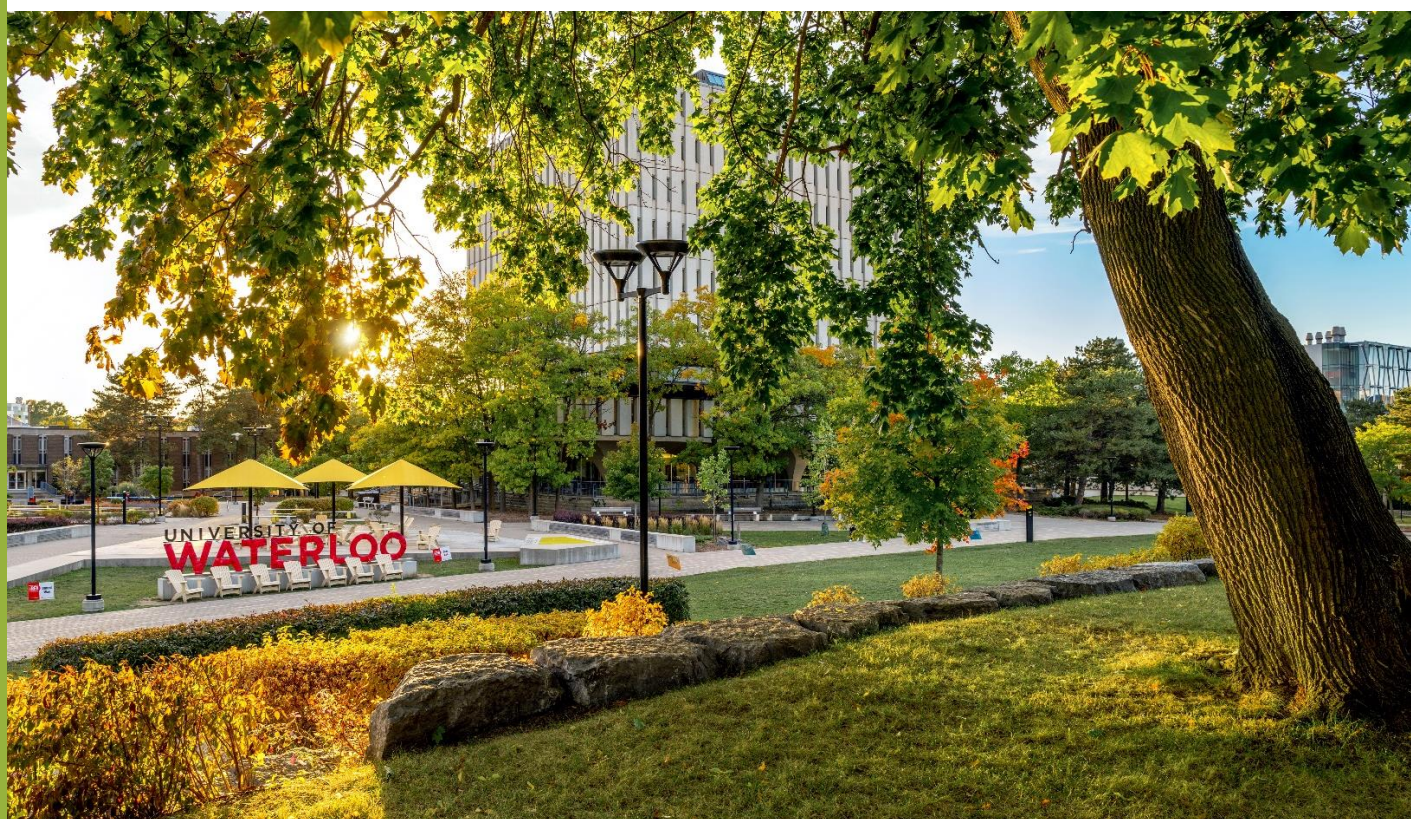


Refereed Proceedings of the 23rd WACE World Conference on Cooperative and Work-Integrated Education, 2023, University of Waterloo, Ontario, Canada



The future of work: Engaging work-integrated learning to achieve innovation, entrepreneurship and economic recovery in an uncertain world

28-30th of June, 2023, University of Waterloo, Ontario, Canada

Editors

Karsten E. Zegwaard, Jenny Fleming, Michelle Eady

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Proceedings Editors

Karsten E. Zegwaard, *University of Waikato, New Zealand*

Jenny Fleming, *Auckland University of Technology, New Zealand*

Michelle Eady, *University of Wollongong, New Zealand*



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Reversing un(der)employment: assessing the effectiveness of a novel work-integrated learning program

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INTRODUCTION

Youth unemployment, skill mismatches, and skill gaps remain major challenges for policymakers and relevant stakeholders. Also, a detrimental consequence of prolonged unemployment is underemployment or overqualification among graduates (Green & Henseke, 2021; Jackson & Rowe, 2022). This can cause erosion of skills, worsening financial position, and inflict long-term psychological scars. (Arulampalam et al., 2001; De Fraja et al., 2021; Mousteri et al., 2018). The extant literature provides strong evidence that participation in skill development programs and high-quality work-integrated learning (WIL) opportunities can reverse these situations (see Jackson & Collings, 2018; Jackson & Rowe, 2022; Peters et al., 2014; Wilton, 2012; Wyonch, 2020). WIL provides invaluable opportunities for students to be proficient in career management competencies, thus enabling them to achieve better employment outcomes including a high employment rate, greater “fit” between education and work, and higher earnings (Jackson & Collings, 2018; Jackson & Rowe, 2022; Wilton, 2012;). Put simply, WIL provides invaluable work readiness experience.

However, in a competitive job search and match WIL labor market, employers often prioritize experienced WIL students over newcomers (Cukier et al., 2018). Consequently, first-time WIL students have relatively lower WIL employment rates or end up being underemployed. This creates a WIL experience paradox, where the WIL programs designed to give students pre-labor market experience restrict some of them because employers prefer to hire experienced WIL students (see Prier et al., 2022). This is an important issue that has received little attention in the WIL literature. Therefore, this study contributes to the literature by investigating the impact of a novel WIL skill development intervention on (under)employment outcomes of first work-term (or newcomers) co-op students in a subsequent work term. Specifically, the study seeks to investigate if the intervention program (Waterloo Experience Accelerate) reversed the unemployment and underemployment status of the first work-term co-op students in their next work term.

THE PROGRAM

The Waterloo Experience Accelerate program (henceforth referred to as WE Accelerate) is a result of collaboration between the University of Waterloo and industry partners to offer an innovative work

term option specifically for undergraduate co-op students who are entering their first work term and have not yet found employment. It aims to “accelerate” students upward from unemployment to meaningful employment in future work terms by helping them develop in-demand skills through content provided by industry collaborators and team-based project experiences. In terms of modalities, WE Accelerate is an optional program that can be completed virtually. Students are sorted into industry collaborator-led streams based on students' preferences and enrollment caps. Each stream includes skill development work, project work, and career curriculum components that together add up to the 280 hours required for a flexible work term credit. WE Accelerate streams have been offered by Microsoft, Manulife, Deloitte, and D2L, among others.

LITERATURE REVIEW

Work-Integrated Learning Programs and Employment Outcomes

The benefits of WIL are generally thought to be two-fold: it contributes to the development of generic employability skills and provides a 'head start' for graduates at the outset of their careers (Wilton, 2012). The latter has been a relatively popular subject in the literature with recent papers even focusing on the impact of other forms of WIL apart from the embedded WIL on employment outcomes (see Jackson & Collings, 2018 and Jackson & Rowe, 2022). In general, while the evidence on the effect of WIL on labor market outcomes is positive, its impact on specific outcomes varies. Some studies found that contrary to widely held assumptions, participation in WIL does not necessarily translate into significantly higher full-time employment rates compared to non-participants (see, for example, Jackson & Collings, 2018; Jackson & Rowe, 2022; Kinash et al., 2016; Peters et al., 2014; Wilton, 2012). However, most empirical studies find evidence that participation in WIL could lead to higher quality, relevant employment. For example, Jackson & Collings (2018) found that although participation in WIL or placement programs did not significantly increase the full-time employment rates among bachelor graduates from a Western Australia University, it led to more appropriate employment compared to non-participants in both the short and long term. Results from studies focusing on Ontario Canada have not been significantly different (See Peters et al., 2014; Walters & Zarifa, 2008; Wyonch, 2020).

This study differs from the existing literature by focusing on the outcomes of current co-op students, and especially how to address the WIL experience paradox.

METHOD

Analysis

Analysis was undertaken using the JASP 0.16.2 open-source statistical analysis software. Descriptive analysis and inferential statistical methods are used. The analysis focuses on students who were in their first co-op work term in the May to August 2021 semester and were also available for their second work term in the January to April 2022 semester. The study explores the outcomes for three May to August 2021 semester student groups (i.e., the WE Accelerate participants, the unemployed, and the employed groups). The study was approved by the Research Ethics Board of the University of Waterloo – ORE # 44664.

Data Sources

The two sources of data used are as follows:

1. UW CEE Students' Employment Data: This data is sourced from a rich administrative employment database of students participating in the University of Waterloo co-op program called "WaterlooWorks". The dataset contains data on students, employers, their co-op jobs, and participation in WE Accelerate.
2. UW CEE Rate My Work Term (RMWT) Data: The RMWT is a co-op performance evaluation report filled by the co-op students assessing their experiences at the end of the work terms. They contain students' ratings of selected aspects of their work terms.

Measures

Employment measures

Employment measures considered include employment rates, students' earnings, and the timing of employment offers. The employment rate measures the percentage of students with co-op work term employment during the January to April 2022 semester. The timing of employment considers the percentage of students who got matched early to their employers. Early matches occur by the end of the first half of the competition – by the third of six recruitment cycle dates.

Underemployment measures

Underemployment can take on different dimensions including overqualification, skill mismatches, and getting paid below reference wages (see Jones, 1971). Here, underemployment measures used include the proportion of students earning above the average wages for their experiences and academic level, student pay satisfaction, and the percentage of students with senior-level jobs or equivalent. Employers assign junior, intermediate, and or senior tags to jobs they advertise as they deem appropriate.

RESULTS

Impact of WE Accelerate on Employment Outcomes

Table 1 provides the summary statistics of the characteristics of the students. Most of them were either in the engineering or mathematics faculties. While about 78% of the first work-term students were employed during the May to August 2021 semester, by January to April 2022, about 96% of all the students, irrespective of their status in May to August 2021 were employed. We tested and confirmed that the three student groups do not differ significantly across the major demographic characteristics examined.

TABLE 1: Descriptive statistics for the May to August 2021 semester student groups

Faculty	Frequency	%	Employment Status		
			S2021 Status	Frequency	%
Arts	106	5.7	Unemployed	103	5.5
Engineering	963	51.4	WE Accelerate	318	17.0
Environment	142	7.6	Employed	1,453	77.5
Health	11	0.6			
Mathematics	629	33.6	W2022 Status		
Science	23	1.2	Unemployed	72	3.8
Total	1,874	100	Employed	1,802	96.2

Employment rates

Table 2 shows the employment rates in the January to April 2022 semester for the three May to August 2021 student groups. All student groups had very high employment rates, especially those who were employed in the May to August 2021 semester (i.e., 97.8%). However, the employment rates in the January to April 2022 semester for the two other groups were very close. Inferential statistics results presented in Table 2, show that there is no statistically significant difference between the frequency of employment between WE Accelerate participants and students that were unemployed in the May to August 2021 semester, $X^2(421) = 0.22, p = 0.64$. Therefore, while participating in WE Accelerate is associated with better employment rates, it does not translate into a higher likelihood of getting a job compared to the other student group. Similar results hold when we compare the median wages across the student groups.

Timing of employment

Apart from the employment rates, another important employability measure is how quickly students get jobs or get matched with their preferred employers. Quicker matches or reductions in unemployment duration is an important outcome for both co-op students seeking employment and their potential employers. Table 2 shows that participation in WE Accelerate is associated with getting matched to jobs early, as a higher percentage of the program participants got matched to their preferred job early (68%). This figure is significantly higher than those of the unemployed group, $X^2(382) = 4.00, p = 0.04$.

TABLE 2: Employment outcomes for student groups in the January to April 2022 semester

Indicators	Status in S2021			Inferential Statistics (a vs. c)		
	Employed (a)	WE Accelerate (b)	Unemployed (c.)	Test value	p-value	N
Employment Rate (%)	97.8	90.9	89.3	$X^2 = 0.22$	0.64	421
Early employment (%)	84.4	67.9	56.5	$X^2 = 4.00$	0.04	382

Impact of WE Accelerate on Underemployment Outcomes

Table 3 presents the results examining the relationship between participation in the WE Accelerate program and the underemployment measures used.

TABLE 3: Underemployment outcomes for student groups in the January to April 2022 semester

Indicators	Status in S2021			Inferential Statistics (a vs. c)		
	Employed (a)	WE Accelerate (b)	Unemployed (c.)	Test value	p-value	N
Likelihood of getting a senior-level job (%)	68.5	63.1	45.7	$\chi^2 = 8.79$	<0.01	382
Above reference wages (%)	66.4	52.5	39.5	$\chi^2 = 3.91$	0.05	320
Pay satisfaction	4.17 (0.96)	4.20 (0.95)	3.88 (1.18)	t-test = 0.44	0.01	316

Level of jobs

If employers believe that the WE Accelerate program is value-adding to students, they are likely to employ and assign those students to jobs that optimize their skills and productivity such as senior-level positions. Table 3 shows that a high proportion of participants in WE Accelerate (i.e., 63%) got jobs that employers described as senior-level positions in the January to April 2022 semester. This proportion is significantly larger than those of students who were unemployed in the May to August 2021 semester, $\chi^2(382) = 8.79, p < 0.01$.

Reference wages and pay satisfaction.

The next measure of underemployment considers the proportion of WE Accelerate participants who earn above their reference wages and if they are satisfied with their earnings. We measure reference pay as the average amount employers pay students with a given set of characteristics, including their academic levels, number of previous co-ops completed, and faculty. Table 3 shows that more than half of the participants in WE Accelerate (52%) earned above the reference wage, compared to just about 40% for the unemployed group. Moreover, the results show that the differences between both groups are statistically significant, $\chi^2(320) = 3.91, p < 0.05$. Table 3 also shows that the average pays satisfaction scores (based on a five-point scale) recorded by WE Accelerate participants are higher than those of other group and statistically larger than those of their comparators.

CONCLUSION

Can a work-integrated learning (WIL) program reverse un(der)employment for first work-term students? This study uses rich administrative datasets on a novel WIL program to investigate this question. Specifically, the study examines the impact of participating in the WE Accelerate skill development program on employment and underemployment outcomes for inexperienced unemployed co-op students in subsequent work terms. Three findings are noteworthy. First, students who were unemployed and chose not to participate in the WE Accelerate program had the least desirable employment and underemployment outcomes in their subsequent work term. Second, WE Accelerate participants outperformed the unemployed student group. Although the program

participants did not have significantly higher employment rates and wages, they had better chances of getting a job early, getting employed in a senior position, earning higher than the average salaries for their levels of experience and faculty, and reported higher pay satisfaction in the next work term after their participation. Third, and not surprisingly, students who were employed in their first work term had the best employment and underemployment outcomes in the next term.

These results provide at least two major insights. One is that WIL programs especially skill development interventions have the potential to reverse WIL students' status from unemployment or underemployment over time. Two, the WE Accelerate program is evidently effective in addressing the WIL experience paradox. By providing opportunities for unemployed first work-term students to engage in group projects, career training, and skill development, WE Accelerate can serve as a work-readiness program for unemployed newcomers in co-op by providing them with vital experience that employers prioritize.

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Work-integrated learning and skill: Improving student preparation through innovative curriculum design

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INTRODUCTION

Globalization and the emergence of Industry 4.0 are driving technological innovation at unprecedented speeds (Sutherland & Symmons, 2013; Winterton & Turner, 2019; Dean & Campbell, 2020; Zegwaard et al., 2020). The workplace demands modernized skill sets, the ability to work in a variety of roles and within multi-disciplinary teams (Winterton & Turner, 2019; Twyford & Dean, 2021; Sutherland & Symmons, 2013, p. 303; Dean & Campbell, 2020). Higher education (HE) institutions are expanding work-integrated learning (WIL) in the curricula through the design and delivery of authentic practice-based, and non-workplace-based experiences to better develop these skills (Jackson & Meek, 2021; Twyford & Dean, 2021; Chiose, 2016; Kay et al., 2019; Ančić & Divjak, 2022; CEWIL Canada 2022; Dean & Campbell, 2020). Despite this growth of these practices, questions remain about student preparation prior to beginning a WIL experience (Campbell et al., 2021). A critical synthesis of WIL research on student development and curriculum design raises two questions:

1. What are some innovative pedagogical approaches that can enhance student learning and workplace relevant skills prior to a WIL experience?
2. What are student and faculty views of these methods in curricular WIL, and are they perceived to be effective?

An exploration of theoretical tenets of WIL such as scaffolding (Cooper et al., 2010), critical reflection (Dewey, 1933; Buchanan et al., 2022), transformative learning (Mezirow, 1991), and agency (de Villiers Scheppers, 2019) provides a theoretical foundation of WIL curriculum design principles, offering a baseline standard for designing ideal learning outcomes. A discussion of these principles illuminates their prevalence in methods like problem-based learning (PBL) (Allen et al., 2011; Branch & Hayes, 2017), digital game-based learning (DGBL) (Jackson & Meek, 2021), and case-based learning (Twyford & Dean, 2021). This discourse suggests these are effective in developing the skills that industry dictates students require to be successful in WIL. Aligning the current research in this domain against suggested outcomes from these teaching methods, suggests their potential for enhancing student learning and improving work-relevant skills development, increasing student preparedness for WIL.

BACKGROUND

A systematic review of research on employer and industry partners' perspectives suggests many students who participate in WIL are insufficiently skilled for their initial workplace experiences (Jackson et al., 2017). Other literature indicates that the standard of student work often does not initially meet expectations (Cooper et al., 2010; Jackson et al., 2017; Winterton & Turner, 2019). While there are few studies focusing on student preparation before WIL experiences (Cooper et al., 2010), the literature

under discussion suggests employers perceive the quality of oral presentations, grammar and spelling, attention to detail, and report writing to be subpar (de Villiers-Scheepers et al., 2018).

This discussion examines WIL research in three education databases. The *International Journal of Work-Integrated Learning* (IJWIL), *Education Source*, and *The Education Resources Information Center* (ERIC) were searched for keywords and key phrases. The terms used were Work-integrated learning, students' preparation for work-integrated learning, WIL curriculum design, skills development, and employer perceptions of student preparation. This identified 35 focused articles for review, 28 of which are used in this analysis. A close reading and critical synthesis of these studies illuminates common theories (Billet, 2009) from the literature, particularly; scaffolding (Cooper et al., 2010), critical reflection (Dewey, 1933; Buchanan et al., 2022), transformative learning (Mezirow, 1991), and agency (de Villiers Scheepers, 2019). This review highlights innovative pedagogical approaches such as PBL (Allen et al., 2011; Branch & Hayes, 2017), DGBL (Jackson & Meek, 2021), and case-based learning (Twyford & Dean, 2021) as ideal methods, and possible solutions, for enhancing student learning while addressing employer-perceived deficiencies in curriculum (Jackson & Meek, 2021). These terms and concepts are outlined below to offer a theoretical foundation for this discussion, beginning with a definition of WIL.

THEORIES AND CONCEPTS OF WORK-INTEGRATED LEARNING

WIL is defined by nine modalities: co-operative education, internship, entrepreneurship, service learning, applied research projects, professional practicum and clinical placements, field placements, and work experience (McRae et al., 2018, pp. 5-6). Co-operative Education and Work-Integrated Learning Canada (CEWIL Canada) defines WIL as:

Curricular experiential learning that formally and intentionally integrates a student's academic studies within a workplace or practice setting. WIL experiences include an engaged partnership of at least: an academic institution, a host organization and a student. WIL can occur at the course or program level and includes the development of learning outcomes related to employability, personal agency and life-long learning. (CEWIL Canada, 2018)

Analyzing WIL curricula through this lens offers a better understanding of principles on which learning outcomes might be best achieved while acknowledging that the definition of WIL is expanding to include placement and non-placement WIL (NPWIL) types (Dean et al., 2020). Central to this conversation are the concepts of scaffolding, critical reflection, transformative learning, and agency as defined below.

Scaffolding

Scaffolding adopts an iterative approach to learning with support from the instructor until competencies are achieved and repeated by the student alone, developing intellectual processes, allowing for observation, demonstration, and offering hints (Cooper et al., 2010). It stems from Vygotsky's (1978) discourse on the zone of proximal development, or what can be done alone versus what can be accomplished with guidance (Vygotsky, 1978; Cooper et al., 2010). Scaffolding innovative pedagogical techniques within curriculum is an effective means for cumulative skills development before a WIL experience.

Critical Reflection

Critical reflection considers adjacent ideas, theories, experiences, and social contexts that inform transformative practice (Mezirow, 1991; Buchanan et al., 2022, p. 115). According to Buchanan et al. (2022) critical reflection supports training students to become reflective professionals, equipping them with the ability to plan their own learning throughout their careers. Critical reflection is an essential component of the experiential learning theory and foundational for WIL as a pedagogy (McRae et al., 2018). If scaffolded intentionally into curriculum, critical reflection can enhance the outcomes of WIL and better prepare students for a workplace experience.

Transformative Learning

According to Mezirow (1991, 2000, 2003), transformative learning is a shift in frames of reference- often fixed beliefs and expectations- increasing the learner's sense of inclusion, openness, reflection, and ability to change. This process creates new reference points resulting in justified beliefs, with a potential to influence future action (Mezirow, 2003, p. 58). Frames of reference include interpersonal relationships, political orientations, cultural bias, ideologies, schemata, stereotypes, religious doctrines, and preferred aesthetic standards (p. 59). Relating to curriculum design in WIL, transformative learning is achieved when learning is scaffolded with WIL experiences involving critical reflection throughout the curriculum (Ebrall et al., 2008; Buchanan et al, 2022, p. 122). Research suggests that the creation of agency in students is driven by this phenomenon.

Agency

Trede and Flowers (2020) define agency as a concept commonly associated to understanding of context, being able to identify choice, increase individual professional judgment, and the capacity to analyze consequences for self, others and general public interest. Agency is dependent on self and social context (p. 373). It is a defining feature of professionalism and something students should nurture before graduation to meet the demands of the workplace (p. 372). With regards to curriculum design, the development of agency requires pre-meditated and well-articulated choices about design elements that elicit purposeful outcomes (Trede & Flowers, 2020, p. 374). Understanding how to cultivate capacity through an iterative and scaffolded approach, including critical reflection, promotes transformative learning that builds agency. The following section of this discussion reviews emerging pedagogical approaches that apply these theoretical concepts.

Emerging Pedagogical Approaches

Problem-based learning

PBL involves students working collaboratively, coupled with mentorship and guidance from faculty, as students learn by resolving often complex, and realistic problems to co-define solutions (Allen et al., 2011, p. 21). PBL promotes life-long learning, connecting newly acquired knowledge to an existing informational repertoire (p. 25). Benefits of PBL, such as life-long learning, integration of new knowledge, teamwork, conflict management and resolution, and enhancing leadership skills are noted elsewhere in WIL literature (McRae & Johnston, 2016; Jackson & Meek, 2021). While it is one of many

modalities recommended for improving student preparation, it would be best integrated alongside other techniques outlined below.

