise for example when work milestones and study deadlines clash. The next step for the work is to gather life narratives of the apprentices, to provide in-depth context-rich data relating to their identity construction, their early education, their work and study decision, and the influence of others.

CONCLUSION

This study captured the expectations of this new cohort of graduate apprentices, starting computing degrees, and their expressions of identity, both now and in the future. Parallel data collection from on-campus students enabled comparison. The apprentices and on-campus students were similarly concerned about academic failure, and linked academic success with the trappings of wealth. Their pre-occupations about how they would achieve this differed a little: apprentices were concerned about the challenges of balancing the demands of work and study, while on-campus students were concerned about student debt. Fundamentally, the study indicates that graduate apprentices' perceptions relating to expectations and transitions are shaped by their distinct circumstances, reflecting their navigation of two sites for learning and success. A deeper understanding of how apprentices successfully navigate between these sites will inform universities involved in developing and delivering new models for work-integrated learning.
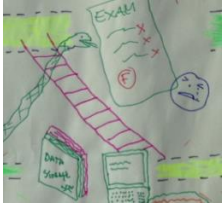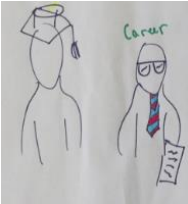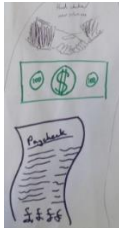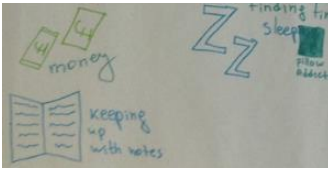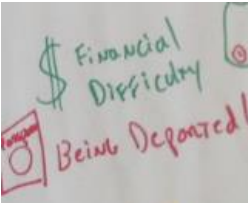
REFERENCES

Baker, D. (2014). The schooled society: The educational transformation of global culture. Stanford University Press.

Balloo, K., Pauli, R., & Worrell, M. (2017). Undergraduates' personal circumstances, expectations and reasons for attending university. Studies in Higher Education, 42(8), 1373-1384.

Bell, S., Berg, T., & Morse, S. (2016). Rich Pictures: Encouraging Resilient Communities. London: Routledge.

Berg, T., Bowen, T., Smith, C., & Smith, S. (2017). Visualising the future: surfacing student perspectives on post-graduation prospects using rich pictures. Higher Education Research & Development, https://doi.org/10.1080/07294360.2017.1325855.

Boudreau, J. D., Macdonald, M. E., & Steinert, Y. (2014). Affirming professional identities through an apprenticeship: insights from a four-year longitudinal case study. Academic Medicine, 89(7), 1038-1045.

Bourdieu, P. (1977). Outline of a theory of practice. Cambridge: Cambridge University Press.

Bourdieu, P., & Passeron, J. C. (1990). Reproduction in education, society and culture (Vol. 4). London: Sage.

Bravenboer, D. (2016). Why Co-design and Delivery Is 'A No Brainer' for Higher and Degree Apprenticeship Policy. Higher Education, Skills and Work-based Learning, 6(4), 384–400.

Bridges, W. (2009). Managing transitions: Making the most of change. Cambridge, MS.: Da Capo Press.

Briggs, A. R., Clark, J., & Hall, I. (2012). Building bridges: understanding student transition to university. Quality in Higher Education, 18(1), 3-21.

Cheng, M, Barnes, G.P., Edwards, C., Corduneanu, R., & Koukou, M. (2015). Transition Skills and Strategies: Transition Models and How Students Experience Change. QAA Scotland. Retrieved from http://www.enhancementthemes.ac.uk/docs/publications/transition-skills-and-strategies---transition-models-and-how-students-experience-change.pdf

Chick, N., & Meleis, A. I. (1986). Transitions: A nursing concern. In P.L. Chinn (Ed.).Nursing research methodology, (pp. 237-257). Boulder, CO: Aspen Publication.

Cotê, J. & Levine, C. (1997). Student motivations, learning environments, and human capital. Journal of College Student Development, 38(3), 229–242.

David, M. (2016). Fabricated world class: Global university league tables, status differentiation and myths of global competition. British Journal of Sociology of Education, 37(1), 169-189.

Feldmann, L., & Sprafke, N. (2015). How to Design Empowering Work-based Learning Settings to Foster Students' Competence Development. International Journal for Cross-Disciplinary Subjects in Education, 6(1), 2081-2089.

Gao, F., & Ng, J. C. K. (2017). Studying parental involvement and university access and choice: An 'interacting multiple capitals' model. British Educational Research Journal, 43(6), 1206–1224.

Gbadamosi, G., Evans, C., Richardson, M., & Ridolfo, M. (2015). Employability and students' part-time work in the UK: does self-efficacy and career aspiration matter? British Educational Research Journal, 41(6), 1086–1107.

Holmegaard, H. T., Ulriksen, L. M., & Madsen, L. M. (2014). The process of choosing what to study: A longitudinal study of upper secondary students' identity work when choosing higher education. Scandinavian Journal of Educational Research, 58(1), 21-40.

Ibarra, H., & Petriglieri, J. L. (2010). Identity work and play. Journal of Organizational Change Management, 23(1), 10-25.

Jackson, L. M., Pancer, S., Pratt, M. W., & Hunsberger, B. E. (2000). Great expectations: The relation between expectancies and adjustment during the transition to university. Journal of Applied Social Psychology, 30(10), 2100–2125.

Kahu, E. R., Nelson, K. J., & Picton, C. (2016). 'I'm excited! 'Student expectations prior to starting their first year at university. Proceedings of STARS 2016 Student Transitions Achievement Retention and Success, Perth, Australia, 29 June – 2 July 2016. Retrieved from http://unistars.org/papers/STARS2016/10A.pdf

Kahu, E., Stephens, C., Leach, L., & Zepke, N. (2015). Linking academic emotions and student engagement: Mature-aged distance students' transition to university. Journal of Further and Higher Education, 39(4), 481-497.

Kasworm, C. (2005). Adult student identity in an intergenerational community college classroom. Adult Education Quarterly, 56(1), 3-20.

Kasworm, C. (2010). Adult workers as undergraduate students: Significant challenges for higher education policy and practice. In L. W. Perna (Ed.), Understanding the working college student: New research and its implications for policy and practice (pp. 23–42). Sterling, VA: Stylus.

Kay, M., Matuszek, C., & Munson, S. A. (2015, April). Unequal representation and gender stereotypes in image search results for occupations. In Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems (pp. 3819-3828). ACM.

Kralik, D., Visentin, K., & Van Loon, A. (2006). Transition: a literature review. Journal of advanced nursing, 55(3), 320-329.

Kram, K. E., Wasserman, I. C., & Yip, J. (2012). Metaphors of Identity and Professional Practice Learning From the Scholar–Practitioner. The Journal of Applied Behavioral Science, 48(3), 304-341.

Lawler, S. (2015). Identity: sociological perspectives. New Jersey: John Wiley & Sons.

Lehmann, W. (2012). Working-class students, habitus, and the development of student roles: A Canadian case study. British Journal of Sociology of Education, 33(4), 527-546.

Lester, S., Bravenboer, D., & Webb, N. (2016). Work-integrated degrees: Context, engagement, practice and quality. QAA Report, Retrieved from http://devmts.org.uk/wid.pdf.

Logan, J., Hughes, T., & Logan, B. (2016). Overworked? An Observation of the Relationship Between Student Employment and Academic Performance. Journal of College Student Retention: Research, Theory & Practice, 18(3), 250-262.

Marks, A. & Baldry, C. (2009). Stuck in the middle with who? The class identity of knowledge workers. Work, Employment & Society, 2 (1), 49-65.

Markus, H., & Nurius, P. (1986). Possible selves. American Psychologist, 41(9), 954–969.

McGregor, I. P. (2015). How does Term-time Paid Work Affect Higher Education Students' Studies, and What can be Done to Minimise any Negative Effects? Journal of Perspectives in Applied Academic Practice, https://doi.org/10.14297/jpaap.v3i2.127.

Money, J., Nixon, S., Tracy, F., Ball, E., &. Dinning, T. (2017). Undergraduate student expectations of university in the United Kingdom: What really matters to them? Cogent Education, 4(1)

Mulkeen, J., Abdou, H. A., Leigh, J., & Ward, P. (2017). Degree and Higher Level Apprenticeships: an empirical investigation of stakeholder perceptions of challenges and opportunities. Studies in Higher Education, 1-14.

Oyserman, D., & Markus, H. R. (1990). Possible selves and delinquency. Journal of Personality and Social Psychology, 59(1), 112–125.

Pizzolato, J. (2007). Impossible selves: Investigating students' persistence decisions when their career-possible selves border on impossible. Journal of Career Development, 33(3), 201–223. http://dx.doi.org/ 10.1177/0894845306296644

SDS (2016). Graduate Level Apprenticeships Work-Based Learning Principles. Skills Development Scotland. Retrieved from http://www.skillsdevelopmentscotland.co.uk/media/42493/gla_wbl_principles.pdf.

Shaw, S., & Fairhurst, D. (2008). Engaging a new generation of graduates. Education+ Training, 50(5), 366-378.

Smith, C., & Smith, S. (2016). Matching and mismatch: Understanding employer expectations of work placement applicants. Proceedings of ACEN Conference, Sydney, Australia 2016 (p. 32).

Student Loans Company (2017). Debt and repayment statistics for Scotland. Retrieved from https://www.slc.co.uk/official-statistics/student-loans-debt-and-repayment/scotland.aspx.

Thomas, L. (2012). Building student engagement and belonging in Higher Education at a time of change: final report from the What Works? Student Retention & Success programme. Higher Education Funding Council for England, The Higher Education Academy and Action on Access. Retrieved from https://www.heacademy.ac.uk/system/files/what_works_final_report.pdf

Wäschle, K., Allgaier, A., Lachner, A., Fink, S., & Nückles, M. (2014). Procrastination and self-efficacy: Tracing vicious and virtuous circles in self-regulated learning. Learning and instruction, 29, 103-114.

Yorke, M. (2016). The development and initial use of a survey of student 'belongingness', engagement and self-confidence in UK higher education. Assessment & Evaluation in Higher Education, 41(1), 154-166.

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APPENDIX 1

TABLE 1: RP themes

Theme: Hazardous Journey

Cohort A, RP 3	Cohort A, RP 4	Cohort B, RP 1	Cohort B, RP 5

Theme: Academic success

Cohort A, RP 1	Cohort A, RP 2	Cohort A, RP 3	Cohort A, RP 5

Theme: Career

Cohort B, RP 2	Cohort B, RP 1

Theme: Material acquisition

Cohort A, RP 1	Cohort A, RP 3	Cohort B, RP 3	Cohort B, RP 1

Theme: Concerns about keeping up

Cohort A, RP 2	Cohort A, RP 5	Cohort B, RP 3

Theme: Money worries

Cohort B, RP 2	Cohort B, RP 4	Cohort B, RP5

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An international comparison of cooperative and work-integrated education in East and South East Asia

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ABSTRACT

It has been over a century since Herman Schneider initiated a work and study programme by the name of a "Cooperative System of Education" at the University of Cincinnati in USA. Since then, the world has seen the variations in its development of this programme depending on the socioeconomic and political environments of the countries or regions. For example, one observes that a long history of well-developed work and study programmes in North America, Europe and Oceania, however, other parts of the world seem to have had less development.

This paper focuses on development of what is now widely known as Cooperative and Work-Integrated Education (CWIE) in East and South East Asia. The analysis follows international comparisons of CWIE in eight regions: China, Japan, Korea, Hong Kong, Vietnam, Thailand, Malaysia, and Singapore. It focuses on the educational history, vocational education, and CWIE and its future issues of each region. The paper suggests that in these eight regions, the development of CWIE is influenced in particular by its level of socioeconomic development, historical connection to the Western education systems, and the government's active support that each region receives. This has generated different levels of development in CWIE for each of the regions. Yet, there is no doubt that the regions as a whole are enjoying fast growing demographic and economic prominence, and likely further development in CWIE may positively contribute to more economic growth. It concludes by suggesting that for the further development CWIE in these regions it is crucial to encourage establishing of national and regional associations for CWIE, research collaborations, as well as active government supports.

INTRODUCTION

In 1907, Herman Schneider launched a work-study programme for Engineering students at the University of Cincinnati in the United States. The concept of work-study programmes were not new and had been known as "Vocational Education" in many parts of the world. The unique feature of the Schneider's programme, which was initially called "Cooperative System of Education," was that it was a programme for tertiary education as opposed to vocational education which then was generally set up for secondary education (see for example, US House of Representative, Sixty-third Congress (1914), in which Schneider explains the difference between his Cooperative System of Education and Vocational Education).

Over a century has passed since the Schneider's work and today many of his ideas have spread to the rest of the world as "Cooperative Education." More recent developments include the use of the broader term "Work-Integrated Learning (WIL)" and broadly referred to by the World Association of Cooperative Education (WACE) as "Cooperative and Work- Integrated Education (CWIE)." However, the level of development of these WIL/CWIE programmes differs depending on the region's socio-economic and political background. In particular, the development has been slow in Asia in comparison with the North American, European, and Oceanian counterparts.

This paper describes and compares the development of CWIE in eight East and Southeast Asian regions: China, Japan, Korea, Hong Kong, Vietnam, Thailand, Malaysia, and Singapore. To the best of the authors' knowledge, this is the first of such investigations in Asia. There are two reasons why it is an important issue. Firstly, Asia has a

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growing demographic and economic prominence. According to the World Bank, by 2016, 24% of the world population is inhibited in these regions, which is more than that of North America, Europe and Central Asia combined, and it currently generates 25% of the world's GDP, which is about the same volume as that of North America, Europe and Central Asia (World Bank, 2016). Secondly, as CWIE is a work-and-study programme, its role for further economic development in Asia cannot be overstated, particularly as the enrolment for higher education continues to rise with rising income in the regions.

Aside from the eight regions focused on in this study, there are other rising economies in South East and South Asia, for example, India and Indonesia. The eight regions were chosen because institutions and scholars from these regions were well engaged with international CWIE activities. While the discussion here does not cover the situation in the whole Asia, it can help understand the reasons for underdevelopment and suggests possible remedies for other Asian regions.

Section 2 briefly introduces demographic and economic situations of the regions, while Section 3 describes the education systems, particularly the vocational education in the regions as an older form of work-and-study programme. This is followed in Section 4 by description of CWIE with an example of a CWIE programme from each region. Section 5 concludes with future issues and suggested solutions.

THE BACKGROUND: POPULATION, ECONOMY AND HIGHER EDUCATION OF THE EIGHT REGIONS

There are three main reasons why analysing CWIE in these eight Asian regions is important. Table 1 shows the data from World Bank (2016) on the eight regions in comparison with the Organization for Economic Co-operation and Development (OECD) area consisting of the industrialized countries as well as the world.

TABLE 1: Demographic, economic and educational background of the eight regions

Regions	Population (in thousand)	GDP (in million US$)	GDP per Capita (in $)	Average economic growth 1985~2015	Enrolment rate for HE in 1985 (a)	Enrolment rate for HE in 2015 (b)	Enrolment growth rate (b)/(a)
China	1,378,665	11,199,145	8,123	9.4	2.5	43.4	17.5
Japan	126,995	4,939,384	38,894	3.5	29	63.4	2.2
Korea	51,246	1,411,246	27,539	7	31.6	93.2	3
HKSAR*	7,347	320,912	43,681	4.5	N.A.	68.5	2.1*
Vietnam	92,701	202,616	2,186	6.6	N.A.	28.8	10.4**
Thailand	68,864	406,840	5,908	6.1	5.6	26.1	4.7
Malaysia	31,187	296,359	9,503	6.3	20.7	48.9	2.4
Singapore	5,607	296,966	52,961	7.1	N.A.	N.A.	N.A.
Total	1,762,612	19,073,468					
Average			23,599	6.3	17.9	53.2	6.0
OECD	1,289,937	47,552,622	36,864	3.1	13.4	35.7	2.7
World	7,442,136	75,641,577	10,164	3.6			

Source: World Bank (2016) "World Development Indicator"
Notes: Brackets indicate world rankings, * 2015/2000, ** 2015/2005

Firstly, its population constitutes 1.8 billion inhabitants, which accounts for about 24% of the world population - China has the largest share but Japan, Vietnam, Thailand and Korea add to the total population considerably. It has a greater population than the entire OECD area.

Secondly, the region constitutes 25% of the world GDP. Although the OECD area generates much higher GDP (about 2.5 times more), individually, China, Japan and Korea rank high in the world GDP ranking, and Hong Kong and Singapore ranks high for the GDP per capita ranking. Also the average growth rates for the last three decades between 1985 and 2015 are all above those of the OECD area and the world, which proves the regions as one of the world's emerging economies.

Thirdly, as the economy grows and income rises, demand for higher education rises. This is shown in Table 1, with the trends in enrolment rates for higher education (HE) in the regions for the last three decades. The enrolments are already high in Japan, Korea and Hong Kong, while those with lower rates such as China, Vietnam, Malaysia and Thailand are showing growth rate above the OECD average.

In conclusion, the eight regions enjoy high economic growth and more educated potential workforce. Consequently, further development of CWIE in the regions may contribute to raise their economic potentials through raising employability.

EDUCATION SYSTEMS AND VOCATIONAL EDUCATION OF THE EIGHT REGIONS

Education Systems

In most of countries, the education system consists of six years of primary education, six years of secondary education, and between two and four years of tertiary education with nine years of primary and lower secondary education being compulsory (UIS, 2017). Among the eight, Malaysia and Singapore set the compulsory education at primary education, that is six years. According to UIS (UNESCO Institute of Statistics) (http://data.uis. unesco.org/Index.aspx#), the gross enrolment rates for upper secondary school in the eight regions in 2014 are above the world and Asian averages (see Table 2), which leads to the high enrolment rate for post-compulsory upper secondary school (see Table 1).

The overall structure of the education system is slightly different for Malaysia and Singapore, whose systems are based more on the British model. After three years of lower secondary education and two years of upper secondary education, there will be at least a one-year university preparation period, while the university's bachelor degree could be completed in three years instead of four years in others (Lee, 2018; Mahat & Don, 2018). A similar system was followed in Hong Kong under the British rule before it was changed to the standard system of six years of primary education, six years of secondary education and four years of tertiary education. As it will be shown later, the British influence also is notable in the formation of vocational education and CWIE in these regions (Tanaka & Lai, 2018).

TABLE 2: Gross enrolment rate for upper secondary school in 2014

Region	(%)	Region	(%)
China	88.8	Malaysia	68.7
Japan	101.2	Singapore	- -
Korea	93.6	Vietnam	- -
Hong Kong	99.7	Thailand	127.8
Asia	68.3		
World	67.7		

Source: UIS (2016): http://data.uis.unesco.org/index.aspx?queryid=142

Vocational Education

Vocational education usually starts at post-compulsory education. This means that it starts at upper secondary school, except for, in the case of the eight regions, Malaysia and Singapore, where one can opt out for vocational education after completion of primary education. Some of the notable features of vocational education in the eight regions are described below.

China

OECD (2010) reports that in 2007, 74% of those who completed lower secondary education went on to upper secondary education, of which 43% were enrolled in vocational programmes. It also reported that the government policy target was to have a half of these students in the general track and the other half in the vocational track.

Japan

Vocational education was introduced to cope with a rapid modernization and industrialization in the late 19th century. However, such government policies were not sufficient to eliminate the shortage of skilled labour and private companies needed to supplement the policy by training their own labour force through On-the-job Training (OJT). This practice survived through Japan's industrialization and has become to be known as a part of Japanese employment system, in which employees are trained by company and follow life-time employment (Tanaka, 2018).

Korea

The Industrial Education Act was enacted in 1963 to promote industrial education for secondary education. However, by 1980s, it lost its momentum partly because the government put more importance on higher education and partly because of mismatches between school curricula and the skill requirements of industries (Oh & Om, 2018).

Hong Kong

During the period of British rule throughout the first half of the 20th century, vocational education was provided by various trade schools and technical schools. In the second half of the century vocational education was extended for post-secondary education at polytechnics as technically oriented institutions as opposed to universities as theoretically oriented institutions (Tanaka & Lai, 2018). More recently, the Task Force on Promotion of Vocational Education was set up to raise public awareness of vocational education and recognize its values. However, its 2015 report expresses a concern that despite vocational education having been a popular choice in 1960s and 1970s, it is now misunderstood as a 'lower level' educational experience (Task Force on Promotion of Vocational Education, 2015).

Vietnam

Vocational Education Training (VET) programmes were provided mainly at primary and secondary vocational schools, managed by the Department of Education and Training at the provincial level, while universities and colleges were managed directly by the Ministry of Education and Training (MOET) at the national level. However, more recently the Professional Education Law was introduced in 2014 to cover CWIE at all educational levels in an attempt by the government to tackle the problems of quantitative and qualitative mismatch in the labour market (Nguyen et al., 2018).

Thailand

Vocational education is offered to those completing lower secondary education. And the vocational education institutions are under the supervision of the Office of Vocational Education Commission (OVEC), which attempts to maintain the ratio of students in general education and vocational education at 50:50, which stands at 60:40 (Srisa-an & Pramoolsook, 2018).

Malaysia

Vocational education is offered after the six years of compulsory education at primary school. In order to tackle the problem of a shortage of the skilled labour force, the National Dual Training System (NDTS) was implemented. It is an industry-oriented apprentice training programme in contrast to school-oriented vocational education programme, to combine workplace and institutional training for school leavers (Lee, 2018; Mahat & Don, 2018).

Singapore

Singapore's compulsory education ends after six years of primary education. Afterwards, students who opt for the Normal course choose between academic and technical curricula. The latter curriculum prepares students for vocation education programmes at the Institute of Technical Education in the post-secondary education (Lee, 2018).

The development of vocational education does differ from region to region. Yet, there are some common features. Firstly, there is a skill shortage due to a gap between what educational institutions can provide and what the industry requires in quality and quantity. Secondly, vocational education is shifting towards tertiary education. Thirdly, an opportunity is provided to students in a vocational path to return to an academic path if they wish.

This development is consistent with the socioeconomic trends in the eight regions where industry requires a highly skilled labour force and people demand a higher achievement in education. Consequently, it appears that CWIE in tertiary education is starting to replace vocational education for secondary education.

EXAMPLES OF COOPERATIVE AND WORK-INTEGRATED LEARNING PROGRAMMES IN THE EIGHT REGIONS

It was suggested in the previous section that that vocational education-type of learning approaches cannot be left solely to the secondary education due to industry's demand for a higher skilled labour force as well as rising enrolments for tertiary education. This section briefly describes present states of the development of CWIE with examples of CWIE programmes in the eight regions.

China

China started CWIE in 1980s during the post-Cultural Revolution era. The 1st National Cooperative Education Seminar was held in 1990 in Beijing, which brought about the founding of the Chinese Cooperative Education Association (CCEA) --- today it is called the Chinese Cooperative Education and Research Association (CCERA). Together with the Ministry of Education, CCERA has been playing a direct role in promoting CWIE nationally (Xu, 2018).

Shanghai University of Engineering Science (SUES) is the forerunner of CWIE in China, who took the lead in collaboration with the University of Waterloo, Canada. Under a three-semester system over four years of undergraduate programme, students participate in three work placements for six to eight weeks during the summer breaks except for the final year. The most of students receive remuneration (Xu, 2018).

Japan

Due to extensive OJT within a framework of lifetime employment system, the development of vocational education and CWIE have been slow and fallen behind many industrialized economies. According to the Ministry of Education, a typical work experience lasts for mere two weeks with no remuneration. With higher labour mobility and more open global competition, the need of CWIE is finally beginning to be recognized by all the stakeholders --- students, universities, companies, and the government (Tanaka, 2018).

Kyoto Sangyo University (KSU) is known as one of the leading institutions for work and study programmes in Japan and has been successively funded by the Ministry of Education and the Ministry of Economy, Trade and Industry for its projects on study and work programmes over the last decade. KSU offers a unique four-month-long paid internship programme, which is long by the Japanese standard. This is supported by pre-internship preparation and post-internship reflection seminars over two years. It started in 2014 as a pilot project for non-

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science students --- faculties of Economics, Business and Law. A new programme is to be launched in 2020 as the revised version of the current programme (Tanaka, 2018).

Korea

In Korea, work experience used to last for four to six weeks and companies found the duration too short to prepare the students for performing meaningful tasks, while universities also followed the Higher Education Law to put more importance on academic research than industrial education. This all began to change in 2015, when the Ministry of Employment and Labour launched a CWIE programme called "Industrial Professional Practice Work Study Programme" at several universities, in which the universities received financial support and students on work experience received subsidy during work experience (Oh & Om, 2018).

Korea University of Technology and Education (KOREATECH) was established in 1991 by the Ministry of Labour based on the educational philosophy of "practice-based truth pursuit." It offers a compulsory CWIE programme called Industry Professional Practice (IPP) system. The IPP students receive work experience for a period of six months in the third year and four months in the fourth year. It is usually remunerated but a IPP scholarship is available where it falls below the minimum wage to make up for the gap (Oh & Om, 2018).

Hong Kong

As mentioned earlier, Vocational Training Council (VTC) has been overseeing industrial education since 1982. This includes CWIE or post-secondary vocational education. At the same time, CWIE is available at all eight universities but among them the Hong Kong Polytechnic University with the longest history of industrial education offers a mandatory CWIE (Tanaka & Lai, 2018).

Among the universities, Hong Kong Polytechnic University (PolyU) has the most developed CWIE or Work-Integrated Education (WIE) as it is called at PolyU, based on its long and established history of technical and industrial education. It is a compulsory programme with work experience of six to eight weeks and is usually remunerated. PolyU is keen on off-shore work experience, including Mainland China (Tanaka & Lai, 2018).

Vietnam

Vietnam needs to produce a highly skilled labour force with a high degree of adaptability to cope with its fast-growing economy. One of the government supports comes from issuing the "Decree 73: On The Foreign Cooperation and Investment in Education" in 2012. This paved the way for foreign investment and cooperation projects in education and vocational training in Vietnam. (Nguyen et al., 2018).

Bilsland and Nagy (2015) pointed out that there is still an insufficient level of collaboration between universities and companies in pursuing CWIE in Vietnam. A higher education institution such as RMIT University Vietnam (RMIT Vietnam) can therefore bring a new direction for CWIE development to the country, since RMIT is an Australian university with strong links to industry. Their Flagship Internship programme provides students with between twelve to fifteen weeks of internships mostly at the end of the degree programme (https://www.rmit.edu.vn) .

Thailand

The development of CWIE started in early 1990s with Suranaree University of Technology as the first university to offer the programme. Following its success, the government with the Ministry of University Affairs (MUA) launched a pilot project in CWIE at several universities, who received governmental financial support. The Thai Association for Cooperative Education (TACE) was established in 2001 and has been playing an important role in popularizing CWIE in Thailand. (Srisa-an & Pramoolsook, 2018).

Suranaree University of Technology (SUT) is the first university in Thailand to offer CWIE as an undergraduate programme. It is a compulsory programme except for medical, dental and nursing faculties, which have their own programmes. At SUT, work experience lasts for at least sixteen weeks and takes place during Trimester one and

two in the final year. In principal, work experience is considered to be a full-time employment and thus subjected to cover the daily minimum wage (Srisa-an & Pramoolsook, 2018).

Malaysia

"Ninth Malaysia Plan 2006-2010" called for a need to align post-secondary educational institutions with industries to meet the increased demand for skilled labour force. The Ministry of Higher Education (MoHE, 2012) published "National Graduate Employability Blueprint 2012-2017" and reported the survey conducted by "JobStreet," a leading Malaysian job portal site. (Mahat & Don, 2018 and Lee, 2018).

