Developing Transferable Skills in Students Through Co-Creating Work-Based Learning Outcomes – Work Supervisors' Perspectives

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Abstract

This thesis explored the effect of co-creating work-based learning outcomes through the perspectives of work supervisors of a university's work-based learning programme. It acknowledged their key role in developing transferable skills in the students and filled a knowledge gap as very little literature highlighted their perspectives.

An intervention of co-creating work-based learning outcomes for transferable skills was thought to be psychologically wise (Walton & Wilson, 2018) in addressing gaps in the constructive alignment of work-based learning from a pilot study (Ong, 2022) as a first step in a coaching process (Gettman, 2019).

While a protocol for the co-creation process was suggested, the unique circumstances that surrounded each participant resulted in slight variations that made a case study approach more suitable for qualitative data analysis. The concepts of "clarity" and "gifts" were starting points for thematic analysis.

"Clarity" was found to be evident from the supervisors' perspective of being clearer of the process from learning outcomes to assessment (constructive alignment) and their role as coaches to be less directive and more collaborative in the process. While coaching was challenging to the supervisors, the satisfaction of observing growth in the student was a "gift" in itself.

Coaching required a mindset change in the supervisors to listen more to the student voice, and for the student to value learning more than grades. This could be difficult in the context of fast-paced Singapore where the tension between putting effort to develop transferable skills in students and getting work done. As such, the tripartite relationship (Feldmann, 2016) between the work supervisor, academic supervisor and student would have to be a close one for the long-term development of the students' transferable skills to be realised.

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Author's Declaration

I hereby declare that the thesis was entirely my own work, and not part of a joint research.

It had also not been submitted in substantially the same form for publication nor for a higher degree elsewhere.

Parts of the work had been shared at internal conferences, and a reflection piece on my experience working with workplace supervisors for this research. Please refer to the next section for details of the conference sharing and publication.

The word length of this thesis (excluding abstract and references) is 40,511 and within the permitted maximum word limit of 45,000 set by Lancaster University for a doctoral thesis for this programme.

Signature .....

Publications derived from work on Doctoral Programmes

While the thesis had not been submitted substantially for any publication or for a higher degree elsewhere, the following were related sharing on parts of the work done:

- The results of a pilot study of a similar nature were shared at the Applied Learning Conference 2022. The pilot study led to the intervention that formed the basis of this thesis (see Section 1.4 of the thesis on details of the pilot study). The conference was organised by the Singapore Institute of Technology (https://www.alc.sg/).
- The theoretical framework for the study was shared at Lancaster University's Reflective Educational Research Conference 2022 describing the confluence of business management, positive psychology and educational perspectives into a research project. The conference was open for sharing by PhD students like myself to reflect on themes related to education research (https://rerphdideas.home.blog/).
- The perspective of workplace supervisors was shared at Newcastle Learning & Teaching Conference 2023 to share work supervisor's views about developing transferable skills in students that they supervised. Newcastle University (NU) and the Singapore Institute of Technology (SIT) were partners in joint degree programmes that were hosted by SIT and thus the interest to learn about work attachment experiences of students in Singapore. As an in-house conference, the conference slides were available for internal access only at the Newcastle University website. (https://www.ncl.ac.uk/learning-and-teaching/professionaldevelopment/conference/resources/).
- Another reflective piece was shared in a publication, Teaching and Learning Together in Higher Education, focusing on the experience of working with workplace supervisors to draw out the "student voice" during work attachment. The article can be found here: https://repository.brynmawr.edu/tlthe/vol1/iss39/4 and subsequently shaped some of my discussion for this thesis.

Chapter 1: Introduction

1.1 An Introduction in Three Moves

This thesis surveyed the role of higher education in the development of transferable skills in students through work-based learning programmes organised by universities. It attempted to explore this role through the perspective of the work-based learning supervisors who were supervising students on such programmes at the workplace, and specifically using an approach of co-creating work-based learning outcomes with the students that they supervised.

As an introduction to the thesis, the "Create a Research Space" (or CARS) model (Swales, 1990) was used to define the research space that this thesis would sit. In the model, Swales described three "moves" that characterise a good research study which subsequently formed the major sections of this chapter.

The first move would establish the territory. This was done through describing the background in which this work resided, including providing the context of developments in higher education, both globally and locally (i.e., Singapore), relevant to the research topic and the author's interest in the area of work-based learning and transferable skills. The relevant sections included:

- The Context
- Why Transferable Skills?

The second move would establish the niche. Here, a description of previous work done by the author formed the prelude to the purpose of this thesis. This was then extended to introduce the research questions that the thesis sought to answer. The relevant headers included:

- Pilot Study & Intervention
- The Research Questions

The final move would occupy the niche. This part outlined the methodology as well as how subsequent findings, discussions and conclusions were made in the rest of the thesis. This was done with the audience in mind such that the conclusions would invoke responses that could further advance the topic. The relevant headers included:

- Scope and Organisation of the Thesis
- Intended Audience and Purpose

1.2 The Context

In 2012, the Obama administration released a report on the Economics of Higher Education (Department of the Treasury, 2012). The report was an attempt to argue for the value of a degree in the light of rising cost of higher education and student debts. The value of a degree

was a highly debatable topic, where questions were asked if one needs to have a degree to be successful and whether one could obtain life skills through other means. If so, then what would be the purpose of a university degree?

The rise of applied universities around the world contributed to an increasing participation rate in higher education. Just recently in Singapore, the country doubled its number of autonomous universities from three to six in a span of eight years from 2009 to 2017. Singapore Institute of Technology (SIT) in which the author was based was one of two universities set up to develop work-ready graduates through an applied learning pathway (Ministry of Education Singapore, 2012). In a span of 10 years, the percentage of graduates in Singapore resident's population age 25 and above jumped from 23.9% in 2010 to 33% in 2020 (Department of Statistics Singapore, 2021). In a country that took pride in its meritocratic system where social mobility was based on an individual's ability, one would also ask if the value of a university degree was just a passport to a better job, and consequently a better quality of life.

Today, higher education exists in a world that was often described as volatile, uncertain, complex and ambiguous, or VUCA (Bennis & Nanus, 1985). Technology companies such as Uber and AirBnB were thought to have disrupted the traditional taxicab and hospitality industry. Our sustainability and climate change problems had become more complex and pressing. In this chaotic world where change is accelerating, higher education was called to respond to the explosion of knowledge and the need for new skills, especially those that are transferable. In Singapore, a new government agency, SkillsFuture Singapore, was set up in 2015 to promote lifelong learning and skills development. The idea that a basic degree was not enough was echoed by the Minister for Education, Mr Chan Chun Sing, who said in the opening speech of the Straits Times Education Forum 2022 that universities should not just focus on pre-employment training but also on continual learning (Ministry of Education Singapore, 2022).

Another important backdrop to the role of universities in developing transferable skills was the COVID-19 pandemic which started in early 2020, jumpstarting not just the vaccine development against the virus but questioned the way we learn and work as lockdowns forced university classes to go online, and non-essential workers to work from home. KPMG recently released a report on the future of higher education (KPMG International, 2020) signalling the end of the "golden age of universities" unless universities undergo transformation in the face of disruptions. One such disruption was the rise of micro-credentials whereby learners today could easily learn a competency, usually through online learning, and at a fraction of the cost of a formal degree. One suggestion in KPMG's report was a focus on the learner. Again, this returned to the same question of the value of higher education to learners.

1.3 Why Transferable Skills?

One thread that emerged from the debates on the role of universities in preparing graduates for work, and hence the VUCA world, was a focus on transferable skills – the acknowledgement that technical knowledge and skills were becoming obsolete more quickly than ever would suggest transferable skills would become more valuable for the future worker. The industry which ultimately employ our graduates were often asked to contribute to a list of most sought-after

transferable skills. One such list was compiled in a Report on the Future of Jobs by the World Economic Forum (World Economic Forum, 2020) listing skills such as analytical thinking and innovation, active learning and learning strategies, complex problem-solving and critical thinking and analysis as top skills for the future worker of 2025.