Digital game-based learning

Digital game-based learning (DGBL) includes video games (often complex) and simulations to enhance student learning experiences (Carenys et al., 2017; Jackson & Meek, 2021). Business games are effective at improving competence, critical thinking, and problem-solving (Silva et al., 2019; Jackson & Meek, 2021). Research suggests these attributes are in great demand by many employers recruiting from higher education institutions (Twyford & Dean, 2021). Critics state that this approach fosters superficial learning (pp. 71-72); however, like PBL, DGBL develops competencies that are sought by employers (Kay et al, 2019). As such, this could be considered as one of many approaches to enhance learning and skills development for WIL.

Case-based learning

This involves components of PBL and simulation, as well as group work on industry partnered projects (Twyford & Dean, 2021, p. 493). Simply put, case-based learning blends many pedagogical techniques, all having benefits, especially when blended, focusing on improving the development of transferable skills and discipline specific competencies (Twyford & Dean, 2021). As such, this is an ideal consideration for enhancing student preparation prior to entering a WIL experience which will be discussed in the next section by discussing the effectiveness of these modalities to justify their adoption in practice.

DISCUSSION

Employers perceive that many students who participate in WIL activities are insufficiently skilled for their initial experiences (Jackson et al., 2017) despite the importance Billett (2011, 2015) places on student development prior to WIL experiences to enhance learning outcomes in the workplace. Cooper et al. (2010) posits curriculum as an issue with this function, requiring a focus on teaching and learning (p. 77). Research suggests that students struggle with practical recommendations, working in teams, and requisite skills (Cooper et al., 2010; Jackson et al., 2017; Winterton & Turner, 2019). Based on this interpretation, there is a disconnect between preparatory activities in the classroom before WIL, and what presents itself initially in the workplace (Jackson & Meek, 2021). Undoubtedly, students participating in WIL require additional support, especially students lacking previous experience (Cooper et al, 2010). WIL aims to help students develop professional competencies and enhance their employability, and as such, educators must help facilitate the transfer of knowledge between all the learning environments (p. 77).

The review of the literature suggests best practices for student preparation include pre-placement workshops, resume reviews, and interview coaching, but these are only relevant for entering the workplace, they do not prepare students for what happens in those surroundings (de Villiers-Scheepers et al., 2018). Enhancing student learning in the workplace requires deliberate classroom training to guide students how to learn in that context (p. 81). Jackson and Meek (2021) posit the validity of alternatives to workplace-based models, including authentic experiences, to increase access for students

who are not able to enter the workplace, suggesting new preparatory interventions to do so (p.70). Scaffolding problem-based learning, digital game-based learning, and case-based learning, including critical reflection, serves to better prepare students for traditional WIL. The review of the literature herein and the synergies between the outcomes identified highlights the enrichment of the student learning outcomes by these means. Specifically, critical reflection is shown to be most effective when scaffolded throughout a curriculum (Buchanan et al., 2022). Cooper et al. (2010) highlights that the experiences are more impactful when they are scaffolded, like co-op, instead of one lump sum, like internships (McRae et al., 2018). The intentional integration of these elements offers a transformative learning experience that improves the student agency, and if incorporated in advance of a student's workplace-based learning experience, students will be best prepared to navigate that environment effectively (Cooper et al., 2010; Trede & Flowers, 2020; Buchanan et al., 2022). Research suggests that student learning outcomes for WIL are enhanced when training experiences are authentic, intentional, and co-designed with industry partners, including elements of scaffolding and critical reflection (Twyford & Dean, 2021). These concepts have been synthesized and distilled in this discussion using a review of theory and concepts and connecting them to one another. Going forward, it would be valuable to measure these outcomes from participants from all stakeholder groups to assess how well these techniques enhance the desired outcomes, or not.

CONCLUSION

The review of recent literature on WIL, student development, and curriculum design in this paper exposes both a need and solution to improve student development prior to WIL. Current practices for training students beforehand, that is, pre-placement workshops, resume coaching, and interview preparation- are adequate, but only relevant for entry to the workplace, and are not preparing students for what happens once they enter (de Villiers-Scheepers et al., 2018). Expanding WIL curriculum development requires examination in the domains of student training and non-placement-based models to measure quality and efficacy, to better inform practice (Cooper et al., 2010; Twyford & Dean, 2021). Student learning in the workplace can be enhanced with training in the classroom beforehand (Cooper et al., p. 81) and our response to the COVID-19 pandemic espoused incredible innovation in teaching, learning and curriculum design thinking (Zegwaard et al., 2020; Dean & Campbell, 2020). Leveraging this spirit of experimentation enables changes to WIL curricula in higher education. It is a unique opportunity to rethink the approaches to student development to include deliberate integrations of innovative learning methods such as PBL, DGBL, and case-based learning to be scaffolded throughout the curriculum, and critical reflection. This ideal model will provide transformative learning experiences that not only engage students but that encourage workplace relevant skills development, allowing for enhanced WIL learning outcomes (de Villiers Scheepers et al., 2018; Dean & Campbell, 2020; Jackson & Meek, 2021). Further research on this topic might inspire others to incorporate some of the ideas and approaches suggested herein to enhance student learning experiences and training in the classroom.

LIMITATION OF ANALYSIS

Several gaps exist in the literature on WIL (Björck, 2020; Gellerstedt et al., 2015), especially student development (Dean & Campbell, 2020), and specifically preparing students for WIL (Cooper et al., 2010). Many accepted theories on practice-based learning and experiential learning from Dewey (1938), Piaget (1978), and more recently Billett (2009) reinforce the validity of WIL as a pedagogical approach, yet empirical evidence on the impact of these models limits the knowledge surrounding outcomes (McRae et al., 2018). Learning integration matters most for curriculum design, and according to Gellerstedt et al. (2015), this domain of knowledge is currently lacking in WIL research, limiting its wide acceptance in academia (p. 4). Despite the lack of research specific to skills development in preparation for WIL experiences in higher education, studies on the principles of curriculum design for WIL is rich enough to provide a theoretical underpinning for this discussion.

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Extending beyond the self: Leveraging Brookfield's four lenses for critical reflection in work-integrated learning

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Although critical reflection typically is conceptualized and practiced as a solo endeavor, it's actually a collective enterprise (Brookfield, 2017, p. 68).

Critical reflection has been identified as vital to the learning process (Ash & Clayton, 2009) and is an essential part of work-integrated learning (WIL), a pedagogical approach that facilitates student learning by integrating experiences across academic and workplace contexts (Billett, 2009). While there are many models of reflection, new approaches to critical reflection are needed that consider the social contexts in which students learn and work. Community engaged learning (CEL) has a rich history of examining its approach (Brabazon et al., 2019) and often considers these contexts as part of its reflective processes, but a parallel framework for critical reflection appropriate for WIL has not yet been proposed.

This article briefly outlines some of the models of critical reflection commonly used in WIL and summarizes Brookfield's model for critically reflective teachers. Inspired by Brookfield, the authors propose a multi-lens framework for critical reflection in WIL along with suggested reflection questions, considerations for application, and potential areas for future research.

Although several critical reflection models exist, Kolb's (1984) experiential learning cycle, Gibbs' (1988) reflective cycle, Driscoll's (2007) 'What, So What, Now What?' model, drawn from Borton (1970), and Ash and Clayton's (2004) DEAL Model, represent those most frequently discussed as guiding frameworks for critical reflection in experiential learning and WIL. Structurally, these models are typically presented as a linear process within cyclical frameworks, whereby individuals describe an experience, examine the experience to some degree, and conclude by relating their examination to future action, outcomes or development of practice (Redfern & Bennett, 2022). It should be noted that while Kolb does not prescribe that students follow a sequential cycle (Kolb et al., 2000), WIL programs and curricula often begin with the 'concrete experience' and move sequentially through the cycle. More significantly, these models focus on the development of self-awareness and learning from an individual perspective, rather than one that is both individual and relational (Redfern & Bennett, 2022). Recent contributions have suggested that to deepen critical reflection one must also consider the contextual features mediating an experience, such as the interactional structural aspects and alternative standpoints as additional objects of knowledge upon which to reflect (Holdo, 2022; Humphrey, 2009; Lucas, 2017).

Brookfield suggests a different approach to critical reflection than the common cyclical models. He introduced his approach to critical reflection (1995) specifically for educators in higher education, immediately receiving positive reviews (Hunt, 1996; King, 1996). His new edition was published 22 years later and while revisions reflect a more current context, the general method remains the same (Brookfield, 2017). After outlining the theories and principles that ground his work, he proposes the application of four lenses to help educators scrutinize their teaching assumptions: students' eyes; colleagues' perceptions; personal experience; and theory and research (2017).

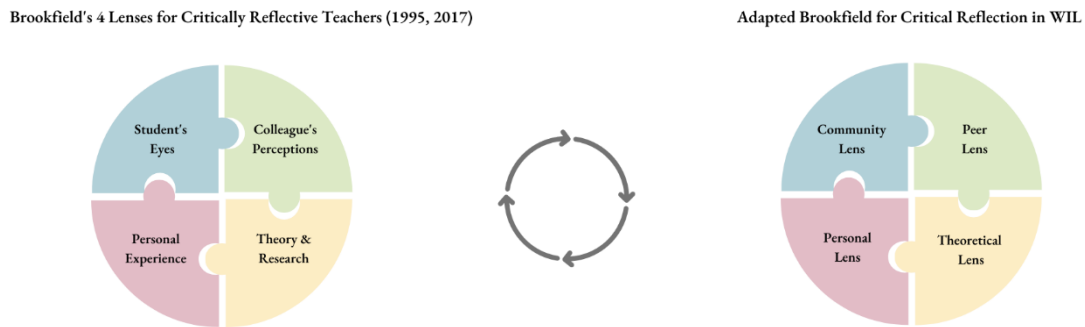
For the *students' eyes*, Brookfield presents ways that educators might better understand how different students in the same class see their teacher; for the *colleague's perceptions*, he suggests that educators' peer teachers can ask questions, offer alternative perspectives, and help to break down isolation; for the *personal experience*, Brookfield recommends that teachers reflect on their own experiences as learners to shed light on the experiences of their students; and for the *theory and research* lens he urges educators to consult theory to help understand what is happening in their classroom, communicate it with others, and take deliberate action (Brookfield, 2017).

Brookfield's approach to critical reflection is informed by critical social theory and he views critical reflection as an inherently political process (Brookfield, 2004). Reflection is critical when it helps to uncover assumptions about power and hegemony (Brookfield, 2017) and implement a change or transformation (Fook, 2007; Fook & Askeland, 2007). Critical social theory is intrinsic to CEL, which typically occurs in not-for-profit and grassroots contexts. Students are often prompted to reflect critically on contexts, perspectives or lenses, including technical, cultural, political and postmodern/post-structural (Butin, 2005; Carrington & Selva, 2010). In CEL, students are also encouraged to reflect alone, with classmates, and with community partners (Eyler, 2001).

WIL students can also benefit from critically reflecting from multiple perspectives to support their development of agency and professional identity (Trede & Jackson, 2021). Inspired by Brookfield's four lenses for critical reflection, the authors propose a critical reflection framework applicable to WIL that extends beyond individual and considers the relational and collective aspects of WIL. The four lenses are: community, peer, personal, and theoretical (Figure 1).

The proposed *community lens* is a novel one, developed especially for the WIL context instead of the audience of teachers that Brookfield had in mind. This lens encompasses the perspectives, or perceived perspectives of those served by the organization and those working within it. By applying this lens, students are prompted to think critically about power and who is being served by the organization and how they may be affected by social systems, funding, policy etc. While these topics are frequently examined in CEL courses, they are often not fully explored in WIL, where doing so may lead students to "reflect and act with more intention and purpose in order to improve practice" and develop as more deliberate professionals (Trede & Jackson, 2021).

FIGURE 1: Brookfield’s original four lenses for critically reflective teachers (1995, 2017) and proposed multi-lens framework for critical reflection in WIL



The *peer lens* can be directly applied to WIL as students have much to learn from their classmates experiencing similar WIL opportunities; it might be used to “ferret out assumptions, challenge groupthink, and consider multiple perspectives on common experiences” (Brookfield, 2017, p. 115). For example, Brookfield’s *critical conversation protocol* uses a role-playing activity in which storytellers describe their experiences; detectives help to uncover assumptions and offer alternative interpretations; and umpires monitor when judgement might be creeping into a conversation and keep the group focused on task (2017).

The *personal lens* maps easily onto Brookfield’s and makes space for students to consider how their history shapes who they are. It provides them with opportunities to reflect on their own identity and positionality and how these may impact their assumptions and experiences.

The *theoretical lens* parallels Brookfield’s and is often included in critical reflection in WIL. Theory can provide a coherent and comprehensive explanation of a piece of the world (Brookfield, 2017) and connecting it to WIL experiences allows students to think “big picture” and plan intentional actions.

The multi-lens framework for critical reflection in WIL represents a wholistic process, whereby students may move within and between the four lenses, leveraging applicable reciprocal relationships with peers and organization partners where appropriate to examine and construct new knowledge and meaning from their experiences. A series of questions are provided for each lens to inspire critical reflection activities and assessments. WIL faculty and practitioners may choose to include or modify these to suit their contexts.

Community Lens:

- Who is being served by the organization? Who is not being served?
- What are the organization’s priorities and needs?
- How is this organization impacted by social systems, funding, policy, etc?
- What did the experience reveal about the organizations’ goals, mission, values and/or interests?

Peer Lens:

- How were my assumptions or pre-conceptions similar or different to those of my peers?
- What alternative interpretations of events do my peers have?
- What shared experiences do I have with my peers and how can we leverage these shared experiences for future action?
- What is the relationship between my views or beliefs on power/privilege and those of my peers? (Fook, 2007)

Personal Lens:

- What privilege did I bring to the experience and how might it have shaped my experiences?
- What assumptions or expectations did I bring to the situation?
- What personal strengths or areas for improvement did I notice?
- Did I reinforce or challenge a social system or assumption in how I acted or reacted?

Theoretical Lens:

- How did I or someone else articulate and/or apply concepts or theories during the experience?
- How did the experience reinforce, change or challenge my understanding of a particular theory or concept?
- Based on my analysis of the experience, is the course material or my understanding of the material adequate? What might need to change?
- What actions can I take informed by my new or enhanced understanding of X concept or theory?

Just as it is important to be strategic in providing questions that can spark critical reflection among learners, it is also vital to consider the range of contextual factors in a WIL experience when determining the optimal application of the proposed multi-lens framework. Some of the key considerations include the type of WIL, the course delivery format (in-person, hybrid, remote), the depth of connection to the workplace(s), students' capacity to critically reflect, the relational dynamics with peers and partners from equity-deserving groups, and the opportunities for learners to integrate and consider wholistically the four discrete lenses and foci of critical reflection. Taking such considerations into account and adapting the multi-lens framework to fit the specific learning contexts and objectives of a WIL opportunity will help ensure sufficient time is devoted to preparation and facilitation, as well as heightened awareness of the positionality, interests, and capacities of the learners and partners involved. Engaging intentionally in the application and adaptation of this model of critical reflection can enhance students' learning from experience, develop their ability to consider diverse perspectives, and build the meta-cognitive skills that will help them better understand their own learning processes.

The authors have proposed a framework for critical reflection in WIL that is quite different from models of critical reflection currently used in WIL. While CEL has a rich history of examining different perspectives and assumptions, this approach is relatively new to WIL and additional research is needed on the application of this framework. Though there are considerations for appropriate application, there is immense potential benefit for all stakeholders when students are exposed to different angles of critical reflection.

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Developing innovative problem-solving skills through applying an ambidexterity framework to work-based scenarios

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INTRODUCTION AND THEORETICAL BACKGROUND

Higher Education has long focused on developing graduate work-readiness. More recently, “producing graduates with the required cognitive, affective and social capabilities to function effectively in the workforce has become increasingly explicit” (Jackson, 2018, p. 23). Work-Integrated Learning (WIL) is a critical means for achieving this goal. WIL experiences typically assist with skill acquisition and graduate job-readiness (McHugh, 2016), particularly in supporting the development of generic skills that can be applied across sectors (Kavanagh & Drennan, 2008; Freudenberg, Brimble & Cameron, 2011), along with increased self-confidence through providing opportunities for practice and feedback (Billett, 2011b; Jackson, 2015). Yet while placements assist with the development of skills and confidence in some areas, they may not be as effective in improving *problem-solving* skills and confidence specifically. In one study, for example, 30% of students indicated no change had taken place in the development of problem-solving skills following placements, while up to 74% of students indicated improvement in other technical skills (Bandaranaike & Willison, 2010).

Employers have consistently emphasized the importance of problem-solving (AC Nielsen Research Services, 2000; Kavanagh & Drennan, 2008), and innovation and analytical thinking have also been identified as the most important employability skills for 2025 by the World Economic Forum ‘Future of Jobs Report’ (Brown et al., 2020). Thus, there is a clear need for *innovative problem-solving* to deal with rapid change in complex contemporary environments (Nystrom, 1990; Adams et al., 2010).

Competing Innovation Demands and Ambidexterity

A tension that has been found to characterize innovation contexts is that between ‘exploration’, or exploring breakthrough new ideas, and ‘exploitation’, or maintaining and exploiting existing capabilities (Miron-Spektor et al., 2004). Working with this tension and simultaneously managing both is referred to in the literature as ‘ambidexterity’ (Lin & McDonough 2011). While it is now recognized that specific behaviors foster ambidexterity at all levels to improve innovation capabilities (Rosin et al.,

2011), we do not yet know if ambidexterity improves confidence in innovative problem-solving (Probst et al., 2011).

The Important Role of Self-Efficacy

Strong self-efficacy has been found to assist in developing confidence when facing the challenges required to solve problems innovatively (Harlim & Belski 2013). Innovative problem solving – otherwise often referred to as ‘creative problem solving’ in the literature (e.g., Amabile, 1988; Amabile et al., 2005) – impacts creative performance (Carmeli et al., 2013). Creative thinking and innovation in work contexts has been found to be supported by belief and self-efficacy (Ford, 1996; Bandura, 1997; Tierney & Farmer, 2002), and increasing self-efficacy has been found to develop the confidence to face the challenges required to solve problems innovatively (Harlim & Belski, 2013; Adams et al., 2010).

Problem-solving skills and confidence can be improved where there is a focus on generic skills development, such as through a professional development program (Freudenberg et al., 2011). This study therefore aimed to identify a model applying an ambidexterity framework to workplace-based scenarios that could better prepare students’ employability confidence and capabilities for placements and ultimately for the workplace. The main research question was:

Does learning about an ambidexterity framework impact student confidence and skills in innovative problem-solving in workplace scenarios?

METHODOLOGY

Participants and Design

A non-equivalent two-group pretest-posttest experimental study was conducted to examine whether or not an intervention involving learning about ambidexterity would affect perceived levels of confidence, capability and quality in innovation. Qualitative data in the context of focus groups was also gathered to supplement and inform the quantitative results. The effect of the ambidexterity intervention on perceived confidence, capability and quality in innovation was examined in this research because of the importance (as indicated in the introduction) of these perceptions in motivating and sustaining innovation in business and related settings.

Participants were 41 undergraduates (34 females, seven males) from the School of Business at a national university in Sydney, Australia. All respondents participated in this research voluntarily, and self-selected whether they would participate in the experimental or control groups. 34 participants (28 females and six males) selected the experimental group and seven (six females and one male) selected the control group. Ethics approval was gained with the approval code: 2022/432.

Measure

All participants completed single-item measures of perceived confidence and capability with respect to innovation twice (before and after the intervention). These items were scored on a five-point Likert scale (i.e., Not at all = 1, Somewhat = 2, Reasonably = 3, Very = 4, Highly = 5). Finally, participants were asked to rate the quality of their ideas on a scale from one to 10, with 1 representing the lowest perceived quality and 10 representing the highest.

Procedure

The experiment was conducted as optional workshops for tutorial workshops. Participants first completed the measures. The ambidexterity intervention consisting of the questionnaires, scenario and scenario discussion questions, along with an ambidexterity video and discussion, was conducted with the experimental group. The ambidexterity intervention included an ambidextrous teaching methodology, along with introducing the ambidexterity framework in the content. The teaching methodology focused on the following strategies:

1. *Parameter defiance & compliance* — Challenging people to initiate original ideas while also focusing on achievable & pragmatic ideas.
2. *Emotional & logical engagement* — Discussing issues & feelings (e.g., anxieties) while encouraging strategic responses.
3. *Concealing & disclosing strategies* — Thinking independently while sharing and discussing ideas and potential solutions.
4. *Novel & practical solution evaluation* — Making object comparisons to induce novel solutions while evaluating ideas based on practicality.

The control group received all the same elements as the intervention group but were shown an unrelated video (on preparing a CV) and did not participate in the discussion about ambidexterity. After the intervention, all participants completed the single-item measures again.

Analyses

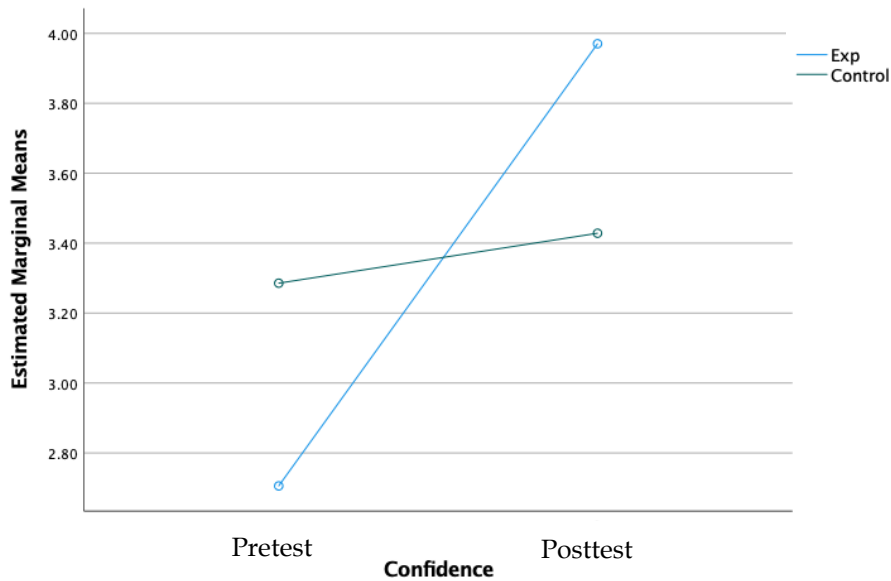
The dependent variable of interest was the magnitude of change between the pretest and the posttest scores on confidence, capability and quality for both groups taken together (main effects) and comparing both groups (interaction effects). Our hypothesis was that perceived confidence, capability and quality would increase for both groups, but would increase *more* for the experimental group. The relatively greater increase in the experimental group would be due to the different and additional elements of the Ambidexterity experienced by this group.

A Repeated Measures Analysis of Variance (RM-AVOVA) using SPSS (IBM Corp., 2020) was used to analyze the data (in this case, scores for both groups on the three items before and after the intervention). The primary purpose of the RM-ANOVA was to determine if there was an interaction between group (experiment and control) and scores (before and after) on the three items.

RESULTS

Results of the RM-ANOVA indicated that there was a significant main effect ($F(1, 39) = 7.54, p = .009$) and interaction effect ($F(1, 39) = 4.79, p = .035$) effect for Confidence (Figure 1).