University Utara Malaysia (UUM) is the only public university in Malaysia to be specialized in management education. It is also the only Malaysian university with compulsory CWIE. Work experience lasts for four to six months, for which the university does not provide any allowance to the students on work experience. However, those who are at the government agencies are eligible to receive an allowance of up to three months (Mahat & Don, 2018 and Lee, 2018).

Singapore

There are six universities, five polytechnics, and the Institute of Technical Education (ITE) as post-secondary institutions in Singapore. A new applied degree called Integrated Work Study Programme (IWSP) is offered at two of the six universities --- Singapore Institute of Technology (SIT) and Singapore University of Social Science (SUSS) (Formerly SIM University), while other four universities have more emphasis on academic research (Lee, 2018). Nanyang Technological University (NTU) leads CWIE in Singapore's tertiary education sector with its mission of being "industry university." The exact style of internship varies among the schools within NTU. The duration ranges from ten to twenty weeks and it is mandatory for School of Engineering and Nanyang Business School. As explained earlier, the students on internship generally receive remuneration for their work in Singapore (Lee, 2018).

The CWIE programmes of these universities do not necessarily represent the present development stage of CWIE in the regions. Rather they should be understood as future models of CWIE programmes in these regions, as most of them receive the governmental support. The common features in these CWIE are that work experience is supported by well-organized pre-and-post work experience seminars, which should be distinguished from company-led internships, the duration of several months, and remuneration based on employment practices such as the minimum wage.

CONCLUSION

There are differences and similarities among the eight regions with respect to their demographic and economic background, education system, vocational education and CWIE. Each region can recognize the differences among them to learn from each other and identify the similarities for the further advancement of the whole area. First, here are six differences.

1. The type of CWIE: British and North American

2. Following the past British connection, CWIE in Hong Kong, Malaysia, and Singapore are based on the well-developed vocational education framework, in which there is a clear division between academic and vocational careers. Particularly in Hong Kong and Singapore, old polytechnics are the main CWIE provider institutions. In contrast, China, Korea and Thailand are new comers in CWIE and adopting the North American framework, and the system is more accessible to all tertiary education institutions.

3. Economic development

4. As Table 1 indicated, some regions have wealthier economies, such as Singapore, Hong Kong, Japan, and Korea, while other regions still have developing economies Malaysia, China, Thailand, and Vietnam. However, the latter group enjoys rapid economic growth, which strongly suggests that the economic potential of these regions and there is much potential for CWIE to play an important role.

5. Population

6. Hong Kong and Singapore are urban regions with relatively small population. This makes the implementation of policies much easier with more effective outcomes. In contrast, for the regions such as China, Japan, Vietnam the implementation requires more time.

7. Supportive role of government

8. The government role was crucial in development of CWIE. China, Korea and Thailand owe a large part of their success so far to their governmental support and national policy development.

9. National Association

10. Establishing a national association is also crucial for the future development of CWIE. So far, only China and Thailand have succeeded in developing national associations, that is, CCERA and TACE respectively.

11. English language

12. For global collaboration, whether exchanging ideas, students, or working with other companies, English language plays an important role. Hong Kong, Malaysia, and Singapore have the advantage, while others need to tackle the language issue.

Despite these differences, there are some issues the eight regions have in common and thus they can work together to solve. Here are four such issues.

1. Vocational education or CWIE

2. Due to its rising enrolment rate, tertiary education is becoming the universal education rather than education for creating an elite labour force. Universities need to agree to provide practical education alongside academic education.

3. CWIE for non-science students

4. In this region, development of CWIE is closely related to industrial and technological education and it is more commonly offered to students of science and technology rather than other disciplines. Greater emphasis of CWIE for non-science disciplines is called for.

5. Research and research collaboration

6. Developing a region-specific CWIE is important to cope with the present local issues. However, it is also necessary to work on global and future development of CWIE, for which academic research activities such as symposiums organized by WACE International Research Community (www.waceinc.org/researchgroup/index.html) and international research collaboration such as the ASEAN CWIE Network proposed by Thailand.

7. Digital technologies competencies as an important graduate attribute

8. Use of Artificial Intelligence (AI) technology is spreading to all industries. Frey and Osborne (2017) estimated that around 47% of total US employment is at a high risk of being replaced by computerization over the next decade or two. Computer literacy has already been an essential part of soft skills but its importance needs to be stressed even more as a skill to use AI technology will soon become essential for the graduate employability as a common and basic skill for graduates. No CWIE can be effective without considering the trend in the labour market situation for graduates. One should actively focus on digital technologies competencies as an important focus area in CWIE programme.

9. The further development of CWIE in these regions could not only play a crucial role for the regions but also for other countries in Asia, who may be facing similar socioeconomic and cultural issues. It is hoped that there will be more communication between the regions to identify the differences and similarities in CWIE and to collaborate in developing the general framework of CIWE in Asia.

REFERENCES

Bilsland, C. and Nagy, H. (2015): "Work-integrated Learning in Vietnam: Perspectives of intern work supervisors," Asia-Pacific Journal of Cooperative Education, Special Issue, 16(3), pp.185-198.

Frey, C.B. and Osborne, M.A. (2017): "The future of employment: How susceptible are jobs to computerisation?" Technical Forecasting & Social Change, 114, pp.254-280.

Kuczera, M. and Field, S (2010): "Learning for jobs: OECD Reviews of Vocational Education and Training -- Options for China," OECD (https://www.oecd.org/china/45486493.pdf)

Lee, K. (2018): "Chapter 9: Singapore," in Tanaka, Y. and Zegwaard, K. (ed.) "Cooperative and Work Integrated Education in Asia," Routledge, Forthcoming

Ministry of Higher Education, Malaysia (2012): "The National Graduate Employment   Blueprint 2012-2017"

Mahat, N.I. and Don, M.S. (2018): "Chapter 8: Malaysia," in Tanaka, Y. and Zegwaard, K. (ed.) "Cooperative and Work Integrated Education in Asia," Routledge, Forthcoming

Nguyen, V.N.B., H.T.H. Nguyen, and T.T. Phan (2018): "Chapter 6: Vietnam," in Tanaka, Y. and Zegwaard, K. (ed.) "Cooperative and Work Integrated Education in Asia," Routledge, Forthcoming

Oh, C.H. and Om, K.Y. (2018): "Chapter 4: Korea," in Tanaka, Y. and Zegwaard, K. (ed.) "Cooperative and Work Integrated Education in Asia," Routledge, Forthcoming

RMIT University Vietnam (https://www.rmit.edu.vn)

Tanaka, Y. (2018): "Chapter 3: Japan," in Tanaka, Y. and Zegwaard, K. (ed.) "Cooperative and Work Integrated Education in Asia," Routledge, Forthcoming

Tanaka, Y. and Lai, M. (2018): "Chapter 5: Hong Kong," in Tanaka, Y. and Zegwaard, K. (ed.) "Cooperative and Work Integrated Education in Asia," Routledge, Forthcoming

Task Force on Promotion of Vocational Education, HKSAR (2015): "Report of the Task Force on Promotion of Vocational Education." (http://www.gov.hk/en/ residents/government/policy/ government_reports/reports/docs/Report_of_the_Task_ Force_on_Promotion_of_Vocational_ Education.pdf.)

UNESCO Institute for Statistics (2016): http://data.uis.unesco.org

U.S. House of Representatives, Sixty-third Congress (1914): "Cooperative System of Education --- Vocational education," Hearings before the Committee on Education, Second session, 26th January, Washington, Government Printing Office.

Wichit Srisa-an and Issra Pramoolsook (2018): "Chapter 7: Thailand," in Tanaka, Y. and Zegwaard, K. (ed.) "Cooperative and Work Integrated Education in Asia," Routledge, Forthcoming

World Bank (2016): "World Development Indicators." (https://datacatalog.worldbank.org/dataset/world-development-indicators)

Xu, T. (2018): "Chapter 2: China," in Tanaka, Y. and Zegwaard, K. (ed.) "Cooperative and Work Integrated Education in Asia," Routledge, Forthcoming

Exploration of the disconnect between employers and higher education in the context of the supply of, and demand for, graduate labour within engineering disciplines

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INTRODUCTION

In 1997 the Dearing report, Higher Education in the learning society was commissioned, it was the largest review of higher education since the Robbins Enquiry in the 1960s. The focus of the report was broad, and sought to: "make recommendations on how the purposes, shape, structure, size and funding of higher education, including support for students, should develop to meet the needs of the United Kingdom over the next 20 years." Higher Education (HE) has since seen significant changes specifically the scale of growth in participants and tuition fee policy changes in 1997.

Balancing growth, whilst maintaining quality in an environment of marketization, has created an arguably consumeristic approach to Higher Education: League tables, satisfaction surveys and key performance indicators influence agendas, strategies and priorities. HEIs are increasingly judged *"in terms of the 'employability' of their alumni"* (HECSU, 1998, p.4). Unsurprisingly *"employability statistics…play a significant role in league table rankings"* (Tomlinson & Holmes, 2016, p.88) and the 2017 Teaching Exercise Framework (TEF) provided further emphasis on the importance of graduate outcomes for institutional performance. This is therefore not an issue to be shunned and creates internal dilemmas in institutions grappling with their role in society.

Kettis (2013, p.29) notes that HE has endured due to its ability to remain independent from *"passing trends in contemporary society"* and not simply responding to employers whims. There are unsurprisingly polar views on the role HE plays in society: from accumulation of knowledge, to meeting the needs of industry through to producing work ready graduates. What this means in reality is a complicated and ever changing picture of industry engagement and the role HE play in meeting such needs. This research has sought to explore such relationships and understand why the graduate labour market appears to be experiencing the same issues of supply and demand that it faced some 20 years ago when the Dearing review was commissioned.

LITERATURE REVIEW

According to the European Social Survey, (quoted in CIPD, 2015) the UK has the 3rd highest percentage of graduates in non-graduate jobs: 58.8%. Yet messages from industries largest graduate recruiters are extremely conflicting: the AGR (2015) found that 45% of 300 recruiters surveyed in 2015 had unfilled graduate jobs. A survey in the same year by High Fliers (2016), confirmed 1000 graduate vacancies remained unfilled across the 100 employers they surveyed. This raises questions not only about market demand for a graduate skill set in, but the ability of the UK labour market to absorb the increased volume of graduates (Scurry, Dorien and Blenkinsopp, 2011). We appear to have a growth in supply of graduates, which seemingly is not meeting the demands required by industry.

Literature continually focuses on prescriptive generic skills which universities should ensure their graduates possess to satisfy industry, (Confederation of British Industries, 2015, Association of Graduate Recruiters (AGR), 2016). Such approaches to graduate employability have been criticised by Tomlinson and Holmes (2016) who note an overemphasis on short-term generic skills can be counterproductive and graduates should instead, be prepared

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to adjust to future workplaces. The employability agenda, has increasingly therefore established itself as a core component to the HE experience to respond to industry demands, and predominately so through skills interventions, curriculum design and work based learning initiatives even though curriculums are already crowded (Barrie, 2006).

It is not a new suggestion that universities in an employability context should collaborate closely with industry to better "align the supply and demand for STEM skills" (Wakeham, 2016, S.2.8, p.3). Brennan and Little (1996) noted a necessity for increasing partnerships between HEIs and employers, and Reeve and Gallacher (2005) stated that enhanced partnerships with employers would aid in shaping, more effectively, HEIs offerings, whilst managing expectations of employers. Arthur, Brennan, & de Weert (2007, p.15) note that curriculum development should address the needs of the labour market which raises the question posed by Lowden et al (2011, p.3) as to whether HE is "more than a production line for work-ready graduates"? Teichler believes "employers' views and expectations cannot be considered the single most valid indication of demands and job requirements" (1998, p.11). Degree programmes overly reliant on prescriptive employer requirements may erode such principles and raises questions as to whether it is sensible to rely solely on one employer's demands or requirements. A concern that the agenda of HE becomes to simply serve employers is interesting, especially in light of the fact that the most successful and preferred forms of employer engagement appear to be work based learning (Reeve and Gallacher, 2005).

Bruce and Banghart, (2001) noted the challenges of the instant world of business and the inability of an academic schedule to respond to such short notice engagement. Wickramasinghe (2010) researched employer and lecturer perceptions of graduate employability skills, and found employer engagement in curriculum design was not popular with employers in their sample, indicating that engagement and interest both ways is necessary. There is not only a lack of evidence as to what employers seek from HE, but a lack of a clear picture as to how they can best address industry requirements (Reeve and Gallacher (2005, p.224). Research and policy which references HE and employer engagement appears to predominately focus on barriers that employers face (UKCES, 2014, Wedgwood, 2007, Hogarth, 2007) with responsibility for overcoming such barriers often resting with HEIs (QAA, 2014). Unfortunately, there appears to be limited research into the experiences and nuances of such relationships from a HE perspective, making this research vital to unearth the reality of engagement.

Student placements have historically been the favoured mechanism to facilitate learning in practice in HE as many believe skills are "probably best learned in work places rather than in classroom[s]" (Mason et al, 2006, p.25) as "skills valued in the curriculum, tend to be those valued by academics rather than employers" (Gedye and Chalkley, 2006, in Kemp et al., 2008, p.18). The popularity of work placements as a form of HE and employer engagement is unsurprising given that graduates clearly cannot and do not only develop skills in HE, but through continued learning and development in the workplace. Placements continue to be a mainstream form of industry engagement, and in spite of having been part of the HE and employer engagement agenda for many years, they have not been sufficient in addressing the supply and demand issues within the UK graduate labour market.

CONCEPTUAL FRAMEWORK

Graduate Employability, Supply and Demand of Graduate Labour and Higher Education and Industry Engagement form collectively, a complex, incomplete picture. Industry and HE engagement is clearly challenging, on the one hand we have an industry view that HEIs are not effective in meeting their needs, yet we see evidence of a lack of industry engagement and interest (Reeve and Gallacher, 2005). HEIs play a complex role in society, with neither they nor industry seemingly wholly satisfied with the current status quo.

With the exception of placements "employers and academics still talk past each other" (Harvey, 2005). Whilst HEIs have attempted to address employer skill requirements through skills led initiatives, many interventions have been discredited (Bourner, Greener & Rospigliosi, n.d, n.p.) due to limited evidence to suggest long term impact (Lowden et al. 2011). This creates a position with HEIs central in a complicated landscape attempting to prepare graduates for the future workplace yet seemingly missing the mark.

The framework offers an important piece of clarity in this landscape and that is of influence, arguably HEIs and industry cannot control external influences upon them, yet they can control and shape the relationships they have with each other and how these collectively shape graduates. If we understand further these relationships, this may allow for a greater understanding of how these relationships can shape the graduate experience in this agenda, as they arguably are at the centre of this debate.
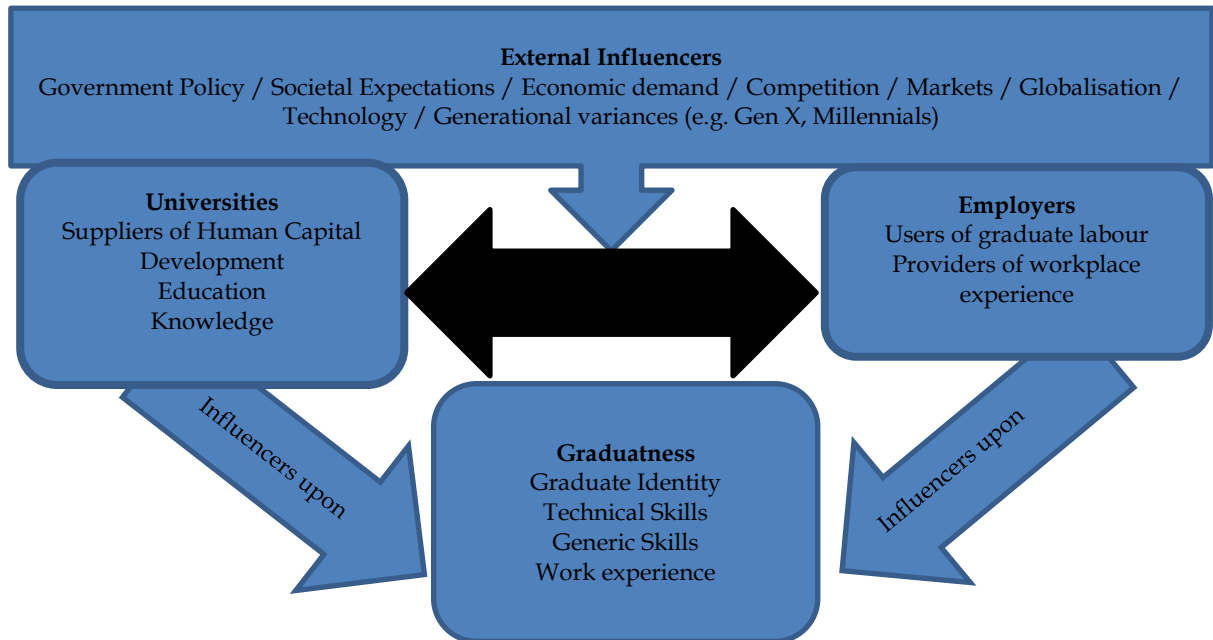
FIGURE 1: Conceptual Framework

METHODS

This research sought to explore the experiences of engagement, to understand tensions in regards to supply and demand, perceptions and expectations of the needs of industry in regards to skills, and what impactful relationships with HEIs look like. The following were the study's key objectives:

1. To locate the problem within the UK graduate labour market and the supply of, and demand for graduate labour.

2. To explore the tension around the role of Higher Education in producing graduates who meet the needs of industry.

3. To identify what an impactful relationship means to Higher Education and to industrial partners.

4. To understand the barriers to an impactful relationship with HE and industrial partners.

5. To identify and recommend methods of engagement and successful execution of these.

Design

Group 1: Industry/Employers
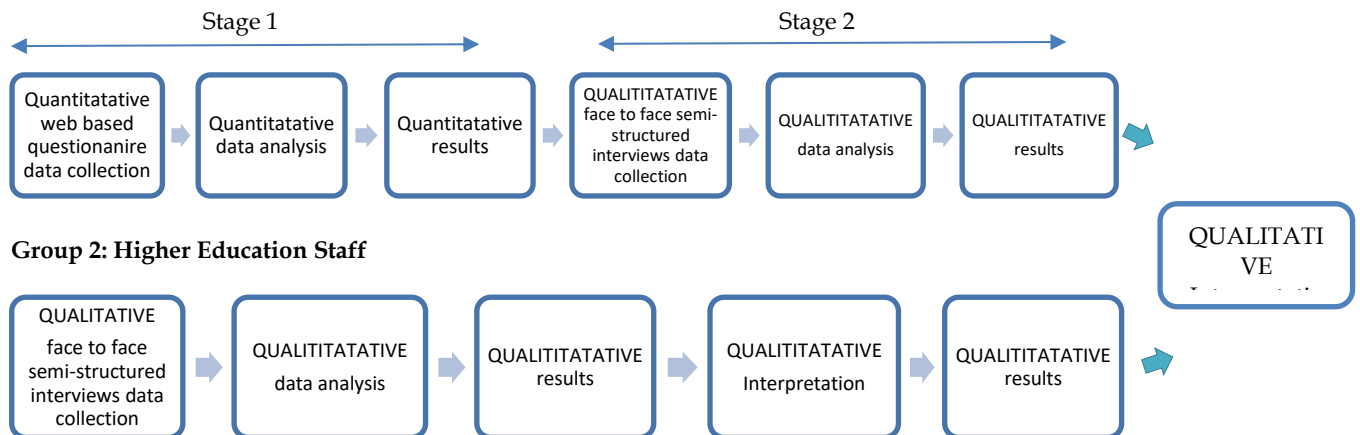
FIGURE 2: The Research Design Process:

Sampling

Group 1: Industry / Employers, were initially identified through sharing the common characteristics of having engaged with a specific university faculty in the past two-three years in the context of employability. Selection for stage 1, was dependent upon answering positively to the following:

1. Being employed in a technical engineering role also involved in engineering student recruitment and university engagement.

2. Have appointed an engineering graduate/s into an engineering role in the last 2-3 years

3. Been involved in the graduate/s training and continual skills development

For Group 2: the HEI staff, a single stage purposive sampling process was followed to identify those who "occupy positions at different parts of the organisation" or faculty in this case (Anderson, 2014, pg.226). Identification was based on participant's job roles such as: leading academic programmes, curriculum design and technical lecture delivery. It is necessary for confidentiality to be vague. These participants were readily accessible due to the population being in the researcher's workplace.

Data Collection

Following the web-based questionnaire, 10 employers made up Group 1. They were contacted by e-mail inviting them to participate in stage 2, the semi-structured interviews. Seven individuals were available to interview within the timescales given for the research. The respondents were based geographically wide across the UK which was not apparent until the questionnaire results were revealed. The HEI staff were contacted by e-mail inviting them to participate in the semi-structured interviews. Seven were able to take part within the timescales and all interviews were carried out face to face.

Results Analysis

Key words or descriptive codes were initially identified in a simple first attempt to identify themes (Anderson, 2014). Themes were cross referenced continually and refined and relationship themes were drawn as follows, themes of agreement within and across both groups and themes of disagreement within and across both groups. This approach was helpful in identifying patterns and nuances in the results. This process of re-visiting and refining the data allowed a greater depth of meaning to be drawn from the results. Findings could be grouped under the following themes:

Skills	Continued Learning (New Vocationalism)
- Generic Skills	Nature of Successful Relationships
- Technical Engineering Skills	Graduate Identity
Academic Research Expertise	Recruitment
Placements	

There isn't scope to discuss all of these findings however, the Nature of Successful Relationships, Academic Research Expertise, Skills Placements and Graduate Identity will be discussed.

DISCUSSION

Nature of Successful Relationships

Personal contact, mutual benefit, trust and communication were all evidenced as critical factors for successful engagement, a theme consistent with Bruce and Banghart, (2001), and Smith and Betts (2000) findings. This research uncovered valuable insight into how success is often significantly reliant upon an individual dedicated person to facilitate partnerships. "The key is having a contact in employability. Having a relationship with an individual is key, universities are huge" Industry 6. One recruiter stated: "We've got no plans to go elsewhere, as were happy with what [institution name] provide, where do I go?" Yet such close working relationships also have their risks: "…[our contact] she retired, it's got to a point now that we are not even advertising at [named institution] because for 2-3 years we just didn't get any applicants…you email the lecturer he directed us to the secretary…it just wasn't going anywhere so we've turned that off now" Industry 1. HEIs were noted as not being very good at picking up on such opportunities: "It can be very dependent on the University contact, sometimes you get a contact of a senior lecturer or head of department...there is an element of admin in…getting these Industrial placements going, and they are rubbish at it." Industry 2

The frustration is perhaps understandable, on the one hand we know the pressure which face institutions in delivering graduate outcomes for league tables and the Teaching Excellent Framework due to the marketisation of HE. Yet here we see examples of industry frustrations due to a poor response from HEIs. The lack of response could be due to many reasons, perhaps HE priorities were not aligned on this occasion, this however illustrates a key barrier in developing impactful relationships, and that is mutual benefit. Mutual benefit was however seen by one academic as down to luck: "The best relationships are where there is mutual benefit. How you align the right people…there is a bit of luck in that. If what your research is in happens to be the sector they're in…then you'll put more effort in." Academic 6.

Cai (2012) noted that universities must have close interactions with employers, and there was an absolute acknowledgment with this during the research, however as we have seen, this is not straightforward and a multitude of elements must align for this to happen, the absence of time, trust and mutual benefit can hinder partnerships.

Academic Research Specialisms

These emerged both in regards to motivations for engaging with industry and where such specialisms may not always effectively align with industry demands. This was a theme not explored previously in an employability context in the above literature review. Considering first motivations for engaging with industry, some staff were very clear on the motivations where there was an advantage to their research area: "…for research we are very proactive we try to seek an industrial challenge, because we know therefore your research has potential to have impact." Academic 5. "… you might want to work a bit harder on a relationship as you see there is an opportunity for the company to support a research application or be involved with" Academic 6. One academic, when asked why it was important to maintain such links with industry stated frankly: "To survive as an academic … this is how we generate research income and this is how we can publish good papers…we are assessed against research performance and…this is a critical part of our job." Academic 2

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The appetite for engagement appears driven by the benefit gained from the engagement, what this offers to this overall picture is that of meaningful engagement, and who this is meaningful to. The link to the student benefit gained from these relationships was however not so obvious, yet there was evidence of attempts to link research back to teaching: "…I try to link all of my teaching to my research as much as possible which is important for the students"

Academic 2. Challenges arose where the research did not translate into, or complement the curriculum: "...the research activities are themselves disconnected from teaching." Academic 3. "I would say…there is a lot of research not being shared with the students at all…"Academic 5

What we see is an appetite for industry engagement from academics which is unsurprisingly linked to research, with engagement driven by current research objectives. However well-established partnerships in one context with industry, do not necessarily translate into the curriculum and reach the students – perhaps an indication of working in silos. One academic did however note that engagement should not always be led by industry: "Our research needs still needs to be fundamental and it needs to generate new knowledge for science, so we cannot always be seen as problem solvers to industry." Academic 2. Which contrasted with a colleague who stated that academics: "feel sometimes fundamental knowledge is more important, academics believe we must chase knowledge" Academic 7. This appears to echo the previous commentary that immediate needs of industry should not always dictate engagement, so perhaps there is a balance to be had and an acceptance that, yes industry engagement can be, and should, beneficial to both, however in the context of this research ideally where possible, students should also benefit from such engagements.

Placements

Academic specialism limitations arose in a placement context: "This year we've had a student on placement in the nuclear industry and she came back saying she has a new topic for her final project and this is great, but firstly we need to find an academic with similar interest who can then take it forward as a supervisor." Academic 2. Here we see in spite of the placement benefit, the success of one industrial relationship is not always able to be replicated in a different HE context. It is not surprising when we consider the broad spectrum of industries and engineering specialisms, a real challenge in this entire agenda is of aligning such specialisms and how these relationships can be developed outside of the silos which they appear exist. Placements whilst not specifically mentioned in any interview questions, were seen by both groups as key in terms of their strength in attracting talent in a perceived competitive recruitment market, but also in enhancing student's capabilities upon return to university. "There is no doubt in my mind that placements are highly valuable – I've yet to meet a student who hasn't really benefitted from an industrial placement." Academic 3. For industry "the placement programme is strategic as we know if we get in early…[we] have a trawl before they mop them up before they graduate" Industry 6. Here we see employers adjusting their recruitment procedures to attract graduates early, yet as Wakeham (2016) noted, there are not enough places to address all skills shortages, which brings us back to the question of where is this shortage given some recruiters appeared to not struggle to recruit? Industry 1: "we take on about 8 to 10 students year…we get over 200 applicants…it's a buyers market certainly for Chemical Engineering". Considering this contrasting view, more research into specific industry demands would add essential insight into addressing the current picture supply and demand.

Skills

The research in regards to the skills agenda surfaced the greatest amount of disagreement between, and within both groups and provided vital insight into helping to explore the tension around the role of HE in producing graduates who meet the needs of industry. These findings indicate, that on the whole there appears to be satisfaction with skills, the dilemma was in fact where, how and by whom these skills should be addressed. "…the IChemE requirements are the first thing we start with…[that] is essentially an industry led organisation, so one assumes that what is in the requirements, has come from industry in terms of having a qualified engineer that knows their science behind it." The same academic felt that generic skills would only be accommodated in the

curriculum if: "our industrial advisory board say that that was more important than knowing about chemical engineering core skills." Academic 1.