In fact, SIT implemented a new Industry-Ready Skills Framework (IRSF) in 2022 with the holistic development of the student in mind, including the development of both technical and transferable skills. Tooley & Bornfreund (2014) proposed that while technical skills prepare students for jobs, transferable skills would help them be successful further on in life. Hence, the added value of universities to students would be longer lasting.

But universities' involvement in the development of transferable skills in students was not without challenge. While professors were usually comfortable in teaching within their technical domain, the idea of "teaching" transferable skills within the university can be rather vague. Even the idea of what constitutes a transferable skill was not clear. In this respect, SIT's IRSF aimed to classify transferable skills into five competency areas of thinking agility, people agility, digital agility, professional agility and change agility (Digital Senior, 2022). A section of the Literature Review (Chapter 2) is devoted to the definition of transferable skills as referred to in this thesis.

As universities grappled with the idea of teaching transferable skills, many looked to some form of work-based learning programmes to provide an authentic environment for students to acquire these skills (Feldmann, 2016). Such programmes were sometimes known by different names such as an internship or a work attachment. In SIT, the name "integrated work-study programme (IWSP)" was conceived to emphasise the partnership between the workplace and the university in this endeavour (Lim et al., 2020). It is with this backdrop that the next segment introduces the niche and focus of the research area – workplace supervisors.

1.4 Pilot Study and Intervention

When it came to researching on the role of a work-based learning programme in developing transferable skills in students at the workplace, work supervisors form an important link in the success of such programmes (Mullen et al., 2019). Work supervisors did not teach transferable skills in a formal sense as they did not teach classes like professors in universities do. They were also not familiar with terms like learning outcomes to describe their work with students. Yet they could "teach" students important transferable skills in their own ways, such as through coaching and mentoring. And they could be very successful given some of us do look up to a work supervisor at some point in our lives as someone who had a great influence on us.

But how did work supervisors themselves feel about their role? Was it something of a chore to be given an additional role in the workplace, or was it something meaningful to be mentoring someone else? Not a lot of work has been done in this area, which is outlined and expanded in the Literature Review chapter of the thesis (Chapter 2) to include topics such as transferable skills and coaching. Hence it was decided for this research to focus on the perspectives of the workplace supervisors in developing transferable skills of university students on work attachment.

As part of the coursework for this doctoral programme, a pilot study (Ong, 2022) was conducted using the idea of constructive alignment (Biggs & Tang, 2011) to describe the work done by workplace supervisors in developing transferable skills in the students that they had supervised, in terms of:

- How they set work expectations (learning outcomes)
- How they taught transferable skills (learning activities)
- How they appraised students (assessment)

The qualitative study involved semi-structured interviews with ten engineering work supervisors. It was found from this study that the workplace supervisor's assessment of the students could be subjective and usually an afterthought at the end of the work attachment. The lack of constructive alignment was specifically in the areas of the students' transferable skills.

In planning the research scope for this thesis, the idea of co-creating learning outcomes at the onset of the work attachment was conceptualised as a possible intervention as a starting piece in a coaching conversation between the supervisor and student. The premise for this idea and its conceptual framework for the analysis of the research findings is expanded in the Literature Review chapter (Chapter 2). In a way, this research was an extension of the pilot study.

1.5 Research Questions

The two research questions that formed the basis of this thesis were:

- Will the process of co-creating workplace learning outcomes with students provide clarity to workplace attachment supervisors in terms of their role in developing transferable skills in the students they supervise?
- What other benefits or challenges might there be with regards to the process of co-creating learning outcomes with students?

1.6 Scope and Organisation of the Thesis

The participants for this study were recruited from supervisors of work-based learning programmes of engineering and technology-related fields from a Singapore university. A qualitative research methodology was employed, and this is explained further in the Methodology chapter (Chapter 3). Although a generalised protocol of the co-creation process had been proposed, there were variations in each intervention, rendering each case as unique. These are presented in the Findings chapter (Chapter 4) as case studies.

A thematic analysis was applied to each case study as well as across the case studies. The Findings chapter (Chapter 4) included intra-case themes as each case study was presented,

while the Discussion chapter (Chapter 5) is concerned with cross-case themes. The Conclusion chapter (Chapter 6) summarises the key findings of the research for its intended audience.

1.7 Intended Audience and Purpose of the Research

Workplace attachment as part of a university's curriculum could be viewed as a tripartite endeavour involving the university's academic supervisors, the industry's work supervisors, and students (Feldmann, 2016). While the research focused on perspectives from the workplace supervisors, the co-creation process also involved the students and inputs from the university through the academic supervisors. It was hoped that the research can provide useful nuggets for all three parties involved. For the work supervisors, it might mean more clarity on their roles and how to carry it out in a meaningful manner. For students, the co-creation process might accord them motivation in learning the transferable skills that they set out to acquire. For academic staff from the universities who design and supervise work-based learning programmes, whether the inclusion of a co-creation exercise would help strengthen the quality of work-based learning as part of the university's curriculum.

Chapter 2: Literature Review

2.1 Premise

The Literature Review chapter surveys previous work done on the topics surrounding the thesis, such as university work-based learning curricula design, coaching and mentoring for human capital development and the science of "wise" interventions. Two other objectives included identifying knowledge gaps which this thesis would address, as well as constructing the conceptual framework that formed the basis of the methodology and subsequent data analysis.

The chapter begins with exploring the definition of transferable skills to provide the basic understanding that the research encompassed. Literature was sought to clarify the definition.

This is followed by exploring three broad contexts of education, business and psychology in which the thesis would touch base with as an inter-disciplinary topic. It was also under these three broad contexts in which relevant literature was also identified.

Under the education context, the following topics were explored:

- Work-based learning for developing transferable skills in university students.
- Workplace supervisors as developers of transferable skills.

Literature that was identified clarified the role of the university's work-based learning curriculum in developing transferable skills in students, before zooming in to relevant literature pertaining to the key role that workplace supervisors play.

Under the business context, the following topics were explored:

- The macro environment pushing for the focus on transferable skills.
- Coaching and mentoring as instruments for human capital and organisational development.

Literature that was identified provided the larger context for work-based learning and the growing importance of transferable skills. This clarified the larger environment in which the workplace supervisors function. In particular, the coaching and mentoring literature sought to describe the work that workplace supervisors did that was relevant to an intervention of co-creating learning outcomes.

Under the psychology context, the following topics were explored:

- The idea of 'wise" intervention as applied to the process of co-creating workplace learning outcomes.
- The concept of "clarity" of the role of a coach-mentor in the context of a work-based learning supervisor.
- The concept of "gift exchange" as a metaphor to describe the interaction between a coach-mentor and a student.

Literature that was identified explored the thinking processes behind the coaching and mentoring philosophies and practices, lent support to the intervention and made the contextual framework richer for the subsequent analytic work for this thesis.

The conceptual framework derived from integrating the education, business and psychology context forms the last segment of the chapter. This framework supported the tripartite model of work-based learning as an endeavour in which the university (represented by the academic supervisors), the industry (represented by the work supervisors) and students all play important roles. Although the thesis focused on the perspective of workplace supervisors, a holistic treatment had to consider the university and the student.

2.2 Defining Transferable Skills

Transferable skills might mean different things to different people, and hence the need to first define it for the purpose of this thesis.

One of the earliest references to transferable skills was in a piece of work done by Ryan (1980) attempting to estimate the cost of training comparing that to recruiting an experienced worker in the light of an industry (shipbuilding) that workers were highly mobile. While there was no proper definition of a transferable skill in the paper, there was implication that it came with work experience, and it enhanced the employability of workers in terms of their perceived value by employers. Such skills were broadly technical in nature, such as arc welding, but thought to be transferable across industries that required metal work.

Another reference to transferable skills was a report published by the Organisation for Economic Co-operation and Development (2012) on transferable skills needed for researchers in the light of today's knowledge-based industry requiring researchers to have a wide variety of skills. These skills were also thought to be transferable as they were relevant and valued across a wide variety of sectors. Examples quoted were communication, problem-solving, teamworking and networking.