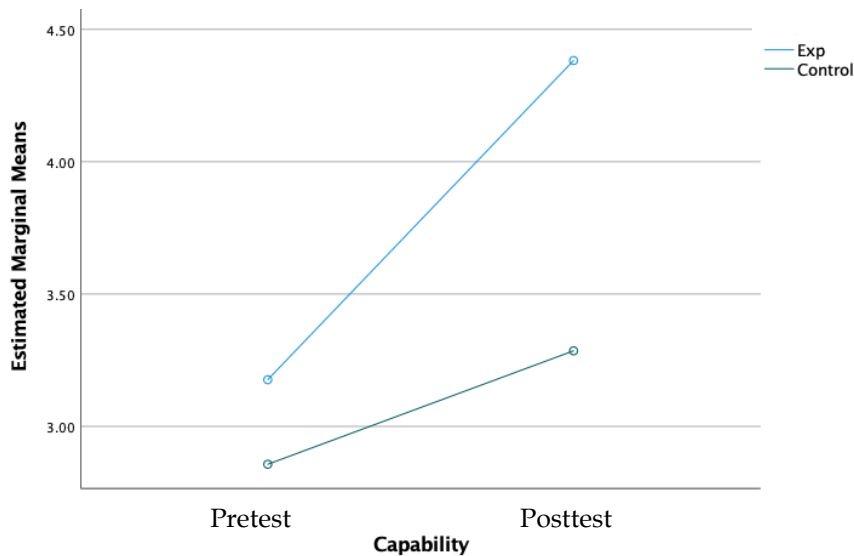
FIGURE 1: Results of the RM-ANOVA for confidence



The significant main effect indicates that both groups taken together increased in confidence. The significant interaction effect, however, indicates that the experimental group increased more in confidence than the control group (starting lower than the control group and finishing higher).

In contrast to the results of the RM-ANOVA for Confidence, results for Capability (Figure 2) indicated that there was a significant main effect ($F(1, 39) = 14.65, p < .001$), but not significant interaction effect ($F(1, 39) = 3.31, p = .076$).

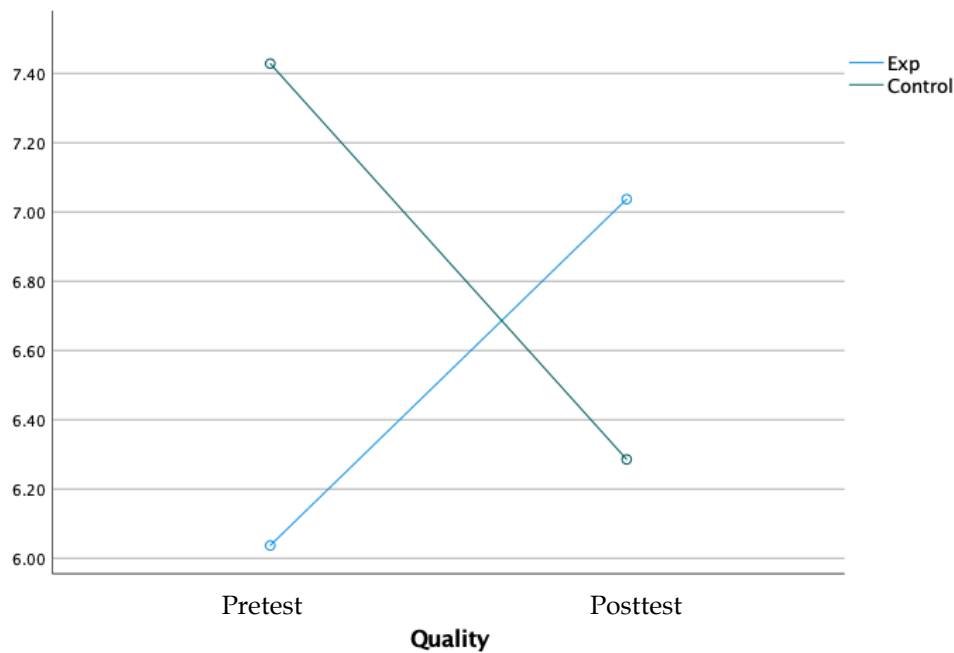
FIGURE 2: Results of the RM-ANOVA for capability



These effects indicate that the perceived capability of both groups increased, with the perceived capability of the experimental group increasing more than the perceived capability of the control group, but not statistically significantly so.

In contrast again to the preceding results, results of the RM-ANOVA for Quality (Figure 3) indicated that there was no significant main effect ($F(1, 32) = .02, p = .88$), but there was a significant interaction effect ($F(1, 32) = 4.84, p = .035$).

FIGURE 3: Results of the RM-ANOVA for quality



These effects indicate that the perceived quality of ideas did not increase across both groups. However, the main effect result occurs because the perceived quality of ideas of the control group *decreased*, while the perceived quality of ideas of the experimental group *increased*.

These quantitative findings were supported by the qualitative data. Firstly, consistent with the survey results, the qualitative data demonstrated development in the capabilities and confidence required to start solving problems more innovatively following being introduced to the ambidextrous framework. Quotes such as the following from the focus group discussion indicated that participants were prompted to think from different perspectives, thus providing evidence of greater flexibility and ambidexterity and demonstrating greater confidence through being able to identify new approaches to solving problems innovatively:

The video actually helped me to think of the problem from a different perspective.

Flexibility really matters. I will not be so stubborn and conservative when (approaching a) task.

I learnt the value of trying to explore different paths, considering external solutions.

There's some flexibility in the situation that is up to discussion and different approaches, so I should be more optimistic in such cases.

I realized I have to deal with the ambiguities during the task.

Secondly, ambidextrous pedagogical methods were also found to promote confidence in innovative problem solving. There was recognition of the value of these methods, as indicated by quotes such as the following – which demonstrate both the concealing and disclosing strategies and indicate a recognition of the value of methods such as these:

Group discussion was included so that people can get to know ideas presented by the others and modify their own. It also showed me the importance of being independent.

We discuss both the qualitative and quantitative results in the next section.

DISCUSSION

The results are promising, identifying significant statistical differences in confidence, capability and quality in innovative problem solving after the participation in the focus group workshops. The experimental group participants overall reported more self-confidence in approaching and responding to the workplace scenario and came up with what they perceived to be more original (i.e., higher quality) solutions after participating in the intervention discussion.

This research builds on the existing literature by applying the paradox lens to individual ambidexterity. While paradox has been utilized as a lens for understanding organizational ambidexterity (Andriopoulos & Lewis, 2009), the applications for individual ambidexterity have not been widely explored (Rosing, Frese & Bausch, 2011). As such, this research yields deeper insights into the nature and dimensions of ambidexterity in relation to innovative problem solving. These insights are valuable for supporting the development of ambidextrous capabilities, and for developing theoretical understandings as to how individuals come to identify and hold paradoxical innovation dimensions in coalescence. In turn, this knowledge should help to support the development of models for teaching innovative problem-solving skills that support employability.

CONCLUSION

Ambidextrous individuals recognize how to effectively navigate the competing demands engendered in rapid-change workplace contexts. This research identified the performance effects of an ambidextrous mindset on innovative problem-solving. Specifically, we conclude that:

- introducing a framework that explains typical ambidextrous orientations can provide a valuable foundation for considering how to solve challenges innovatively, and
- ambidextrous pedagogical methods and design features in an intervention workshop (i.e., parameter defiance and compliance; emotional and logical engagement; concealing and disclosing strategies; and novel and practical solution evaluation) can help improve innovation confidence, capability and quality.

As such, the study provides a basis for further studies into the link between ambidexterity and innovative problem solving in similar, and perhaps even different, contexts.

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Having fun: Navigating an international research seminar in work-integrated learning

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INTRODUCTION

When we feel safe and are smiling, laughing, and connected to people, we are likely to perform better (Frederickson, 2001), especially in team projects (Bang et al., 2010; Edmondson, 1999). In this paper, we posit that fun influences a research team's trust and willingness to seek open and honest feedback (Karakowsky et al., 2020) and improves group interconnections. We argue that work-integrated learning (WIL) research (and more broadly all research) processes, relationships and outputs can be enhanced when teams purposely introduce, monitor, and evaluate fun as an important element. We, therefore, explore "fun" as a critical ingredient to navigating successful team-based research projects. We present our experience, provide examples, and link our claims to relevant research on the benefits and challenges of introducing fun in work and research. We synthesize our learnings by presenting an evolving fun-in-research model based on our experiences, expanding the scholarship of teaching and learning. At the same time, we hope our story adds value to WIL group-based research and other team-based WIL practices more widely.

Context: Exploring Students' Experiences in Placements to Ascertain Employee Leadership Skill Attainment

Our research team was formed at Elon University during its Centre for Engaged Learning's WIL International Research Seminar (2022-2024). The seminar is a three-year fellowship to support interdisciplinary and international research in WIL. As participants, we were placed into teams based on the content of our applications. Our team decided to study the impact of supervising WIL students on supervisors' leadership skill attainment. This research topic was chosen through a fun framework, which we purposely introduced and monitored throughout our time together.

Collaborative Research Projects

Collaborative research endeavors create opportunities to share expertise, add new knowledge, and improve overall research practice (Graham Bertolini et al., 2019). Generally, collaborative research outputs are seen as more trustworthy than individual endeavors (Stanlick, 2007) because a team-based approach brings diverse perspectives, backgrounds, cultures, and areas of expertise, extending knowledge more broadly (Leibowitz et al., 2013). Team-based research can lead to synergistic insights that individuals could not necessarily attain (Gendron, 2008). However, collaborative research projects

also introduce complications, particularly when team members come from different disciplines, cultures, and understandings (Hains-Wesson, 2021). Careful attention is required to ensure overall team and individual goals are met while administrative processes, timelines, and interpersonal dynamics remain (Cheruvilil et al., 2014). Without mechanisms, frameworks, or models to critique, monitor, and evaluate collaborative research design, teams will continue to operate successfully or fail without understanding why, potentially wasting resources, and delaying progress (Dreyfuss, 2000; Hains-Wesson, 2021; O'Connor et al., 2022).

Collaborative research requires the development of positive and supportive relationships between individual members and as a team. Collaborative and inclusive practices within research teams create a caring environment (Tynan & Garbett, 2007), including emotionally engaged communications (Cheruvilil et al., 2014). Edmondson's (1999) components of psychological safety are also important factors to consider. These factors include structuring processes where team members feel accepted, valued for their unique expertise, and encouraged to bring their authentic selves to the group without judgment. However, facilitating caring and collaborative relationships and "having fun" via international research teams can mean different things to different people.

This paper positions "having fun" as an occurrence that requires purposeful integration into group-based research processes. In so doing, fun helps to support impactful collaborations, acting as a catalyst for honest and open communication. This process also includes analyzing, critiquing, and evaluating fun incidents through group reflection and storytelling. This, in turn, results in strong interpersonal relationships and long-term psychological safety, improving work experiences and learning. Ultimately this framework normalizes fun by re-positioning it as a critical ingredient to successful collaborative research endeavors.

Using a "Having Fun" Framework to Support Collaborative Research

The literature on fun at work is relatively nascent. Michel et al. define fun at work as "characteristics or features of the work environment of a social, playful, and humorous nature, which have the potential to trigger positive feelings of enjoyment, amusement, and light-hearted pleasure in individuals" (p. 100, 2019). Fun in the workplace has been positively associated with several important organizational and individual outcomes; job satisfaction (Karl & Peluchette, 2006), job performance (Tews et al., 2013), trust in co-workers (Karl et al., 2005), increased work engagement, task performance, organizational citizenship behavior (Fluegge, 2008) and psychological safety improving creativity (Yang, 2020). However, when it comes to fun in research, the literature is almost silent. As Wright et al. contend, there appears to be "shame" in associating fun with research in that fun undermines the seriousness and credibility of research (2021). However, we advocate that it is important to acknowledge emotions in research (Wright et al., 2021) because emotions affect how we engage in our work and life. Fun is associated with positive affect, eliciting emotional reactions from individuals, fostering creativity, and developing stronger relationships between team members (Michel et al., 2019). We, therefore, posit that using a formalized process to celebrate, critique and evaluate fun as part of formal research administration, processes, and practices is timely. Further, we back this notion by providing an account of our group-based, international WIL research endeavor, expanding upon the scant research in this

domain. Without a formal model to aid in acknowledging, critiquing, and evaluating the importance of "having fun", researchers may miss out on its many benefits.

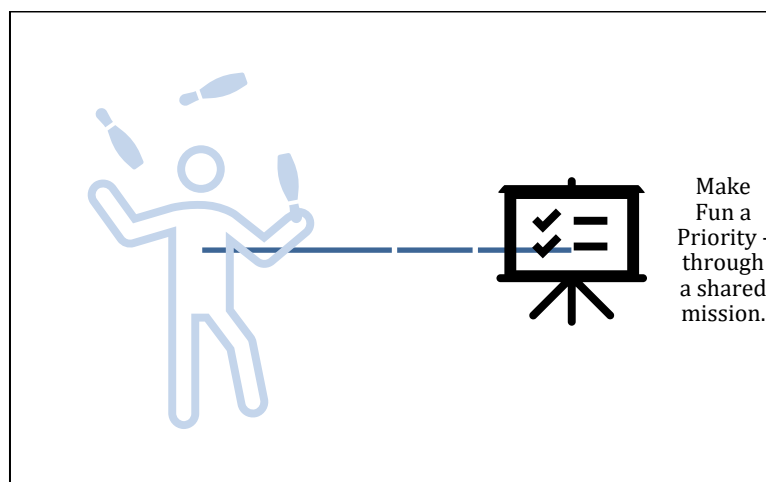
Enablers, Challenges and Barriers

Critical incidents in our team's approach to "having fun" set the foundation for strong collaboration dynamics. However, it is important to note that this study has limitations. For instance, our group-based research collaboration was instigated through a well-established research fellowship. Our team includes early-, mid- and senior career members who are all female, predominantly from western approaches to university teaching. Therefore, we do not represent a wide range of cultural differences or capabilities. Despite the limitations, in the following section, we identify three key elements to support our claims to encourage "having fun" as an essential ingredient to sustain positive WIL group-based research outcomes.

Make Fun a Priority – A Shared Mission

The research fellowship program's structure encouraged us to discuss roles and responsibilities and how we might navigate potential challenges during our project. This was imperative to open up space for discussion on interpersonal dynamics and possible challenges, including failing successfully (Hains-Wesson, 2021; O'Connor et al., 2022). The conversations included notions of being respectful but upfront and honest about personal boundary setting and project expectations. For instance, during the initial discussions, each team member shared their expectations, collectively agreeing to, 1) enjoy the journey, 2) ensure pressure was mitigated and 3) create a safe and inclusive approach to learning. This resonated strongly with the group, and we adopted an overall framework to include the three points that we termed "fun through research", which became part of our team's mission. Ultimately, we created a shared understanding around our mission (Figure 1) to include "having fun", which became a critical component to our team development (Bang et al., 2010).

FIGURE 1: Initiating a "having fun" mission.



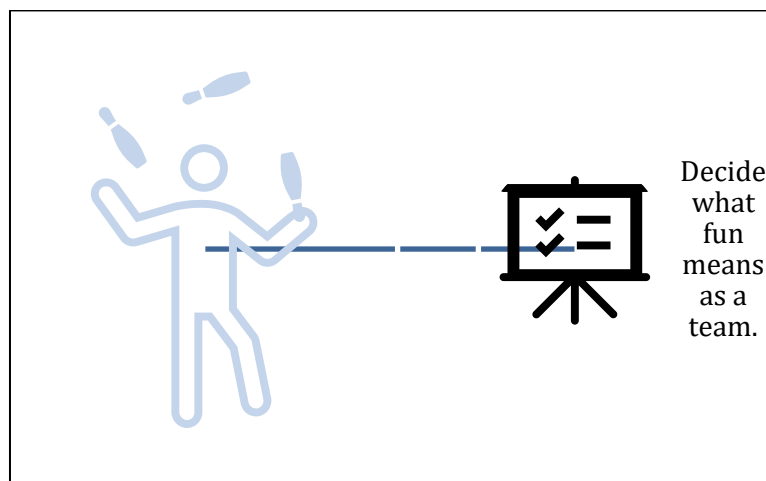
Decide What Fun Means: Being Authentic, Personal, and Vulnerable

Through our agreed-to mission, we granted each other permission to value fun as a part of our work and how we conduct ourselves as a team (Michel et al., 2019). This quickly established a team culture where we created inside jokes and dances, recognized each other's strengths and personalities, and opened up about our personal lives.

The initial acts were, in a sense, leaps of faith because we needed to trust one another while we were still getting to know each other. It can take time to "have fun" as a new team. Upon reflection, we firmly believe that the vulnerability and authenticity shared in our initial conversations around our shared understanding also helped to set the foundation for genuine interpersonal and fun-focused connections.

Using fun as a critical collaborative mechanism, we developed an understanding of what "fun" meant for us, such as laughter, celebration, and even some silliness. For instance, we created a group chat for personal updates, sharing victories and challenges, videos, pictures, and jokes about home life (Figure 2). These fun activities reinforced our social bonds, which has also been shown to remove barriers to negative collaborations (Parker & Hackett, 2012).

FIGURE 2: Develop communication channels.



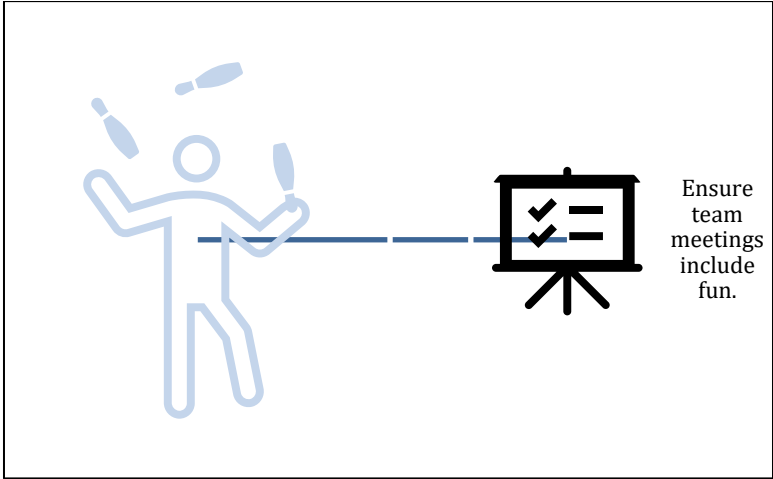
Sustain and Celebrate Fun as Part of Team Meetings

In our weeklong in-person and regular online team meetings, we dedicated the first 15 minutes to focus on updating each other about our lives and work, taking the time to be interested and engaged in each other's stories. Ensuring we made space to share "fun" moments at the beginning of each meeting created positive emotions that laid the foundation for the rest of the meeting, enabling us to be more open to new ideas and different perspectives (Frederickson, 2001).

Establishing fun as part of our team's mission was not without its challenges. Our day jobs and busy personal lives made it tough to meet certain deadlines and maintain consistent engagement in the project, which is a necessary component of high-functioning teams (Cheruvellil et al., 2014). At times,

we experienced personal and professional setbacks that made fun less of a priority or a less appropriate activity for our time together. Stress and disorganization can influence fun (Michel et al., 2019). We were mindful of this, issuing regular reminders of action items and maintaining open communication about deadlines and deliverables, leaving as much space for fun as possible. We even sent video updates to one another, allowing for more personal updates and the infusion of some fun in our communications. Despite challenges, we consciously made space for fun as part of our regular meetings and online communication procedures (Figure 3).

FIGURE 3: Sustain "fun" as a key meeting goal, helping to manage stress.



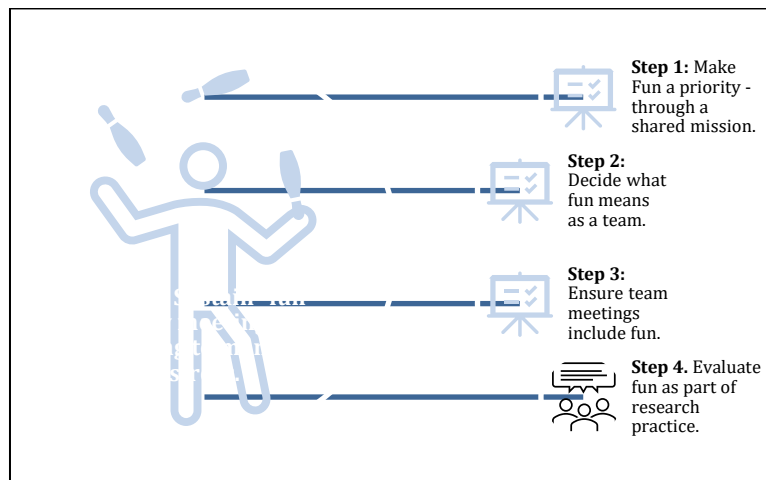
SUMMARY: KEY TAKEAWAYS

Having fun with others creates understanding, as does the sharing of vulnerability. It can offer a new way to learn about self and others, inclusively and transparently, which is worthwhile. Fun should not be something from which we need to hide but rather be utilized as a formalized process that has value in improving collaborative research and practice.

The following model includes the three steps we used to formally structure fun as part of our research mission, ensuring a fun process is implemented, monitored, and celebrated (Figure 4).

Step four is about evaluating our model and validating its effectiveness. This step is not detailed here and will form part of a future research project.

FIGURE 4: A "Having Fun" Model.



CONCLUDING REMARKS

The concept of fun is intimate and only occurs in the workplace when relationships allow for it. Not all cultures, for example, would be comfortable sharing interpersonal information as this could be viewed as rude, inappropriate, or unnecessary, decreasing the respect of individuals in a group of colleagues or students. Our fun model, therefore, has context and cultural limitations, requiring further investigation. In our practice, we will continue to learn as individuals and as a team, pushing one another to achieve quality outcomes.

Fun will remain the core of what we do. How will we do this? We have learnt that setting up a shared mission, with the right to be ourselves, is essential to having fun. We do not know what lies ahead, but we are confident it will be challenging and a time of celebration. There will always be an array of interpretations about how groups ensure fun is included in WIL research. This paper has presented only one way to assist group-based understandings in this domain without necessarily analyzing diverse contexts, cultural diversity, or influences.

Finally, we argue that the fun model can be transferred to different WIL contexts. Students and supervisors can use fun to support psychological safety and learning when working in teams. Future directions could include an evidence-based approach to evaluating the model presented here, testing its validity across diverse contexts, and sharing the findings more widely.

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Bringing experiential engagement into the introductory psychology classroom through quiz interactions with avatars

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INTRODUCTION

Through the standard classroom format, we are trying to bring experiential education principles (Ferns, et al. 2022) to bear without resorting to actual activities like micro-internships or a community-activity. While this introductory psychology course at the University at Albany SUNY, is taught without prerequisites as part of the regular curriculum in a large public university, our focus has been to deepen student engagement and create authenticity in an attempt to deepen student learning (Jones & Carter, 2019). We see these as two clear factors that inspire students in a classic experiential education activity that one of the authors experienced for more than 20 years at a cooperative education school, Northeastern University.