Another academic when being questioned about accommodating generic skills in the curriculum: "There is very little scope for something else, and I suppose if they want something else, something from the core engineering would have to do go, as there is just no space". Academic 4. The importance of this technical education was supported by some of the industrialists: "HE in my mind is there to, equip particularity engineers with the 1st principles, the proper understanding" Industry 3 "As far as the accreditation of the course…working towards a chartered engineer is really important to us…so that means our students need to have accredited degrees" Industry 1

Not all industrials agreed, one individual felt that technical skills were weak and questioned what institutions were teaching: "…we set them technical questions: fundamental engineering knowledge, they struggle with it, 'what have they been teaching you if not the fundamentals?'…That frustrates us" Industry 7. Industry appeared to be addressing skills deficits themselves with little indication of dissatisfaction in doing so: "I think we have never seen any issues in terms of gaps on student or graduate knowledge, but…our industry you don't learn much [at university]…so it's kind of expected that we're…going to be doing a bit more in terms of extra theory or learning…because it's quiet specialist". Industry 1. "They will get whatever training they need to be a valuable member the team…soft, technical or software skills….if we can't train them in-house we will invest in training." Industry 4.

Some pragmatism was offered by one industry contact which perhaps succinctly addresses the skills issues explored above: "You [institutions] can't do everything…trying to bring up students into a place where they know everything is impossible, it really is impossible." Industry 4. This appears to represent an interesting and new dilemma, in this arena. There is a strong undertone of expectation that HE should provide the building blocks of key engineering principles and technical knowledge, however in order to deliver additional skills, HEIs will have to sacrifice technical content. Indicating very clearly a significant tension.

Overall there was a feeling that HEIs were delivering against industry expectations however this was frequently balanced with a view that as institutions, it would not be right to let industry drive every aspect of taught curriculum content, unless (rather ironically perhaps) this was driven by the industry led UK-SPEC. There is a fine balance in this, as whilst industry appeared satisfied, both generic/soft and technical skills were deemed important, regardless of who delivers them.

The skills agenda appears therefore more exasperated in an engineering context, and is clearly a point of tension, engineering programmes seemingly cannot deliver both technical and soft skills, whereas less vocational disciplines the expectations from industry for technical skills may be less prominent, with fewer external influences such as that which UK-SPEC has on engineering courses. Perhaps indicating that the development of soft skills should be easier outside of technical degrees?

Graduate Identity

This was present throughout the research in many guises, the interviewees often grappled with this and acknowledged that the education system may be to blame for graduates struggling to adjust to the workplace: "You're encumbered by an education system that has come before you, which doesn't prepare them for university…kids have 7-8 years of being told what to do, they get to university for 3-4 years, that's 10-11 years of having an agenda set for them, for us to say 'get on with it then' must be a massive shock" Industry 4. "They come here from High School and it's a different environment for them, then they leave here to go into a different environment again and we need to teach them to become independent people able to deliver quality to their employer" Academic 2

The transition from the university culture to working culture was acknowledged in relation to confidence: "…in the workplace…they can be working with people who have more engineering experience than they've been alive…what I'm trying to say is unis can do what they can, but there is always more to do when they get to work."

Industry 1. In spite of some degree of training and support with this transition, frustrations were still directed at students, specifically in regards to a reliance in the workplace on university techniques: "They don't tell you if they're struggling or that they are going to miss the deadline, they go quiet and when you follow up…there are only six hours until the deadline, that's classic working to a university deadline" Industry 1. The prescriptive prior education system has hindered independent learning: "they just write what's in their head as fast as they can, the shortest possible time before it is due, and because they have written how many pages, they believe they've done enough to get a good mark" Academic 4.

Hinchcliffe and Jolly (2011) noted graduateness is not necessarily measurable and observable, however to take a critical stance, we can observe graduateness in the sense of graduates applying university approaches in the workplace. The graduate transition and difficulties with this, point towards the tensions in the role of HE meeting industry needs, and how in fact the graduates themselves contribute to this tension.

CONCLUSIONS

Prior to concluding the above research and results, it is important to reflect on the intention of this work, and that was to explore the disconnect between employers and higher education in the context of the supply of, and demand for, graduate labour within engineering disciplines. Whether we can draw conclusions from this research to the entire sector may not be wise given the specific context in which the research was conducted, however this research does nonetheless add to the overall picture. What has been evidenced is that there is no one clear reason why a disconnect exists. What has been evidenced however is that successful relationships are dependent upon a wide range of factors including: time, mutual benefit, personal contact and an appreciation and understanding of each other's priorities. The absence of any one of these factors can, and did create significant barriers to HEI and industry engagement. It is important however not to assume that this agenda is simply about relationships, yes they are vital, so however are a multitude of other factors which all make up this agenda.

Considering firstly the skills debate, it is fair to conclude that it is essential for graduates to be taught fundamental engineering principles by HEIs, this was a priority for HEIs to maintain their degree accreditation, and industry expected HEIs to deliver these. Placements were seen to address this gap, they enable employers to address mid-career skills shortages, they create a graduate talent pipeline in competitive recruitment markets and they also allow raw graduate talent to be shaped. Academics saw benefits through teaching placement students who learnt with a greater degree of independence. Placement student graduate outcomes also make for better university league table positons. In spite of the advantages of HEIs supporting placements, the research did indicate that HEIs were not always responsive to supporting industry when they tried to engage, and ultimately it is the students who suffer through not having access to placement opportunities. This perhaps brings us back to the first point which is how vital it is for a multitude of factors to align for successful HEI and industry engagement.

Overall the results offered perhaps raise more questions than answers, however this is important because there is no one answer to solving the range of themes, issues, and frustrations identified. Instead we can draw conclusions and look to where these can add value to existing research and to draw a sensible direction for the future of these findings.

RECOMMENDATIONS

Review UK-SPEC Accreditation Requirements

There is clearly a conflict in delivering technical and 'soft' skills in engineering degrees, with the former taking priority. There is scope to address this balance through reviewing the need for such low level technical detail which dominates engineering degrees as required by the UK-SPEC.

Continued Emphasis on Work Placements

Unsurprisingly placements, as evidenced can seek to solve a multitude of issues, from talent identification to enhancing graduate careers prospects. One area for improvement in placement engagement is clearly for institutions to place sufficient resources into supporting organisations when seeking to recruit their students.

Improved Dialogue: Internally within Institutions

Most individuals are probably, and understandably guilty of working with industry contacts in silos, be this for research, teaching, or employability. There is scope internally within institutions to consider how industry contacts can be nurtured from a variety of perspectives.

The Graduate Voice

Finally, the topic which much of this dialogue has revolved around is that of the graduate, yet their voice has not been heard throughout. To add to this extensive area of work, more insight into their experiences of industry engagement throughout their higher education and graduate employment in a longitudinal approach would provide a fascinating perspective.

REFERENCES

AGR. (2016) Association of Graduate Recruiters (AGR). Response to 2015 Higher Education Green Paper consultation.

Anderson, V. (2004) Research Methods in Human Resource Management. Chartered Institute of Personnel and Development.

Arthur, L. & Brennan, J. & Weert, E. (2017). Employer and higher education perspectives on graduates in the knowledge society. A report from of the European Commission Framework VI project: 'The Flexible Professional in the Knowledge Society. [Online] Available from: https://www.researchgate.net/publication/242117063 [Accessed 25/08/2017].

Brennan, J. and Little, B. (1996) A review of work based learning in higher education. Sheffield: Department for Education and Employment. [Online] https://www.open.ac.uk/cheri/documents/Areviewofworkbasedlearninginhighereducation.pdf [Accessed: 08/09/2017].

Bruce R. Neumann, Sally Banghart, (2001) Industry-university "consulternships": an implementation guide, [Online] International Journal of Educational Management, Vol. 15 Issue: 1, pp.7-11, Available from: https://doi.org/10.1108/09513540110380596 [Accessed 10/03/2017].

Cai, L. and Jeffrey Waddoups, C. (2012), Unobserved Heterogeneity, Job Training and the Employer Size–Wage Effect in Australia. Australian Economic Review, 45: 158–175. doi:10.1111/j.1467-8462.2012.00680.x [Accessed 10/03/2017].

Confederation of British Industries (CBI). (2015) Inspiring Growth - CBI/Pearson Education and Skills Survey 2015. London.

Dearing, L. (1997) Higher Education in the learning society. Secretaries of State for Education and Employment. London.

HECSU, Careers Service Trust, AGCAS, Institute for Employment Research. (1998) Graduate Careers Three Years After Graduation.

High Fliers Research Limited. (2017) The Graduate Market in 2017: 34.

Hinchliffe, W, G., & Jolly, A. (2011) Graduate identity and employability. British Educational Research Journal, 37(4): 563-584.

Hogarth, T., Winterbottom, M., Hasluck, C., Carter, K., Daniel, W,W., Green, A, E., & Morrison, J. (2007) Employer and University Engagement in the Use and Development of Graduate Level Skills. Institute for Employment Research.

Holden, R. & Hamblett, J. (2007) The transition from higher education into work: tales of cohesion and fragmentation. Education + Training. 49(7), pp.516-585.

Kemp. S., Martin, F., Maier, P., & Williams, I. (2008) A Gap analysis of Student Employability Profiles, Employer Engagement and Work Placements, Planet Issue, 21.

Kettis, A., L. Ring, M. Gustavsson, and A. Wallman. 2013. Placements: An Underused Vehicle for Quality Enhancement in Higher Education? Quality in Higher Education [Online] 19 (1): 28–40. Available from: Placements: An Underused Vehicle for Quality Enhancement in Higher Education? [Accessed: 08/08/2017].

Lowden, K., Hall, S., Elliot, D. and Lewin, J. (2011) Employers' Perceptions of the Employability Skills of New Graduates. Glasgow: University of Glasgow SCRE Centre and Edge Foundation

Lowden, K., Hall, S., Elliot, D. and Lewin, J. (2011) Employers' Perceptions of the Employability Skills of New Graduates. Glasgow: University of Glasgow SCRE Centre and Edge Foundation

Mason, G., Williams, G. & Cranmer, S. (2006) Employability skills initiatives in higher education: What effects do they have on graduate labour market outcomes? National Institute of Economic and Social Research. London.

QAA. (2014). Employer Engagement: Emerging Practice from QAA Reviews, 1 ed.: 34: The Quality Assurance Agency for Higher Education.

Reeve, F. and Gallacher, J. (2005) Employer–university 'partnerships': a key problem for work-based learning programmes? Journal of Education and Work, 18:2, 219-233

Scurry, T. Dorien, K & Blenkinsopp, J. (2011) Under-employment among recent graduates: a

Teichler, U., 1998, Higher education and the world of work: Changing conditions and challenges, paper for the UNESCO World Conference on Higher Education, Paris.

Tomlinson, M., & Holmes, L. (2016) Graduate Employability in Context: Theory, Research and Debate (1 ed.): Palgrave Macmillan UK.

UKCES. (2014) Employer Perspectives Survey 2014: UK Results, Vol. 88.

Wickramasinghe, V. Perera, L. (2010) "Graduates', university lecturers' and employers' perceptions towards employability skills", Education + Training, Vol. 52 Issue: 3, pp.226-244, https://doi.org/10.1108/00400911011037355 [Accessed 10/03/2017].

Wakeham, S. W. (2016) Wakeham Review of STEM Degree Provision and Graduate Employability: 90: Department for Business, Innovation & Skills.

Wedgwood, D.M. (2007). Higher Education for the Workforce: Barriers and Facilitators to Employer Engagement. Department for Innovation Universities and Skills (DIUS) formerly the Department for Education and Skills (DfES): Manchester Metropolitan University.

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Modeling resilient and adaptable cooperative and work-integrated learning practice: The importance of learning dispositions in initial teacher education

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ABSTRACT

Global industry requires resilience and adaptability to match the new fluid necessities of 21C reality. Learning as a finite suite of knowledges and skills at university to prepare for a static career is now anathema, with industry demanding constant new insight and innovation to meet the needs of an ever-changing global society, fuelled by new technologies. In the case of initial teacher education, however, this is not prevalent, with knowledge and skills sets too often being presented as script and thus reinforcing static thinking and teaching practices. There are implications for cooperative and work-integrated education (CWIE) teaching and learning for both teacher educators and mentor teachers at universities and schools if they are to purposefully and explicitly model resilient and adaptable practice. The research reveals a need to more effectively empower teacher educators and pre-service teachers with a clear learning identity and dispositions that enable the required agency and resilience. This paper addresses this imperative by exploring qualitative data collected at a network of secondary schools in Denmark. Mentor teachers at these schools reflected on their practice through the lens of the Essential Lifelong Learning Inventory (ELLI) domains and revealed that they felt that they lacked the resilient agency or identity as learners to continually adapt to the changing needs of the education market. It presents positive approaches for CWIE educators and institutions in initial teacher education that are based on the modeling of learning dispositions. Importantly, the approaches can also be seen as being the basis for any practice where resilience and adaptability are essential.

INTRODUCTION

In this paper evidence is presented from teachers about the ways in which they understand and characterise themselves as teachers and as learners, their formative experiences and the realities of their practice context. The evidence is drawn from 6 high schools in Denmark that participated in the Glocal Educators Project (GEP) (Usher, 2017). The GEP was a participatory action research project which facilitated research into and development of scholarship of teaching and learning from within the context of global citizenship education. While the research was located primarily in teaching and learning for global citizenship, the teacher narratives about their professional purpose and practice surfaced factors that have critical implications for initial teacher education and for CWIE. The teachers who participated in the GEP felt that their workplace integrated initial teacher education, while being a fulfilling experience, was not strong enough to sustain their sense of agency after their studies had finished. They felt that it was impossible to resist a prevailing routine or script-based professional culture and practice that was at odds with the intent of the initial teacher education design.

The research elicited the purposes, perspectives and practices of teachers that related to global citizenship competences and considered professional learning implications. In the broader global or national community, in the classroom community, or in industry, it is the sense of mindful agency of the individuals and groups that is the key to collaborative learning and adaptive effective action. Incumbent, then on the educational institution, school or university, is to recognize its normative social and cognitive patterns and identity and take deliberate steps to developing them as being sustainable and inclusive. To achieve this, it is critical for each member of the learning community to have access to an affective or learning language with which to communicate, in addition to the cognitive language of the curriculum. Central to effective cooperative and work integrated education are those

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social practices, which enable a competent citizen, teacher, pre-service teacher or student to participate fully in the community culture.

An active learning language with which to communicate and develop these norms is critical to both create deep learning communities and, importantly, to sustain them. The Effective Lifelong Learning Inventory (ELLI) (Deakin Crick R Broadfoot & Claxton 2004) is a learning analytic tool that was employed as a reliable method for making visible a person's learning attitudes and dispositions. The GEP embedded the ELLI dimensions in activities and learning that guided teachers to self-reflect through seven dispositional lenses; Critical Curiosity, Creativity; Learning Relationships; Hope and Optimism; Strategic Awareness; Resilience; and Meaning Making. The teachers' reflections with the ELLI dimensions enabled them to act with clearer purpose and to be able to communicate and collaborate on their purpose and practice. These are essential competences for teachers to develop and model in school communities and for universities to develop and sustain through initial teacher education and CWIE.

CWIE AS A 21C META-COMPETENCE

A significant '21C' global challenge is to reconcile the seemingly contradictory forces that are occurring between societal / vocational need and educational direction (Zhao, Y, 2009, Hargreaves & Shirley, 2008). Fitting with the holistic nature of the 21C challenges, a holistic conception of how a person should 'operate' is important. To this end, the OECD definition of competency is a useful one as it enables global teaching and learning to be characterized as being more than merely a vehicle for students to acquire particular knowledge and skills but one that is critical in creating social and economic equity through life-long learning. "By definition, competencies involve the ability to meet complex demands by drawing on and mobilizing psychological resources (including skills and attributes) across different contexts" (OECD, 2002). To meet the challenges of an increasingly fluid 21C paradigm, it is the ability of the teacher and student to meta-learn across different contexts and using different skills, knowledges, and values that will arm them with the capacity to develop and contribute to multiple knowledge communities, which is of primary importance in the 21C context.

Competences are the interface between the holistic conception of the person and the demands of the professional world, which is of critical importance to students developing attitudes, skills, and dispositions that will enable them to succeed in the 21C context (Deakin Crick 2008). Critical to the achievement of student competences is the facilitation of teachers' own movement between the reflection on themselves as people and as learners and as developers of discrete skill sets, knowledge, understandings; this constitutes their professional role or their meta-competence. CWIE as a structural facilitator of this movement is important not only in initial teacher education but across all industry areas.

Self			Competent agent
Identity Desire Motivation	Dispositions Values Attitudes	Skills Knowledge Understanding	Competent learner, Citizen, mathematician, scientist etc.
Personal			Public
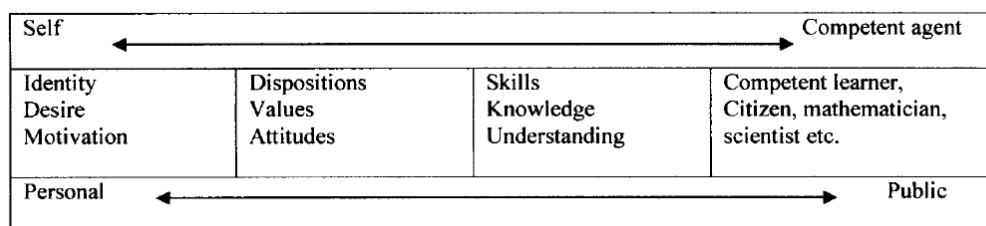
FIGURE 1: Competence as a movement between personal and public. (Deakin Crick, 2008)

The GEP explored the link between the meta-competence of the teacher to create desirable outcomes and the professional learning that is required for themselves to *become* 21C global citizens and global teachers. The *'becoming'* phase, then, is the CWIE phase that scaffolds pre-service teachers to experience, explore and develop a 21C learning meta-competence such that it becomes an identity. The '*developing others*' phase scaffolds teacher collaboration for the purpose of developing learning, curricula and structures that will directly support student learning. On the basis of the GEP data, the *developing others* phase is best done in a learning partnership with a university.

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The process of constructing teachers' purpose and identity in the context of teacher professional learning and pre-service teacher education appears not to have been successful in creating the necessary resilience for teachers – beginning and experienced - to be able to work within or change the prevailing culture at the schools in which they were working; this is seen to be at odds with the increasingly fluid 21C education demands (Varghese, Morgan, Johnston & Johnson 2005). This is an important challenge for schools and universities, as the extent to which teachers are able to use pedagogical cognitive knowledge and effectively develop themselves as teacher learner / teacher citizen in the classroom and in their school community, depends on the extent to which they have been supported to internalise affective learning as a set of values and dispositions. That is, the extent to which they developed a learning identity of their own (Usher, Sandvad, 2013). What the research emphasises then, is the imperative of teachers - beginning and experienced - being supported in collaboration with the university to develop a stronger sense of learning agency; this being critical to modelling the type of positive community learning leadership that is desired.

DATA AND METHODS

The GEP facilitated a systematic exploration of teachers' interpretations and constructs relating to perspectives of globalization, citizenship, lifelong learning, and the scholarship of teaching and learning in their teaching practice. The first stage of the study consisted of eliciting the teachers' pre-understanding of the 21C global education paradigm through an online questionnaire; a focus group; and a workshop that was anchored in the emergent themes to illuminate future practice. The workshop introduced and was presented through the lens of the ELLI dimensions. Stages two and three of the project, elicited data from classroom observations, professional learning workshops and individual and group semi-structured interviews. Each of the participating teachers were interviewed about their teaching identity and practice three times, individually and three times as a part of a group. The researcher visited each school for three individual days from May 2014 to December 2015. In total, there were 57 semi-structured individual interviews and 18 group interviews with teachers.

The interviews were open-ended, inviting stories of teaching and learning experiences, as well as stories that characterized their ideas and experiences of global citizenship and global teaching practice. The interviews were focused on drawing on the themes the researcher and the participants had identified for analysis during the first stage of the project. Importantly, they enabled new ideas to be introduced by participants, which were incorporated into the themes, iteratively. The interviews, held in dedicated rooms across the six participating schools, were digitally recorded and transcribed. They were then coded and aligned to the relevant ELLI dimension to ensure dependability, credibility, transferability and confirmability of the qualitative data (Guba, 1981; Schwandt, Lincoln & Guba, 2007). First, themes that emerged from the initial data, which had not been previously recognized, were identified and coded; second, the data was interrogated for the presence of relevant secondary themes, already identified.

Two important messages emerged from the data with regard to CWIE. First was the imperative of teachers and teacher educators moving from a cognitive competence understanding of their practice to a meta-competence understanding. Second, and stemming directly from the first, were the implications for initial teacher education; the need to develop teachers as meta-competent practitioners and, most importantly, as models of this practice for pre-service and beginning teachers. This was a CWIE need in initial teacher education and across other fields for Herrington and Herrington, as they highlighted how "it has become increasingly clear that university learning outcomes are lacking and no longer meet the needs of a dynamic and changing workforce" (2006, p.2.). This was reflected in the GEP data. It revealed that while initial teacher education and CWIE models were seen to have been of value, they did not support the sustained development of the type of mindful agency required for teachers to continually adapt, develop and contribute to their professional communities.

TEACHER UNDERSTANDING OF THEIR IDEAL PURPOSE VERSUS THEIR PRACTICE REALITY

What became apparent from the data was that there existed an 'ideal versus reality' dichotomy. It was identified both when the teachers reflected on themselves as learners and it was also strong when teachers reflected on their

professional purpose as teachers. Interestingly, the ideal purpose was not mythical but rather was often based very clearly on real experience. Teachers identified a strong and positive link between their pedagogicum (integrated teacher training in which teacher candidates undertake teaching duties at a school, while also undertaking theory-based units at university) and their ideal purpose as teachers. There was a warm reflection about both purpose and practice during their pedagogicum but one that had since been eclipsed by the realities and routines of teacher practice. The factors that differentiated real purpose and the ideal purpose can be explained as a reflexive learning purpose, felt to have been extinguished by a "grinding" reality of school practice.

The following exchange with teachers at Silkeborg Gymnasium highlights the real versus ideal dichotomy and also an indication that had they been better prepared for meta-competent practice, they might have been better prepared to operate differently within the contemporary reality.

> [Interviewer] Teachers' reflective data suggests that teachers don't strongly identify with the ELLI learning dimensions of critical curiosity, strategic awareness and resilience. Does that sound right for you?

> [Carl] Yes, it's the ideal and the reality. In our pedagogicum we would spend time investigating the theory and practice all the time, so I think if we had these [ELLI] learning dimensions some years ago, it might be quite other answers.

> [Interviewer] What happened?

> [Carl] Routine. And also a lack of time.

> [Jytte] Since I finished my pedagogicum, I don't think I have reflected on my own learning process at all. I am sorry to say. We've not experienced learning dimensions like the ELLI ones before. I reflect on how my students will learn and how I can help them learn but not on myself as learner. It's different as a teacher now.

> [Mathilde] It's a matter of priorities, I don't think about how I work with pedagogies like I did during my pedagogicum, I just work and have a good relationship with my students. It's a choice. I can see better now how it might have been different with the learning areas that you have brought to us.

Resilience was one of the ELLI dimensions that teachers did not strongly identify with. Teachers reflected that this was not the case in their pedagogicum, rather, it was the nature of the routine professional practice that had acted to diminish it:

> [Interviewer] You identified least with resilience in your ELLI profile, how does that reflect you as a teacher?

> [Lasse] Yes, no but if you asked my two years ago when I was doing my pedagogicum resilience was something that I identified with. I had time to focus and stick to a task and I was also able to design my own task, you know. But right now I can't – I have to find a quick answer that works. I'm not a learner, I'm a survivor. That's a problem. Each time there is a lack of creativity, even though I'm a music teacher I'm not creative because of a lack of time.

> [Majken] It's difficult because we are so focused on teaching but not on learning.

> [Mikkel] The need for changing and attending so many meetings take away from our ability to reflect on ourselves and our students. There is a focus on results all the time or things that you can mark or tick a box. It's a mindset of a teacher that puts us in this role. Many of us came from uni with idealism and with things that didn't fit with working lives and we had to adapt. We were probably better learners at uni.

> [Lasse] It says that teachers need to go beyond the immediate curriculum to be a glocal teacher. I agree. But the hard part is how to do that.

The teacher's reflections on their own pedagogicums reflected valuable learning experiences; the type of reflective and collaborative experience where learning through teaching was a conscious reality. The collaboration represented a real connection between the theory that they engaged with at university and the practice that they engaged with while actually teaching in the school. The teacher's references to their own pedagogicum were idyllic

in nature, portrayed as being a golden age in their career. Their reflections, however, also revealed a sadness at the way that the contemporary reality of their professional practice made this age impossible to recreate. For CWIE, this suggests that, though of great value initially, the development of a pre-service teacher's meta-competence in the current model is not strong enough to sustain them far into their teaching career.

TEACHER IDENTIFICATION OF FACTORS THAT LIMIT THEIR 'IDEAL' PRACTICE

Following an initial ELLI workshop as a part of the GEP, teachers were asked to reflect on the ELLI dimensions and place themselves within the context of those dimensions, individually, as teacher groups, with students individually, at class levels, as school groups and as a whole project cohort. The teachers saw the ELLI dimensions as being a very useful 'learning language' with which to support reflective practice and deep discussions about their practice and the purpose of their practice.

The reflections against the ELLI dimensions revealed that despite feeling ready, in their pedagogicum, to embark on their emergent meta-competent practice into the profession, teachers found that factors such as routines, lack of time, and tight and crowded curricula, undermined their foundation learning and teaching purpose. What was absent was the sense of agency necessary to address the identified shortcomings of their reality. A sense of agency, or a confidence and ability to act even in situations of uncertainty, such is increasingly the case in the 21C education paradigm, is often found in stronger identification with resilience, strategic awareness and critical curiosity. The teachers' reflections on the ELLI dimension clearly reflected this.

RESILIENCE AND THE SENSE OF AGENCY

Resilience was identified as being an important dimension as were learning relationships and strategic awareness. These are strong drivers of a sense of agency and enablers of the type of epistemic teaching identity that is consistent with the fluid nature of 21C reality. However, there was a general feeling amongst the teachers that they did not identify strongly with these dimensions, largely because of rigid systems and structures at both the school and system level. This feeling aligns with research (Deakin Crick, Goldspink & Foster, 2013) which identifies teaching and learning mindsets as having two poles: either external, based on learning and teaching as script or internal, based on learning and teaching as design. The notion of agency, as a key part of resilience, was seen to have been negatively impacted by the realities of school routines and structures.

In terms of resilience, Mona, at Vestamager High School indicated that she and teachers generally were not given the opportunity to articulate their own priorities. She said,

> in a working context, in many cases what actually happens right now is that we are told 'we would like you to work more now in teams and in a particular way'. To be resilient is to say, ok, I will find a way to cope with that. It actually happens very often that somebody tells us what is important. What that shows maybe is that we are not resilient.

Similarly, Amanda at Odense Gymnasium felt that there was a critical gap between the school or system goals and teachers' own goals, which negatively affects resilience. She said "Our reflections show that teachers need to know where we are heading, what is the real reason, where are we going and why are we doing this. They are willing to change and learn and to make meaning but why is not clear to the great amount of teachers, I don't think". Jytte at Silkeborg Gymnasium also saw the connection between internal and external purpose. She said "So for resilience teachers should be less controlled so they feel more responsible. It's similar to our students if they think it's important they will probably do it. I think my subject is important, so I will do it".