In both the references, the idea that these skills enhanced employability and facilitated the mobility of the worker within a particular industrial sector, and even across sectors. The skills were also thought to be valued by employers, in agreement with a later study by Kantane et al. (2015) in their survey of the expectations of employers on what they look for in their employees.

The difference between the two references was the context where the term occurred. Ryan's work was based on a highly industrialised work environment some four decades ago. This was subsequently replaced by a knowledge-based economy in which the OECD report was based upon. At this point, the economy is transitioning to Industry 4.0 (Bai et al., 2020) where emergent technologies and artificial intelligence could deem some technical skills becoming obsolete. Hence, we saw a shift in terms of transferable skills referring to generic skills as represented by the OECD report, more so than the technical skills mentioned by Ryan.

With the description of today's work environment as VUCA – volatile, uncertain, complex and ambiguous, strategic advisor John Kao (2017) argued that we are now in an "age of innovation" when vision, purpose and skills to innovate are key to navigating the new age. In building a definition of transferable skills, I also drew inspiration from industrial trends that required new skills, and even attitudes.

At this point, it might be useful to begin at the most basic level. Sawin (2004) had a basic definition of transferable skills as skills that are learnt in one context and then applied in another context – the idea of "transfer". This allowed subsequent expansion of my definition of transferable skills.

2.2.1 Transferable Skills as Application of Theory to Real Life

One way to interpret Sawin's definition was to look at the transferable skills as skills required by students to be able to apply what they learn at the university to real life work when they graduate. In other words, taking the classroom as the first context and the workplace as the second context, transferable skills were required for the student's successful transition from the university to the workplace (Saunders & Machell, 2000). The transition from university to workplace mentioned by Saunders and Machell was also an important strand that is further discussed as one of the roles of universities today in sub-section 2.3.

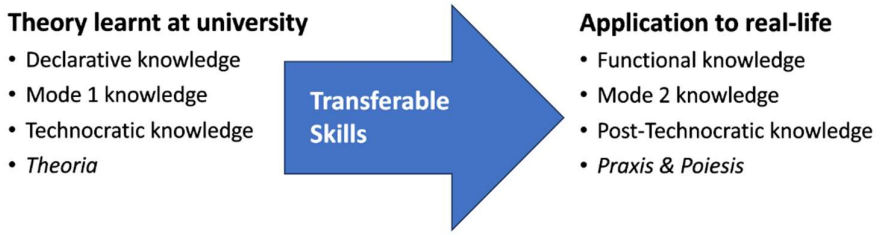
This definition of transferable skills would also include the application of skills that are specific to a particular profession, such as programmers applying their programming skills learnt from university courses into real work projects or freshly graduated nurses applying their patient care skills in a hospital setting. In the same thread, the arc-welding skills mentioned in Ryan's research on workers in the shipbuilding industry would also make sense with this definition. A related idea of being able to transfer learning from theory to real life was the application of the skill in different real-life contexts when workers transitioned from one project to another or from one organisation to another. Kantane et al (2015) termed this as "professional knowledge" in which employers expect employees to bring either from their university education or previous work and rated them top in the minds of employers.

Gerhardt and Annon (2023) emphasised that the design of work-based learning curricula in universities is to achieve such transfer from theory to application. Unpacking the idea of professional knowledge, their work brought together various concepts of knowledge. The first group would include discipline knowledge, also known as declarative, or Mode 1 knowledge which one can get from university classes and books. The second group would include application of declarative knowledge to a real-world context, also known as functional, or Mode 2 knowledge (Cooper et al, 2010). The terms technocratic knowledge and post-technocratic knowledge was also used to distinguish knowledge acquired through university courses and training in the former, and that which is acquired through experience and reflection on the practice in the latter (Bines & Watson, 1992). Drawing a parallel to Aristotlean ideas of the three basic activities of humans, Mode 1 knowledge is linked to *theoria* (thinking) while Mode 2

knowledge is linked to *praxis* (doing) or *poiesis* (making) (Kemmis, 1995). The various kinds of knowledge represented by this form of transfer is illustrated in Figure 2.1.

Figure 2.1

Transferable Skills as Application of Theory to Real Life



Note. Author's illustration based on Gerhardt and Annon (2023).

2.2.2 Transferable Skills as Generic Skills Applicable Across Disciplines

Extending the idea of applying to different contexts, another perspective of transferable skills referred to generic skills that would be required across various disciplines and industries. This definition represented a more common understanding of transferable skills, and the same understanding when the 2012 OECD report referred to transferable skills of researchers. The work context demands such skills and work-based learning provides student opportunities to develop them, including skills such as critical thinking (Poce et al, 2022), teamwork (Dogara et al, 2020), communication (Freudenberg et al, 2011) and independent research (Strickland et al, 2017).

Other than the terms generic skills or employability skills, these skills were sometimes referred to as soft skills, which is antonymous to the hard skills or technical skills required for a specific discipline or work, such as mechanical engineering or computer programming skills (Cimatti, 2016). However, some researchers such as Grugulis and Vincent (2009) did not like to use the term "soft skills" as they thought this might give the impression that such skills were of less importance. In Kantane et al's study (2015), it was found that employers rated these as equally important as the employee's professional knowledge.

A more recent term used was that of twenty-first century skills, which covered digital skills but also included the broader generic skills and competencies (Tight, 2020). Tight argued that despite using the newer "twenty-first century" descriptor, they had the same idea as transferable skills mentioned in earlier literature, while adding on digital skills such as information or media literacy. Even such additions were not necessarily common across lists of twenty-first century skills to lead Tight to conclude that this is just an alternative label that happened to be fashionable at a particular point of time.

The idea that it was difficult to agree on a comprehensive list of transferable skills also supported a broader definition to be adopted by this study. This led to the idea of including habits, dispositions and attitudes into the definition.

2.2.3 Transferable Skills as Habits, Dispositions and Attitudes

The idea of including habits, dispositions and attitudes into the definition of transferable skills arose from a comparison of several contemporary lists of generic skills in demand by employers. The World Economic Forum report (2020) on the Future of Jobs in 2025 listed job skills that are not traditionally classified as "skills" but rather as habits, dispositions and attitudes, such as active learning, creativity and resilience. LinkedIn top skills (2022) also included leadership and strategic thinking. Udemy (2021) listed managing procrastination, conversational skills and charisma as the top three surging power skills for the workplace.

Growth mindset and resilience were research topics in their own rights that proliferated in recent years (Baldwin et al., 2020). Growth mindset refers to the belief that abilities were not what people were born with but developed through hard work (Dweck, 2006). Resilience is the ability to recover from failures, when sustained and combined with passion provided ingredients for reaching long-term goals (Duckworth, 2016). Tooley & Bornfreund (2014) included these as "skills for success" in their policy paper for student development prior to university. In a publication on the holistic development of students in higher education, Baldwin et al. (2020) also included these as measures for student success and their subsequent employability.

In the study by Kantane et al. (2015), attitudes and motivations were also desired attributes based on employers' expectations, in addition to the employee's professional knowledge and generic skills. Kantane's list included purposefulness, caring for the agenda and organisation of work, and initiative in additional tasks taking, among others. In this respect, work-based learning would be a helpful to develop these habits, dispositions and attitudes as students respond to complex situations at work (Adams & Jones, 2021). In designing such as curriculum, Adams and Jones referred to a 4-6-1 model of practical learning (Claxton et al, 2010) which includes four habits of mind (investigation, experimentation, imagination and reasoning), six frames of mind (curiosity, determination, resourcefulness, sociability, reflection and wisdom) as well as a single presence of mind to deploy the right habits and frames of mind at the right instance.

If we believed that the cultivation of transferable skills began with the right mindset, such as having a growth mindset to support lifelong learning skills, then the inclusion of habits, disposition and attitudes would be a natural step to enlarge our thinking of transferable skills. In any case, the acquisition of transferable skills in the form of soft skills could sometimes be incremental requiring constant practice and reflection, or the results could sometimes be transformational given a change of mindset and attitude.