To get this student engagement, the class focuses on concepts and uses all-essay exams. To deepen that engagement with the concepts, the class features a series of short YouTube content videos made by the instructor that are watched before the first lecture on Tuesday. That watching behavior is reinforced by a brief short-answer on-line quiz that is taken the day before the lecture. In a course worth 100 points, these quizzes are worth 1 point each and occupy 10 points in total. This course has been taught that way by the professor (Stellar) for three years at an average course enrolment of above 60 students a year. What is new this time in the spring of 2023 is that of the 66 students enrolled, 14 students who volunteered, were given a novel way of answering the two questions on the first three quizzes leading to the first midterm exam.

That novel method was based on a slight adaption of the InStage Practice technology where students talk with avatars in a workplace learning application where the avatars interact in a realistic manner and also give feedback using InStage artificial intelligence algorithms. The slight adaptation for the course was that the avatars now ask the students about psychological content - the same questions that their peers are getting in the on-line written quiz. The instructor (Stellar) graded the student's responses from an InStage transcript with the same rubric as used in the standard written quiz. In addition to comparing performance, at the end of the three-week exercise, the avatar-speaking quiz-takers were surveyed anonymously through a Google survey application about their satisfaction with the InStage experience.

METHOD

Students were recruited by an e-mail from the instructor to the entire class. There was no attempt to make the sample of any size or statistically representative of the population. Participation was entirely voluntary.

Starting Monday morning before the Tuesday morning lecture, both Blackboard and the InStage avatar website were opened for about 24 hours. On Blackboard and on the InStage application, two short-answer questions were asked and a sample is shown below. The questions were the same for both groups (standard quiz takers and avatar quiz takers) and were keyed to the short video(s) the students watched before opening the quiz. The idea of the quizzes in general is that the students would mostly get the right answers. The hope was that this experience would wet their appetite for lecture and by getting them interested producing better learning as tested on the midterm exam. The question was whether talking to the avatars, vs writing out the short answers on Blackboard, would improve the experience for the students.

Below are two samples of the quiz questions that are to be answered after watching a brief course videos on these subjects. One is from the behavioral neuroscience topic and the other is from the social psychology topic.

- The neuron has two parts that do two fundamentally different functions. One part is the dendrite/cell body region, and the other part is the axon/terminal region. What are these two functions and how does one relate to the other?
- Why is the group so powerful in impacting our thinking, perhaps at the mammalian brain level? Give one example of this group influence (the Solomon Asch experiment discussed in the first video would be OK).

When the answers were recorded the instructor graded them as usual in the case of the written answers on Blackboard and in a similar fashion from the written transcripts of the spoken response to the avatars. The focus of grading was on the information content of the answers.

RESULTS

The response to the after-exercise survey question to rate your satisfaction with the exercise on a scale of 1-10 with 10 being the best, the students gave the InStage avatar-quiz experience a positive 7.2 ± 0.92 . 60% of the students who took the avatar-quiz said that they preferred answering orally and 60% also said they thought they would retain the information better after speaking it to the avatars.

In terms of grades, over the three quizzes with the professor applying the same rubric to the grades, the avatar-quiz takers earned 100%, 98%, and 100% of the available quiz points, whereas the rest of the class who took the quiz in an on-line written form earned 92%, 87%, and 92% of the available points.

On the midterm exam to which the quiz content built, the avatar-quiz takers got an average grade of 27.2 whereas the class at large had an average of 25.1. This is the difference between a "A" and a "B" grade on that 30 point exam.

A brief collection of student participant comments from the survey are shown below:

- Question: Do you prefer to answer orally as opposed to written/multiple choice? Why?
 - I prefer to answer orally because it means that I have to have a good understanding of the concept so that I can provide a comprehensive answer to the questions.
 - I prefer to answer orally because I feel that when I had to speak my answer out loud it stuck with me better and allowed me to further understand it because my brain had to actually process the material so that I could speak a coherent response, more so than when just typing out an answer.
 - I prefer written/ multiple choice answers because I like to have a concrete answer in my mind and not have to think of it on the spot because I like to know that what I am answering is definitely correct.
- Question: If COVID were to force us to go back to virtual, would this program help better than online tests/assignments? Why or why not?
 - Yes, because you have to formulate answers into a speaking sentence structure based on your knowledge and vocabulary, but I found that the feedback that InStage provided was also pretty helpful when adjusting my responses.
 - Yes, it would because it'll bring a lot of people out their comfort zone and better prepare them for interviews in the future.
 - I think it would be best to have a balance of both types of testing.
- Question: If you found out a different class had this program in their curriculum, would you be more likely to take the course? Why or why not?
 - Probably not, but the idea is cool.
 - Yes, because I think that it would help me grasp the material better.
 - I don't think it would influence my decision one way or the other.

In our observations from grading, we found that students who spoke often used what is called orbital thinking (vs. linear thinking) in natural conversation, where they talked around the answer before going in for the main point. Inevitably, this orbital thinking centered on the correct answer. The professor graded the avatar-quiz takers from the generated transcript, not from the spoken record. However, after grading, he went back and listened to the speech and picked up more information from the prosody that reinforced the belief that the students were talking themselves to the correct answer. The answers were more conversational and did seem more natural, perhaps because the students were more engaged with the avatars than the empty box on the Blackboard exam as some of the comments seem to reflect.

DISCUSSION

Given the apparent success of students using avatars to practice internship or cooperative education job interviews with the established on-line avatar-based system of InStage Practice that was discussed in our last paper (McLean et al. 2022) at the 2022 WACE Research Conference on the role of simulation in various forms in experiential education, we decided to try to bring that kind of engagement and authenticity to the classroom by using it in a pilot study. We chose an introductory psychology class

taught in the Psychology Department at the University at Albany SUNY, that already featured on-line weekly quizzes based on brief videos to introduce key topics such as the brain and neuron and social psychology. In this structure, we solicited 14 volunteers to take the quizzes not in written format but in an adaption of the InStage use of avatars where the on-line avatars asked the questions and the students answered verbally. The InStage software generated a transcript which was graded by the professor using the same rubric as the written answers and we found that the students did as well or better than they did on the written quiz and on the subsequent first midterm exam. Second, the students generally liked the experience of speaking to the avatars and in some cases said it produced what they felt was a better learning opportunity.

We regard this as a useful pilot study that deserves replication with improvements in sampling size, random assignments, potential further adaptations to the avatar software, and more comprehensive student feedback surveys. However, early results suggest that using this AI-based system of simulated on-line face-to face interaction has the potential for some students to deepen their engagement with the course material. That remains an important goal of classroom teaching to drive learning, as informed by general lessons from experiential education even if the students never leave the classroom.

One recently emerging factor in essay test classes is the ability of ChatGPT to rapidly imitate a correct essay answer. We note here that in the avatar-quiz based testing, the use of ChatGPT was not possible as student were responding directly and verbally to avatars and not reading from any script.

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EXAKT4YOU - Interdisciplinary service learning from high performance computing and rural energy solutions to sustainability communication

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INTRODUCTION

How can universities bring together students from different locations and countries and give them the opportunity to form international and interdisciplinary teams to work on innovation topics? There are enormous challenges that humanity faces - from climate change to economic crises. All these challenges cross national boundaries and their resolution requires international cooperation. It is one of the tasks of higher education institutions (HEIs) to prepare their students for these challenges and how to tackle them with a global perspective.

EXAKT4YOU was running from 2018-2022, bringing together approximately 120 final year Bachelor, Master and PhD students from different faculties, from Germany, South Africa and Tanzania. Work topics in the context of innovation, entrepreneurship and sustainability were identified by the respective local hosts and their community. This is where we connect to work-integrated learning. Teams were normally formed around the topics, rather than letting students choose their teams, thus mirroring the work situation, when you also cannot pick and choose your colleagues. Teams had to include at least 3 different universities and 2 countries.

The purpose of bringing students and faculty together in new short-term formats is to enable practising this much needed international cooperation and prepare students for international cooperation in the future. This paper describes the outcomes and impact of EXAKT4YOU.

EXAKT4YOU is a project funded by Baden-Wuerttemberg Stiftung and coordinated by Baden-Wuerttemberg Cooperative State University (DHBW). Participating universities were DHBW, University of Venda in Thohoyandou, South Africa as well as Nelson-Mandela African Institution of Science and Technology and Institute of Finance Management, both Tanzania. In 2022 St. Augustine University of Tanzania also joined.

THE INNOVATION WORKSHOPS

The first innovation workshop was running in Germany, while the second was organized in Tanzania (both 2018), followed by an event in South Africa (2019) and an Innovation Workshop in Tanzania (2020). In 2021 the event was organized as an online bar camp. The final event in 2022 was a blended

learning setting, starting with online lectures, followed by virtual group work, preparing for the final workshop in Germany.

The project used different formats of short-term intensive collaboration such as hackathons, bar camps and innovation workshops. All students were thus enabled to gain international experience with intensive exchange of knowledge in a short time.

The hosting university defined with their local stakeholders (small businesses, NGOs, social organizations) a problem to be solved. Selected students then work for 1-2 weeks in international and interdisciplinary teams.

Students worked on topics as diverse as the topic sponsors. In Thohoyandou for example, topic sponsors were remote communities struggling with electricity, a solar cooker made from local resources was the challenge. A concept to bring and retain medical staff to rural areas was developed with representatives from neighboring communities. For the final workshop, participants reached out to communities near their universities and brought diverse topics into the workshop; a communication strategy for a bike renting scheme in Arusha or for the NGO Viva con Agua, which is based in Europe, but targets all participating

The interaction with the local communities differed between the different events of EXAT4YOU. It varied from local community members attending the whole event and permanently giving input (e.g., Foot2Afrika, Moshi), to students interviewing local communities and NGOs to identify topics (Thohoyandou, Arusha) and online discussions beforehand to identify topics (Heidenheim). In all cases community stakeholders (called topic sponsors) were invited to attend and assess the final presentation.

The first workshop in Heidenheim explored issues visiting international students will encounter in an unfamiliar surrounding and how to deal with them. One team developed a board game with an online extension, to learn about local habits – using the experiences of international students, their own experience and the input from landlords and the International Offices.

The event in Thohoyandou explored innovation in medical infrastructure and energy solutions in rural regions. The topics had been identified by the UNIVEN community outreach program.

In Arusha the topic was High Performance Computing Use Cases and Business Models Applications for South Africa, Tanzania and Germany. An initial BarCamp generated topics, and solutions included an app for farmers to calculate taxes or a platform for young artists in rural areas. The idea of the artist platform was further developed by the student from South Africa into an award winning start-up.

In Moshi the whole event was running in collaboration with a local NGO, Foot2Afrika. Students attended the Foot2Afrika Summer School for 2 days, talked and interacted with the local participants, smallholder famers, SMEs, NGO staff and start-ups. The summer school participants then decided on the topics for the EXAKT4YOU workshop becoming topic sponsors, and being available for feedback and input, while the students were working on their solutions and evaluated the results of the teams in relation of their usefulness for their local challenges.

The final event in Heidenheim had a different set up. The universities identified a number of challenges from all participating countries. Participants attended an online class on sustainability communication. Then teams were formed and challenges were allocated. Each team had one team member from the region which submitted the challenge. As a team they had to organize themselves and learn how to share the research and fact finding work during four weeks of online collaboration. Then all participants met in Germany to finalize their work in one week. On the final day they presented to interested members of the public and a small industry panel, including the Tanzanian ambassador to Germany.

LITERATURE OVERVIEW

Service Learning (SL) is characterized by impacts such as academic achievement, social skills, and a change in attitudes (Mitchell & Rost-Banik, 2019). SL shapes a positive view toward self, but also positively impacts the view on school, and on learning in general. The experience of being good at something considered of high value to others then leads to service learning strengthening self-efficacy (Beaman & Davidson, 2020).

A special setting is community service learning in higher education (Salam et al., 2019), which has been defined by three aspects, students' learning and students' development as well as the addressing of community needs (Mtawa et al., 2021). It puts the focus on experiential learning and transformative elements. The personal experience and disciplinary knowledge is connected with complex social issues. Learning in such a setting requires from students a much more active role than passive classroom learning.

Education 4.0 has been coined in analogy to industry 4.0 and refers to the skills needed for future challenges (González-Pérez & Ramirez-Montoya, 2022). It can be defined by core components, in particular competencies, learning methods and ICT support. In the context of service learning, transversal competencies, such as critical thinking, cooperation, collaboration, communication and creativity are key for reaching the goal of aforementioned strengthening of self-efficacy. Disciplinary competencies such as technical skills, but also the ability to research design, create and implement new technologies is key. These competencies correlate with specific learning strategies such as challenge-based or problem-based learning. A combination of these active pedagogies with research-based learning appears most suitable for a service learning approach.

Technology development and future skills development can be aligned, while a significant positive relationship between market changes and future skills development emphasizes the importance of delivering such skills (Gouda, 2022).

Earley & Ang (2003) introduced yet another aspect, the concept of Cultural Intelligence. They defined Cultural Intelligence as the ability to adapt to new cultural settings. Cultural Intelligence is also known as Cultural Quotient (CQ), which is derived from IQ (Ang & Van Dyne, 2015).

METHODOLOGY

The final event was a blended learning setting, starting with online lectures, followed by virtual group work and a final work week in Germany, bringing all participants together. In 2021 the event was

organized as a 2-day online bar camp, due to the Corona pandemic. All other workshops included 2 week stays in the respective host countries. Four weeks after each event, participants were asked about their impressions and their learning. The online event had only minimal participation, due to the corona situation. Hence no data is included. Data was also collected in individual interviews as well as analysis of statements in the summary video for each event. This analysis looks at the different tasks and the interaction with the local business community in the different countries. It considers the actual tasks and how these affected the outcomes, but also critically assesses the infrastructure provided and its impact.

A total of 75 respondents out of 120 participants responded to the online surveys. The survey collected data on organization of the events as well as learning and skill development through a 10 item questionnaire. This paper focuses on the aspects of learning and skill development. Participants were asked which up to 3 new skills or concepts they learned.

In interviews nine participants from different project events were asked about their learning, change in behavior and specific results or impact from the EXAKT4YOU workshops. Learning was self-assessed regarding the acquisition of knowledge skills, changes in attitude and perceived impact on the participant's confidence. Behavior changes were self-reported degrees and type of application of new skills and techniques when back on the job or back to their studies. Finally, to capture specific results or impact, participants were asked about specific examples.

FINDINGS

Findings from the interviews can be clustered into three main categories; personal development, professional skills and application of new skills (Table 1).

For personal development leadership skills, conflict resolution and cultural tolerance were most important. Leadership skills were predominantly mentioned by the African participants. Conflict resolution skills were mentioned by all participants. Unlike during a longer stay at a guest university, students had to very quickly get organized in their groups and find ways to resolve conflict in an international and multidisciplinary setting. Cultural tolerance was required by everyone.

Project management, funding proposal writing and presentation skills were the most important professional skills, mentioned predominantly by the African participants. Most relevant news skills gained were an introduction to Moodle, successful funding application and better time management for research and paper submission.

TABLE 1: The three main categories

Personal Development	Professional Skills	Application of New Skills
Leadership skills	Project management	Introduction to Moodle
Conflict Resolution	Funding application writing	Successful funding application
Cultural Tolerance	Presentation skills	Submission of research and conference papers on time
Practical application of theory	Communication skills	Organizing many abroad trips after graduation
Sense of ownership of artifacts	Planning skills	Confidence to apply (successfully!) for research stays abroad
Intercultural collaboration: <ul style="list-style-type: none"> • study programs • geographical origin 	Technical skills: <ul style="list-style-type: none"> • e.g., user perspective in in app development • e.g., using Canva 	Data collection skills for PhD
Critical thinking	Decision making	
Personal networking	Sustainability as a concept	

From the interviews some insights were reported, regarding the learning about other cultures:

- Limited openness for other cultures on both sides (African and European)
- Exchange allows to find similarities and differences alike
- Africa and Europe can work together on cross-cutting issues.

For 2018, 2019 and 2020 new competencies reported were problem formulation, presentation skills, working under pressure, using technology to increase knowledge as well as tolerance, leadership and teamwork in a multi-cultural context.

For 2022 new competencies reported were using Moodle, creating infographics, working in international teams, using communication tools efficiently, good time management, use of innovative technology, applying sustainability strategies, dedication, punctuality and following procedures and rules.

CONCLUSION AND OUTLOOK

The Exakt4You Project has shown that short-format programs based in community service learning can have a positive impact on students. It develops their skills and competences, while providing beneficial outcomes for the community. Using different formats such as hackathons, bar camps and innovation workshops helps students to define problems and find solutions in interdisciplinary and intercultural teams. Students developed their intercultural competences and improved their openness for other cultures. African students all confirmed that the participation in the Exakt4You workshops had an

immense impact on their confidence level. It empowered them to write business reports and funding applications more easily. All students stressed how much they learnt about presenting to an international audience. Working in intercultural teams not only led them to a change of perspectives, but also learning about teamwork, working under pressure and with timelines, and how to put ideas into applicable and feasible solutions. Other valuable competencies were decision making, conflict resolution, and critical thinking. All students realized that it is easier to find a solution to global problems when working with people from other countries and getting to know their attitudes and perspectives. All students interviewed emphasized the value of the project and that they would wish for more programs of that kind as it developed their personality and opened their minds for issues outside their disciplines.

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Neuro-atypical inclusion: How to support neuro-atypical individuals through work-integrated learning for an inclusive future of work

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INTRODUCTION

Inclusion is one of the main issues for Human Resources strategy in the workplace and an increasing concern for higher educational institution (Kele et al, 2022). Inclusion – which aims to integrate everyone despite their specificities by removing barriers that could block individuals’ participation (Roberson, 2006) – is a powerful tool to combat stereotypes, discrimination, and prejudice (Nishii, 2013). This concept – and practice – overcoming the notion of diversity (Shore et al, 2018) could be a golden goal for any society for a better future at work, at school and for each individual through the whole society. Inclusion strategies are now being developed for all societal issues: disability, gender, LGBTQIA+, digital, work-life balance and so on. In the workplace and in higher education, inclusion is central. Socio-psychological and mental health support is being developed to help individuals face diversity issues from an increasingly inclusive perspective (Davies et al, 2019).

Through WIL programs, the concept of inclusion is beginning to be addressed (Itano-Boase et al, 2021), usually for gender (Walters & Zarifa, 2008) or disability issues (Cocks & Thoresen, 2013)). However, one promising avenue of research is not well known: the inclusion of neuro-atypical individuals through WIL, particularly individuals with autism spectrum disorder (ASD), attention deficit disorder (ADD), dyslexia and others, or gifted. Neuro-atypical individuals are defined as individuals who have neurological conditions and develop specific behaviors (AGEFIPH, 2019). As neuro-atypical problems are mostly invisible (Siaud-Facchin, 2008), and as individuals with neuro-atypical problems often do not show them (Siaud-Facchin, 2008) nor their consequences (e.g., unusual behavior), research should investigate how to support neuro-atypical individuals to accept their differences (behavioral, emotional...) and to include them as efficient resources for WIL stakeholders.

Therefore, this research proposes to examine how to develop specific HR, managerial and educational supports to help the WIL community to be inclusive for neuro-atypical individuals in order to help them to socialize through work and education, in the French context. This article first presents the theoretical background on inclusion and neuro-atypical individuals through WIL. Then, it defines the qualitative methods used in an exploratory approach, to finally discuss the results.

THEORETICAL ARGUMENT

Inclusion, as opposed to exclusion, is a concept at the forefront of HR strategies and more generally, a strong demand from the society to respect individual differences and diversity. Inclusion is defined as

a concept and practice aimed at recognizing the uniqueness of each individual within a collective, a team, without judgment, stereotype or bias (Pennaforde, 2022). The notion of inclusion encompasses the notions of diversity and discrimination. Several studies have focused on inclusion, such as HR and managerial practices (Chung et al, 2020), inclusion strategies (Meisenbach & Hutchins, 2020), and conceptualization of inclusion (Shore et al, 2018), showing the interest for research in all fields.

Basically, WIL is an inclusion by making student-workers ready to work and strong enough to be included in the society. More specifically, through WIL, inclusion refers to the goal of each WIL stakeholder to support all student-workers despite their diversity in an inclusive way. Some studies have focused on inclusion through WIL (Valencia-Forrester et al, 2019; Mallozzi & Drewery, 2020; Itano-Boase et al, 2021). However no one has examined the relationship between the WIL community and the inclusion of neuro-atypical student-workers.

A neuro-atypical individual is a broad term used to define individuals who are not neuro-typical and have neurological conditions such as giftedness, ASD, ADD or dyslexia among others (AGEFIPH, 2019). A neuro-atypical individual may have one or more neurological conditions. Research has shown that neuro-atypical individuals are different because they do not behave as required in ordinary social life and their emotions are high or extreme (Siaud-Facchin, 2008).

Due to their specificity, neuro-atypical student-workers may need more support from WIL stakeholders than neuro-typical student-workers. Through WIL, a large community supports student-workers: supervisor, co-workers, other students, family and instructors. Perceived support, that is employees' global perception of the degree to which their organization values their contributions and cares about their well-being (Rhoades & Eisenberger, 2002), is a powerful means of helping student-workers to achieve their WIL goals (Pennaforde, 2016) and a way to include them (Bernstein et al, 2020 ; Shore & Chung, 2021). However, while it may be easy to develop perceptions of support for neurotypical student-workers, it may be more difficult to develop these perceptions for neuro-atypical student-workers due to their behavioral or emotional specificities.

Given these arguments, this research proposes to explore the following proposals:

- Proposal 1: Neuro-atypical student-workers involved through WIL programs may have specific needs in order to perceive themselves as included.
- Proposal 2: In order to develop neuro-atypical student-workers' perception of inclusion through WIL programs, the WIL support community may need to develop specific guidelines and management.

METHODS

Research Procedure

Due to the sensitivity of this research, the researcher was aware of the need for a high level of caution when conducting the research (Condomines & Hennequin, 2013). This research is exploratory due to the lack of knowledge about inclusion and neuro-atypical individuals through WIL. Interviews were conducted to collect data on inclusion at a managerial level (10 interviews with HR staff members and helpers) and to understand neuro-atypical perceptions of inclusion and support through WIL (10

interviews with neuro-atypical individuals involved through co-op). As WIL is defined as “a form of curricular experiential education that formally integrates a student’s academic studies with quality experience within a workplace or practice setting” (CEWIL, 2021), co-op refers to co-operative Education that “consists of alternating academic terms and paid work terms” (CEWIL, 2021).

The interviews were conducted online in September 2022. They were recorded with the consent of each participant and the interviews were deleted after transcription. The interviews lasted from 1h15 to 1h55. A guideline was used to conduct the semi –structured interviews with 6 themes (strategy of inclusion, perception of inclusion, management of inclusion, perception of support, inclusion of neuro-atypical individuals, issues and perspectives about inclusion through WIL). Thematic content analysis was carried out.

RESULTS

General Results

The results show two main peculiarities to propose an appropriate support to help neuro-atypical student-workers feel included by WIL programs. First, they feel the need to be supported by the WIL community as « normal » individuals and not as “different” neuro-atypical individuals. Second, organizations that already have an inclusion strategy for a specific community (e.g., visible disabilities, LGBTQI+) are able to increase individuals’ perceptions of inclusion by viewing differences as an opportunity to enhance performance rather than a hindrance.