STRATEGIC AWARENESS

The second dimension most strongly referred to by teachers, when reflecting on teaching and learning for 21C outcomes, was strategic awareness. Teachers saw two elements in this dimension: equating the notion of 'strategic' with being organized or planned; understanding strategic as closely related to being networked. Both are important to the ELLI authors' understanding but neither capture the learning element of the dimension. Deakin Crick et al.

(2004) defined strategic awareness as being confident and comfortable in the liminal zone, or state of uncertainty, and able to chart a course forward, without being sure of the outcome. The charting of the course aligns clearly with the notion of organization and network planning but is more than just these two elements. It involves being comfortable enough to design pathways forward on the basis of emergent and sometimes challenging hurdles. A strategically aware teacher or student is able to navigate their way forward in their learning even when there is no clear pathway. Such a teacher or student has agency and is not dependent on external people or systems to provide the pathway.

In the teachers' eyes, being strategically aware meant following a set curriculum or plans that had been provided for them. Jytte commented, "strategic awareness, I'm surprised we don't seem to fit with the official definition because we have a purpose, we know what we're supposed to do" While acting strategically as a teacher certainly involved careful planning to ensure outcomes are met, the major element of strategic awareness focuses on a person's known strategies for learning and understanding. Equally, as indicated, the ELLI domain of strategic awareness can be discussed in terms of how comfortable a person is when they find themselves in the zone of uncertainty; their comfort in this understanding would depend not on their preparedness to follow a set curriculum or to make strategic connections, necessarily, but rather to be comfortable and confident that they can navigate the unknown. That is, a teacher can be organized and networked but without being comfortable with their ability to strategize in situations of doubt.

As a teacher, not controlling the learning 'finish line' or ultimate destination can be challenging. Mainstream practice is largely centred on system driven curricula and learning objectives, which allows teachers to drive the learning. This practice leaves little room for emergent learning or for following authentic enquiry leads. Importantly, though, it allows teachers to plan ahead for their learning by being 'strategic'. Mathilde explained that "You go to different workshops to get wise. I work very well with connections … if I need to know something about Egyptian architecture I find somebody". Mathilde's example highlights a purposeful practice and a strategic approach. However, it is clear that, through this approach, she intends to eliminate or at least minimize the instances of the unknown so as to able to control the outcome. The archetypal strategically-aware teacher in this situation would be comfortable or even relish the opportunity to explore new enquiry avenues in real time or at the same time as the students, being comfortable that they have the learning power to be able to derive meaning and support the learning direction as the enquiry goes, whichever direction it goes.

Cecile from Odense Gymnasium identified the necessity for teachers in Denmark to adapt to the significant systemic changes in terms of strategic awareness. She said:

> one explanation is that there are huge changes in our field right now and that makes of course changing and learning strong because that is the basic part of teaching but the strategic awareness is quite different because it is about how you will do it and that is different because that is the law and the changes that we are facing.

In this case, Cecile described the need for her and all teachers to be comfortable in constantly adapting to systemic change; to be a learner and to be an agile learner and practitioner.

CRITICAL CURIOSITY

Teachers felt that they did not have a strong identification with critical curiosity, at least not in practice. Teachers saw a correlation between their comparatively weak identification with this dimension and the realities of their busy lives, in both a broad sense and in their teaching practice. In what emerged as a clear pattern, teachers felt that school-level factors, such as time constraints and rigid curricula, negatively affected their scope to be critically curious in their roles.

The following exchange with Carl, at Silkeborg Gymnasium, highlights a feeling that the school systems in place did not support some teachers' ideal practice:

[Carl] Low critical curiosity is like life, for instance, I can see that some of the elements of critical curiosity I reflected on knowing that I have small kids and if I need to do a task, I need to do it quickly and that's it. My need to find things out and go deeper is not there right now.

[Interviewer] how do you find out about students learning if you are not critically curious?

[Carl] yeah, I can see the discrepancy. We have to teach our students knowledge and maybe critical curiosity is the opposite in some ways. I think that high school teachers are not critically curious but very critical. If we have to learn something from others, we have a very high level of criticism because we teach everyday and then if somebody from outside is going to tell us about something we are very critical. It's very funny. We are in general not as open to receive knowledge from others as we know a lot and we have this immediate opponent and I don't know why because we can learn a lot with others. I guess it's about the relationship.

The importance of the GEP experience was the 'internal' collaborative learning relationship that was created; rather than external 'experts' imposing knowledge and practices on teachers. Instead by creating a shared enquiry into an area of authentic need an interdependent learning relationship was developed that resembles the emergent 21C need.

CONCLUSIONS AND RECOMMENDATIONS

Schön (1983) rightly highlights the value of scholarly reflection in terms of professional practice and organisational success. Through CWIE facilitated reflection, a professional organisation can surface and challenge tacit negative understandings that have grown up and around the repetitive experiences of a specialized practice and can make new sense of the situations of uncertainty. A significant message from the GEP was that there is a strong case for the university involvement in adding value to the workplace in an ongoing learning partnership. It highlighted the difficulty for organisations to effectively reflect-in-action alone.

The notion that the CWIE partnerships are a genuine vehicle for workplaces to become 'learning organisations' is of fundamental importance to the success and sustainability of effective CWIE models. In a partnership with university, effective problem setting is scaffolded by research-based dialogic reflection-in-action with external personnel. That is, the 'action' extends thinking and the reflection feeds on the action and the results. Each feeds the other and each sets boundaries for each other. In the case of the GEP, working in partnership with the university researcher surfaced critical needs that were not being met and supported new practices to address them. The scholarship of teaching and learning may best be thought of not as discrete projects and investigations, but as a set of principles and practices that bring people together and energize their collective work: a commitment to making teaching and learning public, to rigorous and constructive peer review and to building the field (Hutchings, 2002).

The emergent need is a CWIE model that creates genuine and sustained learning partnership between the university and the workplace. In the model, the university lecturer would be actively involved with the workplace mentor and student(s) in researching and publishing the results of an agreed shared learning project. The university lecturer would not only engage with the learning project actively with a scholarly focus but they would also support both the workplace mentor and the student to do the same. The connection between both the university lecturer and the workplace mentor is strengthened and the connections to the learning project (collaboratively developed) are strengthened significantly. The shift is thus from being engaged in terms of supporting the learning of the student to supporting the systematic reflection on teaching and learning with the aim of making the project public. The proposed model, then, increases the value of the partnership for all parties and forms the basis of sustainable improvement in teaching and learning for both the partnership school(s) / workplace(s) and the university.

REFERENCES

Deakin Crick R., Broadfoot P. & Claxton G. (2004). Developing an Effective Lifelong Learning Inventory: The ELLI Project. *Assessment in Education*, *11*(3), 247-272.
Deakin Crick, R. & Yu, G. (2008). The Effective Lifelong Learning Inventory (ELLI): Is it valid and reliable as an assessment tool? *Educational Research*, *50*(4), 387-402.

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Stuttgart, Germany

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Deakin Crick, R., Goldspink, C. & Foster, M. (2013). Telling Identities: Learning as Script or Design? *Learning Emergence Report.* Retrieved from: http://learningemergence.net/events/lasi-dla-wkshp

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), Handbook of qualitative research (1 ed., pp. 105-117). Thousands Oaks, CA: Sage.

Hargreaves, A. & Shirley, D. (2008). The fourth way of change. *Educational Leadership, 66*(2), 56-61.

Herrington, A. & Herrington, J. (Eds.), (2006). Authentic learning environments in higher education. Hershey, PA: Idea Group.

Hutchings, P. (2002) Reflections on the Scholarship of Teaching and Learning in *Essays on Teaching Excellence, Toward the Best in the Academy*, *13*(5).

OECD., (2002) The Definition and Selection of Key Competencies. In Executive Summary; OECD: Paris, France, Available online: http://www.oecd.org/dataoecd/47/61/35070367.pdf

Schön, D.A. (1983). *The Reflective Practitioner – How professionals think in action*. London: Temple Smith

Usher, A., & Sandvad, M., (2014), Developing Teachers' Glocal Teaching and Learning Identities: Early findings from the Danish Glocal Educators Project, retrieved from www.inceptlabs.com.au/education /materials/Developing_Teachers_Global_Teaching_and_Learning_Identities.pdf

Usher, A. (2017) *Creating teachers as scholars: Meeting the challenges of 21C globalized education.* PhD thesis, Victoria University.

Varghese, M., Morgan, B., Johnston, B. & Johnson, K. (2005). Theorizing language teacher identity: Three perspectives and beyond. *Journal of Language, Identity, and Education*, 4(1), 21-44.

Zhao, Y. (2009). *Catching up or leading the way: American education in the age of globalization: American education in the age of globalization*. Alexandria: ASCD.

Integrating the formal learning of statisticians with their informal workplace learning

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ABSTRACT

After gaining insight regarding current attempts at integration of their formal and informal workplace learning from statisticians, a new framework for integrating these two types of learning is suggested. Evidence suggests that these two types of learning still exist as polar opposites, and that no integration or very limited integration takes place in practice.

Quantitative data were collected from respondents (statisticians who participated in the internship programme and were permanently employed at the time of the study) through an online survey, and qualitative data were collected from managers (who served as mentors to the interns) through conducting semi-structured, one-on-one interviews.

This paper suggests a new way of integrating the formal learning with the informal workplace learning of statisticians, which involves adding a practical component (an internship) to the formal learning of statisticians, therefore, combining an internship during formal learning with an internship upon the completion of formal learning. In this way, statisticians are better capacitated since they can apply their formally obtained knowledge and skills in practice while being engaged in their formal studies as well as after completing their studies, ensuring integration between formal and informal workplace learning. Critical success factors include the placement of intern statisticians in areas that are commensurate with their formal learning and assigning tasks which match their cognitive ability. Support for informal learning in the form of mentorship, developmental assignments and training and development are also crucial to ensure integration.

Keywords: Formal learning; informal workplace learning; statisticians; higher education institutions, Statistics South Africa, mentors; interns; internship programme; utilisation of skills; relevant placement.

INTRODUCTION

Preparing students adequately for a successful life and career after graduation is of great concern to today's higher education institutions. Universities and colleges struggle to keep up with the demands of a business world that is changing rapidly, new technologies that are being introduced and knowledge bases that are expanding.

In a talent shortage survey conducted in 2012 it was found that a large number of employers worldwide identified a lack of available skilled talent as having a negative effect on business performance (Manpower Group 2012). The respondents in the survey indicated that it was difficult to fill positions because of a lack of available candidates with the right technical expertise and employability skills. In response to a question about the way in which they planned to overcome the shortages experienced, employers proposed partnering with educational institutions to make sure they provided students with the necessary skills so that the skills gaps could be closed. This partnership should ideally be formed by engaging students in internships that expose them to the technical and employability skills needed by industry.

Globalisation and changes in organisational environments and technology demand new solutions to the question of how best to organise work. Environments change, organisations grow and new technologies emerge, leading to altered work practices that might derail the stability and routines of an organisation (Hatch & Cunliffe 2006:295).

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To assist organisations in dealing with these changes, institutions of higher learning need to properly prepare new labour market entrants by offering formal learning content that suits the needs of organisations. Graduates need to have the necessary knowledge, skills, competencies and attitudes to function in an organisational context.

PURPOSE

The main purpose of this paper is to report on current practices of formal and informal learning that statisticians in South Africa are involved in. Based on the results of this study, this paper also suggests a framework to facilitate the integration between the formal learning and the future informal workplace learning of statisticians.

DEWEY'S FORMAL LEARNING THEORY

Dewey suggests that "education must be conceived as a continuing reconstruction of experience" (1938:79). This author further suggests that formal learning should contain a component of experiential learning. Learners' experiential learning should be continued after completion of a formal qualification but this time in the form of full-time workplace learning through an internship programme.

Dewey's model of experiential learning reflects his belief that "all genuine education comes through experience" (1938:25). He describes experiential learning as a process between a teacher and a student that integrates experience with the learning environment and the content. The following four key concepts form part of Dewey's theory (1938) and are related to aspects of education: 1) the relationships among teachers, learning, the curriculum and community; 2) the ways in which learning occurs; 3) the preparation of students as citizens and individuals; and 4) cognition of learning. As illustrated in Dewey's model, a teacher organises knowledge into smaller logical pieces. Experiences for students are then facilitated according to their readiness. The end goal of these experiences is learning, which in turn leads to learner readiness and knowledge.

FORMAL LEARNING

Eraut (2000:12) is of the opinion that in order to classify learning as being formal, the following conditions need to exist and be present: a prescribed learning framework or schedule; specified learning tasks; facilitation or tuition by a professional educator; and formal accreditation. Enos, Kehrhahn and Bell (2003) concur that formal learning is based on direct instruction and learners' engagement in activities like lectures, discussions, simulations, role plays and other pre-determined and structured activities.

THE IMPORTANCE OF RELEVANT CONTENT IN FORMAL LEARNING

Scheffler (1978:75) points out that the important question to ask in terms of relevance is "relevant to what, how, and why?" because, according to him, relevance in itself is not an absolute property and nothing is either relevant or irrelevant in itself. Students need to see how they will be able to apply the theory in real life, and the theoretical material needs to be relevant to local cases they can understand and relate to (Kember et al 2008:249).

Relevant content will result in learning that is focused, contextualised and situated (Lave & Wenger 1991), which will benefit both the workplace and the learners. The need for relevance in terms of content is necessitated by the requirement for people to become experts in their work through the development of situation-specific competence, which can only be developed in authentic situations (Tynjälä 2008:133).

According to Tynjälä (2008:131), consultation with the workplace to determine this relevance is currently not happening. She confirms that there is a gap between what the workplace needs and what is supplied through formal education. Institutions of higher learning could therefore benefit by assessing the needs of organisations.

LAVE AND WENGER'S SITUATED LEARNING THEORY

Lave and Wenger (1991) emphasise that learning is a social process that happens in everyday settings and through interaction between co-workers and their environment. Learning is seen as co-constructed and situated in a specific context. Situated learning as such suggests that learning does occur in a workplace context (Billett 1996; Lave & Wenger 1991). An important component of situated learning is the construction of knowledge within the social

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and cultural circumstances in which learning occurs, namely the social context. Another crucial concept of situated learning is communities of practice, which is based on the idea that communities with similar mindsets and who have faced challenges together, work collectively and collaboratively towards a common goal while developing practices (Lave 1996; Wenger 1998, Wenger 2000; Wenger, McDermott & Snyder 2002). The authors describe the process of legitimate peripheral participation as the critical process during which learners move from participating in communities of practice toward participating fully in the sociocultural practices of a particular community.

For the purpose of this paper, a combination of Dewey's experiential learning theory and Lave and Wenger's situated learning theory is utilised. These theories focus on experience, contextualised learning, relevance through authentic activities, access to experts and learning by doing, components that are all regarded as crucial to integrating formal and informal learning.

WORKPLACE LEARNING

Many scholars are of the opinion that the workplace is an environment that is very conducive to learning new skills and knowledge, enabling co-workers to better participate in everyday, work-related activities (Beckett & Hager 2002; Boud & Middleton 2003; Hager 2001). Several other authors concur and surmise that skill acquisition is dependent on purposeful learning experiences where knowledge connects with its uses in the real world (Gott 1988; Kolb 2014; Robinson & Dearmon 2013). The workplace therefore provides opportunities for co-workers to gain knowledge that connects theory to practice (Billet 2002; Wyborn 2015), and this workplace learning includes experience-based learning and workplace learning (Foley 1999; Hager & Halliday 2006; Knowles, Holton & Swanson 2015; Kolb 2014; Marsick & Watkins 2015). Workplace learning can either be utilised to address individual development in order to achieve individual and/or organisational performance or it can be utilised to achieve personal or professional goals (Jacobs & Park 2009).

FACTORS TO ENHANCE WORKPLACE LEARNING

Ashton (2004:47) cites the following factors as invaluable for the workplace learning experience: "access to and availability of relevant information; opportunities to learn and to apply learned skills; availability of support; and feedback of managers and co-workers respectively". The view of Mattox (2012:40) is similar to that of Ashton but he goes one step further by categorising workplace learning as follows: communities of practice; mentoring and coaching; and on-the-job experience.

Evidence suggests that the scarcity of skills experienced by the relevant organisation (Stats SA) is not due to an insufficient number of statisticians but to an insufficient number of statisticians with the right skills and statisticians who are ready to be employed in the areas where a scarcity exists (Statistics South Africa 2010b). This view is supported by Tynjälä (2008:131) whose research confirms that there is a gap between the knowledge needed by organisations and the knowledge and skills that learners receive from tertiary institutions. Students should be able to use the knowledge they have already acquired to create new knowledge, and they should also be able to transform their experiences into knowledge (Freire 2006:377).

Learning in the workplace should ideally allow students to apply learning as well as acquire new knowledge. In his study, Billet (2002:57) found that effective workplace learning resulted when learners "were engaged in authentic activities, were guided by experts and were engaging with co-workers". The importance of proper guidance on workplace learning by experts in their fields cannot be denied. Their expertise could have been obtained either formally (through a formal qualification) or informally (through workplace experience).

When the intellectual capacity of individuals is stimulated, that is, when the complexity of the tasks matches or challenges individuals' cognitive abilities, it would correlate positively with their competence development (Ellström 1997:268).

INTEGRATING THE FORMAL LEARNING OF STATISTICIANS WITH THEIR INFORMAL WORKPLACE LEARNING

In a policy statement, the Joseph Rowntree Foundation (2007) adds its voice to all those who emphasise the need for learners to develop the critical ability to integrate their formal learning with their workplace learning in order to maximise educational gains as well as to achieve work-ready, employable graduates. This integration is all the more important since competence needs to be accomplished through integrated and not isolated formal and informal workplace learning (Berg & Chyung 2008; Burns, Schaefer & Hayden 2005; Enos et al 2003; Svensson et al 2004). The integration between formal and informal workplace learning through relevant content with practical application has both individual (Merrit 2005) as well as organisational benefits (Coco 2000).

Based on the literature review, it appears that the current efforts to integrate formal learning with workplace learning results in only limited integration due to the fact that students are exposed to workplace learning **either** while they are engaged in formal learning **or** upon completion of their formal studies; therefore, there is no continuous integration between formal and informal workplace learning. This paper attempts to propose a framework according to which students are exposed to workplace learning both while they are engaged in formal learning as well as upon completion of their formal qualification. Such exposure will provide students with an opportunity to be exposed to informal workplace learning while they are engaged in formal learning, thereby ensuring an integration between both types of learning, namely, formal learning and workplace learning.

INTERNSHIP AS A VEHICLE TO FACILITATE THE INTEGRATION PROCESS

According to a dictionary definition, an internship is a formal programme that is intended to provide practical experience to beginners in an occupation or profession (Dictionary.com n.d.). Generally, the idea behind internships is for students to get real-world experience and an opportunity to apply theoretical concepts learned in the classroom and to build professional networks (Lohman et al 2015). Internship programmes in South Africa are regarded as practical programmes aimed at assisting with the continuous development of people. The beneficiaries of these programmes are mainly graduates who have completed their studies and are unemployed (Department of Public Service and Administration 2006). The journey of an intern statistician begins upon enrolment as a student at an institution of higher learning in South Africa and should ideally end upon employment as a statistician in areas of an organisation where his or her skills can be properly utilised and applied. The scarcity of skills in especially the statistical production and dissemination areas in Stats SA, the largest producer of official statistics in South Africa (Statistics South Africa 2010b:5), requires that institutions of higher learning in the country and organisations employing statisticians work together to integrate the formal learning of statisticians with their workplace learning.

PROPER PLACEMENT AND UTILISATION OF SKILLS

If the proper recruitment process has been followed, then the right candidate with the right skills enters the organisation. The next major step in the process of integrating the formal learning of statisticians with their workplace learning is to ensure that interns are placed in areas for which their qualifications and skills are appropriate and where their competence can be developed (Ellström & Kock 2009; Pettigrew et al 1988; Skule & Reichborn 2002).

Once the learners enter the workplace (in this case through internships) it becomes important that they are placed in areas where they receive meaningful and challenging tasks so that they can complement their prior learning by utilising the knowledge and skills they have gained through their formal studies (Ellström 1997; Ellström et al 2008). This is the step in the process when "knowledge is created through the transformation of experience" (Kolb 1984:38). This is also the first component in the process of learners' acquisition of relevant workplace learning in the workplace. The functional areas in the organisation in which interns are placed have a direct influence on whether or not their skills will be utilised or not. The degree to which intern statisticians can utilise their skills also depends on the **level** of the tasks they are assigned. It is important that interns be given projects that are challenging and that require a substantial amount of responsibility in order for learning to take place (Ramus 1997).

MENTORSHIP

Mentoring can be regarded as a relationship in which a senior or more experienced person provides the necessary support, advice and friendship to a younger, more junior or less experienced person (Smith, Howard & Harrington 2005:33). Mentorship can be both a formal process (involving some form of matching done by the company) and an informal one (involving a relationship that occurs naturally, for example, if people share the same interests) (Ramaswami & Dreher 2007:331). Billet (2001:21) is of the opinion that effective workplace learning can be accelerated when learners are guided by experts (mentors) in the field and that there is a direct correlation between the quality of learning and the guidance that learners get in the workplace.

SUPPORT THROUGH DEVELOPMENTAL PRACTICES

Several practices can be embarked on in order to support informal learning in the workplace and these could include but are not limited to:

Learning Plans

A learning plan is basically a contract between a learner and his or her mentor that guides the learning process and clearly specifies the outcomes or objectives to be achieved by a pre-determined and agreed-upon time. Rothman (2007) points out that a learning plan will provide clarity to both parties (the intern statistician as well as the mentor) of the tasks to be performed.

Assessment

Young and Baker (2004) stress the importance of assessing intern statisticians against pre-determined outcomes/objectives. These outcomes/objectives should preferably have been specified in the learning plans/contracts of intern statisticians. Van der Berg (2012) advises that the learning plan and assessment plan be developed together since these two documents should be mutually dependent on each other. Van der Berg (2012) further suggests that assessments be accompanied by developmental feedback from the mentor to the intern statistician. This developmental feedback should ideally point out areas for development as well as appropriate steps to address those areas in which interns lack knowledge.

Training and Development

Training provides employees with very specific skills (Asad & Mahfod 2015) and it can also enhance the way in which they perform their work (Nadler, 1984). Johanson and Adams (2004) are of the opinion that organisations should include short courses in training and development because such courses are important to improve the knowledge, skills and productivity of individuals. Additional benefits of training are that it could lead to increased employee satisfaction and a reduction in supervision required (Asad & Mahfod 2015:701).

Job Rotation

Interns are expected to rotate to various components within a division or across different functional areas in order to get exposure to as many processes in their chosen field as possible while at the same time getting exposure to the different organisational goals (Noe & Ford 1992). Job rotation is an important aspect of the internship programme since this rotation can promote employee learning as well as play an important part in the development of employees' careers (Campion, Cheraskin & Stevens 1994) since they are exposed to many different areas in which they can develop their skills.

Absorption and Employment

The ultimate goal of the internship programme is to prepare a pool of statisticians who are ready to take up positions in the organisation where a critical skills shortage is experienced (Statistics South Africa 2010b). By providing intern statisticians with the necessary support and development during their internship, the organisation can ultimately reap the benefits at the end of the internship when interns are assessed and found to be suitable for

permanent employment in the organisation. Organisations can save on the cost of "hunting" for employees by permanently employing interns who served their internships with them and proved during this time that they are suitable for employment. Therefore, internships can also serve as an extended "try-out" period (Maertz et al 2014). If the performance of interns was regularly and fairly assessed, these assessments should provide valuable insights into the skills and abilities of the interns (Van der Berg 2012).

RESEARCH METHODOLOGY

A mixed-method research approach in the form of formal, semi-structured interviews as well as an online survey was used. Based on the data obtained from the interviews, inductive thematic analysis was used for the qualitative data analysis, and descriptive statistics were used to summarise and organise the observations obtained from the online surveys

Sample

The research was conducted at Stats SA, South Africa's largest statistical organisation responsible for producing and disseminating relevant, reliable and quality official statistics. This national government department (Stats SA) has a total staff complement of 4 224 (as at 30 September 2014). Non-probability purposive sampling was used to choose the population that consisted of the statisticians (approximately 334) who worked with official statistics and their managers (52) who also served as their mentors. Only 95 of the 334 statisticians were sampled because they had joined the organisation through an internship programme, after which they were permanently employed by the organisation. Of the 52 managers identified, only 10 were sampled for the collection of qualitative data in the form of interviews. The size of the sample (Cohen et al 2011:144) was determined by the following criteria:

- All the statistical clusters had to be represented.

- The number of years involved in the internship programme was important. Those who had more years of experience were intentionally chosen because I thought they might have more experiences to share, thereby providing richer data.

DATA COLLECTION

Semi-Structured Interviews

After conducting eight of the ten semi-structured, one-on-one interviews with the sampled managers/mentors I found that saturation had been reached, and no further data were collected because, as Charmaz (2006) points out, if categories or themes are saturated "gathering fresh data would no longer spark new insights".

The interview schedule consisted of a set of six semi-structured questions that were formulated with a view to understand exactly how managers/mentors perceived the integration between formal and informal learning to take place. Managers/mentors participated in semi-structured interviews lasting from 30 to 40 minutes. The interview schedule and the questions were designed to address the following specific aspects during the interview: Question 1 sought to gauge the perception of mentors regarding the work readiness of statisticians upon joining the organisation as interns. Question 2 interrogated the views of the participants regarding the role of institutions of higher learning in integrating the formal learning of statisticians with their workplace learning. Questions 3 and 4 probed for suggestions on how institutions of higher learning and Stats SA could collaborate to facilitate greater integration between the formal learning and informal workplace learning of intern statisticians Question 5 sought to establish the kind of developmental opportunities that intern statisticians were involved in as part of their informal workplace learning. Question 6 interrogated the role of managers/ mentors in supporting the informal workplace learning of statisticians involved in the internship programme.

Survey and Questionnaire

Four main aspects to be measured, which were identified during the literature review phase of this study and which emanated from the conceptual framework, were accordingly employed to gather quantitative data on the

phenomenon (Stats SA's internship programme) and the integration between the formal and informal learning of statisticians. These four aspects were work readiness, utilisation of skills, support in the workplace and development/training (informal learning). A five-point Likert-type scale was used to record responses, ranging from 1 = strongly disagree to 5 = strongly agree (see Annexure D1). In certain instances, respondents simply had to indicate "yes" or "no" response or respond to open-ended questions.

Data Analysis

Two sets of data (both qualitative and quantitative data) were analysed separately and then combined (Creswell 2014:177). The conceptual framework guided the qualitative data analysis and provided broad themes that were obtained from the literature review and research questions. Conclusions were drawn by compressing the information after which the data could be interpreted (Miles, Huberman and Saldaña, 2014:180). I summarised, coded and clustered the data obtained from the interview questions, online questionnaires and documents according to main themes in an effort to understand the way in which learning took place both formally and informally in the workplace. I began analysing the data upon collection and constantly drew comparisons between the information collected and emerging categories (Creswell 2013). Tesch's method of open coding (as cited in Creswell 2009) was used to analyse transcriptions.