An associated term being used in higher education in this respect was that of "competences" or "competencies" that included attitudes as outcomes in a competency-based education approach (Nodine, 2016). Fergusson et al (2020) suggested that as the learners become more advanced in their practice, they would develop the general and specific capabilities associated with the profession and ultimately a professional identity.

2.2.4 A Broad Definition of Transferable Skills

Hence, for the purpose of this thesis, a broad definition of transferable skills was adopted to include transferable skills as application of theory, as generic or soft skills and as habits, disposition or attitudes (see Table 2.1). It was believed that this wider scope of transferable skills was inclusive of what employers were often looking for in the ideal graduate.

Table 2.1

The Scope and Examples of Transferable Skills

Transferable skills as application of theory	Transferable skills as generic or soft skills	Transferable skills as habits, disposition or attitudes
• Translating from university to work (Saunders & Machell, 2000) • Putting theory to application (Cooper et al, 2010; Gerhardt & Annon, 2023)	• Generic skills across disciplines (OECD, 2012) • Competences for work (Nodine, 2016) • Digital literacy (Tight, 2020)	• Growth mindset (Dweck, 2006) • Resilience (Duckworth, 2016) • 4-6-1 model for habits, frames and presence of mind (Claxton et al, 2010) • Professional identity development (Fergusson, 2020)

2.3 Developing Transferable Skills through University's Work-Based Learning

Having established the definition of transferable skills as skills that are valued by the employers, the next section of the thesis discusses the university's role in developing these skills, in particular, through the university's work-based learning curricula.

Tan and Loke (2022) published an opinion piece asking the age-old question about the role of universities in the light of the COVID-19 pandemic. The pandemic disrupted both learning and work through widespread adoption of online learning technologies and a work-from-home culture. Tan and Loke observed that even before the pandemic, the rise of stackable certificates and corporate universities had posed the question whether skills that traditional universities provided could be gained through other avenues. An argument was then made that universities in their current form were still "too academic" and could do more to impart life skills and soft skills required to help graduates navigate the rapidly changing work environment.

A key role of the university to produce work-ready graduates in fulfilling the needs of the knowledge-based economy was also echoed by Boden and Nedeva (2010) in examining the

graduate employability discourse in the United Kingdom. Boden and Nedeva also argued that the employability discourse had resulted in a new tier of universities producing workers for vocations while the established universities produced leaders and elites. Roy and Naidoo (2016) noted that the dichotomy of the two types of universities did have an impact on their marketisation strategy with research-intensive universities focussing on their elitist histories while “younger” applied universities focussed on their practical and industry relevance.

The Singapore Institute of Technology (SIT) was set up in 2014 as Singapore's first applied university amidst a backdrop of existing research-intensive universities such as the National University of Singapore and Nanyang Technological University. In fulfilling its mission as an applied university, SIT adopted an applied learning pedagogy that emphasised active learning and an authentic learning environment mirroring industrial practices (Lim et al., 2020). Another feature was its integrated work-study programme (IWSP) that actively involved the industry in work-based learning of an extended duration as part of SIT’s curriculum (Ng et al., 2020). In her pursuit to prepare students for the future of work, SIT also recognised the value of transferable skills to complement the deep technical training that the university provided, implementing an Industry Readiness Skills Framework (IRSF) (Digital Senior, 2022).

The importance of developing transferable skills in students was not just an agenda that concerned applied universities but all universities. In recent developments in Singapore, universities rolled out initiatives to develop transferable skills such as problem-solving, creativity and lifelong learning amongst others (Channel News Asia, 2022). In a way, all universities were recognising the need to prepare students for a rapidly evolving working environment, not just applied universities. Transferable skills were often aspirational and somewhat embedded in a university’s list of graduate attributes, such as SIT’s desire for her graduates to be “catalysts for transformation” by creating value through innovation (Singapore Institute of Technology, n.d.).

At an individual level, university graduates did see a university degree as investing in their personal capital to get ahead in the meritocratic race and fulfil their personal and social expectations (Brown et al., 2004). This also highlighted the social mission of higher education to add value to their graduates and enhance their social mobility. Delivering what employers were looking for in terms of transferable skills was certainly part of its role.

How did universities develop transferable skills in students? To evaluate the effectiveness of an institution’s attempt to develop communication and other transferable skills, Kemp and Seagraves (1995) looked at a range of possible models, including teaching the skills through separate courses or integrating them in the curriculum. From the students’ perspective, it was found that there was lack of coherence and support in their development of the transferable skills, but they did agree that the practice of such skills helped them gain confidence. This was also in line with Saunders and Machell (2000) idea of the university as a rehearsal for work.

While some transferable skills, such as oral and written communication, could be taught through formal classes (Breslow, 2015), other transferable skills, such as project management and teamwork, were better developed by students when they were engaged in project work (Vogler et al., 2018), especially if crafted in authentic settings (Villarroel et al., 2018). It was also thought that university curricula that included work attachment provided the most authentic environment possible for the students to acquire transferable skills (Feldmann, 2016). Through a literature review of 26 research studies on work-based learning, Feldmann concluded that work-

based learning could promote students' acquisition of transferable skills and subsequently enhance their employability. Most studies used the theoretical lens of experiential learning theory to explain how when students were placed in real-world situations in the workplace, they had to practice these skills to react to these situations and then reflect on their learning. In addition to the development of transferable skills, Blackwell et al. (2001) found that integrating higher education and work can result in an increased relevance of a university curriculum and students reported higher motivation and better grades after undertaking work experience as part of the curriculum.

Work-based learning built into the curriculum can take various forms (Tynjälä et al., 2003). Any such arrangement would include the industry as the university's partner in teaching transferable skills. In most cases, the university would match students to companies that can provide relevant jobs for students to apply what they have learnt in the classroom to real work at the workplace. The company would then assign one or more work supervisors to mentor the students. Such work attachment stints could have a variable duration as agreed by the university and the company, some generic learning outcomes and sometimes accompanied by an assessment. Deliverables for such work attachment may involve reflection logs (Doel, 2008) or work projects (Konstantinou & Miller, 2020).

A more encompassing term used to describe the host of programmes that involve collaboration between universities and industries is work-integrated learning as opposed to other terms such as workplace learning or work-related learning, which were terms more relevant to human resource management practitioners (Gerhardt & Annon, 2023). For this thesis, the term "work-based learning" would be used although it was acknowledged that a more generic term like "work-integrated learning" could also be used with the evolving definitions of these terms. Gerhardt and Annon (2023) considered work-based learning as a sub-set of work-integrated learning and argued that they involve a pedagogical practice that spans disciplinary boundaries. The idea of the educational, business and psychological context coming together for this thesis is expanded in sub-section 2.9.

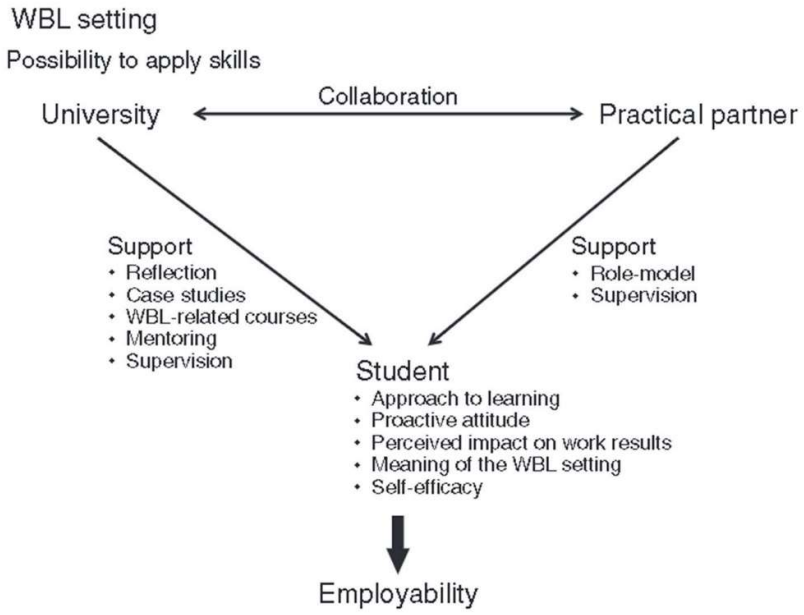
The idea of the university's role in developing students' transferable skills was not without criticisms. Chan et al. (2017) argued that the issue with transferable skills, especially those concerning attributes and attitudes, such as creativity or having a growth mindset, was that these were difficult to measure and hence assess. These challenges in teaching and assessing transferable skills were acknowledged, but I suggest that a different approach to consider the acquisition of such skills as formative and part of continual learning, rather than an end. Hence, the idea of co-creating workplace learning outcomes was recommended as a possible intervention purely from a teaching and learning perspective.