Specific Results

Proposal 1: Neuro-atypical student-workers involved through WIL programs may have specific needs in order to perceive themselves included:

For example, for the Aspi [Asperger], the sense of justice is so high that they can’t understand “bullshit talk” or the coffee break culture in order to network. More importantly, they are unable to act with empathy and this often leads to misunderstandings with neurotypical individuals. (Lucrece, Job coach for ASD)

Last year, I had a co-op student. She was HIP [gifted] and she acted in a very unusual way. Team rules, interaction skills were not followed because she did not understand the purpose and the legitimacy of them. Since one of my children is also gifted, I knew that her strange behavior was due to her giftedness and not to be angry with me. I was a kind of peer-helper because of my family history. (Artemis, HR manager).

Proposal 2: In order to develop neuro-atypical student-workers’ perception of inclusion through WIL programs, WIL support community may need to develop specific guidelines and management:

My job is to be the point of contact for all people with disabilities. As soon as a neuro-atypical co-op student comes to see me with an RQTH (Recognition of the Status of a Disabled Worker), I put in place several measures to support him or her in order to compensate for the disability. We have legal guidelines that have to be implemented, but individuals have to tell us that they have a neurological condition. (Euphrasie, Point of contact for disabled co-op students at a University)

The key with an invisible disorder is to communicate and explain to everyone in the workplace and around the neuro-atypical co-op student that he or she wants to work and be included, but the way he or she behaves or interacts is unexpected and different from neuro-typical individuals. We have to do a lot of pedagogical work but it works, when supervisors take good care of each individual. Often these kind of supervisors are the ones with disabilities around them in their personal lives! (Marie-Antoinette, neuro-atypical (gifted and ADD) and Head of the Unit for disable people in a huge company)

DISCUSSION

Theoretical Implications

Managerial level

At the managerial level, there is a strong need to develop organizational supports by supervisors, co-workers, HR, and academics for neuro-atypical student-workers as well as in the literature on neuro-typical workers (Pennaforde, 2015). However, the results showed that these support needs are very specific to the neuro-atypical specificity. Wherever student-workers are involved, they need a « buddy » to help them with well-being and care. These helpers – the peer helpers – play a huge role in their inclusion because they know how neuro-atypicals behave and they can explain to other individuals the peculiarities and how to respond to them. These peer helpers, often found in disability management (Niard & Franck, 2020), on a voluntary basis, could be a great support for neuro-atypicals.

Neuro-atypical student-workers level

At the student-workers level, this research has shown that neuro-atypical student-workers involved in WIL programs develop a specific approach to support:

- They want to be supported as if they were not neurologically different, as in the literature on discrimination (Bertrand, 2022),
- They want to be supported as a person with a specific name and abilities, but not as stereotypes associated with neuro-atypical, as in the talent literature (Thevenet et al, 2012),
- They want to be supported in order to develop their professional identity as their golden goal.

Inclusive level

At the inclusive level, this research showed that the WIL community should consider inclusive foundations at all stages of WIL programs for neuro-atypical individuals. WIL programs should be based on the strong foundations of inclusion, moral aspects and equity (Shore et al, 2018), as we know that neuro-atypical student-workers are very sensitive to justice and equity (Davies et al., 2019).

Practical Implications

For the WIL community, this research proposes several practical implications as shown below:

Develop an inclusion strategy in each university or school that runs WIL programs to provide a guide for WIL students and industry,

Define indicators of inclusion to manage neuro-atypical student-workers,

To train all WIL stakeholders on inclusion and neuro-atypical specificities,

To succeed in this challenge, WIL stakeholders should provide practices of recognition of the differences and develop a new way of working based on a strong inclusive principle: turn your specificity into an asset!

Limitations and Recommendations for Future Research

There are several limitations to this research. First, the samples for interviews are too small to generate strong hypotheses for future research. Further exploratory work should be developed to fill this gap. Second, the samples should try to balance gender between male, female, and gender diversity. Third, literature from all fields should be reviewed to develop a specific approach to studying neuro-atypical student-workers through WIL.

Future research is needed in order to understand how to develop the inclusion of neuro-atypical individuals through WIL, especially in France with almost 800,000 WIL students per year. Future research could investigate:

- The accurate understanding of how neuro-atypical individuals behave through WIL programs at work and in education compared to neuro-typical individuals,
- The perception of inclusion by neuro-atypical student-workers through WIL programs and the construction of a scale on this perception of inclusion,
- The perception of justice and trust by neuro-atypical individuals through WIL programs,
- The relationship between neuro-atypical individuals and the development of organizational socialization and work commitment through WIL programs,
- The construction of neuro-atypical student-workers' professional identity.

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TVET students work-integrated learning for qualification acquisition and employability: A South African TVET college perspective

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INTRODUCTION

Several South African policy documents highlight the need for economic growth and social development (Department of Higher Education and Training, 2013). Such need requires an adequate supply of technical, vocational educational and training graduates that have appropriate attributes and work-related competencies (Department of Higher Education and Training, 2013). This means that the role of Post-School Education and Training institutions is crucial (Fraser, 2014) for the production of employable and socially responsive graduates. There is enthusiasm around the world for greater participation and active involvement of the wide variety of interest groups to produce employable graduates who can contribute to socio-economic development (Winberg et al., 2011).

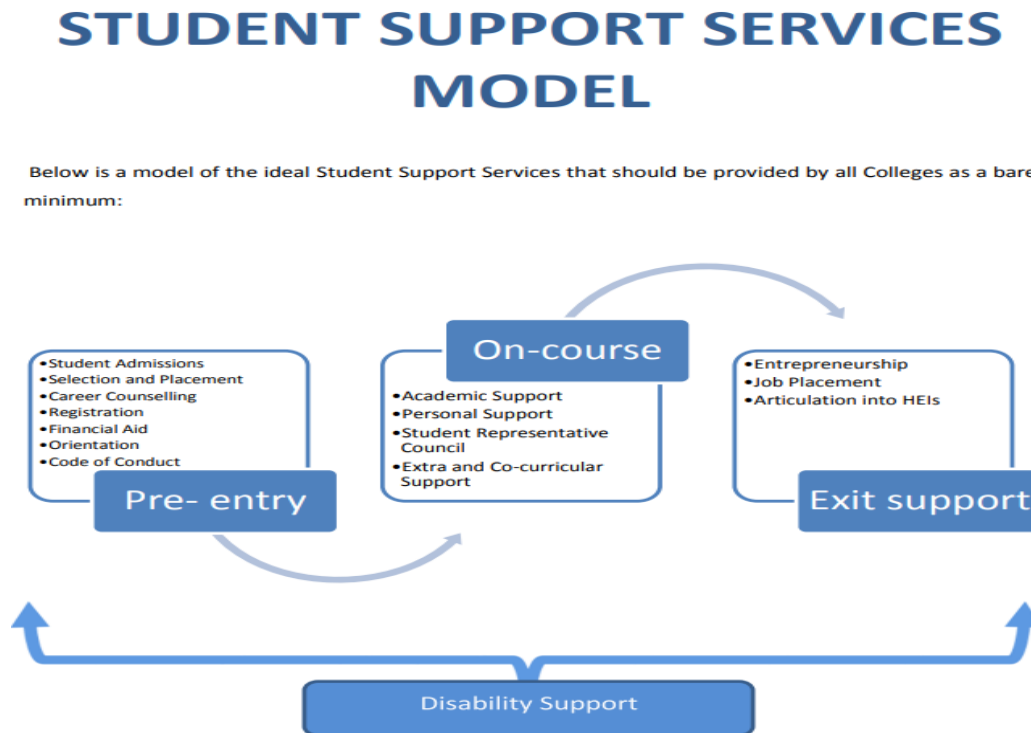
In South Africa, it is believed that technical education, in partnership with communities, local and provincial governments (including skills authorities such as Sector Education and Training Authorities), the private sector, and international partners, could play a major role in socio-economic development through work-integrated learning (WIL) partnerships between TVET colleges and workplaces. An overview of literature indicates a growing interest in best practice in the implementation of WIL for students. 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 & Thompson, 2002; Evers, Rush & Berdrow, 1998; Martin, Milne- Home. Barrett, Spalding & 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.

The guidelines for WIL practice are documented in South African official documents that include the White Paper on Post-School Education and Training, the DHET/SSACI WIL Framework, the National Skills Development Plan (NSDP) and the 2020 TVET Colleges' Student Support Service Plan (TVETSSSP).

The Department of Higher Education and Training (2013, p.5) WIL Framework, developed in collaboration with the Swiss South African Collaboration Initiative, a non-profit organization supporting TVET colleges in South Africa, defines WIL as "...any purposefully-designed learning program that integrates theoretical knowledge with authentic practice in the workplace." The framework also clarifies the features and the WIL requirements for TVET colleges.

Furthermore, the TVETSSSP emphasizes the support that TVET Colleges must provide to students to enhance their chances of graduating and being employed. The plan also provides guidelines for Work-integrated Learning (WIL) practice regarding what colleges should report on, emphasizing induction and work readiness for students, partnership with industry, and tracking and tracing of college graduates. It proposed the student support services model in Figure 1.

FIGURE 1: Student support services model (DHET TVET Colleges’ Student Support Service Plan, 2020).



Of interest in the above model is the Exit support leg that entails entrepreneurship, job placement and articulation into high education. The leg provides further clarity on the outcomes of the WIL practice in TVET colleges in South Africa.

It is against this background that this paper attempts to identify gaps between the stipulated guidelines and the current practice of WIL in the TVET sector using a comparative analysis of practice from four TVET colleges based in the province of Kwa-Zulu Natal, South Africa.

The paper focuses on the practice on two important outcome indicators of WIL identified through the Sector Education and Training Authority (SETA) WIL Programme, that is, qualification acquisition (through placement in industry) and graduate absorption in the labor market.

DESCRIPTION OF THE SETA WORK-INTEGRATED LEARNING PROGRAM

There are 21 SETAs in South Africa established in accordance with the Skills Development Act, 97 of 1998, which required, as part of one of their mandates, to expose TVET college students to industry

through WIL (Grawitzky, 2007). According to the 2020 published NSDP 2030 (DHET, 2019), all SETAs are required to:

- Provide TVET students requiring work-integrated learning to complete their qualifications with workplaces; and
- Make available workplace-based learning experiences and internships to TVET college graduates.

To achieve the above, the SETAs collaborates with TVET colleges, through partnership agreements, to provide funding for several TVET college students who have completed part of their Report 191 N6 programs, and requiring workplaces to acquire their college diplomas. The SETAs provide funding mainly for a monthly stipend that ranges between R3 00 (approximately \$160) to R4 500 (approximately \$250) per student for eighteen (18) months. Once funding from the SETAs is secured, the colleges recruit local employers to host students requiring workplace experience to acquire their National Diploma. All the key role players, that is, SETAs, colleges and employers, are required to monitor, support and report on the students during and after the student's 18 months' work experience. The ultimate goal of the program is to support students to acquire their Diploma to be able to secure employment or create their own employment.

As one SETAs, the Education, Training and Development Practice Sector Education and Training Authority (ETDP SETA) implements this WIL program under the name workplace experience and agreed to participate in this research by providing its reports and databases of students.

METHODOLOGY

A qualitative approach was employed to gather data in three stages; First stage involved analysis of official documents on how WIL should be implemented in TVET colleges. This also entailed the analysis of databases of students (supplied by both a SETA and the TVET colleges) and who have completed their 18 months' workplace experience in 2019/20 and 2020/21 financial years.

The second phase entailed in-depth interviews, using an interview questionnaire, with key officials from the ETDP SETA and TVET colleges who managed the SETA WIL program in 2019/20 and 2020/21 financial years, based in the province of Kwa-Zulu Natal, South Africa. The third and final phase used thematic analysis to code data into themes, where these themes will be discussed in the findings section of the paper (Creswell and Cresswell, 2018) (Note: in consideration of confidentiality, the identities of the SETA and TVET college officials; and their colleges will not be mentioned in this paper).

DATA ANALYSIS AND FINDINGS

The data collected show some disparities or inconsistencies between data from the SETA and the four TVET colleges, as can be shown in the table below in the 2019/20 financial year:

TABLE 1: 2019-20 data

Colleges	Learners supported and reported by the SETA as completions	Learners awarded diplomas	Graduates placed in employment
College A	20	20	5
College B	38	42	4
College C	40	40	40
College D	37	29	0
TOTALS	135	131	49

Source: SETA and TVET college reports, 2020.

Table 1 above show a difference in reporting between colleges B and D and the SETA. According to the questionnaire's responses of the officials, there are two reasons for this. The first is that the SETA reports its completions based on the exit letter from an employer, while colleges report their theirs based on the diplomas obtained. Secondly the reporting requirements of the SETA are that it must account for the stipend distribution after the 18 months period, while colleges must apply for a different process to get their students certificated.

Furthermore, the data on table 1 show that while 97% of students successfully obtained their diplomas, only 37% were able to secure employment. According to SETA and TVET college officials, the students are neither tracked nor supported beyond their 18 months' workplace experience (in the case of the SETA) and once they have obtained their diplomas (in the case of 75% of colleges). Only College C indicated that, because of its strong partnerships with local employers, it can find and track its students employment after obtaining their diplomas.

The same data inconsistencies can be seen in the 2020/21 data captured in Table 2.

TABLE 2: 2020-21 data

Colleges	Learners supported and reported by the SETA as completions	Learners awarded diplomas	Graduates placed in employment
College A	10	0	0
College B	12	0	0
College C	11	15	0
College D	13	0	0
TOTALS	46	15	0

Source: SETA and TVET college reports, 2021.

While the reporting disparities are still evident in the Table 2 data, the rate of certification and tracking of job placement are very low, or nonexistent. The reasons, according to 100% of the colleges, are that the application process for diplomas, after the completion of the 18 months WPE, is tedious and time consuming. This means that 75% cohort of these students have not received their results to check if they

have obtained their diplomas. As can be seen from Table 2, the lack of diplomas has a knock-on negative effect on the tracking of employment placements as none of the students have been placed in employment.

Other findings, from the analysis of the interview questionnaires, relate to the amount of stipend paid by SETAs; lack of adequate monitoring by SETAs; and lack of communication of updated WIL guidelines from the DHET.

All participants (100%) indicated frustration with different amounts of stipend paid by SETAs, indicating that some SETAs pay low, while others pay high allowances. According to them this situation contribute to drop-out rates and WPE hoping, where students chase SETAs paying higher stipends.

The lack of adequate monitoring by SETA was mentioned by 100% of the colleges. While 75% conceded not monitoring adequately themselves, however it the SETA monitoring that they are worried about because they (SETAs) are the main funders of the WIL program and therefore should account on their return on investment.

The lack of updated guidelines by the DHET was cited by 100% of the colleges. This was confirmed when this researcher asked if they are aware of the 2020 TVETSSSP document, where none said they are aware of it, yet it was available on the DHET website. Despite few attempts, this researcher was unable to get hold of one DHET official to ascertain if this document was sent and workshopped with the colleges.

RECOMMENDATIONS

Based on the findings above, the following are recommended:

- a) The SETA and the TVET colleges should report WIL program student successful completions based on the diplomas issued, to align their reported student numbers and impact indicators.
- b) The SETA and the TVET colleges should review their WIL program implementation to include adequate monitoring and updated requirements from the DHET.
- c) The SETA should review and benchmark the amount of stipend provided to alleviate challenges related to WIL program hoping by students. p
- d) To measure the impact of the WIL program, the SETA and the TVET colleges should track the students beyond the 18 months contract to ensure that the students are placed in employment.

CONCLUSION

In the post-COVID 19 era, which has digitally transformed the world of work, the WIL program for students require a review in relation to how and where students are placed; how they are prepared (job readiness); continuously monitored and ultimately placed in employment. The findings of this paper have shown which areas of the WIL program require such a review, and these are articulated in the recommendations. To achieve this objective a close collaboration is necessary between all key role players such as the DHET, SETAs, TVET colleges and local employers.

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Preparing future proof curricula to boost the economy and contribute to social cohesion: A Western Cape, South African perspective

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INTRODUCTION

University curriculum development is a dynamic process. It's relevance and fitness for purpose is constantly being challenged by the fast changing global and local economic and social trends. This study seeks to highlight components for a future proof curriculum to boost the economy and contribute to social cohesion in the Western Cape of South Africa.

Background of Universities of Technology

Universities of Technology (UoTs) in South Africa evolved from Technical Colleges and Technikons, which had strong partnerships with industry partners. The distinguishing factor of UoTs, is that they focus on technology innovation and transfer and offer technological career-directed educational programs. They are expected to engage with industry to produce innovative problem-solving research. The new concept of Work-Integrated Learning is in line with the new SAQA (South African Qualifications Authority) Higher Education Qualifications sub-Framework (HEQSF) of the CHE to become a pedagogy and scholarship of its own.

Economic and Social Environment in the Western Cape

World Economic Forum (2022, p. 7) states that:

respondents to the Global Risks Perception Survey (GRPS) perceive societal risks – in the form of “social cohesion erosion”, “livelihood crises” and “mental health deterioration” – as those that have worsened the most since the pandemic began. Only 16% of respondents feel positive and optimistic about the outlook for the world.

Like many areas, the Western Cape in South Africa continues to be plagued by unemployment and social ills (Houngbo, 2023). There has been increased gang crimes, drug abuse and various other crimes. Youth who are the potential workforce, are unemployed. They need the necessary skills demanded in growth-enhancing sectors. The Global Employment Trends for Youth 2022 (International Labour Organisation, 2022) demonstrated the potential of Africa to promote inclusive and sustainable green, digital and care transitions with a view to meeting the relevant targets of the United Nation's SDG 3 (on health) and SDG 4 (on education) through its policies. Whilst South Africa has one of the highest rates of public investment in education in the world, there are over 600 000 graduates with tertiary education unemployed (Institute of People Development, 2023).

Sample student responses to a recent survey where students were asked ‘what they would like to see the university qualifications focus on’, include the following:

Feeding into varied and vibrant economic sectors showing large potential for growth (tech, agriculture and processing, creative industries, ocean economy, manufacturing); Solid foundation of technology supported teaching and learning capability; Infrastructure to support learning, industry requirements, and entrepreneurship which can be further built on and leveraged.

Focused group discussions with industry, community, and the university staff, to determine “what the future proof curricula of the university should include, yielded similar responses to the above student responses. Thus latest concept of innovative, engaged and entrepreneurial universities has started to gain favor by many.

THE NEED FOR QUINTUPLE HELIX PARTNERSHIPS

It is time that universities seriously strengthen their relationships and partnerships with key industry and community organizations. (Ferns et al., 2016). Herein lies the success in entrepreneurship and social innovation. The Cape Peninsula University of Technology’s (CPUT) Vision 2030 (CPUT, 2021). focusses on building quintuple helix partnerships, that is “developing a 4x4 matrix of engagement related to innovation and technology activities with our four primary communities (civil society, industry, government and academia)” within the environmental context.

At a recent Academy-Industry Training: Swiss and African Science and Business Innovators Program (AIT-SASBI) in South Africa, the “universities-industry collaboration was emphasized as a key determinant of success in entrepreneurship” (EDHE, 2023). The need for students to become innovators from early on was stressed, and for universities to work alongside regulators, industry and the market. Industry is “the real world where actions take place” (EDHE, 2023).

The Department of Economic Development and Tourism ‘is working towards a Western Cape that a vibrant, innovative and sustainable economy, characterized by economic growth and employment” (Department of Economic Development and Tourism, 2023). It focusses on skills opportunities, trade and investment, energy resilience and ease of doing business. The Western Cape has recently created 98% of the new jobs in South Africa, especially in Tourism.

Another key economic sector for the Western Cape is agriculture, especially it’s winelands and citrus crops. The City of Cape Town (COC) (2023) is working on job creation and economic opportunities for its people. The COC’s Social Development Strategy is creating opportunities for those excluded from society. The Department of Social Development has also created numerous platforms for social support of the disabled, homeless, substance abuse centers and disease control. The Western Cape Government has launched a strategy to promote job creation entitled’ Growth for Jobs’ (Western Cape, 2023).

The above scenarios provides a glimpse of opportunities for universities to tap into to boost the economy and social cohesion in the Western Cape. Industry and community, need appropriate talent to thrive. Industry needs commercially viable ideas derived from meaningful scientific research that unlocks wealth creation.

FUTURE PROOF CURRICULA

Zegwaard and Rowe (2019) recognize work-integrated learning “as a powerful educational approach that helps reduce the gap between education and employment through the development of employability outcomes”. The outcomes may be met through scaffolding in WIL which “entails sequencing WIL experiences and/or the curriculum in such a way that there is structure and meaning to student learning” Zegwaard and Rowe (2019). This is a dynamic developmental approach of sensitizing students from first to final year, to the actual workplace. This may mimic the US and Canadian cooperative education models which “gradually introduce students to their relevant graduate industry sector/s, building up to more authentic and complex learning opportunities which model professional practice contexts” (Zegwaard & Rowe, 2019). This model is already entrenched in the health and wellness professional qualifications. In 2018 Bennett emphasized the need for employability to be aligned to, and integrated with curriculum, so that we may effectively prepare students for future work (Zegwaard & Rowe, 2019).

The Cape Peninsula University of Technology, in its new Smart Vision 2030 Focus Area 6.2, seeks to champion social, cultural and economic growth in CPUT’s region, namely the Western Cape. To this end initiatives are underway in the teaching and learning space to innovate WIL curricula trends. In the spirit of CPUT’s Vision 2030 themes of ‘Oneness’ and ‘Smartness’, the Centre for Community Engagement and Work-Integrated Learning (CCE&WIL) at CPUT promotes various modalities of WIL, community service learning and community engagement pedagogy in order to produce smart future-fit resilient graduates. It seeks to instill CPUT values, graduate attributes, employability, entrepreneurship, and social responsiveness in students, through staff and student development and research initiatives. It envisages achieving this through engagement with quintuple helix partners regionally, nationally and internationally.

This study focuses on incorporating entrepreneurial thinking and challenge-based education into the curriculum. These ideas arose in group discussions of Work-integrated coordinators and curriculum developers. International models were also studied of essential components that promote employability of students, for example at Various topics are integrated into the curriculum such as intrapreneurship, technopreneurship, social innovation hubs, challenge-based education, 4IR, strategic and critical thinking. The Table 1 below provides an example of scaffolded curricula components to move the employability agenda and provide a future fit and dynamic curricula and teaching and learning practices, which will allow change with the times.

TABLE 1 : Curriculum designed to include employability components

YEAR OF STUDY	PROFESSIONAL PRACTICE	WIL	COMMUNITY ENGAGEMENT	ENTREPRENEURSHIP
1	Professional Practice: Practical Skills Development	Work-Directed Theoretical Learning	17 SDGs	Critical Thinking
2	Professional Practice: Industry Profiling	Clinical/simulation laboratories	Community service learning project	Strategic thinking and intrapreneurial thinking
3	Professional Practice: Communications and Business Etiquette	Workplace-based learning	Challenge driven project	Entrepreneurship project
4	Professional Practice: Ethics and Regulations	Workplace-based learning	Social innovation projects	Technopreneurship project

Entrepreneurial Thinking

Studies show that universities need to become innovative and entrepreneurial (Cunningham and Mentor, 2021; O’Flynn et al., 2023). This is the new trend of many universities globally as they realize the need to be more relevant to industry and the community. A recent World Bank Graduate Survey reported a student commenting as follows, “I would love to start my own business, but I don’t believe that it will be possible without gaining at least some work experience.” This has solidified efforts to embed entrepreneurial thinking into the curriculum from first year.