Descriptive (or summary) statistics were used to summarise and organise the observations obtained from the online surveys (Keller 2014:12; McMillan & Schumacher 2006:150) during the quantitative phase of this study. Ordinal data was used because it allowed for the flexibility to assign meaning to the values used (Keller 2014:14) and to use graphs and percentages to report the data (McMillan & Schumacher 2006:154). A scale of 1 to 5 was used where 1 represented strongly disagree and 5 represented strongly agree. Scores were organised from the highest to the lowest (rank-order distribution) and then transformed to a frequency distribution (i.e., indicating the number of times each score was attained) (McMillan & Schumacher 2006:153). The frequencies were tabulated and presented as pie charts. Responses (both descriptive and coded) obtained from the online survey using Google Forms were automatically exported into a Microsoft Excel 2013 spreadsheet.

<div align="center">RESULTS</div>

Work Readiness

The majority of mentors were of the view that intern statisticians were not ready for the world of work upon joining the organisation. Mentors felt that "There is a big gap in terms of what we require and the skills they have" Intern statisticians might have the formal qualifications "but they do not know how to do the work" and "When our statisticians come from universities, they are not prepared to work as statisticians in official statistics".

The practical exposure of intern statisticians as part of their formal learning could greatly assist in preparing intern statisticians for the workplace.

The Role of Institutions of Higher Learning in Preparing Statisticians for the Workplace

Mentors reported their views of two concepts (statistical knowledge and skills) as follows:

Statistical knowledge: In general, mentors agreed that "They [interns] have some theoretical background" and that some universities made a significant contribution by teaching students theoretical knowledge so as to prepare them for the workplace. This finding was supported by the following statements made by some of the mentors: "The theory they know" and "Everything is theoretical" and "Theory is quite well, but that's where it stops. I think a lot of them come with the theoretical background in statistics".

Statistical skills: Mentors were of the opinion that although institutions of higher learning were doing well in terms of providing the theoretical knowledge that statisticians needed, they were lacking in terms of providing statisticians with the necessary statistical skills because "they don't have that practical background to do the things that are needed". Practical skills can only be obtained through experience and exposure to the workplace as part of their formal learning. This finding was supported by the following statements: "There's no practical experience.

Interns don't have any work experience" and "I think practical training would be good". Another mentor added "You learn from doing: not just from reading a book" These statements clearly supported the view that a practical component should form part of the formal learning of statisticians.

Suggestions: Cooperation between Stats SA and Institutions of Higher Learning to Integrate Formal Learning of Statisticians with their Workplace Learning

Participants were requested to offer suggestions as to how institutions of higher learning in South Africa could play a greater role in the integration between the formal learning and workplace learning of statisticians. The following themes emerged from their responses:

Key skills needed for a career in statistics and to be learnt formally: Mentors mentioned that the following skills (presented in Table 1) should form part of the formal learning of statisticians:

TABLE 1: Sample B – Key skills

Key skills needed for a career in statistics	
Sample B	Questionnaire design (6)
ArcGIS (2)	Report writing (5)
Communication (7)	Research ability (6)
Computer skills (8)	Sampling (7)
Data analysis (8)	SAS (8)
Data collection, practical (7)	SASQAF (2)
Data interpretation (6)	Small area statistics (3)
Data processing, practical (5)	SPSS (4)
Data quality (5)	SuperCross (2)
Forecasting (6)	Survey methodology (7)
Interviewing skills (3)	Statistical standards (2)
Listing (5)	Statistical value chain (7)
Mathematical skills (6)	Teamwork (6)
Presentation skills (6)	Time series (5)
Product marketing & publicity (2)	Writing skills (8)

Note: Numbers in brackets represent the number of participants mentioning the same skill. ArcGIS = A geographic information system for working with maps and geographic information; SAS = Statistical Analysis Software; SASQAF = South African Statistical Quality Assessment Framework; SPSS = Statistical Package for the Social Sciences; SuperCross = A desktop cross tabulation analytics tool for analysing data from raw data to aggregated cross tabulations.

As indicated in Table 1, mentors were of the view that statisticians needed to be equipped with both technical and soft skills during their formal learning. Several participants were of the view that it was crucial that intern statisticians should receive education on the entire South African Statistical Quality Assessment Framework (SVC). In terms of the SVC (Statistics South Africa 2010b), the statistical value chain comprises the following elements: need, design, build, collection, processing, analysis and dissemination. The following statements supported the finding that it was regarded as crucial that intern statisticians should receive education on the SVC: "Statistical value chain … and that is what institutions should be looking at" and "There's another topic and that's the statistical value chain".

Soft skills are crucial to survive in any workplace, not just in Stats SA. Mentors therefore felt it necessary that soft skills should be provided by institutions of higher learning as part of the formal learning of statisticians "because students getting here, sometimes [they] don't have the writing skills". Another mentor was of the opinion that it did not matter "whether people studied statistics, accounting, economics; soft skills are sometimes lacking"

When comparing the above information from mentors (see table 3) to what interns thought the key skills needed for a statistical career was and whether these were covered during their formal studies, the following was found: Both interns and mentors mentioned the same statistical skills that are needed for a career in statistics with the exception of three skills mentioned by interns but not by mentors, that is, time management, stress management and conflict management.

Practical component as part of the formal learning: Participants were also of the view that a practical component that would allow for the practical exposure of statisticians during their formal learning should form part of the formal learning of statisticians because "you learn by doing … Not just from reading from a book" The addition of a practical component to the formal learning of statisticians would "ensure that they are able to apply the theory in the different situations". Mentors believed that the relevant exposure to working environments in which intern statisticians might be employed would assist them greatly in getting a sense of what the work environment entailed, while at the same time capacitating them with relevant skills. This finding was supported by the following statements from participants: "Make it compulsory for the student to come and work and get practice for a year. Even something like they do at the technikons, that six-month practical component".

Relevance: Participants indicated that in order for institutions of higher learning to play a greater role in the facilitation of integrating the formal learning with the workplace learning of statisticians, it was necessary that they presented relevant content during the formal learning of statisticians. If statisticians were not equipped with content that was relevant, specifically relevant to the working environment, the result could be that statisticians "can do the basics, they can draw a graph, but that is not what you require"

Contextualising the formal learning content: Participants indicated that in order to integrate the formal learning of statisticians with their workplace learning, it was crucial that the formal learning content that statisticians were exposed to be contextualised. Using real data from Stats SA will assist statisticians to understand what is happening in the real world. Statements in support of contextualising the formal learning of statisticians and to allow easier integration with the workplace learning were as follows: "We always ask them to as far as possible use our data to demonstrate certain methodologies and techniques" and "They must be exposed more to why certain statistics are being published and why the statistics are important. You would want them to understand the reason for that practice".

Consultation: Mentors expressed a need for institutions of higher learning to consult them about their needs in order to provide relevant content that would result in better integration between the formal learning and workplace learning of statisticians. Some of the mentors felt that "They [institutions of higher learning] have to go to the people in the workplace to find out, if you want to do this kind of work, what is it that these people need to know".

Collaboration: Mentors were of the view that collaboration between different stakeholders was important because, as one participant expressed it, "It's the schools, the universities and the employing organisations who are supposed to work together, and who are not working together".

Judging from the views expressed by the participants as well as the experiences they had regarding the role that institutions of higher learning could play in the integration between the formal learning and workplace learning of statisticians, it can be said that participants viewed the inclusion of technical and soft skills as well as a practical component in the formal learning curriculum of statisticians as paramount to facilitate this integration. Participants were further of the view that the formal learning content had to be relevant and contextualised and had to take the data and examples provided by Stats SA into account. Lastly, participants felt that more consultation between institutions of higher learning and more collaboration between various stakeholders needed to take place to facilitate integration between formal and informal workplace learning.

Suggestions: How Stats SA can Ensure Integration Between Formal and Informal Workplace Learning

Mentors were also probed for suggestions as to how Stats SA could ensure that the formal learning of statisticians was integrated with their workplace learning. Themes that emerged from their responses were monitoring, development, recruitment, communication, compliance, management of expectations and rotation.

Kinds of developmental opportunities available for interns: One of the subquestions that I asked mentors during the interviews aimed to establish the kinds of developmental opportunities that intern statisticians were involved in as part of their informal workplace learning. When asked about these developmental practices that existed in the organisation to assist interns in acquiring informal workplace learning, the mentors mentioned developmental assignments, relevant placements, training/in-house short courses, practical application, communities of practice and research.

Benefits of merging the formal learning of statisticians with their informal workplace learning: During the interviews with mentors, it emerged that mentors were of the view that both statisticians as well as the workplace would benefit greatly if statisticians' formal and informal workplace learning could be integrated.

Support for informal workplace learning: I also wanted to establish the views of mentors as to how they perceived their role in terms of supporting interns assigned to them. From the interviews it emerged that mentors took their mentoring responsibilities seriously and even proposed mentorship to form part of their performance assessments. The following statements were in support of this finding: "I like being in the mentor kind of relationship" and "So, in terms of mentors, I think that is quite important because people have to find their way".

<div align="center">QUANTITATIVE RESULTS</div>

Work Readiness

TABLE 2: Sample A – Work readiness upon completion of formal qualifications

Questions	Frequencies					Descriptives						
	Count of 1	Count of 2	Count of 3	Count of 4	Count of 5	Mean	Median	Mode	% Negative response (options 1-2)	% Undecided (option 3)	% Positive responses (options 4-5)	Total
Upon joining Statistics South Africa, I felt ready to take on the challenges of the world of work.	2	4	9	27	36	4.2	4	5	7.7%	11.5%	80.8%	100%

1 = strongly disagree; 2 = disagree; 3 = undecided, 4 = agree; 5 = strongly agree

TABLE 3: Sample A – Statistical knowledge obtained during formal studies

Questions	Frequencies					Descriptives						
	Count of 1	Count of 2	Count of 3	Count of 4	Count of 5	Mean	Median	Mode	% Negative response (options 1-2)	% Undecided (option 3)	% Positive responses (options 4-5)	Total
My formal studies sufficiently covered the statistical knowledge which was needed from me in the workplace.	0	7	16	25	30	4	4	5	9%	20.5%	70.5%	100%

1 = strongly disagree; 2 = disagree; 3 = undecided, 4 = agree; 5 = strongly agree

TABLE 4: Sample A – Statistical skills obtained during formal studies

Questions	Frequencies					Descriptives						
	Count of 1	Count of 2	Count of 3	Count of 4	Count of 5	Mean	Median	Mode	% Negative response (options 1-2)	% Undecided (option 3)	% Positive responses (options 4-5)	Total
My formal learning sufficiently covered the statistical skills which were needed from me in the workplace.	23	33	15	7	0	3.9	4	4	71.8%	19.2%	9%	100%

1 = strongly disagree; 2 = disagree; 3 = undecided, 4 = agree; 5 = strongly agree

TABLE 5: Sample A – Key skills needed for a career in statistics and whether these are covered during formal studies

Key skills needed for a career in statistics	Taught during formal studies	
Sample A	Sample A	
	Yes	No
ArcGIS (1)		(1)
Communication (49)		(49)
Computer skills (58)	(49)	(9)
Data analysis (56)	(56)	
Data collection, practical (54)		(54)
Data interpretation (6)		(6)
Data processing, practical (6)		(6)
Data quality (6)		(6)
Forecasting (57)	(36)	(21)
Interviewing skills (47)		(47)
Listing (9)		(9)
Mathematical skills (61)	(21)	(40)
Presentation skills (22)		(22)
Product marketing & publicity (5)		(5)
Questionnaire design (54)		(54)
Report writing (24)		(24)
Research ability (9)	(9)	
Sampling (55)	(28)	(27)
SAS (32)		(32)
SASQAF (24)		(24)
Small-area statistics (8)		(8)
SPSS (21)		(21)
SuperCross (8)		(8)
Survey methodology (21)		(21)
Statistical standards (7)		(7)
Statistical value chain (28)		(28)
Time Management (2)		(2)
Stress Management (4)		(4)
Conflict Management (3)		(3)
Teamwork (16)		(16)
Time series (53)	(38)	(15)
Writing skills (45)		(45)

Utilisation of Skills

TABLE 6: Sample A – Relevant placement

Questions	Frequencies					Descriptives						
	Count of 1	Count of 2	Count of 3	Count of 4	Count of 5	Mean	Median	Mode	% Negative response (options 1-2)	% Undecided (option 3)	% Positive responses (options 4-5)	Total
My qualifications were relevant for the area in which I was placed as an intern.	7	10	16	18	27	3.6	4	5	21.8%	20.5%	57.7%	100%

1 = strongly disagree; 2 = disagree; 3 = undecided, 4 = agree; 5 = strongly agree

TABLE 7: Sample A – Utilisation of skills

Questions	Frequencies					Descriptives						
	Count of 1	Count of 2	Count of 3	Count of 4	Count of 5	Mean	Median	Mode	% Negative response (options 1-2)	% Undecided (option 3)	% Positive responses (options 4-5)	Total
My statistical skills were fully utilised in the area in which I was placed.	12	15	20	24	7	3	3	4	34.6%	25.6%	39.7%	100%

1 = strongly disagree; 2 = disagree; 3 = undecided, 4 = agree; 5 = strongly agree

TABLE 8: Sample A – Level of tasks

Questions	Frequencies					Descriptives						
	Count of 1	Count of 2	Count of 3	Count of 4	Count of 5	Mean	Median	Mode	% Negative response (options 1-2)	% Undecided (option 3)	% Positive responses (options 4-5)	Total
The tasks that were assigned to me as an intern were on a professional level.	2	10	12	35	19	3.8	4	4	15.4%	15.4%	69.2%	100%

1 = strongly disagree; 2 = disagree; 3 = undecided, 4 = agree; 5 = strongly agree

TABLE 9: Sample A – Opportunity to practise formally obtained skills

Questions	Frequencies					Descriptives						
	Count of 1	Count of 2	Count of 3	Count of 4	Count of 5	Mean	Median	Mode	% Negative response (options 1-2)	% Undecided (option 3)	% Positive responses (options 4-5)	Total
The tasks that were assigned to me gave me an opportunity to fully utilise my statistical skills that I've acquired during my formal studies.	11	13	18	28	8	3.1	3	4	30.8%	23.1%	46.2%	100%

1 = strongly disagree; 2 = disagree; 3 = undecided, 4 = agree; 5 = strongly agree

Support for Informal Learning in the Workplace

TABLE 10: Sample A – Did mentors assist in performance of duties?

Questions	Frequencies					Descriptives						
	Count of 1	Count of 2	Count of 3	Count of 4	Count of 5	Mean	Median	Mode	% Negative response (options 1-2)	% Undecided (option 3)	% Positive responses (options 4-5)	Total
My mentor assisted me to perform my duties adequately.	6	5	13	37	17	3.7	4	4	14.1%	16.7%	69.2%	100%

1 = strongly disagree; 2 = disagree; 3 = undecided, 4 = agree; 5 = strongly agree

TABLE 11: Sample A – Was your mentor an expert in his/her area of speciality?

Questions	Frequencies					Descriptives						
	Count of 1	Count of 2	Count of 3	Count of 4	Count of 5	Mean	Median	Mode	% Negative response (options 1-2)	% Undecided (option 3)	% Positive responses (options 4-5)	Total
My mentor/coach was an expert in his/her area of speciality	5	5	5	38	25	3.9	4	4	12.8%	6.4%	80.8%	100%

1 = strongly disagree; 2 = disagree; 3 = undecided, 4 = agree; 5 = strongly agree

TABLE 12: Sample A – Did you receive regular feedback from your mentor on your performance?

Questions	Frequencies					Descriptives						
	Count of 1	Count of 2	Count of 3	Count of 4	Count of 5	Mean	Median	Mode	% Negative response (options 1-2)	% Undecided (option 3)	% Positive responses (options 4-5)	Total
My mentor provided me with regular feedback on my performance.	10	10	11	31	16	3.4	4	4	25.6%	14.1%	60.3%	100%

1 = strongly disagree; 2 = disagree; 3 = undecided, 4 = agree; 5 = strongly agree

TABLE 13: Sample A – A proper, well-developed learning plan was in place for my development

Questions	Frequencies					Descriptives						
	Count of 1	Count of 2	Count of 3	Count of 4	Count of 5	Mean	Median	Mode	% Negative response (options 1-2)	% Undecided (option 3)	% Positive responses (options 4-5)	Total
A proper, well-developed learning plan was in place for my development.	12	10	11	22	23	3.4	4	5	28.2%	14.1%	57.7%	100%

1 = strongly disagree; 2 = disagree; 3 = undecided, 4 = agree; 5 = strongly agree

TABLE 14: Sample A – I was assessed based on the objectives/outcomes outlined in my learning plan

Questions	Frequencies					Descriptives						
	Count of 1	Count of 2	Count of 3	Count of 4	Count of 5	Mean	Median	Mode	% Negative response (options 1-2)	% Undecided (option 3)	% Positive responses (options 4-5)	Total
I was assessed based on the objectives/outcomes as outlined in my learning plan.	11	9	15	28	15	3.3	4	4	25.6%	19.2%	55.1%	100%

1 = strongly disagree; 2 = disagree; 3 = undecided, 4 = agree; 5 = strongly agree

TABLE 15: Sample A – My learning plan was developed jointly by my mentor and me

Questions	Frequencies					Descriptives						
	Count of 1	Count of 2	Count of 3	Count of 4	Count of 5	Mean	Median	Mode	% Negative response (options 1-2)	% Undecided (option 3)	% Positive responses (options 4-5)	Total
My learning plan was developed jointly by me and my mentor.	15	6	20	24	13	3.2	3	4	26.9%	25.6%	47.4%	100%

1 = strongly disagree; 2 = disagree; 3 = undecided, 4 = agree; 5 = strongly agree

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TABLE 16: Sample A – Areas for development pointed out during assessments

Questions	Frequencies					Descriptives						
	Count of 1	Count of 2	Count of 3	Count of 4	Count of 5	Mean	Median	Mode	% Negative response (options 1-2)	% Undecided (option 3)	% Positive responses (options 4-5)	Total
Areas for development were pointed out to me during my assessments.	14	9	18	25	12	3.2	3	4	29.5%	23.1%	47.4%	100%

1 = strongly disagree; 2 = disagree; 3 = undecided, 4 = agree; 5 = strongly agree

TABLE 17: Sample A – Steps taken by my mentor to improve performance

Questions	Frequencies					Descriptives						
	Count of 1	Count of 2	Count of 3	Count of 4	Count of 5	Mean	Median	Mode	% Negative response (options 1-2)	% Undecided (option 3)	% Positive responses (options 4-5)	Total
Steps were taken by my mentor to improve my performance in areas where my skills were lacking.	13	10	21	23	11	3.1	3	4	29.5%	26.9%	43.6%	100%

1 = strongly disagree; 2 = disagree; 3 = undecided, 4 = agree; 5 = strongly agree

Training and Developmental Opportunities Received

TABLE 18: Sample A – Developmental opportunities received

Questions	Frequencies					Descriptives						
	Count of 1	Count of 2	Count of 3	Count of 4	Count of 5	Mean	Median	Mode	% Negative response (options 1-2)	% Undecided (option 3)	% Positive responses (options 4-5)	Total
As an intern, I was given ample developmental opportunities.	11	13	16	25	13	3.2	3	4	30.8%	20.5%	48.7%	100%

1 = strongly disagree; 2 = disagree; 3 = undecided, 4 = agree; 5 = strongly agree

TABLE 19: Sample A – In-house training complementing formal learning

Questions	Frequencies					Descriptives						
	Count of 1	Count of 2	Count of 3	Count of 4	Count of 5	Mean	Median	Mode	% Negative response (options 1-2)	% Undecided (option 3)	% Positive responses (options 4-5)	Total
The training that I was exposed to as an intern was designed to specifically complement my formal learning.	11	7	18	27	15	3.4	4	4	23.1%	23.1%	53.8%	100%

1 = strongly disagree; 2 = disagree; 3 = undecided, 4 = agree; 5 = strongly agree

TABLE 20: Sample A – In-house training contributing to development of statistical skills

Questions	Frequencies					Descriptives						
	Count of 1	Count of 2	Count of 3	Count of 4	Count of 5	Mean	Median	Mode	% Negative response (options 1-2)	% Undecided (option 3)	% Positive responses (options 4-5)	Total
The training that I was exposed to during my internship was relevant for developing my statistical skills.	10	8	12	27	21	3.5	4	4	23.1%	15.4%	61.5%	100%

1 = strongly disagree; 2 = disagree; 3 = undecided, 4 = agree; 5 = strongly agree

DISCUSSION

Work Readiness

There is a noticeable difference between intern statisticians' and mentors' views of interns' work readiness upon their entering the workplace. Interns clearly feel that they are ready to join the world of work whereas their mentors feel that they lack crucial skills upon joining the organisation and that they are not yet ready for the demands of work. The main findings of the study that emerged from the responses obtained to the question on work readiness are as follows:

- Institutions of higher learning do an excellent job in terms of supplying the theoretical knowledge that statisticians need.

- There is a need to capacitate students to apply the theory that they have learnt.

- Statisticians need to be exposed during their formal learning to the real world and environments they will be operating in once they have completed their studies. A practical component therefore needs to form part of the statistics curricula at institutions of higher learning in South Africa.

- Participants placed great emphasis on the need that the curriculum of statisticians should be relevant and that universities should teach and focus on what is required in the workplace.

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- The content of statistics modules needs to be contextualised by using real data and examples from Stats SA.

- The majority of participants requested that much more consultation should take place between the workplace and institutions of higher learning in terms of the technical content of statistics modules.

- Key statistical skills that are needed to ensure the work readiness of statisticians upon entering the workplace should be included in the formal learning of statisticians. This view corresponds to findings in the literature that consultation needs to take place between workplaces and institutions of higher learning to ensure that graduates are equipped with the needed and necessary skills (Barth et al 2007; Biesma et al 2007; Schomburg 2007; Strauss & Sawyer 1986).

- Participants also indicated that the statistics curriculum should be more focused and less generalised than the one currently being offered and that soft skills should also be included in the curriculum.

- A practical component, which would allow for practical exposure to the workplace, should be included as part of the formal learning of statisticians.

- Lastly, participants expressed a need for collaboration between the different stakeholders.

Utilisation of Skills

- Stats SA clearly recognises the need to place interns in areas that are relevant for their qualifications, thereby ensuring that interns' formal learning is integrated with their workplace learning.

- Due to the fact that the qualifications of interns match the areas in the organisation in which they are placed to do their internship, it is easier to assign tasks that closely match their cognitive abilities and that are on a professional level.

- Because of the close match between qualifications and tasks, interns get the opportunity to practise their formally obtained knowledge and skills.

- In general, interns are therefore very optimistic about the integration between their formal learning and informal workplace learning.

Support for Informal Learning in the Workplace

- Mentors are subjected to stringent selection criteria in order to ensure that intern statisticians receive the best possible guidance.

- Mentors are trained to fulfil their roles in supporting interns.

- Mentors view their roles as important and are closely involved with the interns.

- Interns perceive their mentors as experts in their areas of speciality, which instils confidence in the interns that they are receiving the best support possible.

- Feedback between mentors and interns seems to be an ongoing and regular process.

- Feedback amongst peers is encouraged.

- Developmental assignments that are job-specific are utilised as an important means of development for intern statisticians.

- Learning plans contain clear, easy-to-assess objectives. Assessment plans should be linked to learning plans and interns should be assessed based on outcomes contained in learning plans. Learning plans are important in structuring and guiding informal workplace learning.

- Ample training and developmental opportunities that are designed to complement formal learning and improve statistical knowledge and skills are made available to interns.

- Research opportunities are provided and communities of practice are implemented, although to a lesser extent than training opportunities.

Suggestions to Stats SA to Ensure more Effective Integration Between the Formal and Informal Workplace Learning of Statisticians,

The findings that emerged from the responses provided to the question related to the following: monitoring of the internship programme, development of the interns, compliance issues, the ability of Stats SA to communicate its needs to higher education institutions, management of expectations, and the rotational issues of the internship programme. These findings are discussed next.

- The recruitment process for interns needs to be refined. Recruitment should be linked to specific areas where shortages of skills are experienced.

- Stats SA should inform institutions of higher learning about its needs in regard to the technical skills they require interns to be trained in during their formal learning.

- Closer monitoring and follow-up should be done after interns have been placed in different divisions. Management should not rely solely on the learning and assessment plans.

- Although it is a legislative requirement for Stats SA to train interns, the organisation should not compromise the quality of the programme for quantity.

- Expectations of interns need to be managed even before they join the organisation.

- In order to ensure that interns gain maximum benefit from the internship programme, the rotation period should not be predetermined but each rotation period should be determined based on project completion.

LIMITATIONS

The framework to integrate the formal learning of statisticians with their informal workplace learning proposed in this study was informed by key stakeholders in the field of statistics. The practical implementation of this model will be easier for Stats SA than it would be for institutions of higher learning in South Africa. Dedicated resources would be required in order for extensive consultation to take place on the formal learning component of statisticians. The implementation of this framework will also need to be constantly monitored, an aspect that poses a challenge as dedicated resources will be required for this purpose. The standardisation of formal learning across the various institutions of higher learning would require much consultation and collaboration. This could be a time-consuming process and could probably take a few years to complete.

CONCLUSION

This paper aimed to address a gap in terms of a framework to integrate the formal learning of statisticians with their informal workplace learning. A framework is proposed which includes a practical component during the formal learning of statisticians in the form of an internship that is coupled with an internship upon the completion of formal learning to integrate these two kinds of learning.

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REFERENCES

African Economic Outlook. 2013. *Skills mismatch and youth unemployment in South Africa*. [Online] Available at http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/African%20Development%20Report%202011.pdf/ [Accessed 24 March 2013].

Altheide, DL. 1996. *Qualitative media analysis*. London: Sage.

Alvarado, L. 2012. *Education should prepare students for work, life*. [Online] Available at http://www.evolllution.com/program_planning/education-should-prepare-students-for-work-life/ [Accessed 24 March 2013].

Asad, M & Mahfod, J. 2015. Training and development and its impact on the employee's performance: a study of agility company – Kingdom of Bahrain. *International Review of Management and Business Research* 4(3):700.

Ashton, DN. 2004. The impact of organisational structure and practices on learning in the workplace. *International Journal of Training and Development* 8(1):43–53.

Beckett, D & Hager, P. 2002. *Symposium on life, work and learning: practice in postmodernity.* Routledge International Studies in the Philosophy of Education, 14. London: Routledge.

Berger, J. 1991. Making an internship work. *Public Relations Journal* 47(4):30–31.

Billett, S. 1996. Constructing vocational knowledge: history, communities and ontogeny. *Journal of Vocational Education and Training* 48(2):141–154.

Billet, S. 2000. Guided learning at work. *Journal of Workplace Learning* 12(7):272-285

Billet, S. 2001. *Learning in the workplace: strategies for effective practice*. Sydney, Australia: Allen and Unwin.

Boud, D & Garrick, J (eds). 1999. *Understanding learning at work.* London: Routledge.

Boud, D & Middleton, H. 2003. Learning from others at work: communities of practice and informal learning. *Journal of Workplace Learning* 15(5):194–202.

Calvo, R, D'Amato, R. 2015. A collaborative method of enhancing internships' evaluation through stakeholders' alignment. *Procedia Engineering* 132(2015):167-174. doi:10.1016/j.proeng.2015.12.466

Campion, MA, Cheraskin, LS & Stevens, MJ. 1994. Career-related antecedents and outcomes of job rotation. *Academy of Management Journal* 37(6):1518–1542.

Charmaz, K. 2006. *Constructing grounded theory.* Thousand Oaks, CA: Sage.

Clayton, PH, Hess, G, Hartman, E, Edwards, KE, Shackford-Bradley, J, Harrison, B & McLaughlin, K. 2015. Educating for democracy by walking the talk in experiential learning. *Journal of Applied Learning in Higher Education* 6:3–36.