2.4 The Role of Workplace Supervisors as Developers of Transferable Skills

Feldmann (2016) also proposed a framework that demonstrated the tripartite relationship involving the university (academic supervisor), practical partner (work supervisor) and student (see Figure 2.2).

Figure 2.2

Tripartite Framework for Work-Based Learning (WBL)



Note. Original framework by Feldmann (2016) showing the tripartite relationship between university (academic supervisor), practical partner (workplace supervisor) and student.

As a key player in the tripartite relationship, workplace supervisors could play an important role to determine the success of the work-based learning curriculum. As line managers whom the students directly report to, they set expectations on the students and were intimately involved with their development (Mullen et al., 2019).

It was also argued that the success of any work-based learning hinged on the extent to which workplace supervisors support the learners in achieving their learning outcomes (Ali et al, 2022; Hansberry & Gerhardt, 2023). Ali et al based their findings on over 6000 graduates from 200 U.S. colleges that the supervisor's support to the learners' learning goals resulted in better internship satisfaction and a job offer acceptance after graduation. Hansberry & Gerhardt argued that support from supervisors is more important in the case of young apprentices from more disadvantaged socioeconomic backgrounds to find jobs in an increasingly competitive job market.

Quew-Jones & Rowe (2022) lamented that there have been limited literature that focuses on the employer's perspective and their findings suggested that more can be done to increase the guidance and clarity of roles for work-based managers and mentors.

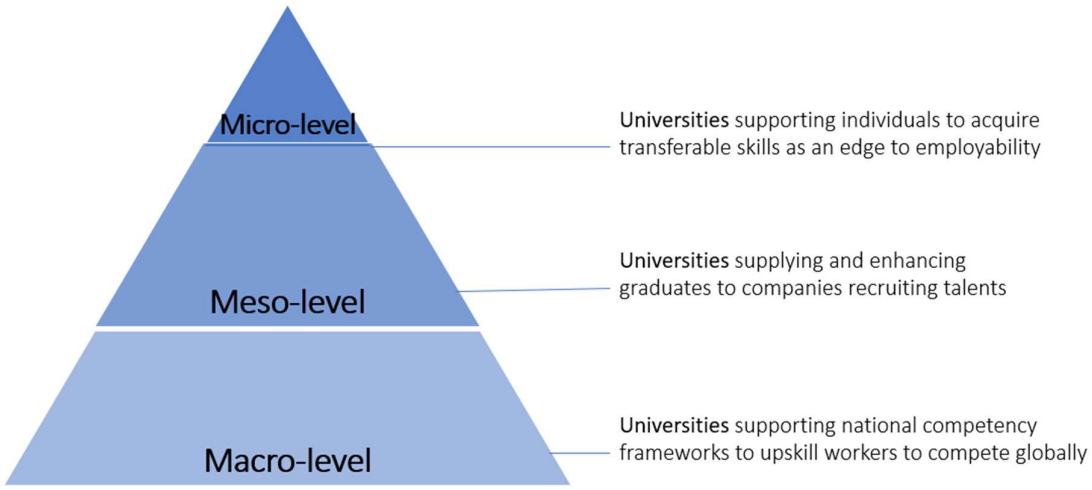
It was acknowledged that the work supervisor would have the greatest influence on the work that the students would be undertaking at the workplace, and hence a high level of socio-structural empowerment. Thus, in the light of limited research carried out in this area, the current study could fill in the knowledge gap to explore further the role played by the work supervisors.

2.5 The Macro-Environment

The next section builds upon Feldmann's tripartite framework in sub-section 2.4 to provide the larger perspective of the university and industry and to also reflect the view of transferable skills at three levels of individual, industrial and national. Figure 2.3 illustrates the opportunities accorded to universities at the various levels. Each level presents different dynamics at play and provides the backdrop in which the workplace supervisors function.

Figure 2.3

Transferable Skills at Three Levels



Note. This is the author's own illustration on the possible universities' involvement in terms of transferable skills at the micro-, meso- and macro-levels.

Brown et al. (2004) painted a picture of a competitive job market, but that the promise of a good job after a university education was no longer guaranteed. Godbout (2000) argued that the industry is about a war for talent, and hence the ability for students to demonstrate transferable skills was key to their success in their job search. Hence, the micro-level accords the university its mission to support graduates to acquire skills, including transferable skills, that will give them an edge in employability. In the discourse on employability, Tomlinson (2017) built on

the human capital theory to include social, cultural, psychological and identity capitals that higher education can imbue in its graduates.

The job competition theory (Thurow, 1972) suggested that in a competitive job market, graduates without the right skills may end up with occupations below their education levels. Figure 2.3 at the meso-level thus requires a closer working relationship between higher education and industry to ensure that the jobs that the university trains its graduates for are the roles that the companies needed. The rise of corporate universities (Blass, 2005) was also in line with this trend of companies recognising the importance of nurturing human capital. Companies also saw the value of a closer partnership with universities through a human resource development perspective whereby the students were viewed as the future of their organisation's human capital (Arthur-Mensah, 2020). This was especially relevant if we consider developing transferable skills as work-in-progress and formative in nature.

Regarding higher education and industry working together, Morley (2001) suggested that universities and employers would need to align on issues pertaining to employability in higher education, especially in the light of government policies on the role of higher education to enhance national competitiveness (illustrated by the macro-level in Figure 2.3). An example of such policies would be the setting up of national competency frameworks which higher education were called to support (Stokes & Oiry, 2012). It was with this backdrop that Singapore also implemented its own national competency framework and encouraged lifelong learning (SkillsFuture Singapore, n.d.).

The use of human capital theory to justify the role of higher education has not been without criticisms. Hughes and Tight (1995) argued that the links between education and training with economic outputs such as productivity were over-simplified and the idea of a learning society to support economic growth was a "myth". Strain and Field (1997) preferred to consider it as an ideal and that people and society had so much more to gain from continual learning.

The idea of continual learning is crucial considering the fast-changing needs of the industry and the relatively slower pace of curriculum change and formal education at universities. This prompted Singapore's Minister for Education, Mr Chan Chun Seng, in an interview to ask universities to see themselves as "institutes of continual learning" rather than "institutes of higher learning" (Ministry of Education Singapore, 2022).

The implication for work-based learning and the role of workplace supervisors are as follows:

- Workplace supervisors have a role to help students develop their human capital and other transferable skills that can enhance the students' employability when they graduate.
- Workplace supervisors can look out for the company to recruit good talented students when they graduate or provide the network for the students' job search in the same industry (Pham, 2020).
- Workplace supervisors play a role in the economic development of society at large by providing the university in terms of what the industry need so that such needs are fed back to the university curriculum.