Universities need to create sustainable ecosystems with committed partners. Ecosystems critical for impactful entrepreneurship. Universities require talent and knowledge, physical infrastructure, leadership, finance, demand for the solutions presented, and intermediaries to make things happen.

Australian innovative WIL practices identified in an inaugural study included, “innovative WIL models such as micro placements, online projects or placements, and WIL incubators and start-ups, along with other contemporary approaches” (Kay et al., 2019). The Entrepreneurship Development in Higher Education (2023) speakers mention that universities, should be seen as:

long-term entities enjoying staying power with a continuous outflow of knowledge and talents, are best placed to play a key role when they build an ecosystem within them, especially when they develop the right culture and networks to make this happen. Universities could also become role models for the upcoming generations.

There is opportunity for students to associate with technology stations and research institutes at the university (Akpan, 2021). These initiatives cover engineering, business and science. This includes the Agrifood Station, Water And Wastewater, agriculture department farm, horticultural nurseries, biotechnology institute, F’Sati nano-satellite development, SARETEC Renewable Energy Centre and Clothex to name a few.

The Entrepreneurial Development in Higher Education (EDHE) program for South African universities drives entrepreneurship competitions annually. This is an opportunity for students and staff to respond

with start-ups or incubators in the Western Cape. The following quotation describes an incubator which promotes entrepreneurship (Kay et al., 2019):

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 start-up is an entrepreneurial venture which is typically a young, small and recently 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 start-up 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 start-up businesses.

University of Basel is now reaping the benefits of being part of a consortium named UNITECTRA, a non-profit incorporated technological transfer company that went into operation from 1999, co-owned by the universities of Basel, Bern and Zurich. The University of Basel also collaborates with the Swiss Technology Transfer Association which activates the commercialization of research results, IP/patents protection and management, technology marketing, financing and the licensing of existing and spin-off companies (Entrepreneurial Development in Higher Education, 2023).

Social Innovation

SDGs-inspired socially impactful innovation is feasible if entrepreneurs start considering the social impact of their business ideas from the outset. Partners including students and staff need to identify within their areas of expertise and inquiry, priority SDGs and set targets and key performance indicators to monitor progress (Loiotile et al., 2022). Then they may measure results and communicate them to both internal and external stakeholders. They should align company values and culture to the SDGs so all employees are aware of the common goals. The following aspects should be considered for success, 1) Synergy – learn from other successes, 2) Symbiosis – work equitably and equally with partners, 3) Sustainability – identify needed and realistic innovations, 4) Cultivate self-confidence and 5) use science to solve societal challenges and feed solutions to the innovation.

Challenge Driven Education

Universities may consider following ‘challenge driven education’. This involves students going into communities and determining what problems to solve, planning a project and implementing the project for the benefit of the community (Gallagher & Savage, 2020).

Western Cape like many other regions have WIL integrated across the curriculum in the medical degrees and various other health and wellness disciplines such as nursing and biomedical sciences. This works well because there is a solid partnership between the university and dep the department of Health. The teacher education qualifications are also well endowed for WIL placements through an established partnership with the department of education in the Western Cape. Improved work preparedness has been shown to occur where there is community service learning, and work-integrated learning embedded in the curriculum. Universities may consider including discipline-specific technical competencies, business and entrepreneurial competencies and socio-ethical competencies.

CONCLUSION

Educational institutions play a vital role in preparing graduates with future -proof curricula to ensure economic growth and social cohesion in our countries. Further research on curricula design is required to meet the future of work needs of our graduates. These efforts cannot be done in isolation. They require partnerships and dialogue amongst quintuple helix partners in geographical regions.

Creating a culture for innovation and accountability in society is essential by the various stakeholders to strengthen partnerships for entrepreneurship and social cohesion.

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Exploring challenges in work-integrated learning: A learning curve from an Indonesian perspective

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INTRODUCTION

The literature on work-integrated learning (WIL) in the Asian region has concentrated on the background of work-integrated education, the present condition, and the anticipated challenges, including in with Asian regions: China, Japan, Korea, Hong Kong, Vietnam, Thailand, Malaysia, and Singapore (Tanaka & Zegwaard, 2019). More importantly, a range of topics relevant to the diverse circumstances of higher education in Asia, especially the sociocultural ones, have come to the fore that represent key issues in the WIL program in the region. As such, Indonesia shares similar sociocultural conditions and challenges with the neighboring countries. The unique sociocultural and geopolitical landscapes of the Asian region provide diverse interpretations of needs and backgrounds, as well as practices. As a result, WIL models are contextualized and practices are demonstrated through continuous adjustments to expectations and reality of the culture in which the program is situated. This is the tenet of contextualized WIL as argued by Zegwaard (2019).

Work-Integrated Learning Experience in the Asian Region

As far as WIL development is concerned, some commonalities relevant with major issues with Indonesian perspective are noted, including first, Indonesia's current stage of early WIL development, a discussion relevant to history of WIL representing in the stages of WIL program in China (Xu, 2019). Second, Indonesia has grappled in improving human capacity through various initiatives in both basic and higher education to produce skilled graduates, a condition considered as socioeconomic pressure relevant to the employability and skill development of graduates in Japan, albeit in a different context (Tanaka, 2019). Third, the job market has revealed a gap between the graduates and expectations of the employers, a disparity between skills acquired and practical needs in industry that are highlighted in Korea (Oh & Om, 2019). Fourth, two governing ministries have worked together to address issues that deal with employability of fresh graduates and the constant upskilling demand from the job market, which shares some of the arguments stated in the needs gap between two stakeholding state ministries: education and industry in Hong Kong (Tanaka & Lai, 2019). Fifth, the state ministry of education has recently upgraded Indonesia's higher education system by introducing various real life learning opportunity initiatives, including WIL, which are slowly integrated in the more conventional existing curriculum, an effort shared by Vietnamese counterpart as the opportunities to transform education system through WIL were transpired in Vietnam (Nguyen et al., 2019). Sixth, the 'Western' WIL frameworks have been adapted in most Asian regions with adjustment relevant to sociocultural practices and perspectives in each country. In this case a WIL model that has been implemented in at least one Indonesian university is Canada's University of Waterloo. Such an experience implying a

learning curve in the process of developing a WIL program is highlighted as adaptation of WIL models similarly occurs in Thailand (Srisa-an & Pramoolsook, 2019). Seventh, Indonesia's growing demographics and increasing needs for human capital translate into the heightened attention to better governing systems to organize higher education and graduate employability in its 38 provinces, a challenge shared by our peer in Malaysia of interactions among various stakeholders in the multifaceted socioeconomic background (Mahat et al., 2019). Finally, the bottom line of any educational initiative concerns the quality of learning and results for the student. As the path to implement WIL is relatively new in Indonesia, challenges and reviews in skill assessment and skill set development encompassing the perspectives of employers, educators, and curriculum become increasingly significant. Such a quality of student learning and results in WIL in Singapore is scrutinized (Lee, 2019).

Stakeholders in Work-Integrated Learning Universal Framework

During the WACE Conference in 2019, McRae and Pretti (2019) discussed a universal framework for quality WIL that features five key stakeholders: students, educators, institutions, employers, and the government. The framework provides parameters for each stakeholder to be accountable for their share to support the success of WIL through producing aims and measures. This framework helps stakeholders identify themselves in the running of things, focus on accountability, and foster improvement and synergy among stakeholders. In the case of Indonesia, the concept and directions underlying the parameters in the universal framework not only assist in the actual implementation of WIL program, but also characterize more specific implications for research in higher education that is based on empirical data, an area WIL program in Asia will benefit from, as argued by Zegwaard (2019), to gain lucid understanding of the success and sustainability of the program.

In addition, literature on future directions as well as ways to overcome challenges in WIL in the Asian region appears to agree upon areas where the adoption of WIL model would be best implemented. Zegwaard (2019) discusses some suggestions to overcome challenges as future directions in WIL in Asian region. Additionally, the universal framework (McRae et al., 2019) aims to help interpret such challenges to create a distinct collaboration among WIL stakeholders and contextualize a meaningful WIL practice. Both perspectives combined help clarify the challenges which WIL in Indonesia is facing and set out key stakeholders, with descriptions of specific caution being in fivefold:

1. developing government-supported WIL programs (government and institution, employers),
2. actioning on the reform of skill gap versus employability (institution and employers, educators),
3. contextualized WIL programs (institutions and educators, employers),
4. participating in WIL associations (institutions), and
5. Collaboration in research and funding (educators and industry, institution and government).

Overview of Work-Integrated Learning Practices in Indonesia: Challenges and Opportunities

The education system in Indonesia has employed some form of WIL program through various implementations in universities and vocational or polytechnical training institutes for over four decades, including apprenticeship, clinical placement, field placement, work experience, internship, entrepreneurship, and recently co-operative education (Sari, 2021). Like in China, Malaysia, and many

other Asian countries, higher education in Indonesia is a central government jurisdiction. According to the Indonesian Bureau of Statistics, “in 2022 there were 4,004 universities in Indonesia in all 38 provinces, a 0.73% increase from the previous year” (Sadya, 2023). In addition, there were 269,325 teaching faculty and over 7.8 million students in 2022 (BPS, 2022, pp. 169-193). Not unlike in Vietnam and Thailand, the adaptation of WIL model in Indonesia also offers a healthy introspection to the local higher education practices by questioning and redefining the purpose, strategies, and outcomes. Furthermore, a practical learning program launched by the Indonesian government in 2020 provided the right momentum to promote WIL (Sari, 2020). As a result, the nationwide WIL initiative targets some key accountabilities cemented by the quality framework by exposing them to interaction. In the particular initiative, all five stakeholders are raised to the fore exposing key aims and measures to be monitored, critiqued, and reviewed for improvement, the new central component being the introduction of academic credit transfer to the curriculum. In retrospect, the academic transfer scheme is responsible for an introduction of change in assessment in Indonesian higher education curriculum. The credit transfer scheme met with some resistance at first, but after four work terms most institutions and educators dealing with determining the student’s grade based on assessment were able to decide on the best way to assess the student’s overall performance. The core issue is the argument for including summative assessment while releasing some of the control which teachers in Indonesia have in the predominantly teacher-centered environment to the work supervisors and, to some extent, the student’s own self assessment.

Work-Integrated Learning Assessment in Indonesia

Studies on WIL assessment have shown that students benefit from an honest, thorough, and clear evaluation of their performance which facilitates their learning, including theoretical perspectives on WIL assessment (Hodges, et al., 2014); e-portfolios for student’s engagement for ownership for specific skills (Ferns & Zegwaard, 2014); a good facilitation of feedback that involves at least three stakeholders – employers, educators, and students (Peach, et al., 2014); a framework for skills evaluation criteria (Zegwaard, et al., 2003); and risks (Fleming & Hay, 2021). Some assessment types work well in Indonesian WIL, e.g., skill criteria in the performance evaluation from both work supervisors and academic advisers have been available, focusing on both technical and soft or transferable skills (Sari, 2020). Universities have WIL students fill out logbooks or write regular e-journals to record their progress, challenges, and other observations at work. Students are also required to submit a complete report of their WIL experience to the study program. For example, University of Prasetiya Mulya’s co-operative education program encourages their co-op students to create e-portfolios that include chronicling national certification exams, such in actuarial science (Indonesian Association of Actuaries) and computer science (Google and Apple academies), to enhance skill sets. In the current, and early stage of WIL practice in Indonesia, quality learning outcomes through quality skill assessment and cultivation for strategic skills in technology and sustainability, like discussed in the case of Singapore (Lee, 2019), may become both a daunting and exhilarating prospect.

Recommendation for Collaborative Assessment

An effort in addressing WIL assessment and in helping untangle somewhat the intricacies in the theoretical aspect of assessment that assist the learner (student), the supervisor (employer and educator), and the institution in a more pragmatic and accessible manner. One way is to integrate student learning ownership, which has been introduced by productive reflection (journaling, e-portfolio), in the undergraduate final project or thesis. Indonesian higher education requires a thesis as mandatory for an undergraduate degree. Undergraduate thesis is normally a six to twelve-credit course offered in the final semester that culminates in a defense exam by a thesis committee. In taking WIL experience into the final project, a WIL student could use her WIL work to showcase learning ownership, argue certain reasonings of methodology with the academic advisers, and eventually flourish in the combination of structured learning and experiential or personalized learning. On the other hand, educators could have the opportunity to assess the desired procedural knowledge of the student. All to the better, the thesis committee may include the work supervisor in the defense, or during the advising, to offer a comprehensive look at the student's project. In so doing, the three stakeholders are free to compare data, contrast insights, test methods, argue assumptions, criticize findings, and listen to a specific skill set that is meant to be explored, all in one scientific event.

CONCLUSION

To sum up, the guiding principle for the discussion is the assumption that a learning curve is necessary for beginning WIL stakeholders to negotiate values among the parameters and stakeholders, adjust WIL models to describe the multifaceted sociocultural conditions, and execute plans for quality improvement. As the current discussion presents a preliminary take on WIL in Indonesia, much more studies are recommended to clarify issues in the parameter of the universal framework. A practical approach that could expand from student learning ownership, such as integrating WIL work in the final project, could help alleviate some barriers in providing a productive assessment.

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What Gen Z views as ideal jobs and employers: Generalizations and nuances in the voices of 2,000 university co-op students

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INTRODUCTION

Generation Z (Gen Z), comprising individuals born between 1997 and 2012 (Statistics Canada, 2022), is playing an increasingly crucial role in the workforce. These youngest labor market entrants are fast replacing the retiring Baby Boomers and are predicted to hold almost all entry-level jobs by 2030 (McGaha, 2018). Additionally, Gen Z's work values, that is, the desirable characteristics of a job or an employer (Rounds & Jin, 2013), which may determine their career pursuit and commitment (Carless, 2005), have been found to be distinctive from the previous generations'. For instance, witnessing the great recession, Gen Z tends to place a higher priority on salary, benefits, and job security when choosing employment than do the previous generations (Lanier, 2017). Gen Z is also believed to be the most achievement-oriented cohort ever, who does not easily settle for the status quo and is ready to hop jobs if their expectations are not satisfactorily met (Aggarwal et al., 2020). With such potential and unique work values, Gen Z is expected to reshape the future workplace (Aggarwal et al., 2020).

A proper understanding of Gen Z's work values as well as what shape such values are therefore imperative for both work-integrated learning (WIL) educators and employers. It may help WIL educators understand the role WIL may play in guiding students to discovering their work values, thus better preparing them for the world of work. For employers, adequate attention to Gen Z's needs would advantage them in recruiting and retaining quality candidates from this next generation (Leslie et al., 2021).

The literature, despite offering a plethora of relevant information on the topic (see for example Acheampong, 2021), demonstrates two major gaps that necessitate this study. First, much of the available discussion is merely opinions or observations, some of which are contradictory (Acheampong, 2021; McCrindle & Fell, 2019). Many work values ascribed to Gen Z are therefore ill-supported, creating more confusion than useful insights for stakeholders. Second, although work experience is widely accepted as a strong predictor of work values (Warner et al., 2023; Waterwall et al., 2022), no research has been done exclusively on Gen Z in WIL context to confirm the relationship. The role of WIL in shaping Gen Z's work values is thus unclear.

Given such gaps, this study aims to empirically investigate the work values that Gen Z students hold, and how WIL experience may impact these values. Findings of the study would enrich the existing literature and provide meaningful implications for WIL educators preparing Gen Z for the future workplace, and for employers seeking to hire and retain this emerging talent.

METHODOLOGY

The study employed a quantitative research approach, collecting data via survey questionnaire. To measure Gen Z's work values, the questionnaire asks respondents to rate the importance of seven employer attributes and 12 job attributes (see tables 1 and 2) on a five-point scale (1=not important at all; 5=essential). To measure WIL work experience, respondents were asked for the number of work terms they had completed. After Ethics approval was obtained (project number 44614), data was collected on October 25, 2022, via online survey.

Participants included 2,097 undergraduate students enrolled in co-operative education programs at a Canadian university. They were selected regardless of study major, gender, and nationality, as long as their birth year falls between 1997 and 2012. The mean age of the sample (n=2,097) was 20.1 years (SD = 1.53) at the time of data collection. Distribution of participants by faculties is as follows: Engineering (36.4%); Mathematics (19.1%); Arts (18.2%); Science (11.6%); Health (8.6%); Environment (5.8%). The participants had completed an average of 2.1 work terms (SD=1.86), and most of them are Canadian citizens or permanent residents (83.1%), and self-identified as woman (63.9%).

RESULTS

Participants' Views of an Ideal Employer

The results for participants' views of an ideal employer are displayed in Table 1. As the table shows, training and development received the highest importance rating (M=4.12) among seven employer attributes. Ranked last in the list and below average are employers' commitment to sustainability (M=2.95) and prestige (M=2.67).

TABLE 1: Mean importance ratings of employer attributes (n=2097).

Employer attributes	Mean*	SD
My ideal employer offers me professional training and development.	4.12	0.844
My ideal employer has a culture that values diversity, equity, and inclusion among its personnel.	3.86	1.103
My ideal employer has a culture that respects my individuality.	3.74	0.987
My ideal employer is a good reference for my future job searches.	3.62	0.923
My ideal employer offers me a mentor or coach.	3.58	1.029
My ideal employer is committed to sustainability.	2.95	1.072
My ideal employer is prestigious.	2.67	0.990

*calculated on a scale of 5 (1=not important at all; 5=essential)

One-way ANOVAs were conducted to examine the impact of work experience on the importance ratings participants assigned to each employer attribute measured. Participants were categorized into three groups according to the number of work terms completed (Group 1: 0 work terms; Group 2: 1-2 work terms; Group 3: 3 or more work terms). The results show statistically significant differences ($p < .05$) in the mean importance scores given by the groups to the following employer attributes:

- *Mentor/coaching*. The mean score for Group 1 (M=3.40; SD=1.04) is significantly lower than that of Group 2 (M=3.55; SD=1.07) and Group 3 (M=3.73; SD=.97), and the mean score for Group 2 is significantly lower than that of Group 3.
- *Sustainability*. The mean score for Group 1 (M=3.12; SD=1.12) is significantly higher than that of Group 2 (M=2.91; SD=1.02) and Group 3 (M=2.85; SD=1.06); there is no significant difference between Group 2 and Group 3.
- *Good job reference*. The mean score for Group 1 (M=3.77; SD=.93) is significantly higher than that of Group 2 (M=3.56; SD=.91) and Group 3 (M=3.56; SD=.92); there is no significant difference between Group 2 and Group 3.

Participants' Views of an Ideal Job

The results for the participants' views of an ideal job are presented in Table 2. As the table shows, the four most important job attributes include: good work-life balance (M=4.29); secure employment (M=4.14); competitive salary (M=4.09), and good benefits (M=4.07). The least important attribute and also the only one rated below average is relocation/international travel opportunities (M=2.53).

TABLE 2: Mean importance ratings of job attributes (n=2,097).

Job features	Mean*	SD
My ideal job offers good work/life balance.	4.29	0.868
My ideal job offers secure employment.	4.14	0.855
My ideal job offers a competitive salary.	4.09	0.912
My ideal job offers good benefits (e.g., pension, health insurance, employee physical or mental wellness program).	4.07	0.920
My ideal job offers positive social relationships with supervisors and colleagues.	3.90	0.909
My ideal job offers flexible working conditions.	3.62	1.007
My ideal job has a positive impact on society.	3.57	1.075
My ideal job offers leadership opportunities.	3.30	1.039
My ideal job offers good possibilities for rapid promotion.	3.25	1.009
My ideal job offers challenging work.	3.23	0.948
My ideal job is in an attractive geographic location.	3.21	1.118
My ideal job offers opportunities for relocation abroad and international travel.	2.53	1.218

*calculated on a scale of 5 (1=not important at all; 5=essential)

One-way ANOVAs were conducted to examine the impact of work experience on the importance ratings participants assigned to each job attribute measured. Participants were categorized into three groups according to the number of work terms completed (Group 1: 0 work term; Group 2: 1-2 work terms; Group 3: 3 or more work terms). The results show statistically significant differences ($p < .05$) in the importance scores given by the groups to the following job attributes:

- *Challenging work*. The mean score for Group 1 (M=3.03; SD=.97) is significantly lower than that of Group 2 (M=3.28; SD=.91) and Group 3 (M=3.32; SD=.94); there is no significant difference between Group 2 and Group 3.
- *Attractive geographic location*. The mean score for Group 1 (M=3.0; SD=1.16) is significantly lower than that of Group 2 (M=3.23; SD=1.09) and Group 3 (M=3.33; SD=1.09); there is no significant difference between Group 2 and Group 3.
- *Competitive salary*. The mean score for Group 1 (M=3.96; SD=.96) is significantly lower than that of Group 2 (M=4.10; SD=.92) and Group 3 (M=4.17; SD=.87); there is no significant difference between Group 2 and Group 3.

DISCUSSION

The above results feature several points that warrant discussion. First, Gen Z places the highest importance on employers who offer professional training and development. This agrees with previous research, which found Gen Z consider training and skills development a critical factor in selecting and committing to a workplace (Goh & Lee, 2018). This is not surprising since Gen Z is new to the workplace and still in the process of acquiring work-related competencies. They thus understandably demonstrate a strong tendency to favor continuous learning opportunities (Reddy & Dawlinmaria, 2020).

Second, Gen Z assigns top priority to jobs with good work-life balance. This finding resonates with several previous empirical studies, which consistently found work-life balance a strong determinant of Gen Z's selection of a workplace (Donald, 2022; Moltz, 2019). The independent nature of this young cohort may explain this preference (Walczak, 2018).

Third, job security is also of critical importance to Gen Z. It is ranked only after work-life balance and higher than all other job attributes including compensation. This result is consistent with some previous work (e.g., Lanier, 2017), and may be attributed to the economic uncertainty that features the historical period in which Gen Z was born and grows up. Critical events such as the great recession or COVID-19 caused a scarcity in desirable jobs, making job seekers (Gen Z inclusive) prioritize securing a job over many other factors, including even pay and benefits (Kalleberg & von Watcher, 2017).

Unlike a common observation in the literature (Leslie et al., 2021), Gen Z in this study did not consider social impact a highly important characteristic of an ideal workplace. Commitment to sustainability was ranked nearly last in importance among seven employer attributes, and positive social impact was ranked seventh among 12 job attributes. According to Gerhardt, et al. (2021), this may not necessarily mean Gen Z does not value organization's social responsibility, but may simply be because they do not have sufficient skills and knowledge yet to ascertain whether an organization is socially responsible.

They may thus prioritize more clear-cut values (e.g., job security, salary) in forming their perception of an ideal job or employer.

Finally, the results show that WIL experience may shape Gen Z's work values, but the link is relatively modest. Specifically, students, regardless of work term experiences, reported similar importance scores on most job and employer attributes. Notably, the top-ranked attributes such as training and development, work-life balance, and employment security appear equally important to all student groups. Regarding the attributes where importance scores are different, students with work term experience are found to value salary and challenging work more than those without work term experience. This may reflect experienced students' awareness of their improved employability gained from the completed work terms, and at the same time their readiness to contribute to organizations in return for their higher demand for compensation. Meanwhile, experienced students gave a lower mean importance score to employer's sustainability than did those without work term experience. Once again, this may not mean experienced Gen Z assign less value to the social responsibility of an organization, but may rather be due to their realization that this attribute is not as easily available in a workplace as they initially expect.