Coco, M. 2000. Internships: a try before you buy arrangement. *SAM Advanced Management Journal* 65(2):41–43.

Colley, H, Hodkinson, P & Malcolm, J. 2002. *Non-formal learning: mapping the conceptual terrain: a consultation report.* Leeds: University of Leeds Lifelong Learning Institute. [Online] Available at www.infed.org/archives/e-texts/colley_informal_learning.htm [Accessed 5 August 2013].

Cord, B & Clements, M. 2010. *Managing the transition from the classroom to the workplace: Beyond the duty of care*. Paper presented at the 27th Annual Ascilite Conference, Novotel Sydney Brighton Beach, New South Wales, Australia, 5–8 December: 226–230).

Creswell, JW. 2008. *Educational research. Planning, conducting, and evaluating quantitative and qualitative research*. 3rd edition. Upper Saddle River, NJ: Pearson.

Creswell, JW. 2009. *Research design: qualitative, quantitative, and mixed methods approaches*. 3rd edition. London: Sage.

Creswell, JW. 2013. *Qualitative inquiry and research design. Choosing among five approaches.* 3rd edition. Los Angeles, CA: Sage.

Creswell, JW. 2014. *Qualitative inquiry and research design: choosing among five approaches.* 4th edition. London: Sage.

Department of Higher Education and Training. 2013. *White paper for post-school education and training. Building an integrated post-school system*. [Online] Available at http://www.dhet.gov.za/SiteAssets/Latest%20News/White%20paper% 20for%20post-school%20education%20and%20training.pdf [Accessed 21 February 2014].

Department of Public Service and Administration. 2006. *The public service internship programme*. Step by step guide. [Online] Available at http://www.dpsa.gov.za /dpsa2g/documents/hrd/DPSA_Internship.pdf [Accessed 21 February 2014].

Dewey, J. 1938. *Experience and education*. Kappa Delta Pi lecture series. New York, NY: Macmillan.

Dewey, J. 1933/1989. *Later works of John Dewey, Volume 12, 1925–1953. Essays and how we think.* Carbondale, IL: Southern Illinois University Press.

Dictionary.com. n.d. Sv "internship". [Online] Available at http://www.dictionary.com /browse/intern [Accessed 11 November 2016].

Eisenberger, R, Stinglhamber, F, Vandenberghe, C, Sucharski, IL & Rhoades, L. 2002. Perceived supervisor support: contributions to perceived organizational support and employee retention. *Journal of Applied Psychology*, 87(3):565–573.

Ellström, P-E. 1997. The many meanings of occupational competence and qualification. *Journal of European Industrial Training* 21(6/7):266–273.

Ellström, P-E. 2001. Integrating learning and work: conceptual issues and critical conditions. *Human Resource Development Quarterly* 12(4):421–35.

Ellström, P-E. 2006. The meaning and role of reflection in informal learning at work, in *Productive reflection at work: learning for changing organizations*, edited by D Boud, P Cressey & P Docherty. London: Routledge:43–53.

Ellström, E, Ekholm, B & Ellström, PE. 2008. Two types of learning environment: enabling and constraining a study of care work. *Journal of Workplace Learning* 20(2):84–97.

Ellström, P-E & Kock, H. 2008. Competence development in the workplace: concepts, strategies and effects. *Asia Pacific Education Review* 9(1):5-20.

Freire, P. 2006. *Pedagogy of the oppressed.* 30th anniversary edition. London: Continuum.

Frick, L, Albertyn, R & Rutgers, L. 2010. The Socratic method: adult education theories. *Acta Academica: Postgraduate Supervision: Research and Practice: Supplementum* 1:75–102.

Gault, J, Redington, J & Schlager, T. 2000. Undergraduate business internships and career success: are they related? *Journal of Marketing Education* 22(1):45–53.

Hatch, MJ & Cunliffe, AL. 2006. *Organization theory: modern, symbolic, and postmodern perspectives*. 2nd edition. Oxford, NY: Oxford University Press.

Heathfield, SM. 2016. Keys to successful job rotation. [Online] Available at https://www.thebalance.com/keys-to-successful-job-rotation-1918167 [Accessed 05 October 2016].

Henning, E, Van Rensburg, W & Smit, B. 2004. *Finding your way in qualitative research*. Pretoria: Van Schaik.

Hittleman, DR & Simon, AJ. 1997. *Interpreting educational research: an introduction for consumers of research*. Upper Saddle River, NJ: Prentice-Hall.

Hung, D, Lee, SS & Lim, KY. 2012. Authenticity in learning for the twenty-first century: bridging the formal and the informal learning environments. *Educational Technology Research and Development* 60(6):1071–1091.

Joseph Rowntree Foundation. 2007. *Experiences of poverty and educational disadvantage.* [Online] Available at https://www.jrf.org.uk/sites/default/files/ jrf/migrated/files/2123.pdf [Accessed 5 October 2013].

Keller, G. 2014. *Statistics for management and economics*. Boston, MA: Cengage Learning.

Kelliher, F & Henderson, JB. 2006. A learning framework for the small business environment. *Journal of European Industrial Training* 30(7):512–528.

Kember, D, Ho, A & Hong, C. 2008. The importance of establishing relevance in motivating student learning. *Active Learning in Higher Education* 9(3):249–263.

Kock, H & Ellström, P-E. 2011. Formal and integrated strategies for competence development in SMEs. *Journal of European Industrial Training* 35(1):71–88.

Kolb, DA. 1984. *Experiential learning: experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice Hall.

Kolb, DA. 2014. *Experiential learning: experience as the source of learning and development*. 2nd edition. Upper Saddle River, NJ: FT Press.

Lave, J. 1996. Teaching as learning, in practice. *Mind, Culture and Activity* 3(3):149-164.

Lave, J & Wenger, E. 1991. *Situated learning: legitimate peripheral participation.* Cambridge: Cambridge University Press.

Lettmayr, C & Riihimäki, T. 2011. *Learning while working. Success stories on workplace learning in Europe.* Luxembourg: Publications Office of the European Union.

Lewin, K & Cartwright, D. 1951. *Field theory in social science: selected theoretical papers*. New York, NY: HarperCollins.

Lohman, L, Austin, E, Borgen, B & Wolff, SS. 2015. Business perspectives on faculty internships: not just for students anymore? *Journal for Advancement of Marketing Education* 23(2):23–33.

Lucas, M & Moreira, A. 2009. September. *Bridging formal and informal learning – a case study on students' perceptions of the use of social networking tools*. Paper presented at the 4th European Conference on Technology Enhanced Learning, Nice, France, 29 September to 2 October. Berlin: Springer:325–337.

Maertz Jr, CP, Stoeberl, PA & Marks, J. 2014. Building successful internships: lessons from the research for interns, schools, and employers. *Career Development International* 19(1):123–142.

Malcolm, J, Hodkinson, P & Colley, H. 2003. The interrelationships between informal and formal learning. *Journal of Workplace Learning* 15(7/8):313–318.

Manpower Group. 2013. *Talent shortage survey 2012*. [Online] Available at https://candidate.manpower.com/.../2012+Talent+Shortage+Survey+Results A4_FIN [Accessed 23 March 2013].

McMillan J & Schumacher, S. 2006. *Research in education: evidence–based inquiry*. 6th edition. Upper Saddle River, NJ: Pearson.

McMillan, JH & Schumacher, S. 2014. *Research in education: evidence-based inquiry*. 7th edition. Harlow, Essex: Pearson Education.

Merriam, S B & Clark, MC. 1993. Learning from life experience: what makes it significant? *International Journal of Lifelong Education* 12:129–138.

Merrit, RD. 2008. Student Internships. [Online] Available at https://www.ebscohost. com/uploads/imported/thisTopic-dbTopic-1072.pdf [Accessed 21 April 2014].

Meyer R, Trost D, Vukovinsky K. 1998. Discussion of 'Key challenges for statisticians in business and industry' by Hahn and Hoerl. *Technometrics* 40(3):203-205.

Miles, MB, Huberman, AM & Saldaña, J. 2014. Fundamentals of qualitative data analysis, in *Qualitative data analysis*, 3rd edition, edited by MB Miles, AM Huberman & J Saldaña. Thousand Oaks, CA: Sage:69–104.

Mind Tools. 2014. *Giving feedback.* [Online] Available at https://www.mindtools.com/blog/corporate/wp-content/uploads/sites/ 2/2014/02/Giving-Feedback.pdf [Accessed 21 August 2014].

Nadler, L. 1984. *Handbook of human resource development*. 2nd edition. New York, NY: John Wiley.

National Planning Commission. 2015. *National Development Plan*. [Online] Available at http://www.nationalplanningcommission.org.za/Pages/NDP.aspx [Accessed 18 November 2015].

Noaks, L & Wincup, E. 2004. *Criminological research: understanding qualitative methods.* London: Sage.

Noe, RA & Ford JK. 1992. Emerging issues and new directions for training research. *Research in Personnel and Human Resource Management* 10:345–384.

Nonaka, I & Takeuchi, H. 1995. *The knowledge-creating company*. New York, NY: Oxford University Press.

Ocaña-Riola, R. 2016. *Stat Biosci* 8: 204. doi:10.1007/s12561-015-9138-4.

Owen, W.F. 1984. Interpretive themes in relational communication. *Quarterly Journal of Speech* 70:274-287.

Oxford Learner's Dictionary. n.d. Sv. "organisation" [Online] Available at http://www.oxfordlearnersdictionaries.com/definition/english/organization# organization__9 [Accessed 29 May 2014].

Refereed Proceedings of the 3rd International Research Symposium on
Cooperative and Work-Integrated Education,
Stuttgart, Germany

253

Paris21. 2007. *Counting down poverty: the role of statistics in world development*. Paris: Paris21/OECD:1–32. [Online] Available at https://www.paris21.org/sites/default/files/2532.pdf [Accessed 29 May 2014].

Parks, RL, Rich, JW & Getch, YQ. 2012. Career consultation and experiential learning in a classroom setting. *Community College Enterprise* 18(2):101.

Pettenati, MC & Ranieri, M. 2006. Informal learning theories and tools to support knowledge management in distributed CoPs, in *Innovative approaches for learning and knowledge sharing*, edited by E Tomadaki & P Scott. Workshop Proceedings of the First European Conference on Technology Enhanced Learning, Crete, Greece, 1–4 October:345–355.

Pettigrew, AM, Hendry, C & Sparrow, PR. 1988. *Training in Britain. A study of funding, activity and attitudes. Employers perspectives on human resources.* London: Training Agency, HMSO.

Pilania, VR, Patel, H, Puranik, PS & Acharya, GD. 2016. Engineering Graduates Competence and Employability.

Pitts, M & Smith, A (eds). 2007. *Researching the 'margins. Strategies for ethical and rigorous research with marginalised communities*. London: Palgrave Macmillan.

Public Service Commission. *Basic Concepts in Monitoring and Evaluation*. [Online] Available at http://www.psc.gov.za/documents/docs/guidelines/PSC%206%20in%20one.pdf [Accessed 29 May 2014].

Ramaswami, A & Dreher, GF. 2007. The benefits associated with workplace mentoring relationships, in *The Blackwell handbook of mentoring: a multiple perspectives approach*, edited by TD Allen & LT Eby. Malden, MA: Blackwell:211-231.

Ramus, Erica. (1997). Internship Programs from Start to Finish. Folio: The Magazine for Magazine Management, 26(6), 38-39.

Ranaweera, AM. 1990. *Relevance, balance and integration of the content of general education: achievements, trends and issues – a synthesis.* Hamburg: UNESCO Institute for Education.

Rankhumise, EM. 2013. Mentoring as an enhancement to career success of protégés. *Journal of Public Administration* 48(2):369–380.

Rizvi, S., Teckchandany, S. and Ahuja, G., 2013. A study of competencies and skill sets needed by potential recruiters in the financial sector for management graduates. *Management Dynamics*, 13(1).

Robinson, BK & Dearmon, V. 2013. Evidence-based nursing education: effective use of instructional design and simulated learning environments to enhance knowledge transfer in undergraduate nursing students. *Journal of Professional Nursing* 29(4):203–209.

Rothman, M. 2007. Lessons learned: advice to employers from interns. *Journal of Education for Business* 82(3):140–144.

Rychen, DS & Salganik, LH. 2003. *Key competencies for a successful life and a well-functioning society.* Göttingen: Hogrefe and Huber.

Salas, E & Cannon-Bowers, JA. 2001. The science of training: a decade of progress. *Annual Review of Psychology* 52:471–499.

Salas, E, Tannenbaum, SI, Kraiger, K & Smith-Jentsch, KA. 2012. The science of training and development in organizations: what matters in practice. *Psychological Science in the Public Interest* 13(2):74–101.

Sambrook, S. 2005. Corporate entrepreneurship and organizational learning. A review of the literature and the development of a conceptual framework. *Strategic Change* (14):141–155.

Santhou, D. 2016. *Interns – blessing or burden*. [Online] Available at http://www.thecreativestrategist.com.au/2016/01/interns-blessing-or-burden.html [Accessed 16 April 2016].

Scheffler, I. 1978. Reflections on educational relevance, in *The philosophy of education*, edited by RS Peters. London: Oxford University Press:75–84.

Shangodoyin, DK & Lasisi, TA. 2011. The role of statistics in national development with reference to Botswana and Nigeria statistical systems. *Journal of Sustainable Development* 4(3):131–135.

Shoenfelt, EL, Stone, NJ & Kottke, JL. 2013. Internships: an established mechanism for increasing employability. *Industrial and Organizational Psychology* 6(1):24–27.

Schomburg, H. 2007. The professional success of higher education graduates. *European Journal of Education* 42(1):35–57. doi: 10.1111/j.1465-3435.2007.00286.x

Siemens, G. 2007. Learning: formal vs informal. HR Highway 1(5):27-28. EJC103536.1993789.x

Silverman, D. 2000. *Doing qualitative research: a practical guide*. Thousand Oaks, CA: Sage.

Simon, CA, Yack, M & Ott, JS. 2013. MPA program partnerships with nonprofit organizations: Benefits to MPA programs, MPA students and graduates, nonprofit organizations, and communities. *Journal of Public Affairs Education* 19(2):355–374.

Skule, S & Reichborn, AN. 2002. *Learning-conducive work. A survey of learning conditions in Norwegian workplaces*. Cedefop Panorama series, 30. Luxembourg: Office for Official Publications of the European Communities.

Slay, C. 2010. *Global skills shortages*. [Online] Available at http://www.skillsprovision.co.uk/latest-news/global-skills-shortages-0847 [Accessed 14 March 2014].

Smith, WJ, Howard, JT & Harrington, KV. 2005. Essential formal mentor characteristics and functions in governmental and non-governmental organizations from the program administrator's and the mentor's perspective. *Public Personnel Management* 34(1):31–58.

Statistics South Africa. 2005. *Human capacity development strategy*. Pretoria: Statistics South Africa.

Statistics South Africa. 2010. *ISIBALO Institute strategic plan*. Pretoria: Statistics South Africa.

Statistics South Africa. 2010. *Strategic plan 2010/11–2014/15.* Pretoria: Statistics South Africa.

Statistics South Africa. 2013. *Annual report 2012/2013 (Book 1)*:1–200. [Online] Available at www.statssa.gov.za/wp-content/uploads/2013/ 09/Annual_ Report_2013_Book_1.pdf [Accessed 10 June 2014].

Statistics South Africa. 2015. *Strategic plan 2015/2016–2019/2020*. [Online] Available at www.statssa.gov.za/strategy_plan/strategy_plan_2015.pdf [Accessed 10 June 2014].

Steinmann, N. 2006. *Fundamentals for effective mentoring: raising giant killers*. Randburg: Knowres.

Stenström, ML. 2006. Polytechnic graduates working life skills and expertise, in *Higher education and working life: collaborations, confrontations and challenges*, edited by P Tynjälä, J Välimaa & G Boulton-Lewis. Amsterdam: Elsevier:89–102.

Stewart, DW & Kamins, MA. 1993. Applied Social Research Methods. 2nd Edition. [Online] Available at http://dx.doi.org/10.4135/9781412985802 [Accessed 23 March 2014].

Strauss, AL & Corbin, J. 1990. *Basics of qualitative research: grounded theory procedures and techniques.* Newbury Park, CA: Sage.

Strauss, RP & Sawyer, EA. 1986. Some new evidence on teacher and student competencies. *Economics of Education Review* 5(1):41–48.

Strydom, H & Delport, CSL. 2005. Sampling and pilot study in qualitative research, in *Research at grass roots: for the social sciences and human service professions*, 3rd edition, edited by AS de Vos, H Strydom, CB Fouché & CSL Delport. Pretoria: Van Schaik:327–332.

Strydom, H & De Vos AS. 2005. Sampling and sampling methods, in *Research at grass roots: for the social sciences and human service professions*, 3rd edition, edited by AS de Vos, H Strydom, CB Fouché, & CSL Delport. Pretoria: Van Schaik:189–201.

Svensson, L & Aberg, C. 2001. *E-learning and workplace learning.* Stockholm: Bilda Förlag.

Svensson, L, Ellström, PE & Åberg, C. 2004. Integrating formal and informal learning at work. *Journal of Workplace Learning* 16(8):479–491.

Sweitzer, HF & King, MA. 2013. Stages of an internship re-visited: facilitating learning and development through engagement. *Journal of Human Services* 33(1):56–72.

Teijeiro, M, Rungo, P & Freire, MJ. 2013. Graduate competencies and employability: the impact of matching firms' needs and personal attainments. *Economics of Education Review* 34:286–295.

Trochim, WMK & Donnelly, JP. 2007. *Research methods knowledge base*. 3rd edition. Mason, OH: Thomson Custom Publishing.

Tshishonga, N & Maphunye, KJ. 2011. South Africa's trajectory towards a democratic developmental state: a human development perspective. *Journal of Public Administration* 46:1231-1245.

Tynjälä, P. 2008. Perspectives into learning at the workplace. *Educational Research Review* 3(2):130–154.

Van der Berg, GH. 2012. *Furthering the education of young adults – an analysis of Statistics South Africa's internship programme*. (Unpublished master's dissertation). University of South Africa, Pretoria.

Wagner, C, Kawulich, B & Garner, M. 2012. *Doing social research. A global context*. Maidenhead, Berkshire: McGraw-Hill Education.

Wals, AE. 2014. Sustainability in higher education in the context of the UN DESD: a review of learning and institutionalization processes. *Journal of Cleaner Production* 62:8–15.

Welman, JC & Kruger, SJ. 1999. *Research methodology for the business and administrative sciences*. Cape Town: Oxford University Press.

Wenger, E. 1998. *Communities of practice: learning, meaning, and identity*. Cambridge: Cambridge University Press.

Wenger, E. 2000. Communities of practice and social learning systems. *Organization* 7(2):225–246.

Wenger, E, McDermott, R & Snyder, W. 2002. *Cultivating communities of practice: a guide to managing knowledge*. Boston, MA: Harvard Business School Press.

Wiggins, G. 2012. Seven keys to effective feedback. *Educational Leadership* 70(1):10–16.

Wurfel, WW. 1985. Well-nurtured interns can reap benefits and bring rewards. *Public Relations Journal* 41(4):37.

Wyborn, CA. 2015. Connecting knowledge with action through coproductive capacities: adaptive governance and connectivity conservation. *Ecology and Society* 20(1):11.

Yin, RK. 2013. *Case study research: design and methods*. Thousand Oaks, CA: Sage.

Young, DS & Baker, RE. 2004. Linking classroom theory to professional practice: the internship as a practical learning experiences worthy of academic credit. *Journal of Physical Education, Recreation, and Dance* 75(1):22–28.

Zieminski, N. 2009. Help still wanted, global talent crunch persists. [Online] Available at http://www.reuters.com/article/us-manpower-talent-idUSTRE54R0SO20090602 [Accessed 13 March 2014].

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Evolution and validation of an innovative pedagogical framework for a VUCA world

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ABSTRACT

Student internship can be a transformative learning experience, but its potential is not always fully exploited because we do not fully know the extent to which students make effective use of the knowledge they gained from university education to real world work assignments. We need to do more to capture, in a structured and systematic way, how such classroom learning is applied in internships. Similarly, it is vital to capture how such internship learning is iterated back into classroom learning in a systematic way to develop deep learners on the importance of re-examining our taken-for-granted assumptions of what works and doesn't work in our theories, models and teaching methods. To facilitate the importance of this iterative process in a structured and measurable way, this paper highlights the evolution and validation of an innovative pedagogical framework (called "Staying F.O.C.U.S.E.D.") developed and successfully tested with students over an 8-year period. The framework grounded on 400+ business student / staff survey results (2009), continuous SFQ feedback over 8 years (2009-17), survey with 173 senior managers (2014) and 100 card-sorting exercises with managers (2015), help further validate the utility of this pedagogical framework in teaching, learning and internship placements. This innovation has helped students learn better, faster and more than they are currently used to when dealing with complex problems, issues and challenges prevalent in the labour market.

Keywords: Knowing-doing Gap; Framework Validation; Staying F.O.C.U.S.E.D.; VUCA World; Learning Better, Faster, More

THE REAL-WORLD CONTEXT IN WHICH OUR STUDENTS ARE PLACED FOR LEARNING

In today's business environment, managers have no choice but to continue to reinterpret their current taken-for-granted assumptions of what works and what doesn't work to help (re)sustain their organization's success. As our world becomes more diversified and exposed to the unanticipated, intended and unintended, we end up living in an age of paradox confronted with multiple tensions and dualisms that we must work with, work through and work around. For example, firms are expected to be both flexible and focused, big and small, learn and unlearn, aim for exploration and exploitation, have short-term goals and long term plans, go global and act local, compete and cooperate, encourage change and yet foster stability, *inter alia*. These competing tensions / demands also open up the presence of broader ranges of paradoxes in organizational life: paradoxes of belonging, paradoxes of learning, paradoxes of organizing and paradoxes of performing. Given this reality, how much of what our students learn in the classroom is being transferred / applied to these real-world settings; and just as importantly, how much of the success stories and lessons learned are brought back to the classroom?

THE ROSY STORY OF STUDENT INTERNSHIPS

Many institutions have encouraged their students to gain real world work experiences to complement university education. Since 2005, our university has become a leading pioneer in this direction by making student internships (Work-Integrated Education, WIE) a core part of graduation requirement. Institutions across the tertiary education sector have conducted numerous extensive surveys on internships at the Department / Faculty and University levels. Feedback from various stakeholder groups provides evidence of the value of WIE. Employers have unanimously advocated the benefits in terms of engaging with the young generation and providing a helping hand in fostering real world learning for students. Student surveys show they learn a lot. They are excited about the

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hands-on experience they gain from observing how real managers and organizations go about their business. Students often reflect about how supportive and caring their supervisors and work colleagues are and believe that internships are more about practical things, whereas universities are more about theories. Internships are also perceived as valuable experiences to showcase in one's resume when entering the job market upon graduation.

THE BIG "WHITE ELEPHANT" IN THE ROOM: THE PROBLEM WITH KNOWLEDGE TRANSFER

What is striking about a good majority of internship survey results is that there is not enough evidence about specific examples of how the knowledge students gain from university education is translated and applied to help real managers make better decisions. In fact, in a recent poll of students' learning experiences in internships, student feedback showed that "*applying theories and concepts learned in the real world*" was consistently rated the lowest amongst all of the evaluation criteria results.

STUDENTS HIT THE TARGET BUT MISS THE POINT OF INTERNSHIPS

What is not so obvious to most students during their internships is that university education is a hotbed of cutting-edge research findings, innovative techniques, frameworks and Intended Learning Outcomes (ILO) that are geared to helping practitioners better *understand*, better *explain* and better *anticipate* complex phenomena. When we think more deeply about this, students will begin to realize that what they are learning at university has the power to *add-value* during their internship. Yet most students place gaining practical experience above the application of valuable university learning - missing the whole point of internships. The key of course, is to ensure an iterative process between our classroom learning and real-world learning – using both to (re)examine our assumptions about what works and what doesn't work so that we can know which of our taken-for-granted assumptions need updating, thereby advancing our understandings and improve managerial practice. In essence, the important thing missing in the current evaluation mechanisms is the actual structured and measured impact of the student intern's contribution to real world organizational problems, issues and challenges.

PEDAGOGICAL INNOVATION DEVELOPED TO HELP BRIDGE "KNOWING-DOING" GAP

Using a philosophy invented in 2009 called "Staying F.O.C.U.S.E.D.", and later a more operationalised version using seven paper dice in 2012 (with a PC e-version), students of the first author address unsolved problems and make connect-thinking recommendations for real managers' consideration. This framework has had significant improvements in students' learning attitude, motivation and performance (as evidenced in numerous subject Student Feedback Questionnaires (SFQ) and as evidenced by the university's Educational Development Centre video series on Good Teaching Practices). The "Staying F.O.C.U.S.E.D." framework has taken 8 years to develop grounded on 400+ business student / staff survey results (2009), continuous SFQ feedback over 8 years (2009-17), survey with 222 senior managers (2014) and card-sorting exercises with 100 managers (2015) to help further validate the utility of this pedagogical framework in teaching and learning. What started as a pedagogical innovation to help take our students' learning to a higher level is now having wider impact in real organizations with their own senior management (see Table 1 for this pedagogy's evolution).

VALIDATION OF THE "STAYING F.O.C.U.S.E.D." FRAMEWORK

2009 Survey: "What is one thing our students need to do and if they did that one thing, it would take their learning to a whole new level?"

This was the question we posed to students of an entire business school studying a common core subject. In total we received in excess of 400+ replies. With the help of three research students we inputted all these answers into an Excel file and coded each entry. We then began the process of grouping all similar answers into emerging themes. Where there were any disagreements on groupings, lengthy discussions ensured until a consensus was reached. The end result was the emergence of seven distinct themes that best captured students' (and staff) perceptions of what is needed to take learning to the next level. Table 2 provides a summary of our findings based on the 2009 data. As can be seen in this table, we gave labels to these categories to get a sense of what each theme was about.

At this point, we also wanted to create an acronym that would make the seven themes easier to remember. This required us to undertake several rounds of shuffling the ordering of the categories until a decision was agreed to arrange them in the sequence of the word: F.O.C.U.S.E.D. As we pilot tested this acronym along with what each theme stands for in helping take our students' learning to the next level, we continued to make refinements based on feedback from key stakeholders (students, teachers, practitioners, including internship managers). We complemented this process of iterative refinement with the extant body of literatures dealing with complexity, decision making, problem-solving, philosophy, innovation and critical thinking, inter alia.

In 2012, we wanted to turn our "Staying F.O.C.U.S.E.D." philosophy into something students can touch and feel. So we decided to add an element of "play" to it and placed the most frequently occurring (and some unique) student answers from each of the seven original themes / categories onto the six faces of a paper dice (42 items in total for seven dice to represent each letter of our philosophy). To ensure objectivity and systematic rigor we asked two senior doctoral candidates to discuss and decided upon the items.

2014 Survey with 222 managers – top six items for each of the seven FOCUSED dice

After successfully pilot-testing the FOCUSED philosophy and its physical version through the paper dice with students (as part of course assessment) for several years, we carried out an extensive survey of the validity of the items of each of the seven dice in the framework.