2.6 The Process of Co-Creating Work-Based Learning Outcomes

In the field of human resource development, the idea of continuous learning was part of the narrative on workplace learning. Manuti et al. (2015) broadly classified the types of learning occurring at the workplace as formal (through training delivered by professional trainers) and informal (through work experiences and learning on the job). While formal workplace learning mimicked more closely the classroom learning in higher education, it was more generally accepted that much of workplace learning was informal. McCall et al. (1988) suggested a 70-20-10 model of workplace learning based on self-reports of nearly 200 executives that 70% of workplace learning was experiential, 20% was social while only 10% was formal. However, Dale & Bell (1999) critiqued that informal learning could be somewhat unconscious and difficult to be recognised. Coaching of employees could be a way to draw out lessons from informal learning and research on coaching, including coaching in academic settings, was an emerging area (Ellinger & Kim, 2014).

Coaching is also relevant to work-based learning to invoke critical reflection from students. This is particularly so when the learning goals were clearly articulated as part of the process (Buchanan et al, 2022). In addition, the conversations between a supervisor and a student should be dialogues, rather than monologues, for effective critical thinking to take place (Loughland et al, 2021). These studies provided the theoretical foundation to support a process of co-creating work-based learning outcomes as an intervention. Firstly, work-based learning goals were shared and aligned in the process, and secondly, the process facilitated follow-up conversations or dialogues, rather than the supervisor unilaterally setting the direction for the student's learning. The importance of co-creation to support success of a joint endeavour was also echoed in the context of both education (Dean & Timmermans, 2022) and business (Croft et al, 2022).

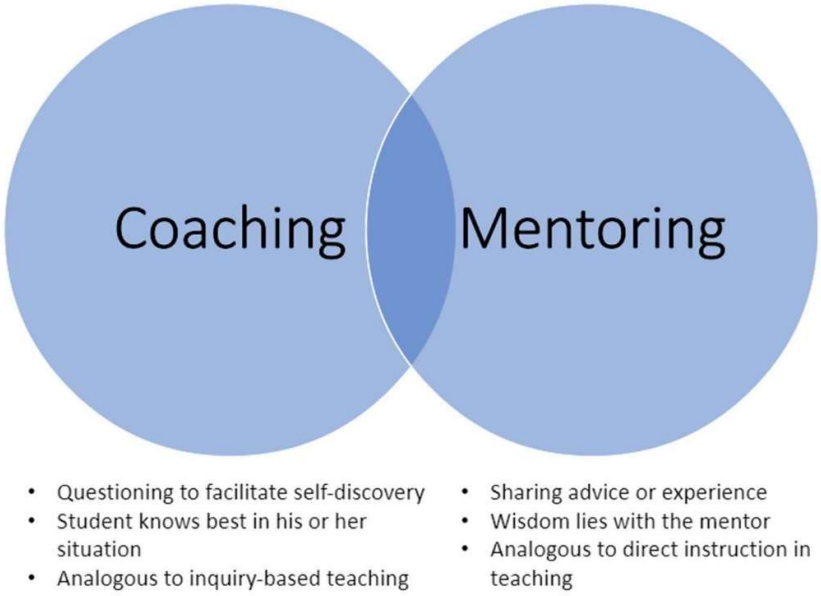
In addition, students can be seen as partners in education, especially from the perspective of transferable skills acquisition (McHenry & Krishnan, 2022). In fact, students are found to be as critical, if not more critical, than their work supervisors when it comes to their own assessment of their competencies (Nisbet et al, 2022). Regardless, students should form their own judgement in terms of transferable skills development. Hence, the inclusion of students in the co-creation process is a positive move that supports the role of students in this intervention.

The International Coaching Federation (ICF) that accredits coaching certifications globally defined coaching as "partnering with clients in a thought-provoking and creative process that inspires them to maximise their personal and professional potential" (International Coaching Federation, n.d.). By this definition, the coach would engage a client through a questioning and exploratory process akin to an inquiry-based learning approach. This was opposed to a mentoring approach whereby the mentor would share experiences and suggest courses of action akin to a direct instruction approach. Figure 2.4 illustrated the difference between coaching and mentoring, but also suggested that a workplace supervisor could use a mix of both approaches when bringing out learning at the workplace as illustrated by the overlapping circles, indicating that coaching and mentoring were not mutually exclusive approaches. The

figure was inspired by Downey (2014)'s book on coaching skills that a spectrum of both "push" and "pull" techniques could be used in a coaching context – "push" would include techniques generally used in mentoring, while "pull" techniques are used by coaches in its more limited definition suggested earlier by the ICF.

Figure 2.4

Coaching and Mentoring at the Workplace



Note. This is the author's own illustration on the difference between coaching and mentoring at the workplace as inspired by Downey (2014)'s spectrum of coaching skills.

A process of co-creating learning outcomes during work-based learning would fit very well into the coaching paradigm as an approach to start a coaching conversation. Such starting points would also constitute what was termed as a coaching contract. An example of a coaching question that would establish the conversation could be "what would you like to achieve at the end of your work attachment"? In a study by Gettman et al. (2019), the act of contracting contributed to the bond between the coach and the client as trust was gained and expectations were aligned. The process of co-creating learning outcomes would also fit the ICF definition of a "partnership" through a "creative" process between a coach and a client.

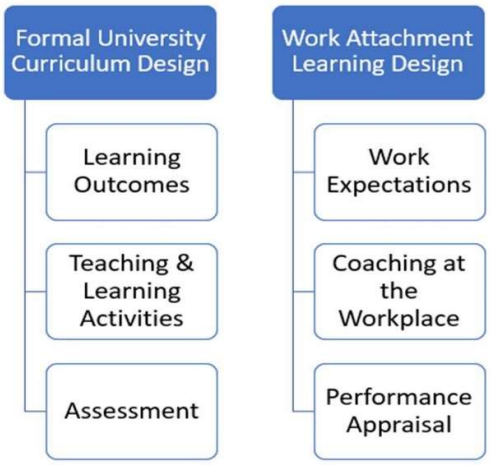
From the education perspective, the process of co-creating workplace learning outcomes and assessment rubrics with students could potentially benefit both the student and the workplace supervisor. Studies have shown that such processes that included co-creation of learning outcomes would facilitate students' self-regulated learning and enhance their self-efficacy (Fraile et al., 2017). When students participated in a partnership of co-creating learning outcomes, they could be more motivated and held accountable for their own learning.

However, the benefit for the work supervisor was not emphasized in any study at this point of time, hence the relevance of the research questions.

If there were to be a theoretical underpinning for the choice of a co-creation process as the intervention for this research, it would be the idea of the "wise" intervention as proposed by Walton & Wilson (2018). Earlier in the literature review, it was found that although expectations were set by the supervisors at the onset of the work attachment, the assessment of the students remained an afterthought and was not well-aligned with the university's assessment rubrics (Ong, 2022). A process of co-creating learning outcomes with the students could therefore bring alignment to the work supervisors on their roles by seeking inputs from the university graduate attributes, the company's and their own values, as well as the student's motivation and abilities. The inclusion of the student in the co-creation process would strengthen the student-centredness of the Biggs' constructive alignment process (Biggs & Tang, 2011) in the design and subsequent assessment of work-based learning. As suggested by Hodkinson (2005), there were similarities between learning in higher education and learning at the workplace that an analogy between how students acquire transferable skills at the university and at the workplace can be illustrated in Figure 2.5. The co-creation process, while bringing constructive alignment to what workplace supervisors did, could also potentially work around the issue of subjectivity in the supervisor's assessment of the students as pointed out by Tight (2020) through looking at transferable skills as developmental or work-in-progress. The co-created learning outcomes would become the basis in which coaching conversations could centre around, very much like the idea of coaching conversations in human resource development.

Figure 2.5

Analogy between Formal University Curriculum Design and Work Attachment Learning Design based on Constructive Alignment



Note. This figure is the author's own illustration as inspired by Hodkinson's work (2005).

In this respect, the co-creation process was being researched as a wise intervention that could lead to an alignment between work expectations, coaching conversations and performance appraisals in a work-based learning situation. According to Walton & Wilson (2018), the idea of "wise" did not mean that this approach was "good" or "superior". Rather, they were psychologically wise because they were centred around people (work supervisors and students) and situation (work-based learning), and they encouraged meaning making using a precise technique (co-creation of learning outcomes) that was in turn theory or research-based. As a wise intervention, an indication of its success would be the "changed meanings" which work supervisors would attribute to the intervention, going back to the research questions raised in Chapter 1 (see sub-section 1.5).