If this is the case, the value of WIL in helping students know what they can realistically look forward to in the workplace can be established. Another point worthy of attention: the more work experience students gain, the more important they find mentorship/coaching at work. The critical role of workplace supervisors has been consistently emphasized in theory (e.g., Martin et al., 2019), and WIL experience, as this result suggests, seems to be an effective tool to help students recognize this in practice. Last but not least, most differences are found between students with no work term experience and those with any work experience; students completing 1-2 work terms do not differ from those completing 3 or more work terms across almost all work values. All these considered, WIL generally does not seem to change the core work values Gen Z holds, but even one work term would suffice to help students be more ready for challenging work, expect higher compensation, have a more realistic view of what they may expect and realize the importance of mentorship in the workplace. This is in line with a common finding in the wider literature that work experience is a predictor of career interest (Wang & Wanberg, 2017), but sheds light on the particular ways in which WIL experience would affect students' work-related perspectives.

Leveraging these findings, WIL educators may want to engage with host organizations who can offer jobs and work environments that are conducive to Gen Z's work values and experience; and employers may also update their recruitment and human resource management strategies to better hire and retain Gen Z.

This study was conducted on students from one university, so the findings may not be generalizable to the wider Gen Z population. Besides, confounding variables that may mediate the relationship between work experience and workplace preferences (e.g., career self-efficacy), were not considered. The research, finally, is quantitative, leaving the reasons underlying its findings unaccounted for. Further research conducted in other contexts, considering more variables, and collecting also qualitative data, is therefore recommended to complement the findings of this study.

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An inclusive approach to developing student journalists' employability

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INTRODUCTION

In the complex landscape of employability and graduate skills, both advocates and employers are beginning to understand and appreciate the value of including differently-abled employees in the journalism and media workforce. The journalism and media workforce must be knowledgeable and equipped to report on a diversity of topics, especially disability, and should reflect the diversity of the communities they serve (Ellis, 2016; Lück et al., 2022). Disabled journalists are, therefore, uniquely positioned to make substantial contributions to the journalism and media workforce through their knowledge and connections within different aspects of the disability community (Ellis, 2016; Jones, 2014). However, despite this growing awareness of the benefits to workplaces, individuals and to public knowledge of hiring journalists with a diversity of ability, disabled journalists have discussed facing ongoing challenges with employment opportunities with minimal progress to equitable employment observed (Page, 2022; Keefer & Smith, 1993). Similarly, journalism students with a disability continue to experience barriers to their education (al-Najar, 2022). In producing a future-focused journalism workforce that better represents communities and their needs, higher education institutions must also ensure that students with disability are supported to succeed in their education and are well-prepared for the workforce (Bell et al., 2021; Harvey et al., 2017; Keen & Eady, 2022; Itano-Boase et al., 2021; Pham et al., 2018).

DESIGNING INCLUSIVE WORK-INTEGRATED LEARNING

When WIL is university-led, all students, regardless of ability or background, can access a quality WIL experience (Valencia-Forrester, 2020). This does not necessarily mean sacrificing industry partnerships, which are essential to quality WIL (Orrell, 2011), but university-led WIL ensures that learning takes place in a supportive environment where additional social and welfare services are readily available and where students have access to academic staff who have an understanding of their needs, strengths and weaknesses. This is crucial given support, both directly and indirectly, is a 'key determinant' of quality learning in WIL (Billett, 2002). Within a university-led WIL model, students gain practical experience in accessible environments and have a safety net to develop skills, make mistakes professionally, and learn from them.

The relationships between stakeholders also need to be sustainable through reciprocity, communication, and engagement (Lubell & Scholz, 2001). Consideration needs to include staffing pressures and workloads to ensure all aspects of WIL are suitably supported (Wenham et al., 2020). The final feature of inclusive WIL is acknowledging and enhancing student agency. Billett (2011, 2002) advocates for the importance of 'affordances' in workplaces for quality WIL but suggests that this is

'one side of the reciprocal processes of participation and learning' with the other being agency (Billett, 2002, p. 29). While inclusive WIL requires agentic subjects, WIL practitioners can foster agency by using student-centered pedagogies, allowing for a diversity of learning styles and building students' confidence through scaffolding skill development, thereby enhancing access to and outcomes from WIL, particularly for students with a disability or other marginalized students.

Thus, this research sought to develop a model of inclusive WIL for journalism students. Based on the review of literature and a series of case studies and interviews with students, inclusive WIL for developing employability is defined as:

- an authentic practical experience;
- available to all students;
- facilitated by the university;
- led by academic staff; and
- incorporating industry, and or community partners;

Where students:

- critically engage with the practice of work;
- receive specialist training;
- reflectively debrief about that experience; and
- emerge with evidence of the experience to demonstrate to future employers.

Based on these criteria, Flipped WIL was developed as a model of inclusive WIL in journalism education.

METHODOLOGY

This research takes a collective case study or multi-case approach to exploring Flipped WIL as an inclusive model of WIL in journalism education. The case studies took place between 2014 and 2018, and follow a cohort of undergraduate journalism students through a scaffolded series of Flipped WIL courses. Compared with a single case study, collective case studies are considered more effective for claiming generalizability and theory-building (Creswell & Poth, 2017; Yin, 2017). Yin (2017) refers to the process as 'replication logic' in that multiple cases allow a researcher to confirm or disprove the inferences drawn from previous case studies and thereby produce more reliable models.

The research design also incorporated Participatory Action Research (PAR) which is understood here as "a process of systematic reflection, enquiry and action about [the researchers] professional practices' that 'sets out to undertake investigations that are socially responsible, politically informed and committed to praxis and social change" (Bellany, 2012, p. 12). Importantly PAR recognizes the person doing the study is also part of the group under observation (Norton, 2018). Further, authority over and execution of the research is a highly collaborative process between researchers and the members of the organization under study (Greenwood et al., 1993). Over 75 interviews took place over the course of the project. 46 interviews were conducted with students with disability, eight with students now working as journalists, 15 with industry personnel and a further eight with academic staff. This research was

conducted in accordance with the National Statement on Ethical Conduct in Human Research, university protocol HUM/13/14/HREC.

CASE STUDY – INCLUSIVE WIL FOR JOURNALISM EDUCATION

Background

The more specific literature on WIL in journalism education has also highlighted problems in terms of access and equity. Internships are the predominant approach to WIL in journalism education (Bromley et al., 2012), with Skinner et al. (2001) arguing that the number of internships provided has even been a key indicators of the success of a journalism school. Despite their popularity, there is great variability in the student experiences of internships (Forde & Meadows, 2011). Thomas and Goc (2004, p. 154) describe a highly regarded journalism course with a quota for internships, reserved for the “the best students’ as “the industry does not see itself as a training ground” but “as a place for talented journalism students, almost ready for the workforce, to gain invaluable experience” (Thomas & Goc, 2004, p. 154). The implications for this approach to internships is highlighted by Mabweazara and Taylor (2012). The differences in experiences are critical because “students are unlikely to be able to progress into the profession without a minimum amount of work experiences” (Mabweazara & Taylor, 2012, p. 127).

Flipped Work-Integrated Learning

Flipped WIL as a model for inclusive WIL in journalism education was refined through several case studies conducted over three scaffolded courses that were offered to undergraduate journalism students over five years from 2013 to 2018. The courses were Radio Journalism, Television Journalism and News Production with each course building on skills developed in the previous unit, culminating in News Production as a capstone course. Each of the units involve university-led student learning occurring through students working as and alongside industry in a specially configured, accessible, on-campus multimedia newsroom. The industry-experienced academic staff ensured each student’s accessibility requirements were accommodated within the newsroom. For example, students unable to attend campus due to their disability were treated as journalists in the field and asked to file stories remotely. They had stories published, gained practical skills and were still able to participate in newsroom activities such as pitching stories. Other students with disability were able to strategies with the industry academics about how they could best ‘work’ while accommodating their accessibility requirements within the newsroom. At the core of the model is a student-centered approach to designing WIL experiences while simultaneously strengthening collaboration between “the WIL tripartite partnership of employer, academic staff, and student” (Martin et al., 2012, p. 24). Importantly, its focus is on inclusion and ensuring all students have equitable access to a quality WIL experience to improve their employability prospects.

A second-year subject, the Radio Journalism course was re-designed as the first in a scaffolded model of Flipped WIL. A critical aspect of this re-design was the establishment of an accessible, purpose-built multi-media newsroom space on campus. This allowed students to work within a professional newsroom environment with industry-standard technology and is a critical aspect of providing on-campus WIL. It was in Radio Journalism where students first began establishing their professional

identities. The second scaffolded Flipped WIL course was Television Journalism, a third-year subject that built on the audio production skills and program and live content delivery processes explored in Radio Journalism. Theoretically, Television Journalism also included teaching students critical thinking and lateral problem-solving but this time in a television broadcast environment. It also incorporated the live component of authentic practice that forms a key aspect of Flipped WIL. The final scaffolded course of Flipped WIL was News Production. The course was designed as a capstone unit (Cullen, 2017) where students would bring their knowledge together to begin solidifying their professional identities as journalists. The fact that the course was one of the last students would complete before graduation framed teaching from the outset.

DISCUSSION

Three key themes emerged from the evaluation and reflections on the Flipped WIL program that prove the efficacy and relevance of the courses, despite their departure from traditional models of WIL in journalism education. These key areas each related to different aspects of employability and were the students' critical engagement, developing their professional identities, and the authenticity of the experiences.

Critical Engagement

The aim of these courses was not only to equip all enrolled students with practical skills but also to develop their critical capacities about journalism. This critical engagement represents a broader view on employability than is encapsulated by a focus on "short-term specific employment outcomes", instead representing a more holistic focus on "reflectiveness and lifelong learning" as aspects of employability alongside professional skills (Bridgstock, 2009, p. 34). A key benefit of a university-led WIL model is that reflexive engagement can be ongoing and dynamic through the experiential learning rather than as a discrete/singular stage at the end of a WIL experience (Kolb, 2014).

This intertwining of the theoretical with the practical was central to the Flipped WIL approach. As highlighted in the literature on the changing nature of the media, journalists are increasingly expected to operate solo and take responsibility for all aspects of production (Rottwilm, 2014). More than just using equipment and software, students were also obtaining deeper levels of critical engagement and understanding because they were constantly being challenged about what they did and why they did it.

Professional Identity

Developing professional identity through both a published portfolio of work and students viewing themselves as 'real journalists' emerged as a further valuable element of Flipped WIL. Within the Flipped Model, a portfolio of published work was assembled via assessment items completed in each of the scaffolded classes. Producing real content for a live audience was seen as essential by industry interviewees, who lamented that so much of journalism education resulted in students producing stories that were not for a real audience. As one asserted, they need to both 'think about' and 'interact with' real audiences to learn to produce quality content.

Authenticity

Finally, authenticity emerged as a further critical aspect of Flipped WIL. Despite the university-led nature of the program, all students were provided with experiences that were seen as authentic by both students and industry. The public broadcasting and publishing of the students' content was an important element of this. Indeed, the lack of publishing in WIL journalism programs was an issue raised by industry interviewees. One observed "For reporting to be worthwhile it has to be real. Therefore you have to have a real audience. You actually need to publish". Similar comments were made by another industry interviewee who bluntly stated that unless students have had some experience in a real newsroom, they will find industry 'confronting' as a new graduate.

CONCLUSION

In a profession that continues to struggle with inclusion and representation, inclusive education and WIL opportunities for journalism students with disability is a critical step in progressing the profession. Against this backdrop, a case study of university-led, on-campus WIL was developed that centered on inclusion and access for all students, including and particularly those that identified as having a disability. Flipped WIL represents a scaffolded model of university-led WIL that incorporates a contemporary, accessible, newsroom media center model, accessible to all on-campus students are afforded the widest possible range of experiences to publish timely authentic news and current affairs on a variety of public-facing multimedia platforms. The development and implementation of Flipped WIL clearly demonstrated that it is possible to design an inclusive WIL-driven course while maintaining a grounded, industry-focused approach to teaching with employability as a key outcome.

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Leveraging work-integrated learning to develop complex problem-solving skills: An innovative four quadrant model

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INTRODUCTION

The importance of the ability to solve complex problems must not be understated. The Global Skills Gap report of Quacquarelli Symonds (QS) identifies problem-solving as the most important and least satisfactory skill among graduates across the globe (QS, 2018). Accreditation Board for Engineering and Technology (ABET) lists solving complex engineering problems as the first learning outcome for the Baccalaureate, Master's, and Integrated Baccalaureate-Master's programs (ABET, 2021). Problem-solving is identified as one of the focus areas of study in domain-based education research (Susan et al., 2012).

Literature on problem-solving is abundant in which, select scholars such as Jonassen, and Johannes Strobel have dealt with models of problem-solving. Inspired by their work, this paper presents a simple yet novel four-quadrant matrix integrating *problem types* and *solution prospects*. Each quadrant is analyzed with respect to epistemic, pedagogical and instructional aspects. The discussions suggest work integrated learning to be the preferred instructional model to build complex problem-solving skills in learners.

LITERATURE REVIEW

An all-in title search in Google Scholar for the keyword "problem-solving" returned over 100,000 results. After multiple iterations and Booleans, the search was limited to "workplace problem-solving" at the title level, which returned 65 results. An abstract level review of all articles returned 24, which were subjected to detailed review. The following articles were found to deal with problems, problem-solving models, and assessment of the skill:

Inspired by the research work in Table 1, a novel four-quadrant matrix was built integrating problem types and solution prospects.

TABLE 1: List of articles dealing with problem types, models, and assessments

#	Title	Focus	Reference
1	Instructional design models for well-structured and ill-structured problem-solving learning outcomes	Modeling	(Jonassen, 1997)
2	Complex problem solving in a workplace setting	Taxonomy, Solving Methods	(Middleton, 2002)
3	Predictors of well-structured and ill-structured problem solving in an astronomy simulation	Solving methods of well, ill-structured problems	(Shin et al., 2003)
4	Expertise in real world contexts	Five-stage phenomenological model of skill acquisition	(Dreyfus & Dreyfus, 2007)
5	Understanding managerial problem-solving, knowledge use and information processing: Investigating stages from school to the workplace	Stages of problem-solving	(Arts et al., 2006)
6	Learning to Solve Complex Scientific Problems	A comprehensive collection of articles	(Jonassen, 2007)
7	Developing valid assessment methods and scoring rubrics to measure ill-structured problem-solving performance	Rubrics to measure ill-structured problems	(Ge et al., 2011)
8	Compound Problem Solving: Insights from the Workplace for Engineering Education	Structure/class of workplace problems and associated models of expertise.	(Strobel & Pan, 2011)
9	Researching the engineering theory-practice divide in industrial problem solving	Application of theory in practice	(Wolff, 2018)
10	Effective Assessment of Workplace Problem-Solving in Higher Education	Rubrics to assess problem-solving	(Danaher & Schoepp, 2020)

RESEARCH METHODOLOGY

The objective is to identify the appropriate pedagogical and instructional strategies for problem-solving based on their epistemic underpinnings. The research questions considered are:

1. How do problems and their solutions interact?
2. What is the epistemological basis?
3. How does the context change the pedagogical strategies in teaching problem-solving?
4. Which is the most appropriate educational approach to build problem-solving skills?

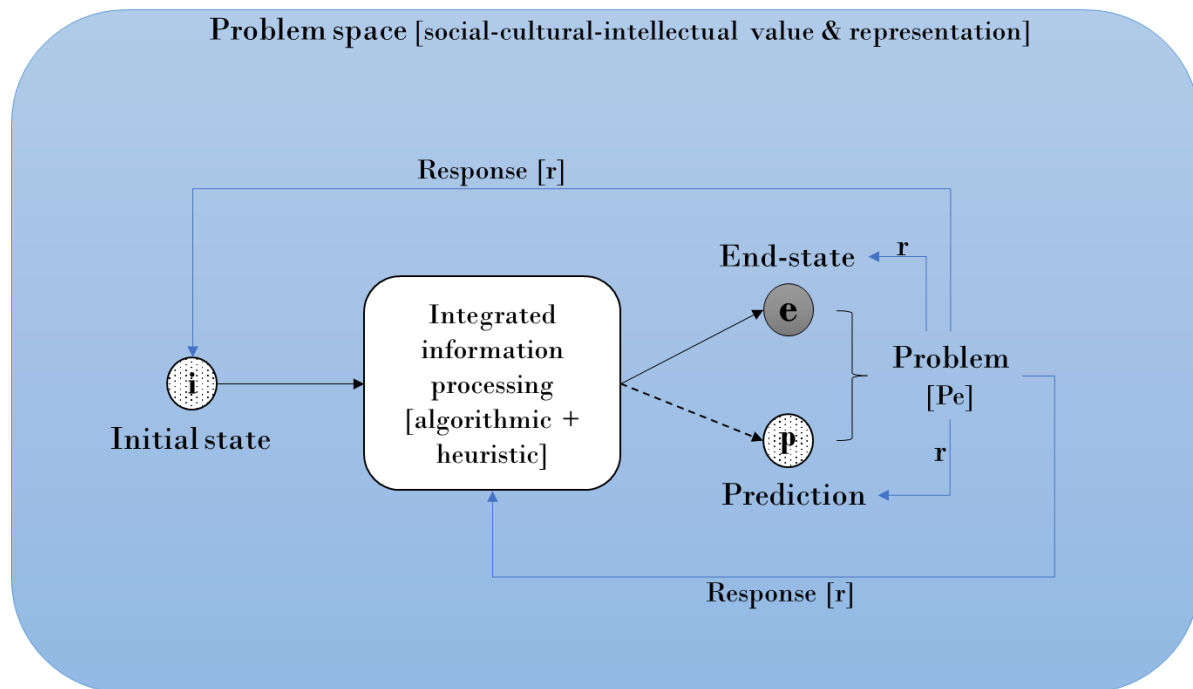
A conceptual research methodology was adopted, wherein the research is conducted by observing and analyzing already present information on a given topic. Such a conceptual research model should be based on a validated and accepted theory in the field to ensure the best possible stability and generalizability of the results and the objective of the explanatory model should be to understand the properties and their impact (Ruff & Woschank, 2022).

Problems and Solutioning:

Theoretical foundations

While there are variants in defining *problem*, the one which is more appropriate for the engineering discipline is proposed. According to this approach we define the problem as “a prediction-error in the problem space,” and solutioning, as “the process of minimizing this error.” Adapting Newell and Simon’s theory (Newell & Simon, 1972) and assimilating it with information processing theory (Simon, 1978), this idea is represented schematically as follows:

FIGURE 1: Schematic representation of problem and solutioning



A process is designed to transform an initial state [i] to a targeted end-state [p]. However, when the actual end-state [e] diverges from the prediction [p], the resulting error is termed as ‘problem.’ Solutioning is any and all responses [r] to minimizing this error.

However, this explanation becomes inadequate as the problem gets complex, where the referenced end-state stands ill-defined and thus the prediction-error/ problem. A system with no defined reference point and a set of interdependent variables is not very useful for prediction/ interpretation. This is why it is challenging to build problem-solving skills in organizational contexts.

Four-quadrant model

Under the above constraints, the system is best understood by studying its state while varying the select variables. A similar approach is suggested by researchers studying problem-solving (Greeno, 1997), (Jonassen, 2007) who propose distinguishing the problems by their types and aligning the solutioning with them. This essentially means, reconstructing the model for each problem type and redrawing the

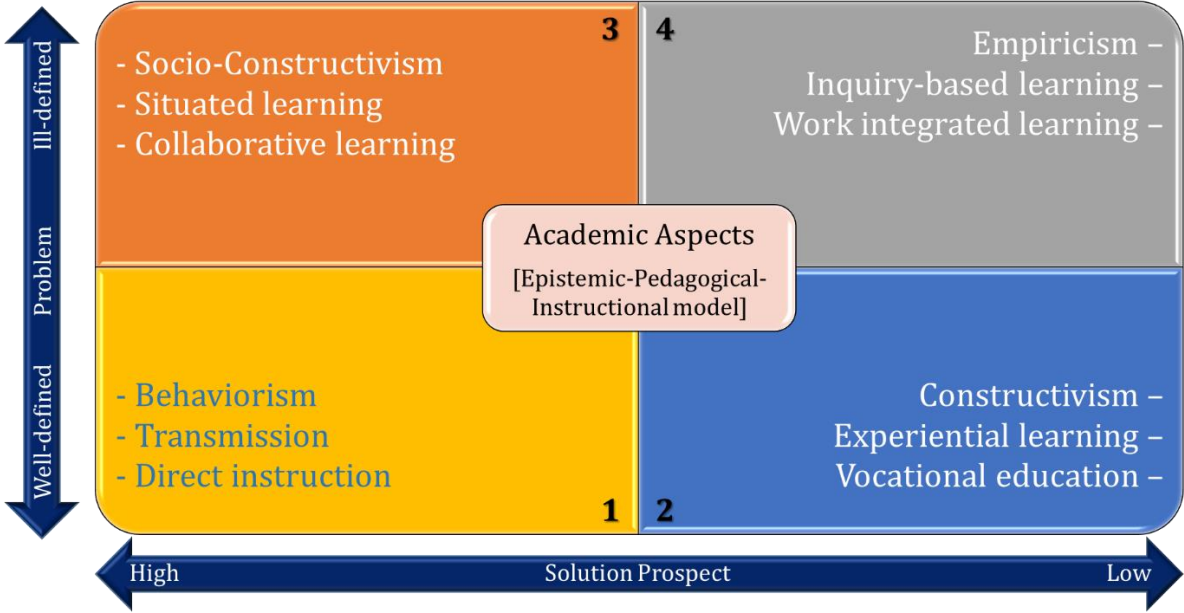
solution paths. In other words, constructing a model that depicts the interactions of the problems and their solutions. The proposed four-quadrant model does precisely that.

Problem types: Distinguishing problems as well-defined and ill-defined is well documented in the domain-based education research (Susan et al., 2012). In the well-defined problems, the initial conditions, the goal, the means for generating and evaluating the solution, and the constraints on the solution are all clearly specified. On the other hand, ill-defined problems possess conflicting goals, multiple solution methods, non-engineering success standards and constraints, unanticipated problems and multiple forms of problem representation (Božić et al., 2014).

Solution types: While there are alternate ways of defining solutions based on problem space (mental representation), and manipulations of it (Newell, 1980), for the current context it is distinguished based on the *prospect* of finding the solution. In simple terms, a high prospect means a higher chance that it will solve the problem.

While the problem and solution types are depicted as discrete states, they form, in fact, a continuum. The interaction between the problem and solution types result in four quadrants each representing a particular context. Their features are distinct, which have been discussed at an epistemic, pedagogical and instructional level. The following sections discuss them in detail.

FIGURE 2: Four-quadrant matrix representing academic aspects



DISCUSSION

The four quadrants have been analyzed based on epistemic, pedagogical and the instructional methods that suit the context.

Quadrant 1: is meant for problems that are well-defined and a solution is prospective. This is the most popular type of problem and the solution has been well tested successfully. Thus, there is sufficient and

structured knowledge available, which can be well documented and communicated explicitly. The user problems solved by the call-centers fall into this category.

These problems have a single solution, which can be achieved through a set of defined steps. The relationship between the problem and its solution is similar to a stimulus and response. Thus, epistemologically it can be stated to be rooted in behaviorism.