Appendix 1 provides the original full survey made up of 70 questions. In designing this instrument, we consulted experts in survey design. Since we had seven key themes / categories (that helped take students' learning to a higher level) with each theme consisting of 6 items on each dice, we listed 10 questions in total for each of the seven categories of F.O.C.U.S.E.D. Without respondents knowing, we deliberately listed the most frequently occurring 6 items that we placed in our paper dice to appear first in each of the categories and the remaining 4 items taken randomly from the original cluster grouping (in 2009). Managers were simply asked to rate to what extent they "strongly agree" to "strongly disagreed" that a particular item belongs to the category described. From the total of returned surveys, 173 were complete and useable. Table 3 provides supporting evidence that of each of the 7 themes, the first six items were rated significantly higher than the last 4 for all 70 questions. These results provide solid evidence that the statistical significance further validate the 6 items we placed on each of the 7 dice are in fact the items best representing the core theme of that dice.

2015 Card-sorting exercise with 100 managers

To further triangulate and validate that all 42 items (prompts, statements and questions) stated on all 7 dice of the "F.O.C.U.S.E.D." framework belong in the assigned category dice, we conducted a card-sorting exercising with a further 100 managers. Appendix 2a, 2b and 2c provides a detail break down of what this approach entailed. We first color-coded all 42 items into cut-out cards, each representing which item belongs to which of the F.O.C.U.S.E.D. theme. For example, all the "Fresh Perspective" items were coded in yellow and so on… At the back of the coded cards were uncolored and it was this side of the cards that the managers had to sort onto a template (Appendix 2c). You will notice that we provided one example from each column (for each of the F.O.C.U.S.E.D. themes). Hence each manager had a total of 35 cards to sort into which category they believed would best belong to which column. The whole exercise takes on average 10-15mins to complete. Upon completion, we take a picture of the managers sorting; then we flip each of the cards over – revealing the color-coded answers. In other words, if a manager sorted the cards correctly, s/he will have all the yellow cards for the "F" column; all the orange cards for the "O" column; all the blue cards in the "C" column and so on. Using the coding approach will also immediately reveal any incorrectly placed card on the template. And so we would also take another picture after all the 35 cards have been flipped so that the manager can see for him/herself what the answers are. Figure 1 provides the results of all 100 managers' card sorting. At the bottom of the figure you will see the total number of incorrect sorting for each column along with the percentage of correct sorting. Overall, a total of 73% of all managers validated that the six items of each of the 7 categories of "F.O.C.U.S.E.D." framework belong to our originally assigned themes.

The value of the "Staying F.O.C.U.S.E.D." framework in bridging the "Knowing-doing" gap

The real world is indeed complicated! It is filled with the buzzing, blooming, confusing, complex problems of our times. Yet many business schools (and universities in general) continue to educate their students using simple models and frameworks, creating an unkind disconnect upon graduation. A complicated world requires complicated thinking in students. This kind of thinking allows students to develop a deeper understanding of a contradictory, unanticipated, fast-paced, dynamic and constantly redefined world of competing demands. While traditional approaches to teaching and learning still have their advantages, by learning about the world from a distance through discussions, role-playing and case analysis, we require complementary approaches that help our students learn *BETTER*, learn *FASTER* and learn *MORE* than they are used to. Bringing our students closer to the real world's unsolved problems/ issues/ challenges inside organizations and getting them to reflect more deeply about the "knowing-doing" gap through the "F.O.C.U.S.E.D." framework, has the power to inject a sense of urgency, excitement and meaning back into their learning and better prepare them for a complicated world.

REFERENCES

Adler, P. S. 2016. 2015 Presidential Address: Our teaching mission. Academy of Management Review, 41(2):185-195.

Bartunek, J. M., Gordon, J. R., & Wathersby, R. P. 1983. Developing "complicated" understanding in administrators. Academy of Management Review, 8, 273–84.

Berends, H., & Lammers, I. 2010. Explaining discontinuity in organizational learning: A process analysis. Organizational Studies, 31(8): 1045-1068.

Bobko, P. 1985. Removing assumptions of bipolarity: Towards variation and circularity. Academy of Management Review, 10(1): 99-108.

Bosma, B., Chia, R., & Fouweather, I. 2016. Radical learning through semantic transformation: Capitalizing on novelty. Management Learning, 47(1): 14-27.

Cameron, K. S., & Quinn, R. E. 1988. Organizational paradox and transformation. In R. E. Quinn & K. S. Cameron (Eds.), Paradox and transformation: Toward a theory of change in organization and management: 12-18. Cambridge, MA: Ballinger.

Carey, B. 2015. How we learn: The surprising truth about when, where and why it happens. Random House Trade Paperbacks.

Chia, R. 2011. Complex thinking: Towards an oblique strategy for dealing with the complex. In P. Allen, S. Maguire and B. McKelvey (eds). The Sage handbook of complexity and management. London: Sage, Chapter 11, 182-198.

Faculty of Business 2016. Student trainee evaluation by organization. Faculty WIE division, The Hong Kong Polytechnic University

Fairhust, G. T., Smith, W. K., Banghart, S. G., Lewis, M. W., Putnam, L. I., Raisch, S., & Schad, J. 2016. Diverging and converging: Integrative insights on a paradox meta-perspective. Academy of Management Annals, 10(1): 173-182.

Farjoun, M. 2010. Beyond dualism: Stability and change as duality. Academy of Management Review, 35(2): 202-225.

Garud, R., Dunbar, R., & Bartel, C. 2011. Dealing with unusual experiences: A narrative perspective on organizational learning. Organization Science, 22(3): 587-601.

Gioia, D., Corley, K., Fabbri, T. 2002. Revising the past (while thinking in the future perfect tense). Journal of Organizational Change Management, 15(6): 622-634.

Handy, C. 1994. The age of paradox. Cambridge, MA: Harvard Business School Press.

Hedberg, B., Nystrom, P., & Starbuck, W. 1976. Camping on seesaws: Prescriptions for a self-designing organization. Administrative Science Quarterly, 21: 41-65.

Hillen, H., Scherpbier, A., & Wijnen, W. 2010. History of problem-based learning in medical education. In H. Van Berkel, A. Scherpbier, I. Hillen, & C. Van Der Vleuten, (Eds.), Lessons from problem-based learning: 5–11. Oxford: Oxford University Press.

Lewis, M. W. 2000. Exploring paradox: Toward a more comprehensive guide. Academy of Management Review, 25(4): 760-776.

Loyd, D. L., Kern, M. C., & Thompson, L. 2005. Classroom research: bridging the ivory divide. Academy of Management Learning & Education, 4, 8–21.

Miller, D. 1993. The architecture of simplicity. Academy of Management Review, 18: 116-138.

Mourshed, M., Farrell, D., & Barton, D. 2012. Education to Employment: Designing a system that works. McKinsey Centre for Government: McKinsey & Co.

Narayanan, V. K., Olk, P. M., & Fukami, C. V. 2010. Determinants of internship effectiveness: An exploratory model. Academy of Management Learning & Education, 9(1): 61-80.

Office of Careers and Placements (CAPS): 2013 /2014. Report on student feedback on learning experience in WIE. Centre Student Advancement and Resources, The Hong Kong Polytechnic University.

Pfeffer, J., & Sutton, R. I. 2000. The knowing-doing gap: How smart companies turn knowledge into action. Harvard Business School Press, Boston, Massachusetts, USA.

Poole, M. S. & Van de Ven, A. H. 1989. Using paradox to build management and organization theories. Academy of Management Review, 14: 562-578.

Refereed Proceedings of the 3rd International Research Symposium on
Cooperative and Work-Integrated Education,
Stuttgart, Germany

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Putnam, L. L., Fairhurst, G. T., & Banghart, S. 2016. Contradictions, dialectics and paradoxes in organizations: A constitutive approach. Academy of Management Annals, 10(1): 64-171.

Rousseau, D. M., & McCarthy, S. 2007. Educating managers from an evidence-based perspective. Academy of Management Learning & Education, 6: 84–101.

Sargut, G., & McGrath, R. G. 2011. Learning to live with complexity: How to make sense of the unpredictable and the undefinable in today's hyperconnected business world. Harvard Business Review, 89, 9, September, 69-76.

Schad, J., Lewis, M. W., Raisch, S., & Smith, W. K. 2016. Paradox research in management science: Looking back to move forward. Academy of Management Annals, 10(1): 5-64.

Schon, D. A. 1983. The reflective practitioner: How professionals think in action. Basic Books, USA.

Smith, W. K., & Lewis, M. W. 2011. Toward a theory of paradox: A dynamic equilibrium model of organizing. Academy of Management Review, 36(2): 381-403.

Smith, W. K., & Tushman, M. L. 2005. Managing strategic contradictions: A top management model for managing innovation streams. Organization Science, 16(5): 522-536.

Starbuck, W. 1983. Organizations as action generators. American Sociological Review, 48: 91-102.

Ungaretti, T., Thomas, K. R., Miller, A., & Peterson, T. O. 2015. Problem-based learning: Lessons from medical education and challenges for management education. Academy of Management Learning & Education, 14(2): 173-186.

WACE 2016-2017. The best of co-op: A guide to the leading colleges & employers – Advancing cooperative & work-integrated education. (7th edition). World Council and Assembly on Cooperative Education.

Wright, R. P. 2016. Organizational paradoxes: When opposites cease to be opposites. In D. Winter & N. Reed, Wiley-Blackwell Handbook of Personal Construct Psychology. Chapter 25: 306-319. UK: Wiley-Blackwell.

Wright, R. P. & Brown, K. G. (eds.) 2014. Educating tomorrow's thought-leaders: Distinguished scholars answer a burning question. Chicago, IL: Strategic Management Society. Accessed 30th January, 2016 http://strategicmanagement.net/ig/teaching_community.php

Wright, R. P., Paroutis, S. E., & Blettner, D. P. 2013. How useful are the strategy tools we teach in business schools? Journal of Management Studies, 50(1): 92-125.

TABLE 1: Evolution of a pedagogical strategic thinking framework to guide knowledge transfer between classroom and real world placements

	The "Staying F.O.C.U.S.E.D." framework: helping take our students' learning to the next level	Eight (8) Year Evolution of the framework
F	"F" is the Yellow dice - it stands for a ___Bring a Fresh Perspective___ - bright and optimistic; creating new ways of thinking and new ways of doing	• **2009** – surveyed entire business school with 400+ students studying a core elective, on how to take students' learning to next level. Results reveal 7 emerging themes which created the "Staying Focused" philosophy • **2009-2011** - pilot-tested framework over a 5-semester period with undergraduates and postgraduate students (MM4311, MM4391, MM531). Evidence on framework collected over 7-year period from Student Feedback Questionnaires (SFQs) • **2012** – a "7-paper dice" version / and a PC e-version of the Focused framework was developed so student can use http://www.mypolyuweb.hk/~msrobert/Stay_FOCUSED_eDice /focused_dice.html • **2012-2014** – continue to refine framework based on student / manager feedback • **2014** – surveyed with 222 senior managers to further validate the framework for dealing with complex problems/issues/challenges (173 usable surveys) • **2015** - conducted a further 100 card-sorting exercises with managers and further validated utility of this pedagogical framework as an aid to "unsolved" problems • **2015** – Mobile App and physical version of framework manufactured and becomes an approved university level souvenir • **2016** – pilot surveyed 90+ students on direct application of framework for use in internships • **2017/2018** – rapid prototyping of online Reflective Practice incorporating direct application of the FOCUSED framework to coursework major projects (and internship placement work tasks)
O	"O" is the Orange dice - it stands for ___Think, Feel and Act like an Owner/Manager___ - it's about taking ownership and doing it for real	
C	"C" is the Blue dice - it stands for ___Show Connected-thinking___ - creating Blue Oceans when ideas (e)merge	
U	"U" is the Red dice - it stands for a ___Have a Sense of Urgency___ - taking action now with clear purpose and energy	
S	"S" is the Purple dice - the psychology of this color means warm and togetherness - it stands for ___Show Team Spirit___ - we can achieve much more when we do things together - it's a team-sport!	
E	"E" is the Green dice - it stands for ___Always Engage___ - spending more time in the garden to create a beautiful garden	
D	"D" is the Indigo dice - the psychology of this color means introspection / looking deep into ourselves - it stands for ___Exercise Deliberate Practice___ - thinking more deeply about what we do and don't do	

TABLE 2: Frequency table of how we generated the final SEVEN themes from a total of 400+ replies from students, staff and alumni on *"What is one thing our students need to do, and if they did that one thing, it would take their learning to the next level?"*

Frequency count of number of times similar answers occurred	Original raw labeling of emerging categories	Representative items from the original survey in 2009	Re-worded and further refinement based on key stakeholder feedback and scholarly research papers **	Revised / refined labeling of original categories	Designated letter to help create "acronym" of "F.O.C.U.S.E.D"
97	Need to say more than just repeat and summarize	Innovative	Who are our new customers /competitors?	Bringing FRESH perspective	F
		Open-minded	How does this advance what we already know, don't know and need to know?		
		Creative	When we see things differently, we see different things.		
		Reverse thinking	What would happen if you did the opposite?		
		Win-win	Think value co-creation.		
		Another way	Redefine / reinterpret / reconstruct / reframe / rethink.		
31	Take more ownership of learning	Take ownership	Understand the context (situation, time, history, relations…).	Thinking, feeling and acting like an OWNER / MANAGER	O
		Don't always assume	What are the current taken-for-granted assumptions? (and question your assumptions).		
		Set goals	Visualize your goals.		
		Communication / Sharing	Talk to more people in and outside your field for feedback.		
		What are scenarios	Anticipate the future (what if…).		
		Competitive Analysis	Think like your competitor.		
29	Should connect with other things	Be aware of current issue	What are the current conversations in the field?	Showing CONNECTED-thinking	C
		Integrative thinking	Either / or Logic versus And / Both logic		
		More than one answer	Every expert knows there are alternative explanations for a given phenomenon of interest		
		360 degree view	Think multi-discipline, multi-level, multi-method, multi-time, multi-space		
		Look around you	What is in the foreground and background?		
		Look in other areas	Best ideas come from outside of your field.		
55	Need to do now and don't wait for tomorrow	Better planning	Set agenda and timelines (prioritize / write it down).	Having a sense of URGENCY	U
		Get to point	Say more with less.		
		Be clear on end point	Begin with the end in mind.		
		Let go of discrimination	Sometime we need to let go…		
		Learn from history	Look for examples.		
		Life is short	What if tomorrow never comes?		
66	Need to work together more	Teamwork	If you want to go fast, go alone; if you want to go far, go together.	Showing team SPIRIT	S
		Cooperation	Respect each other's strengths and weaknesses.		
		Everyone can help	Each of us has something meaningful to contribute.		
		Play to win	Imagine you are in a S.W.A.T. team.		
		Leader not always right	Who has the most expertise on the issue?		
		Need more gatherings	Spend more time together to know ourselves.		
72	Get more involved	Spend more time	It's all about the gardening.	Being ENGAGED	E
		Compare and contrast	Look for similarities and differences / sameness and otherness / their inter-relationships.		
		Have more confidence	You have to believe you can.		
		Need to be convincing	What story will you tell?		
		Optimism	Be positive.		
		Need to trial and error	Don't be afraid to experiment.		
63	Don't just do; need to think more about doing	Better assessment	Are we measuring the right things?	Exercising DELIBERATE practice	D
		What it takes to win	What are the critical success factors? (What does success look like?)		
		Self-review	What are we doing now that we should not be doing?		
		Study your approach	If you want to change the result, you need to change the process.		
		Think what is missing	What are we NOT doing that we should be doing?		
		Need more reflection	Take a quiet moment to stay calm, pause and reflect.		

Total = 413

* These are the finalized items based on a 7-year period iterative process of multiple pilot-runs with real students and managers when dealing with "unsolved" problems, issues and challenges. These items are then placed on the six sides of a dice. A total of 42 items (7 dice x 6 sides per dice) make up the "Staying F.O.C.U.S.E.D." framework.

** Note: At the time we administered this survey in 2009, we also did several rounds of focus groups with 74 final year BBA student, 36 part-time MSc HRM and 40 MBA part-time manager students. We also discussed this question with 8 HR Directors and solicited comments from faculty member of our department. We also mass-emailed the question to department alumni graduates from the 2008/2009 and 2007/2008 cohorts.

TABLE 3: Statistical significance of the first six items of 10 statements highlighting their importance for each side of the dice of the "F.O.C.U.S.E.D." framework.

	1-6 Mean	7-10 Mean	t	df	P (two-tailed)
F1-6 - F7-10	5.7678	5.2845	9.191	173	0.000
O1-6 - O7-10	5.7347	5.5876	3.633	173	0.000
C1-6 - C7-10	5.5534	5.4799	2.149	173	0.033
U1-6 - U7-10	5.4954	5.2759	3.539	173	0.001
S1-6 - S7-10	5.6768	4.9909	10.787	173	0.000
E1-6 - E7-10	5.7272	5.6034	2.576	173	0.011
D1-6 - D7-10	5.6274	5.4363	4.527	173	0.000

Note:

P < 0.05 statistically significant (less than five in a thousand chance of being wrong)

P < 0.01 statistically highly significant (less than one in a thousand chance of being wrong)

FIGURE 1: Results of card-sort matching exercise from 100 managers for each category of the "F.O.C.U.S.E.D." framework.

	F1	F2	F3	F4	F5	O1	O2	O3	O4	O5	C1	C2	C3	C4	C5	U1	U2	U3	U4	U5	S1	S2	S3	S4	S5	E1	E2	E3	E4	E5	D1	D2	D3	D4	D5
F1	0	0	0	0	0	1	2	3	0	2	2	1	1	1	2	1	2	0	1	1	0	0	0	0	0	1	0	0	0	1	1	3	2	0	3
F2	0	0	0	0	0	1	2	0	2	0	2	0	2	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	0	3
F3	0	0	0	0	0	1	1	1	4	1	3	0	2	1	7	1	0	1	0	0	2	1	0	2	2	0	2	1	1	0	0	0	0	2	1
F4	0	0	0	0	0	0	1	0	2	1	2	0	0	1	2	0	0	1	0	1	0	0	0	0	1	1	0	0	0	1	0	1	0	1	0
F5	0	0	0	0	0	0	2	0	1	1	5	0	3	0	6	0	0	0	1	0	0	0	0	0	0	3	0	0	0	0	0	0	0	1	1
O1	0	1	2	0	0	0	0	0	0	0	2	1	0	0	2	0	0	1	0	0	0	0	0	1	0	3	1	0	0	1	1	1	0	0	0
O2	2	0	0	0	1	0	0	0	0	0	3	0	1	1	2	2	3	6	1	1	1	1	0	1	1	5	2	1	1	1	3	0	1	1	4
O3	0	0	2	1	0	0	0	0	0	0	1	1	1	1	2	0	2	5	1	2	1	0	0	0	0	0	2	2	2	3	3	0	1	2	4
O4	3	0	1	1	3	0	0	0	0	0	9	1	5	0	3	2	2	2	1	1	0	2	1	0	1	2	0	0	1	2	1	2	1	0	0
O5	0	2	0	2	2	0	0	0	0	0	1	0	0	0	4	3	2	2	1	0	0	0	0	0	0	1	3	0	0	1	1	1	6	6	1
C1	2	1	8	2	1	1	4	4	4	4	0	0	0	0	0	0	2	2	1	1	2	1	1	1	1	1	0	1	1	1	1	1	0	1	1
C2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	3	1	0	0	0	0	0	0	1	0	1	0	0	0	2	0	0
C3	0	0	1	0	2	3	1	1	1	0	0	0	0	0	0	0	1	1	3	5	2	2	0	0	0	1	0	1	0	0	1	0	3	2	2
C4	0	1	0	0	0	0	2	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	1	1	1	0
C5	9	8	9	4	6	0	0	1	2	1	0	0	0	0	0	0	2	0	1	0	0	0	2	1	0	1	1	0	0	0	1	1	0	1	2
U1	0	0	0	2	0	1	2	4	0	3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0
U2	1	1	0	0	1	2	1	1	1	3	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	5	3	1
U3	0	0	1	0	2	0	3	0	2	1	2	0	0	0	0	0	0	0	1	0	0	3	0	1	0	1	0	2	1	1	4	0	5	3	1
U4	0	1	0	0	0	1	3	0	1	2	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	4	1	0	2	1	1	0	1	1	3
U5	1	1	1	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	1	2	0	1	0	1	3	1	4	2	0
S1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	5	0	0	0	0	0	1	0	0	0	0
S2	0	0	0	0	0	0	0	0	0	0	0	3	2	1	1	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0
S3	0	1	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	2	0	1
S4	0	0	0	0	0	0	1	0	1	1	1	0	1	0	1	1	0	1	0	2	0	0	0	0	0	1	2	0	0	1	1	0	0	0	0
S5	0	0	0	1	0	1	1	1	1	1	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	1	1	3	0	1	0	0	0	0
E1	1	1	0	0	1	0	3	3	7	1	1	2	2	0	1	1	1	1	1	0	2	0	0	0	2	0	0	0	0	0	1	2	2	2	1
E2	1	0	1	0	3	0	0	2	1	1	1	0	1	1	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	3	3	2
E3	0	0	1	0	0	0	1	0	2	0	1	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	2	1	0	1	2
E4	3	0	0	0	0	0	0	1	1	0	6	1	1	1	4	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	2	0	0	0	1
E5	0	2	1	0	0	0	0	1	1	1	0	1	1	2	0	0	0	1	0	1	2	0	0	1	0	0	0	0	0	0	1	0	0	0	0
D1	1	0	0	2	0	1	3	1	3	0	1	0	2	0	3	1	0	1	1	2	0	0	0	3	0	0	2	0	1	0	0	0	0	0	0
D2	1	0	2	0	0	1	1	1	0	1	1	1	1	0	2	0	0	1	2	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
D3	1	0	3	0	0	0	1	4	4	6	4	1	1	0	3	3	1	3	1	1	0	0	0	0	0	0	3	0	2	1	0	0	0	0	0
D4	2	1	2	0	0	0	2	3	1	2	0	0	1	0	1	0	4	2	3	0	1	0	0	0	0	1	1	1	2	0	0	0	0	0	0
D5	1	0	0	0	0	1	4	3	1	4	2	0	1	0	3	1	1	2	3	3	1	1	1	1	0	0	1	1	1	1	0	0	0	0	0
Total number of cards placed in the incorrect column	30	21	35	15	24	16	42	39	48	41	55	13	32	12	54	17	27	35	25	21	17	10	9	14	14	37	24	13	22	18	28	19	43	33	34
Percentage of agreement for all 100 entries	0.7	0.79	0.65	0.85	0.76	0.84	0.58	0.61	0.52	0.59	0.45	0.87	0.68	0.88	0.46	0.83	0.73	0.65	0.75	0.79	0.83	0.9	0.91	0.86	0.86	0.63	0.76	0.87	0.78	0.82	0.72	0.81	0.57	0.67	0.66

Total Rate: 0.732285714

NB: (Each manager was asked to sort 35 items according to which category they best belong to. For each of the seven categories of "F.O.C.U.S.E.D." we provide a sample answer; hence seven items were provided and the remaining 35 cards were left for sorting (make a total of 42 items – 7 themes with each theme have 6 items).

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Perceived professional development needs within the international work-integrated learning community

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ABSTRACT

Work-integrated learning (WIL: cooperative education, work-based projects, service learning, etc) has in recent years gained significant international traction, largely in response to increased expectations of universities to produce work-ready graduates. Many governments are now expecting stronger links between university education and employability, and many employers are demanding graduates that have had meaningful engagement with a relevant workplace or community of practice as part of their educational experience.

With the expansion of the international mandate of WIL, comes the need for more staffing to resource the activity. Staff involved with WIL vary from practitioners (placement coordinators, field practitioners), teaching staff, researchers, and curricular designers, all of whom require a relevant skills set and knowledge. However, to date, professional development opportunities directly related to WIL have been mostly limited to conference attendance, which many find too expensive to attend. National associations have also provided professional development through webinars. Furthermore, little work has been undertaken to determine what the actual professional development needs are for these staff.

Presented here is a report on an online, international survey of 500 WIL practitioners which explores their perceived professional development needs. Professional development needs will be shown by country, employment position held, and other relevant demographic elements.

INTRODUCTION

Internationally, work-integrated learning (WIL) has received increasing attention as universities attempt to closely align their curriculum offerings to employability outcomes. The drive for this alignment has come from demands of employers, students, and government. WIL activities, under a variety of names, have long existed at universities through work placement programmes, practicum programmes (common in teacher education) and cooperative education (common in North America), and was already prevalent at technical institutions through their vocational education offerings. However, over the last 20 years there has been a rapid development in expanding and broadening the WIL offerings with university education.

At a national level, Australia has rapidly developed WIL to the point that virtually all Australian universities now offer WIL in most, if not all, their undergraduate degree programmes, with some universities prescribing that all undergraduate students completing at least one WIL paper/course within their degree programme. Canada has a long history of cooperative education (co-op; a type of WIL) which has become deeply entrenched at university

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level and has a national co-op accreditation programme in place. Similarly, South Africa continues to expand their university WIL offerings and see this as an important strategy in addressing employability issues within their economy (Winberg, Engel-Hills, Garraway, & Jacobs, 2011). At an institutional level, in 2012 in the US, the University of Cincinnati made completing at least one WIL course a compulsory component for all undergraduate students (Cedercreutz et al., 2017), with now more than 30,000 student WIL activities per year. In New Zealand, University of Waikato has also introduced a WIL paper (course) in all the undergraduate programmes, which will be compulsory for all students commencing in 2018. In Australia, Macquarie University has invested significantly in developing an institutional-wide WIL programme (Clark, 2017) that is now compulsory for all undergraduate students (8,000 a year), supported by a central structure dedicated to advancing the best practice of WIL. In Canada, the University of Waterloo co-op programme has grown to nearly 20,000 co-op placement every year (not counting students on other WIL experience outside the co-op programme) (Andrade, Chopra, Nurlybayev, & Golab, 2018).

Such significant expansion creates a substantial (and growing) human resource requirement with the appropriate skills and knowledge to facilitate the WIL process. Facilitating WIL, including the relationship building/organising placements and the assessment of learning during placement, differs significantly from that of other 'typical' university courses, therefore, people involved with facilitating WIL require a very particular set of skills. However, opportunities to develop these skills through professional development opportunities are, it seems, limited.

The Role of National Associations

Professional development opportunities are developed and offered through a variety of ways. The educational institution may offer professional development opportunities directly to their own staff by either using their staff knowledgeable in this area or visiting academic staff members. However, anecdotally, it seems such professional development opportunities in WIL are limited at universities.

Relevant national associations have a role to play in regards to providing professional development opportunities to WIL staff and create opportunities for network building (Crichton, 2009; Hansford & Stonely, 2011), facilitating opportunities of peer-learning. The most important professional development event organised by national associations will be the (bi)annual national conference, which often has pre-conference workshop opportunities (Patrick & Kay, 2011). National associations also offer other opportunities, such as the webinar series introduced by ACEN, and CEWIL Canada (CEWILC; formally CAFCE) who run webinars and broadcasts seminar presentations using video facilities.

National associations also play an important part of national advocacy of WIL (Patrick & Kay, 2011). However, not all national associations have the critical mass or resource ability to offer diverse WIL professional development opportunities. Furthermore, some countries, for example many in the Asian region, do not have a national WIL association and are in need of support to develop these (Tanaka & Zegwaard, 2018). To add further, the WACE Board planning day at the WACE International Research Symposium held in Victoria, Canada, 2016, identified the need to enable the next generation of WIL researchers and practitioners. However, in order to do so we need to provide opportunities for the next generation to develop the skills that allow them to become the future leaders in WIL.