2.7 Clarity as a Key Concept

It was noted that the perspective had shifted from an academic lens (role of universities in developing transferable skills in students) to a human-resource management lens (coaching as a creative way to draw out informal learning at the workplace) and finally to a psychological lens (co-creating workplace learning outcomes as a wise intervention).

Besides supporting the development of students' transferable skills, the co-creating process was meant as a wise intervention and hence, sense-making on the part of the work supervisors would be key to understanding their perspectives. From the supervisors' perspectives, the process could also result in a certain kind of enlightenment for them. The word "enlightenment" has its root in the word "light" which in turn conjures an image of clarity of vision. The review thus looked at the concept of "clarity" as evidence of a new way of thinking about their role and the processes surrounding the work supervision. Hence, clarity could refer to both role clarity and process clarity.

Role clarity concerned the supervisors' view of themselves as developers of human potential and how they would be instrumental to bring about growth in the students' transferable skills. Some ideas were derived from the area of coach self-identity. One such concept was that of coach maturity (Clutterbuck & Megginson, 2011) and another was Kegan's stages of adult maturity (Kegan, 1982). The idea here was that the work supervisor acting as a coach to the student would derive satisfaction and self-actualisation as a person who would help develop transferable skills in a student beyond the mundane supervision of the day-to-day work.

Process clarity concerned the supervisors being able to describe what they do to bring about the growth of transferable skills in the students. Landmark research by Rosenshine and Furst (1971) that studied over 50 teacher effects on student learning concluded that teacher clarity has the strongest effect on student learning. Titsworth et al. (2015) noted that this link was especially so when it came to the affective domain of learning (Krathwohl et al., 1964) in which the area of transferable skills in terms of mindsets, values and habits would fall. Hence, if extended to work-based learning, the idea would mean that if the workplace supervisors had more clarity on the process of coaching the students, it would result in significant and observable growth in the students' transferable skills.

To further support the idea of clarity, Simonds (1997) argued that such clarity would result when teachers and students negotiate meaning in the learning activities, very much in line with the proposed intervention where supervisors and learners co-create the work-based learning outcomes. Warhurst & Black (2019) also saw mentoring as a process that could help both the mentor and the mentee build self-identity.

2.8 Gift as a Key Concept

The concept of "gift" was an idea to unearth benefits of being a work-based learning supervisor performing the role of developing transferable skills in students at the workplace. The gift theory was initially conceived by Mauss (1990) to describe the exchanges in human relationships. As opposed to a market economy where goods and services were exchanged, the gift economy was where favours or "gifts" were given in return for the obligation for the receiver to reciprocate.

The idea of mentoring as a gift was often thought as a one-sided process where learners would be the one who benefited from having great advice and support from mentors (Kamvounias et al., 2008). However, shifting the perspective to the workplace supervisors would uncover benefits which the supervisors themselves receive in return.

As an intervention, the process of co-creating learning outcomes was a participative way for both parties to be involved, and often signalled the start of a coaching-mentoring relationship akin to what was known as "contracting" (Lee, 2012). In other words, the process of co-creating learning outcomes was only the starting point of the coaching-mentoring conversation and it facilitated further follow-on conversations that could refer to the learning outcomes set. It was thus expected that the reciprocation of the gift of mentoring would surface later in the coaching-mentoring relationship.

In the same vein, Dobbins and Fell (2020) likened the notion of mentoring students as a "gift exchange" where both the supervisors and learners benefited from the relationship. It was hoped that through the positive experiences of the workplace supervisors who adopted the intervention, other workplace supervisors could find their involvement in university work-based learning programmes equally, if not more, worthwhile.

While the coaching process was meant to help students maximise their potential, we postulated that supervisors would also derive satisfaction from the process, in the same way that teachers derive satisfaction from positive relationships with their students (Veldman et al., 2013). The PERMA model (Seligman, 2011), as used in positive psychology, would potentially be a way to uncover the Positive emotions, Engagement, Relationships, Meaning and Achievement that described satisfaction from the coaching process.

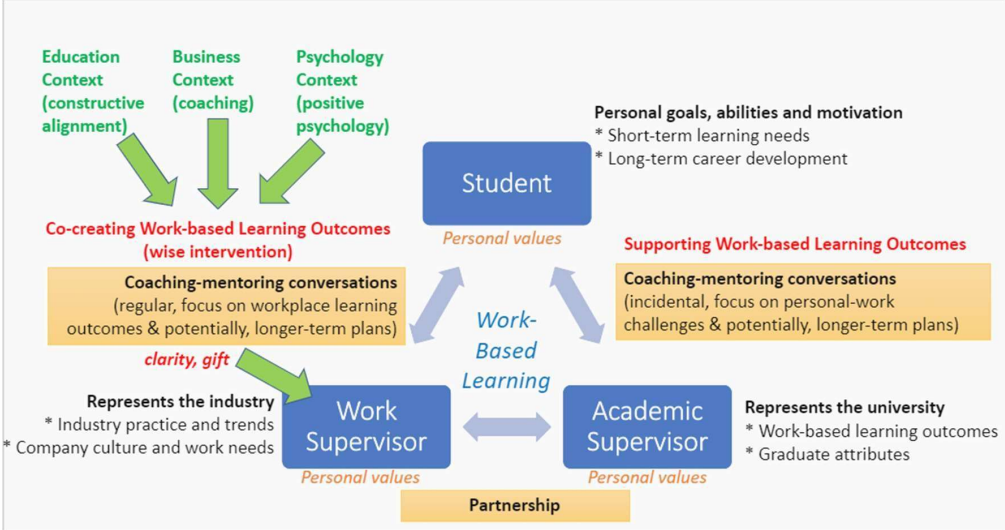
2.9 A Proposed Conceptual Framework for the Co-Creation Process

In summary, the literature review uncovered perspectives from education (constructive alignment in designing work-based learning to facilitate the development of transferable skills in students), management (coaching as a means to develop human resource, with the co-creation process akin to a coaching agreement) and psychology (deriving clarity of and satisfaction from the process from the perspective of workplace supervisors).

In order to synthesise the different disciplines and perspectives, a conceptual framework was developed in Figure 2.6 below. The framework was built upon the tripartite framework proposed by Feldmann (2016), previously shown in Figure 2.2, exemplifying the relationship between the student, the workplace supervisor and an academic supervisor from the university.

Figure 2.6

Proposed Conceptual Framework for the Thesis



Note. This conceptual framework (author's own illustration) was built upon Feldmann (2016)'s original tripartite framework (see Figure 2.2).

The conceptual framework put into place the multi-disciplinary theories from the education, business and psychology contexts (see top left of Figure 2.6) that contributed to the wise intervention, and the possible impact on the work supervisor in terms of clarity (of their role and the supervision process) and other gifts that the coaching relationship might bring to the work supervisor. The framework also included the student and academic supervisor as the other players in a tripartite work-based learning relationship, the context and values that each player may bring to the relationship as well as possible interactions between the three players in a more holistic manner.

While the wise intervention was the over-arching concept that supported the thesis, the literature review included the underlying theories and literature that supported the intervention as being “wise”. The intervention was also meant to address the research questions on whether it brought about a rethinking from the work supervisors’ perspective, about their roles and the process of developing transferable skills in students with greater “clarity” (research question 1) and other benefits or “gifts” as a result of the intervention (research question 2). The intervention also addresses the knowledge gap to draw out the work supervisors’ perspective that was missing in the literature review. The next chapter on Methodology (Chapter 3) addresses how the research questions were answered.