Miller and Seller, 1990 note that this view of learning influenced a *transmission* pedagogy in education in which curricula knowledge is held by the expert teacher who passes on (or transmits) this knowledge to the student; analogous to pouring knowledge into the 'empty vessel' of the student's mind.

The explicitness of the knowledge and the solution enable development of *standardized* processes and *procedures*, which can be communicated to the novices by the experts at scale. *Direct instruction* is the most popular method adopted to transmit this type of problem-solving skill, which is widely found in academic institutions and organizations for training apprentices.

Quadrant 2: is the one where the problem is well-defined but the solution prospect is limited. This means, solution needs to be explored and is likely to be found however, it may require effort and an understanding of the system. The problems in the utilities that require a service technician to solve fall under this category.

The solution to this type of problem usually require deductive reasoning, which in turn demands the construction of a mental model of the system based on the observation and prior knowledge. The epistemological view of such a knowledge is *constructivism*, which is, knowledge constructed in the mind through an interplay between what we currently understand and from what we subsequently experience in our encounters with the world around us (Boyd, 1994, Nussbaum, 2007).

The pedagogical strategy for constructivistic knowledge needs to offer suitable experiences to construct one's mental model, a problem space to make objective observations and an opportunity to integrate both of them. While there is more than one way to secure such knowledge, *experiential learning* is generally considered to be effective. It is the learning one obtains by reflecting on the experience.

Vocational/professional education focusing on technical problem solving offers the learners to experience systems in a controlled environment before exposing them to direct observations in real-life. Nursing practice is a classic example of this.

Quadrant 3: is where the problem is ill-defined but there are prospective solutions which have been used in similar cases elsewhere. The problem is elusive, can have more than one solution, and the path of finding it is unlikely to be explicit. Most organizational problems are of this type.

In an organizational context the learning occurs within a social context (Wertsch, 2004) and the new information is obtained by individuals by constructing knowledge through their interaction with and influence from their social environment. Such an epistemological model is considered as *socio-constructivism* (Vygotsky, 1978).

Learning in the workplace is influenced by the often unpredictable, authentic, situated activities that students must adapt to, which is quite different to the learning in a formal education setting in which

students adapt to pre-determined, simulated activities (Hodges et al., 2014). The most appropriate pedagogical strategy for such a context is *situated learning*, which is defined as a broad collection of work that shares an emphasis on the importance of context in acquiring knowledge and skill (Lave & Wenger, 1991)

Collaborative learning is considered to be a suitable instructional method for Situated learning. The research conducted to examine the effect of collaboration on problem solving supports the hypothesis that a collaborative learning environment is well suited for problem-solving tasks. In several case studies conducted to analyze the impact of a collaborative environment on problem solving, collaboration was found to improve performance on complex or higher order thinking activities (Chang, 1991; Johnson & Chung, 1999; Mergendoller et al., 2000).

Quadrant 4: signifies problems that are ill-defined and have limited solution prospects. These are novel problems, which have not been tackled in the past. The most recent example is COVID treatment before the mechanism of the virus was understood. Such problems can be defined in more than way and some of them even conflicting with the other. Global warming, economic disruptions, international conflicts etc., are some of the examples. This makes the solution less prospective.

Evidence-based enquiry is accepted to be a suitable method to resolve such vested problems and *empiricism* to be the epistemological belief that supports this. According to this view, the only way to know if a claim is true is to observe it directly or indirectly through empirical evidence. Empirical evidence is information that is acquired through observation or experimentation and can be verified or falsified by others.

The pedagogical strategy that supports this scientific method is *inquiry-based learning*, where students learn through exploration and application of scientific reasoning. It is among the most effective methods for acquiring conceptual knowledge (Kollöffel & de Jong, 2013), which in turn is employed to explain the observation or predict the outcomes. Work-integrated learning as model can provide such an opportunity to the learners to integrate theoretical concepts with observations in practice.

Building Problem-Solving Skills

Based on the epistemic and pedagogical needs, the four-quadrant model suggests the preferred instructional strategies for each type of problem-solving namely, direct instruction, experiential learning, collaborative learning and work integrated learning. Each one of them require a context, a structure and a mentor as a part of the pedagogical setting for an effective skill acquisition.

While there are multiple instructional practices in vogue, work integrated learning is favored by both researchers and practitioners because of its setting, wherein learners use relevant work-based experiences to integrate theory with the meaningful practice of work as an intentional component of the curriculum (Zegwaard et al., 2023). Such a setting assimilates the structure of a formal classroom and the context of the workplace allowing the learners to juxtapose theory and practice, which is found to be one of the facilitators of integration (Barber, 2020). This view is endorsed by education researchers (Oliaro et al., 1998; Keeling, 2004), academic committees (Skorton & Bear, 2018), policy makers (U.S.

Department of Labor, 1991), and leading educational institutions (AAC&U, 2002), (AAC&U, 2007) (ACPA, 1996).

CONCLUSION

Problem-solving is a key learning outcome in professional education. Based on the research on problem-solving we constructed a four-quadrant matrix integrating problem types and solution prospects. The resulting positions were analyzed at the epistemic, pedagogical and instructional levels. The discussions suggest work integrated learning to be a preferred model for building problem-solving skills across the problem types. This finding was found to be in alignment with the reports of respected academic committees and leading educational institutions. This four-quadrant model offers a new understanding of problem-solving, which can advise academic institutions and organizations to review their instructional strategies. The model has two key limitations: (a) it represents problems and solutioning as discrete states, which is far from the reality, and (b) it is still a conceptual model, which needs to be empirically validated.

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Work-integrated learning for inclusion of individuals with disabilities in Malaysia

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INTRODUCTION

Inclusion of individuals with disabilities in the workplace has its challenges in developing economies. In line with the United Nations Sustainable Development Goal 10 Reduced Inequalities, the Malaysian government has introduced the policy that 1% of employees should consist of persons with disabilities (Mohd Hashim, 2010). Employment of individuals with disabilities in the public sector has seen an improvement since the Service Circular No 3 of 2008 has been initiated to implement the 1% Policy on Employment Opportunities for persons with disabilities in the public sector (Islam, 2015). However, there is still a gap in successful transition from school to work among persons with disabilities. The purpose of this study is to investigate the innovative best practices in work-integrated learning for transitioning from school to inclusive employment.

The Human Rights Commission of Malaysia (2004) in its report of the roundtable discussion on the Convention on the rights of the child stated that there is a need for development of “practical and prevocational training during primary and secondary education for persons with disabilities, more vocational training institutes for students after completing secondary education and up-to-date skills to be thought to students with disabilities.” This proceeding supports the premise of introducing supported employment as a training option to students with disabilities who are sent for community-based work experiences in school as they would learn in-demand skills in school.

METHODOLOGY

This is a case study in the Malaysian context to obtain a holistic view of work-integrated learning for individuals with disabilities. The design of this study is qualitative research, using case study to obtain a holistic and in depth understanding of the phenomenon of interest (Merriam, 1998). Case study is a comprehensive study of instances of a phenomenon in its natural context from the perspective of the participants involved in the phenomenon (Gall, Gall & Borg, 2003). The researcher collected data from the natural setting in schools, non-governmental organizations, sheltered workshops and companies. The case study provides a deeper understanding of the processes of events, projects and programs and is used to discover context characteristics that will shed light on a particular issue (Merriam, 1998). Sixteen participants were interviewed in the study, comprising of three government officials from Special Education Division, Department of Labour and Social Welfare, three teachers who are Special Educational Needs Coordinators, two employers in the retail and restaurant sectors, job coaches and two employees identified with intellectual disabilities. Participants were recruited through convenience sampling. The criteria for selection is based on the participants expertise and having at least 3 years

experience in the program. Observations of participants in their workplaces and schools were conducted.

Interviews

Data collected from interviews with the participants provided important insights. Topics and issues covered are specified in advance to make data collection more systematic for the participants. A pilot test helps the researcher determine if the interview questions are appropriate for the interviewees. Further correspondence is used when more probing questions are required to collect more in-depth data. All respondents were informed of the purpose of the interview and verbal consent was obtained before conducting the interview. Permission for audio recording of the interview was obtained. Interview questions includes questions pertaining to the strategies for sustainable employment and the experiences of the participants.

Data Validation

Triangulation is used to check the data collected from different sources to explore the innovative strategies in creating employment for sustainability among persons with learning disabilities. The data is verified by participants to avoid any biased influence in the data collection. The data collected from interviews, is triangulated by identifying emerging themes from different sources. This triangulation of methods allowed for comparison of data of similar content from different sources to confirm the validity and reliability of the results (Creswell, 2005). Member checking is also carried out to verify the data obtained.

The validity of a researcher's reconstruction of the participants' emic perspective can be confirmed by member checking (Gall et al., 2003). Member checking is conducted by having participants review statements made in the researcher's analysis for accuracy (Gall et al., 2003). This is the principle strategy used to ensure the accuracy of the findings generated by the researcher. Thematic analysis is used to analyze the interview data by forming codes and themes (Gall et al., 2003).

FINDINGS AND DISCUSSION

The findings of the study indicate that job coaching in supported employment or internships and social enterprises remove barriers to employment of individuals with disabilities.

Job Coaching

Job coaching reduces attitudinal barriers for transitioning from school to employment. A special education teacher explained that "After vocational training in school there is a need for bridging from school to work and that is where I think job coach providing on-the-job training is important".

Employers shared that individuals with learning disabilities are able to obtain sustainable employment after secondary education through the job coaching strategy. Students had undergone on-the-job training for two weeks in the company during their vocational course. After the training, students were able to enter employment upon graduation. The school coordinator shared that:

Employers came to our school and they did an open interview. They gave training to our students at their training center for two weeks. After the training they gave a letter to them so that with

the letter they can apply to any hypermarket outlet all over Malaysia so they are able to work. What we did was actually more on practical training for the students.

Students with learning disabilities who attend work-integrated learning has a job coach which provides support. Supports include problem solving when encountering work issues. Hagner et al. (2015) found barriers and strategies to promote inclusion lies within the workplace culture. Strategies used by job coaches for the inclusion of individuals with disabilities in the workplace culture include employing the use of natural supports from colleagues and supervisors.

Teachers recommended that there is a need for a mediator or a counsellor at the workplace to help them sustain their employment. The teacher explained that:

During the first two months, I remember the teachers still go to support the students who are working in the company which is near our school. Sometimes the students can't communicate well with the employers so the teachers are also a mediator between the employer and employee.

Industry-Relevant Skills

The findings indicate work-integrated learning increases access to employment. Barriers to employment are removed when school and job-training centers incorporate work-integrated learning which equips individuals with disabilities with industry-relevant skills and knowledge. Improvement in educational attainment was related to higher employment quality (Chan et al., 2016). This finding supports past research by Harvey (2001) on the importance of vocational-technical education. Individuals with learning disabilities are equipped with work ethics, social skills, and vocational skills from the vocational training in school which prepares them for entry into competitive employment.

The job coach is an intermediary between the employee with learning disabilities and employer who can provide intervention if problems occur during employment. A job coach shared that:

Problems happen after they started work so we need a lot of support between disabled persons and the employer.

Supported employment and job coaching reduces barriers in society for accessible employment. This fosters integration and community participation and employer satisfaction (Wehman, Revell & Brooke, 2003).

Another teacher revealed that the school conducts an Attachment Program for work integrated learning. Students are sent for practical work experience in collaboration with employers in the Hotel Industry. The participants shared that it is important to equip the students for employment, especially in entrepreneurship skills and technological skills. The school places emphasis on life skills training, preparation towards employment and social skills training to equip students for employment. A government official also pointed out that formalized work integrated training for students with learning disabilities should be where students are able to engage in companies or industries near the school by undergoing a practical training opportunity in an actual community-based work environment. This finding suggests agreement with past researches that work experiences prior to completing secondary education can equip students with relevant skills for future employment after school (Hendricks & Wehman, 2009). Furthermore, inter-agency cooperation among educators, employers, community

service agencies will remove barriers to employment (Abdullah, See, Tan, Rosly Othman & Ahmad Fairuz Omar, 2013).

Job coaching to be part of work-integrated learning for individuals with disabilities is advocated by individuals with learning disabilities. The self-advocacy movement of individuals with learning disabilities in Malaysia has been advocating for better employment opportunities and work-integrated learning. An individual with disability expressed:

Job coaching is good to help individuals with learning disabilities find employment and maintain in their job. It should be set in the system of employment.

Social Enterprises

Individuals with learning disabilities who receive work-integrated training from Community-based Rehabilitation (CBR) centers are engaged in productive economic activities such as producing hand-woven baskets, handmade greeting cards, bookmarks and sewing hand towels to be sold in the community to create employment for them. The findings also indicate that the social enterprises develop the skills of the employees to enable the employees to have the opportunity for career development. Skills are taught by staff which provide on-the-job training to the employees. Staff benefit from supervision and support by staff to perform their jobs successfully. The data indicates that skills training which is offered to employees for jobs which require repetitive tasks such as weaving, pasting greeting cards and cutting name-cards contribute to the sustainability of the operation (Easterly & McCallion, 2007). The implication of the findings is that social enterprises could include a person-centered approach by emphasizing on employability skills and career development.

CONCLUSION

The future of work for individuals with disabilities is through coaching and mentoring, social entrepreneurship and upskilling technological skills to reduce inequalities. Work integrated training is emphasized in the collaborative approach in the Malaysian special education curriculum. Practical job training, simulating or creating an actual work environment for a particular job such as washing cars, launderette, and others can be done in the school. The students are also sent for practical work experience in open labor market with supervision by a work supervisor. Students with disabilities are able to successfully transition from school to employment through work-integrated training. The program removes barriers to inclusion in the workplace by increasing access to work opportunities.

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Insights to wellbeing challenges encountered by students during work placement

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INTRODUCTION

Wellbeing is broadly defined as the sustained state of being physically, mentally, and emotionally healthy and happy. Wellbeing of students is receiving increasing attention across the international higher education sector (Konstantinou et al., 2023; Pascoe et al., 2019). As early as 1996, Hattie and colleagues argued that the changing social needs require a focus on enabling resilience (a pathway for strengthening wellbeing) of students in primary and secondary education (Hattie et al., 1996). Higher education students encounter additional challenges through engaging with two major life changes during a time of limited financial capacity; a move from school learning to more self-directed learning, and often a move from home living to more independent living (Hewitt, 2019). It is thus not surprising that higher education students report mental health issues at a higher rate than the general population (Neves & Hillman, 2019). The onset of the COVID-19 pandemic added considerable additional challenges, with half the students in UK higher education reported their wellbeing was worse after the pandemic than before, with 70% indicating they were concerned about their wellbeing (Norton, 2021).

Work placements add further stressors for students, such as the placement selection process, relocation, new environments, employer/client expectations, work colleagues, and the reality of the consequences of their work outcomes. Despite these significant challenges, the work-integrated learning (WIL) literature has considerable knowledge gaps around student wellbeing (Zegwaard, 2015) with little research undertaken to explore wellbeing of students in WIL (Zegwaard & Rowe, 2019). Some recent research has included aspects of student wellbeing, such as linking stress during WIL to negative impacts on wellbeing (Cormier & Drewery, 2017; Drewery et al., 2019; Drewery et al., 2016; Gillett-Swan & Grant-Smith, 2018) and the influence of the quality of the program design on student motivation (Drysdale & McBeath, 2014, 2018). However, there has been little research directly exploring what stressors students encounter during WIL and their views on their personal wellbeing status during WIL placement.

This paper here explores the stressors students encountered during their work placement and the impact they perceive these have on their physical and mental wellbeing.

METHODS

The research was undertaken at the University of Waikato, New Zealand. In 2018, the university restructured the curriculum framework so all undergraduate degrees must complete one compulsory

WIL offering. Broadly, the university provides two types of WIL offerings, work placement WIL or non-placement WIL. As the focus of this research was placement types of WIL, an analysis of the University's WIL offerings was undertaken to separate non-placement WIL from placement WIL offerings. Students were then asked to complete an anonymous online survey of 20 minute duration using Qualtrics. The survey consisted of 19 agreement statements, seven open-ended questions, and five demographic questions. The survey was sent to students near completion of their placements, with two reminders timed for after the work placement had finished. The survey was sent to 1,408 students, however, due to redundancy in contact information, the true sampling size may be slightly small. The research is ongoing, with to date 163 fully completed responses, providing a response rate of about 10%. Given the sample size, the response rate provides confidence in the reliability of the data (Fosnacht et al., 2017). Analysis of the data was undertaken using Qualtrics data analysis features and Microsoft Excel. This research has approval from the university's Human Research Ethics Committee (HREC(Health)2022#36).

The data collection is ongoing, with data to be collected for one year (mid-2022 to mid-2023). Only data from B Trimester (July-October, 2022) and C Trimester (November, 2022 to February, 2023) are reported here, where B Trimester is typically a taught trimester and C Trimester the summer period with most students on summer break or full-time work placements.

The participants were predominantly female, reflecting the dominance of the teacher education students in the sampling cohort set (Table 1).

TABLE 1: Demographic details of the sample population.

Number of responses	163
Gender	
Male	21%
Female	76%
Non-binary	1.5%
Preferred not to say	1.5%
Ethnicity	
NZ European	67%
Māori (NZ Indigenous)	17%
Tongan (Polynesian)	3.5%
Indian	2.8%
Other	9.7%*
Discipline of study	
Teacher education	43.5%
Engineering	22.7%
Education	13.9%
Business/management	14.7%
Other	5.2%

* Mostly British, South African, Russian, Cambodian, and Middle Eastern

RESULTS

Students living arrangements and environment can significantly impact the students' quality of life, wellbeing, and stress levels. Students had diverse living arrangements during their work placement, such as, 52% living with family, 31% flatting, 11% living as a couple, and 5% living alone, with a number of students experiencing more than one type of living arrangement. Alternative forms of living arrangements were also reported, such as 3% living in a hostel or back-packers, 3% 'couch surfing' (as state of quasi-homelessness filled by staying with friends or relatives on a temporary basis, see Perez & Romo, 2011), and 8% having to move house during the work placement. Two students reported living in a hotel/motel for part of the work placement.

When asked if students had enough time for themselves, the data was mostly evenly distributed across all Likert values (Likert 4.87, SD 3.240). Which particular stressors students encountered was also examined, with indication of a strong sense of agreement on the source of these stresses (Table 2).

TABLE 2: Sources of stress for students while on work placement (n=142).

Stress indicator	%
Financial	94.5%
Physical health	80.5%
Student peers	75.0%
Work colleagues/supervisors	65.6%
Needing to care for a family member	64.1%
COVID-19	63.3%
State of the world	63.3%
Living away from home	62.3%
Other	12.3%*

*These included mentions of assessment, not being able to concentrate, having to work full time, flooding (in context of the February 2023 North Island cyclone event), self-expectations.

Students reported they reduced activities during their work placement that could support positive wellbeing, such as 59% of students reduced physical activity, 56% reduced contact with others, 45% reduced healthy eating habits, 15% increased alcohol intake, and 10% increased smoking or vaping. Students reported feeling neutral (neither satisfied nor dissatisfied) about their wellbeing (Likert 5.57 out of 10, where 0 = very dissatisfied and 10 = very satisfied) and their physical wellbeing (Likert 5.60). However, students reported feeling generally positive about the future (Likert 7.13) and feeling they were doing things worthwhile in life (Likert 7.25). Although, 13.5% felt very dissatisfied (Likert between 0 and 3 out of 10) with their wellbeing and 11% felt very dissatisfied with their physical health.

DISCUSSION

The preliminary findings indicate that students encountered significant stress challenges during work placements. It is well established that physical wellbeing is important for supporting mental wellbeing (Fox, 1999). While most students reported living in environments that likely provided basic needs for physical wellbeing (living with family, flatting, as a couple), 14% of students reported disruptive living arrangements (backpackers, couch-surfing, moving house, hotels/motels) that would likely negatively impact on their overall wellbeing. Students indicated a wide range of stressors during work placement,

with financial stress the most common (94.5% of students). The financial stress is in part explained by the 55% of students who undertook unpaid work placement (largely made up of students in teacher education, where all practicums are unpaid) and the additional 30% who received alternative remuneration less than the typical wage. Unpaid placements is a source of significant debate in the WIL literature, with tensions around exploitation (perceived and real), lack of paid opportunities, industries reliant on volunteerism (e.g., sports, conservation), established and accepted practice within the discipline, and legal requirements (Hoskyn et al., 2023). Physical health, student peers, and work colleagues were also a common source of stress. The unexpectedly common stress source of caring for a family (64.1%) strongly suggests more students than previously thought are having to manage or contribute towards family care (e.g., child, elderly parents, sick family members). It is possible that the occurrence of this stressor was driven up by COVID-19, however, it warrants further investigation.

Albeit, the impact of COVID-19 on work life is declining (the data was collected June 2022 through to March 2023), COVID-19 remains a common source of stress for students, reflecting the ongoing concern and impact of COVID-19 in workplaces, schools, families, and the wider community.

It is common for young people to reduce healthy living habits in response to stress, for example, reducing physical activity (Stults-Kolehmainen & Sinha, 2014) and increasing smoking and alcohol consumption (Canadian Institute for Health, 2005). It is, therefore, concerning that the data in this research reflected those behaviors. It is possible that students reduced physical activity during work placement (e.g., attending a gym) in response to the physical work requirements during the work placement. However, long term reduced contact with others and unhealthy eating habits, and increased alcohol intake, smoking, and vaping are habits that negatively influence wellbeing and physical health (Kim & Oh, 2017; Papadaki et al., 2018; Parackal & Parackal, 2017). Given the alignment between the data in this research and the literature on how young people respond to stress, it suggests that many students on work placement are encountering stress to a level to start making unhealthy living choices.

The discussion to this point has focused on negative aspects of stressors, however, not all stress result in lasting negative consequences on wellbeing. Self-determination theory holds that successfully overcoming challenges and stress can foster personal growth and a sense of achievement (Deci & Ryan, 2012), elements that support resilience development that is important for maintaining wellbeing. It is the chronic presence of stress that can have lasting negative impacts on wellbeing (Moylan et al., 2013). An indication of how well students manage stress during WIL can be seen through their overall view of their wellbeing. Albeit all students encountered many of the stressors in Table 2 and many were making unhealthy living choices in response to stress, student views on their wellbeing were neutral (neither dissatisfied nor satisfied). A neutral view on their wellbeing is hardly a positive result, it does, however, align with wider community views where, for example, recent New Zealand research found that 49% of the community rated their wellbeing as positive (Ministry of Business Innovation and Employment, 2022). Students also believed they were achieving things worthwhile, and they generally felt positive about the future. This indicates that most students are able to manage the stressors encountered during work placement with moderate success, however, the neutral view by students of their wellbeing suggests that student may be near their limit on how much stress they can manage. It

is also important to note that not all students have the same capabilities for managing these stressors, as indicated by the 13.5% of students who were struggling significantly with their wellbeing and show indications that should raise considerable concern.

CONCLUSION

During work placement most students encountered many stressors and made unhealthy life choices in response to stress that could further negatively impact their wellbeing. The data suggests, albeit, the stressors were significant, most students were managing these stressors with moderate success. However, the student views on their wellbeing suggests they are only just managing with the stress and there is a cohort who were clearly not managing well. Data collection for this research is still ongoing, however, these preliminary findings provide some insight on student and can inform university decision making in regards of enhancing support structures for student wellbeing. Supporting wellbeing of students in higher education is likely to be an ongoing challenge for higher education institutions.

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