Recently, four national associations (ACEN, CEWIL, NZACE, and VILA) collaborated in creating two online global modules; one on the theories underpinning WIL (has run four times), and one on engaging with employers (has run twice) (Zegwaard et al., 2016). The expressions of interest in these modules far exceed the number of slots available. Surveys administered before and after the module offerings indicated a strong interest in a greater selection of professional development opportunities and prompted commencement of the survey reported in this paper.

To date, there has not been an international survey undertaken to determine what professional development needs the WIL community wants or requires. Thus to address this issues, an international survey was undertaken through all the known WIL/Co-op national associations and the world association to determine the professional development needs, with the intention of disseminating the findings to the national and international community.

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METHODS

An anonymous online survey, using SurveyMonkey, of 24 question was constructed: consisting of nine demographical questions, seven questions around accessibility to WIL professional development opportunities, seven questions exploring the perceived professional development needs, and an open-ended question to capture any other perceptions participants wanted to share. Agreement statements used a 10-point Likert scale where, 1 = very difficult and 10 = very easy.

The survey was distributed through the national associations to its members. All known WIL national associations (and the World Association; WACE) were approached to take part, of which WACE, ACEN, CAFCE (now CEWIL Canada), NZACE, SASCE, ASET, JACE , TACE, and WILA took part.

The survey data was collected between October and December, 2017, using two reminder emails. The true number of surveys distributed is difficult to determine as the associations' contact lists were not shared with the researchers and there will be many instances of individuals appearing 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 that had a significant response rate to the survey – this analysis will be presented at their respective national conferences. The combined international is the focus of this paper.

DISCUSSION

Demographical Data.

The total response was 688 completed forms from 21 countries, of which 85% of the responses were from four regions; Australia (38%) Canada (29%), South Africa/Namibia (10%), and the UK (8.0%). Of the respondents, 88% were employed fulltime and 83% at an university (with 12% at another educational institution type and 5% in industry or governmental authorities). Just over half (55%) had formal qualifications in educational studies. The population was predominantly female and had a diverse age distribution (Table 1).

TABLE 1: demographic data of the total responses (*n*=688)

Attribute	Component	Proportion
Gender	Male	25%
	Female	74%
	Other	1%
Age	20-29	5.5%
	30-39	23.5%
	40-49	28.5%
	50-59	30.7%
	60-69	10.9%
	>70	1%
Employment type *	Placement coordinator	28%
	Lecturer	24%
	Director/manager	22%
	Administrator	12%
	Faculty	10%
	Career counsellor	9%
	Researcher	9%
	Senior manager	8%
	Educational consultant	6%
	Tutor	3%
	Other	19%

*Participants could select more than one option

Access to Professional Developments Opportunities

Participants indicated that most (87%) were from a country where there was a WIL national association and 69% had the opportunity to undertake WIL professional development through their national association (Table 2). Just over half indicated that they had undertaken a WIL professional development opportunity and half indicated that their university offered such opportunities.

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

Statement	Component	Proportion
Do you have a mentor or a peer-support group knowledgeable in WIL?	• Yes, mentor/peer-group very knowledgeable about WIL	59%
	• Yes, but with only limited knowledge	14%
	• Yes, but we seldom discuss WIL	6%
	• No	21%
Have you had professional development specific to Wil before?	Yes	60%
	No	40%
Does your workplace offer professional development opportunities in WIL?	Yes	51%
	No	49%

Most participants indicated that their institutions were strongly supportive of them undertaking professional development, however, respondents also indicated that access to this professional was only moderate. There was greater interest in professional development that was credit bearing rather than not credit bearing(Table 3).

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

Statement	Mean Likert (1 = strongly disagree, 10 = strongly agree)	Standard deviation
How supportive do you feel your workplace would be of you undertaking professional development in WIL?	8.21	2.129
To what extend do you feel you need professional development in WIL	6.81	2.323
To what extend do you feel you have easy access to WIL professional development opportunities?	6.23	2.334
Would you like to take a NON-credit bearing certificate in WIL?	6.35	2.934
Would you like to take a credit bearing certificate in WIL?	7.26	2.460

Professional Development Needs

Participants were asked to indicate what and how many topics they would be interested in receiving professional development in (indicates highest general interest) and to select their top three professional development topics of interest (indicates highest need) (Table 4). There also was an opportunity to suggest additional ideas of topics of interest. Participants suggested an additional 40 topics of interest.

Of these, 10 could be broadly grouped within a theme of 'internationalisation and culture' (e.g., culture awareness, cultural intelligence, internationalisation of placements, and indigenous connections), especially with a sub-theme of 'challenges and limited opportunities'. Most other suggestions fall loosely into a grouping of 'improving best practice,' such as improving reflective writing ability, using WIL support systems, ethics, different models of WIL (and cost-effectiveness of these), and how to enable academic staff go on WIL placements.

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TABLE 4: Level of interest for each topic where participants were asked to indicate any topic they were interested in and then to indicate their top three. List is in order of most popular in general interest.

Topic	General level of interest[*]	Ranking	Three most important level of interest[**]	Ranking
Evaluating the quality and impact of WIL	60%	1	25%	1
Designing learning outcomes for WIL and enhancing student learning	53%	2	24%	2
Curricular design and mapping WIL activities to learning outcomes	53%	3	23%	3
Engaging with industry/workplaces	50%	4	19%	4
Assessment design	48%	5	16%	6
Enabling effective student reflection	47%	6	17%	5
Leadership in WIL	45%	7	15%	8
Communicating and marketing WIL to students and employers	41%	8	15%	7
Engaging effectively with students	41%	9	11%	11
Knowledge on different forms of WIL	39%	10	10%	14
Internationalisation of WIL	39%	11	13%	9
Engaging effectively with faculty/academic staff	39%	12	9%	17
Educational theories underpinning WIL	38%	13	12%	10
Health & Safety, risks, and legal requirements when engaging with WIL	35%	15	10%	13
Learning contracts and workplace agreements design	35%	14	6%	23
How to best match students to workplaces	35%	16	9%	15
Administrational design for WIL programmes (tracking information)	33%	17	8%	20
Governance of WIL	32%	18	9%	16
Setting up a WIL course	31%	19	10%	12
Research design	30%	20	8%	19
Providing feedback on assessments	30%	21	4%	24
Publishing research	30%	22	9%	18
Managing WIL staff	29%	23	6%	22
Research data analysis	26%	24	7%	21
Other:	6%	25	2%	25

[*] Participants were able to select as many topics they were interested in.

[**] Participants could only select three of the most important topics to them

DISCUSSION

In general, participants indicated that they had moderate need for professional development Likert 6.81 out of 10) which suggest that some members of the WIL community feel their WIL professional development needs are being met or they perceive they do not have any specific professional development needs. However, some participants seem to have significant need and strong interest (Likert 7.2) in a credit-bearing certificate focused on aspects of WIL clearly indicates participants of this study desire further professional development.

Of the range of topics of interest, evaluating WIL, designing learning outcomes, and curricular design recorded the highest levels of interest in general and were perceived as the greatest in need of development (ranking top three in both ratings). Aside from 'engaging with employers', the top six in both rankings appear to cluster around a theme of enabling student learning. Perhaps this is not surprising, as the primary focus of WIL is the student and the learning that occurs when they engage in WIL, and that the effective capturing of the learning in the diverse nature of WIL experiences is a difficult challenge (Ferns & Zegwaard, 2014). The high ranking of 'engaging with employers' is reflective of the vital contribution of employers providing WIL learning opportunities for students and that the largest cohort of the participants identified themselves as Placement Coordinators (28%).

The low rankings of research related activities (e.g., publishing, research design and data analysis) likely is reflects that only 9% identified themselves as researchers (despite that 24% identified themselves as lectures and 10% faculty). However, 26% of participants indicated an interest in participating in professional development in research design, suggesting that some participants wanted to expand their research activities further.

CONCLUSION

The international WIL profession development survey was the first comprehensive international survey conducted to determine what the professional development needs are for the WIL community. It has highlighted areas of most interest and greatest perceived need for professional development. It is the researchers' hope that this information will inform the national associations and the world association decision making in regards to targeted professional development opportunities.

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REFERENCES

Andrade, A., Chopra, S., Nurlybayev, B., & Golab, L. (2018). Quantifying the impact of entrepreneurship on cooperative education job creation. *International Journal of Work-Integrated Learning, 19*(1), 51-68.

Cedercreutz, K., Merchant, D., Escoe, G., Clare, M., Chrobot-Mason, D., Straka, A., . . . Grant, K. (2017). University of Cincinnati Career Education Project. In K. E. Zegwaard & M. Ford (Eds.), *Refereed Proceedings of the 20th WACE World Conference on Cooperative and Work-Integrated Education, 2017, Chiang Mai, Thailand* (pp. 37-43). Hamilton, New Zealand: University of Waikato, New Zealand.

Clark, L. (2017). 'Implementing an institution-wide community-engaged learning program: The leadership and management challenge. In J. Sachs & L. Clark (Eds.), *Learning Through Community Engagement* (pp. 133-151). Berlin, Germany: Springer.

Crichton, A. (2009). *From impossibility to reality: Documenting the history of CAFCE in Canada* Retrieved from Canada: http://www.cewilcanada.ca/_Library/_documents/2009-CAFCEHistory-AC.pdf

Ferns, S., & Zegwaard, K. E. (2014). Critical assessment issues in work-integrated learning [Special issue]. *Asia-Pacific Journal of Cooperative Education, 15*(3), 179-188.

Hansford, M., & Stonely, P. (2011). WACE, the global network of networks: Advancing cooperative and work-integrated education. In R. K. Coll & K. E. Zegwaard (Eds.), *International Hanbook for Cooperative and Work-Integrated Education: International Perspectives of Theory, Research and Practice* (2nd ed., pp. 381-386). Lowell, MA: World Association of Cooperative Education.

Patrick, C.-J., & Kay, J. (2011). Establising a new national network for cooperative education. In R. K. Coll & K. E. Zegwaard (Eds.), *International handbook for cooperative and work-integrated education: International perspectives of theory, research and practice* (2nd ed., pp. 371-380). Lowell, MA: World Association for Cooperative Education.

Tanaka, Y., & Zegwaard, K. E. (2018). *Cooperative Education in Asia: Past, present, and future issues*. London, UK: Routledge.

Winberg, C., Engel-Hills, P., Garraway, J., & Jacobs, C. (2011). *Work-integrated learning: Good practice guide*. Retrieved from Pretoria, South Africa:

Zegwaard, K. E., Johansson, K., Ferns, S., Hoskyn, K., McRae, N., & Kay, J. (2016). Online professional development module for WIL practitioners: Participants' experience and impact on their practice. In K. E. Zegwaard, M. Ford, & N. McRae (Eds.), *Refereed proceedings of the 2nd international research symposium on cooperative and work-integrated education, Victoria, British Columbia, Canada* (pp. 213-218). Hamilton, New Zealand: University of Waikato.

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Graduate competencies and competence: Science and engineering employers' perspectives

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ABSTRACT

There has been much discussion around universities generating work-ready graduates, with the work-ready literature shifting from primarily focussed on technical competence to including behavioural competence and professional identity. Presented here is a study conducted on science and engineering employers and their perceived importance of graduate competencies for today and for 10 years' time including graduates' current competency levels, using online surveys, and semi-structured focus groups. Findings revealed that all 26 competencies were deemed to be important by employers, however, some were more important than others. All competencies were also deemed to be more important in 10 years than now. Employers also indicated areas where there was a gap between their expectation and graduates' competency levels for each at competency. Compared to a 2002 study done by the first author of this study, there were many thematic similarities, however, the competency - continuous learning (ability and willingness to learn) - was ranked lower in the 2017 study. In focus groups, employers detailed the ways the competency gap can be closed. Work-integrated learning was highlighted as a key initiative that universities should expand on. The findings from this study is intended to inform more robust science and engineering curriculum design for enhancing graduate preparation and readiness for the workplace.

INTRODUCTION

Employability has become a key focus area for many tertiary education providers (Rowe & Zegwaard, 2017). With many government initiatives focussed on employability outcomes, tertiary education providers are increasingly mapping their curricular offerings to employability skill development (Bates & Hayes, 2017; Jackson, 2013; Kaider, Hains-Wesson, & Young, 2017) on the assumption that employability skills results in favourable employability outcomes (Rowe & Zegwaard, 2017; Wilton, 2012). Increasingly, work-integrated learning (WIL) is seen as the more direct form of evidence that links university learning to employability (Jackson, 2013, 2015; Rowe & Zegwaard, 2017; K. Smith, Ferns, & Russell, 2016), which has resulted in the rapid development of WIL within the university curriculum observed in many countries today.

The University of Waikato, where the authors are based, is currently implementing a major curricular redesign where one element of this curricular redesign will be the requirement for all undergraduate students to undertake at least one WIL paper/course as part of their undergraduate degree (15pt credits in either a 360 or 480 credit degree). However, to inform the new curricular design and strengthen the link to employability, the assessment of learning needs to be authentic and focussed to outcomes that employers seek in graduates (Ferns & Zegwaard, 2014; Hodges, 2011; Zegwaard, Coll, & Hodges, 2003). This requirement prompted the research undertaking presented in this paper with the intention of informing the new science and engineering curricular framework. The outcomes from this research, however, will be relevant to other institutions' delivery of the science and engineering curriculum.

Presented here is a study 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

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graduates entering the workplace today and in 10 years' time. The research also asked how well graduates are currently performing at each of the competencies, where the difference between expectation (importance) and performance indicates the skill-gap of current graduates.

METHODS

An anonymous online survey, using LimeSurvey, was sent out to 1,159 science and engineering employers. The return rate was 21% (244 completed responses). According to Nulty (2008), a 21% return rate is acceptable for an anonymous online survey given the sampling cohort size. This was especially so considering that the survey required participants to provide individual rating of 26 competencies across three dimensions (see Table 1), which likely contributed to the significant non-completion rate (7.3%).

The survey gathered participants' demographic data, and required participants to rate using a 7-point Likert scale the importance of 26 competencies for science and engineering graduates entering the workplace across three dimensions: their perceived importance of these competencies today, in 10 years' time, and how well current graduates were performing for each competency. The list of 26 competencies was synthesised from the wider literature, however, 'digital interpersonal skills' was a competency not directly mentioned in the literature but was included as the research team thought it was important given current trends in the ubiquitous use of digital technologies and social media. The survey also included open-ended questions focused on how the university can better prepare students for the workplace.

Three focus groups (total of 17 participants) were held, following the advice from Creswell, Shope, Plano Clark, and Green (2006), to combine quantitative findings with qualitative findings to obtain a deeper understanding of nuanced individual experiences. The study obtained ethical approval from the Faculty of Education's Research Ethics Committee. The survey was piloted and refined before release. Quantitative data was analysed using SPSS and Excel, while qualitative data was thematically analysed using NVivo.

RESULTS

Employers rated all competencies as important (higher than 3.5 Likert) but clearly valued some competencies more than others (Table 1). Employer has also rated all competencies more important in 10 years' time compared to their importance today.

TABLE 1: Competency rating for 'importance today' and 'in 10 years' time', and 'current graduate competency performance' using a 7-point Likert scale (where 7 = very important)

Competencies	Importance today		Importance in 10 years		Graduate competency performance		Competency performance gap [1]	
	Importance rating	Order of importance	Importance rating	Order of importance	Performance rating	Order of performance	Size of gap	Order of size (in descending order)
Teamwork	6.25	*1*	6.40	*3*	5.09	*2*	-1.16	*14*
Written communication	6.15	*2*	6.38	*4*	4.43	*15*	-1.72	*1*
Problem solving	6.11	*3*	6.42	*1*	4.58	*9*	-1.53	*4*
Oral communication	6.09	*4*	6.30	*6*	4.52	*11*	-1.57	*3*
Interpersonal relationships	5.97	*5*	6.14	*10*	4.99	*5*	-0.98	*18*
Self-management	5.96	*6*	6.34	*5*	4.50	*13*	-1.46	*5*
Critical thinking	5.95	*7*	6.29	*8*	4.24	*18*	-1.71	*2*
Continuous learning	5.94	*8*	6.30	*7*	5.09	*3*	-0.85	*19*
Help seeking	5.94	*9*	5.94	*15*	4.94	*8*	-1.00	*17*
Adaptability	5.81	*10*	6.21	*9*	5.02	*4*	-0.79	*21*
Ethical responsibility	5.75	*11*	6.09	*11*	4.52	*12*	-1.23	*11*

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Computer/ICT use	5.74	12	6.42	2	5.53	1	-0.21	25
Technical knowledge	5.68	13	5.85	18	4.41	16	-1.27	8
Data analysis	5.64	14	6.04	13	4.49	14	-1.15	15
Creative thinking	5.50	15	6.07	12	4.19	20	-1.31	7
Conceptual thinking	5.45	16	5.81	19	4.21	19	-1.24	9
Cultural awareness	5.27	17	5.90	16	4.96	6	-0.31	24
Project management	5.23	18	5.73	20	3.78	22	-1.45	6
Societal responsibility	5.05	19	5.71	21	4.25	17	-0.80	20
Environmental sustainability	4.93	20	5.97	14	4.54	10	-0.39	23
Organisational awareness	4.89	21	5.26	23	3.74	23	-1.15	16
Digital interpersonal skills	4.83	22	5.89	17	4.96	7	0.13	26
Leadership	4.82	23	5.42	22	3.65	24	-1.17	12
Staff-management	4.71	24	5.10	24	3.54	25	-1.17	13
Financial literacy	4.47	25	5.02	26	3.23	26	-1.24	10
Global awareness	4.39	26	5.09	25	3.81	21	-0.58	22

[1] Note: the difference between 'importance today' and 'graduate performance' is the graduate competency performance gap where a negative value performance indicates the importance was greater than the performance.

The results also indicated that current graduates' performance at each competency is less than the importance level with the exception of *digital interpersonal skills*. The biggest gap between performance and importance were for *written communication, critical thinking, oral communication*, and *problem solving* (in descending order).

The semi-structured focus groups occurred after the survey data was collected, and provided valuable insights into employers' thinking about the rankings and how the university can better prepare students for the workplace. Feedback employers provided included the incorporation of more multi-disciplinary approaches in learning, more 'real-world' projects and industry-related projects, work placement and relevant (or transferable-relevant) volunteering activities, supporting learning during work placements, 'add-value' type projects, and greater integration of industry into academia.

DISCUSSION

Important Competencies Today

Employers thought all competencies were important for graduates entering the workplace today and they also thought that in 10 years' time all competencies would become more important than now. Both these results parallel the findings from Coll, Zegwaard, and Hodges (2002), Burchell, Hodges, and Rainsbury (2000) and Fleming, Martin, Hughes, and Zinn (2009). These researchers respectively found, using a different competency list, that science and engineering employers, business employers, and sports employers also thought all competencies were important and were perceived to become more important in 10 years' time. A notable difference between the studies by Coll et al. (2002), Burchell et al. (2000), and Fleming et al. (2009) and this study was that an 'ability and willingness to learn' was rated as most important, however, in this study, *continuous learning* (the most comparable competency to ability and willingness to learn) was rated as 8th most important (albeit, the 8th ranking was only 0.28 Likert points difference to the most important competency, a difference which may not have practical meaning).

The low ratings of *financial literacy* was somewhat unexpected especially considering the New Zealand Ministry of Education's current focus on introducing financial literacy in secondary schooling in response to low financial literacy amongst school leavers (Cameron, Calderwood, Cox, Lim, & Yamaoka, 2014). However, employers were asked what competencies were important for 'graduate entering the workplace <u>today</u>' and may think that *financial*

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literacy (as well as *staff-management*, *leadership*, and *global awareness*) are more important further along in the career for the graduates rather than immediately upon entering the workplace.

Digital interpersonal skills ranked low despite that *Computer/ICT skills* ranked high. As these two competencies are interconnected and coupled with *written communication* and *oral communication* (both also rated high), this seems a contradictory outcome. However, *digital interpersonal skills* was also the only competency where student performance was (slightly) higher than its rated importance. It may be that the low ranking of *digital interpersonal skills* reflects employers' awareness that new graduates already possess strong abilities of this competency and, therefore, did not rate it as important (i.e., it was a 'given' that new graduates have this competency, so it was not being actively sought by employers).

Performance Gap

Employers thought graduate performance was lower for all competencies (except *digital interpersonal skills*) when compared to the importance rating for each competency today. This difference between perceived importance of a competency today and graduate performance of that competency is interpreted as a 'graduate competency performance gap'. The greatest graduate competency performance gaps were for *written communication*, *oral communication*, *self-management*, and rather concerning, *problem solving* and *critical thinking*. The issues around graduates level of ability around written and oral communication have long been identified in the literature and is not unexpected (Coll & Zegwaard, 2012; Jackson, 2012; Pons, 2015). However, the gap between importance and performance around the competencies of *problem solving* and *critical thinking* are concerning as these two competencies are fundamental focal areas of university education. When employers were questioned further in the focus groups, the feedback was that employers thought student assignments were not authentic enough for industry standards. However, employers also quickly offered that even though graduates were not performing to the level of importance, they were understanding and accepting that graduates needed further training upon entry in the workplace. The only competency where there was no perceived performance gap was for *digital interpersonal skills* (the ability to relate interpersonally through digital communication, devoid of tone, body language and eye contact), which very likely reflects employers' perceptions that new graduates (i.e., younger generation) are highly engaged and literate with digital forms of communication.

Enabling Learning of Competencies

When employers were asked how the university could better prepare students for the workplace, the open-ended comments in the survey corroborated with the focus group feedback. Employers wanted to see more authentic enactment by students of science and engineering practice, that is, more 'real-world' projects, authentic problem solving, and more work placements – many of the examples provided by the employers fit within a broad definition of work-integrated learning. The employers also expressed strong desire to have industry more closely involved with the delivery of university education as well as input on the type of content that is delivered. The latter reflects further comments made during the focus groups that the practice of science and engineering is not just about the technical competencies of the disciplines but also encompasses personal attributes which may be more important than technical proficiency in the long run. These comments reflect findings by M. Smith et al. (2009) who found that personal attributes (such as loyalty, reliability, and adaptability) were highly valued by industry.

It should be noted that the employers involved in the focus group (who self-selected themselves during the survey phase) all had recently employed a WIL student. This may represent a biasness favouring WIL and interest in further involvement in science and engineering education. However, it is common for science and engineering workplaces to have 'interns' and many workplaces actively seek recent graduates, thus this perceived biasness may not be as significant as it first suggests.

CONCLUSION

The results from this research reflects studies conducted in other disciplines and likely reflect generic key competencies employers seek in all graduates. This research found that all competencies were important and all

will become more important in the future, and for each competency (except *digital interpersonal skills*) 'graduate performance' rated lower than 'importance today', which indicates a graduate competency performance gap. The graduate competency performance gap results presents the focus for future curricular review and development. Employer feedback indicated a strong desire for science and engineering education to be more authentic, include 'real-world' projects, and to maximise work placements as an authentic learning experience. The findings from this study is intended to inform the development of a more robust science and engineering curriculum design for enhancing graduate preparation and readiness for the workplace. Prior research on competency importance in other disciplines showed similar findings, which suggests that the findings of the graduate competency performance gap from this research will be relevant to disciplines beyond science and engineering.

ACKNOWLEDGEMENTS

REFERENCES

Bates, L., & Hayes, H. (2017). Using the student lifecycle approach to enhance employability: An example from criminology and criminal justice. *Asia-pacific Journal of Cooperative Education (Special Issue), 18*(2), 141-151.

Burchell, N., Hodges, D., & Rainsbury, E. (2000). What competencies do business graduates require? Perspectives of New Zealand stakeholders. *Journal of Cooperative Education, 35*(2-3), 11-20.

Cameron, M. P., Calderwood, R., Cox, A., Lim, S., & Yamaoka, M. (2014). Factors associated with financial literacy among high school students in New Zealand. *International Review of Economics Education, 16*, 12-21.

Coll, R. K., & Zegwaard, K. E. (2012). Enculturation into engineering professional practice: Using legitimate peripheral participation to develop communication skills in engineering students. In A. Patil, H. Eijkman, & E. Bhattacharyya (Eds.), *New media communication skills for engineers and IT professionals: Trans-national and trans-cultural demands* (pp. 22-33). Hersey, PA: Information Science Reference.

Coll, R. K., Zegwaard, K. E., & Hodges, D. (2002). Science and technology stakeholders' ranking of graduate competencies part 1: Employer perspective. *Asia-Pacific Journal of Cooperative Education, 3*(2), 19-28.

Creswell, J. W., Shope, R., Plano Clark, V. L., & Green, D. O. (2006). How interpretive qualitative research extends mixed methods research. *Research in the Schools, 23*(1), 1-11.

Ferns, S., & Zegwaard, K. E. (2014). Critical assessment issues in work-integrated learning [Special issue]. *Asia-Pacific Journal of Cooperative Education, 15*(3), 179-188.

Fleming, J., Martin, A. J., Hughes, H., & Zinn, C. (2009). Maximizing work-integrated learning experiences through identifying graduate competencies for employability: A case study of sport studies in higher education. *Asia-pacific Journal of Cooperative Education (Special Issue), 10*(3), 189-201.

Hodges, D. (2011). The assessment of learning in cooperative and work-integrated education. In R. K. Coll & K. E. Zegwaard (Eds.), *International handbook for cooperative and work-integrated education: International perspectives of theory, research and practice* (2nd ed., pp. 53-62). Lowell, MA: World Association for Cooperative Education.

Jackson, D. (2012). Non-technical skill gaps in Australian business graduates. *Education + Training, 54*(2/3), 95-113. doi:doi.org/10.1108/00400911211210224

Jackson, D. (2013). The contribution of work-integrated learning to undergraduate employability skill outcomes *Asia-Pacific Journal of Cooperative Education, 14*(2), 99-115.

Jackson, D. (2015). Career choice status among undergraduates and the influence of work-integrated learning. *Australian Journal of Career Development, 24*(1), 3-14.

Kaider, F., Hains-Wesson, R., & Young, K. (2017). Practical typology of authentic work-integrated learning activities and assessments. *Asia-pacific Journal of Cooperative Education (Special Issue), 18*(2), 152-164.

Nulty, D. D. (2008). The adequacy of response rates to online and paper surveys: what can be done? *Assessment & Evaluation in Higher Education, 33*(3), 301-314. doi:10.1080/02602930701293231

Pons, D. J. (2015). Changing importances of professional practice competencies over an engineering career. *Journal of Engineering and Technology Management, 38*, 89-101. doi:doi.org/10.1016/j.jengtecman.2012.11.005

Rowe, A. D., & Zegwaard, K. E. (2017). Developing graduate employability skills and attributes: Curriculum enhancement through work-integrated learning [Special issue]. *Asia-Pacific Journal of Cooperative Education, 18*(2), 87-99.

Smith, K., Ferns, S., & Russell, L. (2016). Designing work-integrated learning placements that improve student employability: Six facets of the curriculum that matter. *Asia-Pacific Journal of Cooperative Education, 17*(2), 197-211.

Smith, M., Brooks, S., Lichtenberg, A., McIlveen, P., Torjul, P., & Tyler, J. (2009). *Career development learning: Maximising the contribution of work-integrated learning to the student experience [Australian Learning and Teaching Council] final project report June 2009*. Retrieved from Wollongong, New South Wales, Australia: http://www.nagcas.org.au/uploads/file/ALTC%20Report%20July.pdf

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

Zegwaard, K. E., Coll, R. K., & Hodges, D. (2003). Assessment of workplace learning: A framework. *Asia-Pacific Journal of Cooperative Education, 4*(1), 10-18.

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