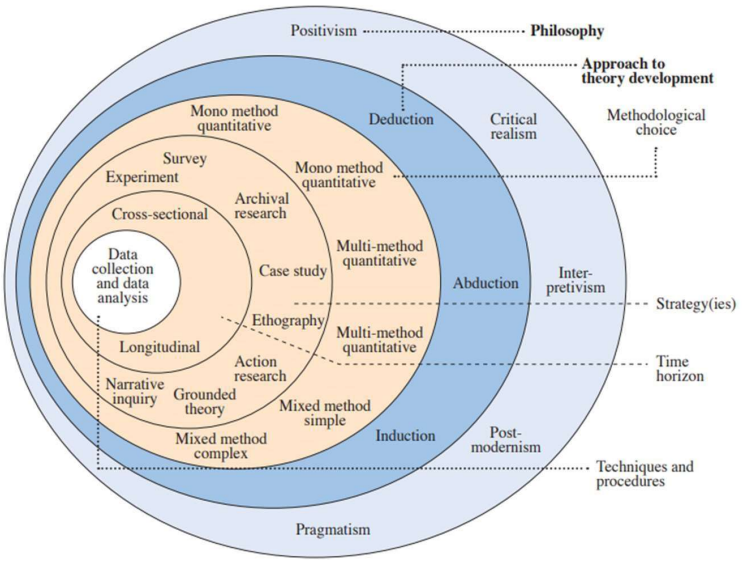
Chapter 3: Methodology

3.1 Premise

The methodology for this thesis was developed based on guiding principles provided by educational research textbooks and supported by other literature on educational research methodology. In particular, the Onion Model (Saunders, Lewis & Thornhill, 2016) was used to guide the organisation of this chapter. The Onion Model used the analogy of peeling an onion to describe the choices made in the methodology of the thesis from the general to the specifics.

Figure 3.1

Saunder's Research Onion



Note. The Saunder's research onion (Saunders et al., 2016) was adopted to guide the methodology of this thesis.

The first and outermost layer represented the research philosophy (elaborated in subsection 3.2 under the header of "Paradigm for Interpreting Social Reality"). In this subsection, the possible paradigm that the research could be classified was deliberated. This was an important starting point to align other decisions made with respect to the methodology.

The second layer in the Onion Model dealt with the research approach (elaborated in subsection 3.3 under the header of "A Complementary Deductive-Inductive-Abductive Approach"). As an

intervention study, a deductive approach was appropriate to answer the first research question, yet the second research question was an open one that implied an inductive approach. This sub-section explored both approaches, as well as the abductive approach as complementary to this study.

The third layer in the Onion Model covered the methodological choice (elaborated in subsection 3.4 under the header of "Qualitative Methodology"). Here, the argument was made for a purely qualitative methodology to answer the research questions as opposed to a quantitative or mixed method methodology.

The fourth layer in the Onion Model focused on the research strategy (elaborated in subsection 3.5 under the header of "Case Studies"). The choice of treating the research subjects as case studies had implications on the subsequent analysis of the data collected.

The fifth layer in the Onion Model described the time horizon (elaborated in sub-section 3.6 under the header of "Duration of Study"). This sub-section described the research duration and, in a sense, also set limits on the effect of the intervention carried out during the research duration.

The final layer in the Onion Model detailed the data collection and analysis methods (elaborated in sub-sections 3.7 to 3.10 under four separate headings of "Recruitment of Participants", "Intervention: The Co-Creation Protocol", "Interviews" and "Thematic Analysis"). This layer formed the bulk of the methodology section with not just the choice of the methods but its processes and justifications.

Two further sub-sections 3.11 and 3.12 concluded the Methodology chapter – a discussion on the ethics, as well as the objectivity of the researcher.

3.2 Paradigm for Interpreting Social Reality

Paradigms represent the way we look at reality. Unlike natural sciences which saw the world as mechanistic, social sciences often had multiple interpretation of the world because of the way different people interpreted social reality. The objectivist (positivist) paradigm was often contrasted with a subjectivist (post-positivist) paradigm (Cohen et al., 2018). A subjectivist paradigm was chosen for this study given the possibility of different viewpoints that might exist among work supervisors. In this respect, it was believed that adopting a subjectivist paradigm would still yield a conclusion that could be equally rigorous as compared to the scientific method as gold standard in natural science research. This was achieved by collecting enough data to find common threads or patterns, and to present different viewpoints as plausible alternatives to an ultimate "truth" as a subjectivist paradigm did not subscribe to any notion of ultimate "truth".

The next step was to tease out differences in the similar but overlapping approaches under the larger umbrella of subjectivism. Table 3.1 below listed some features of each approach for ease of reference and subsequent decision making on the approach to be adopted.

Table 3.1

Comparison of Subjectivist Approaches

Approach	Features
Interpretivism	Concern for the individual and the world of human experience Uncovering interpretations while suspending bias (Cohen et al., 2018)
Post-modernism	Absence of grand narratives Importance of temporality and context Relativism rather than absolute Multiple and sometimes contradictory interpretations Researchers as part of the world they are researching (Jameson, 1991)
Critical realism	Belief that experiences were real Focus on finding causal explanations Effecting changes to improve the world (Stutchbury, 2021)
Pragmatism	Emphasis on actionable knowledge Recognition of the interconnectedness of experience, knowing and acting Inquiry as an experiential process (Kelly & Cordeiro, 2020)

Interpretivism was herein used to extend the idea of subjectivism in that the study would require the author to make meaning out of the data collected. In addition, there was the idea of double hermeneutics (Giddens, 1987) as sense making occurring on two levels – the work supervisors being subjects in the study making sense of their experience in the co-creation process, while the author as a researcher making sense of the subjects' experiences from his own lens. A simple treatise of the objectivity of the researcher was further expounded in sub-section 3.12 of this chapter to address one of the criticisms of a subjectivist or interpretivist paradigm on whether the researcher was non-biased, and if the research findings were objective.

The interpretivist approach was a good starting point for its simplicity in understanding possible viewpoints by drawing them out from individuals. This was a useful premise for the research questions as they concerned the perspective of work supervisors. In addition, the suspension of the researcher's bias would be to acknowledge a limitation of social science research and to infuse a dose of objectivity through reflecting on the processes of data acquisition and analysis.

This allowed the researcher to reach a conclusion that was representative while accepting its constraints.

The postmodernist approach was also attractive as a subjectivist approach. While rejecting the idea of a single "truth", it further rejected the idea of grand narrative. Applying this to the idea of the supervisor's perspective, every supervisor's view was valid as a social construct as perceived by the supervisor. There was no necessity to reach a unifying conclusion, which could be disconcerting to an early career education researcher. However, it acknowledged that the researcher would be part of the process he sought to understand.

The critical realist approach believed that the research's value was in the improvement of society through trying to understand the causal explanations for what was being observed. This would take one further step by drawing an interpretation from the work supervisor's perspective to attempt to offer explanations of what might have been, and suggestions of what might be. In a certain way, it would empower the researcher but required a process of sound reasoning.

The pragmatist approach assumed a compromise by seeing experience, knowing and acting as interconnected. If one would like to make the research outcome actionable knowledge, it would mean to have a deeper dive into the work supervisor's perspectives to draw out what might or might not work. The researcher would make choices in an experiential manner, using the most practical methods and tools, drawing a conclusion that would be most useful given the limitations of the research.

Given that the nature of the research question as drawing out perspectives from the work supervisors through a wise intervention research design, the pragmatist approach appeared to be most logical. Firstly, it acknowledged the experience of the work supervisors and how they act on what they know. Secondly, as an intervention in a real-world setting, there would be practical considerations on the research methods and tools, and how the researcher could adopt what would work best. Finally, the proposition of the research outcome as actionable knowledge was also attractive.

As a summary to this sub-section, the research paradigm adopted for this research will be predominantly based on subjectivist and pragmatist approaches, while other related paradigms also influenced some aspects of this work concerning data collection and analysis. For example, every supervisor's perspective was deemed valuable and as much data was collected and analysed while ensuring that the work done is manageable yet significant to form the thesis.

3.3 A Complementary Deductive-Inductive- Abductive Approach

The approach determined how the research questions were answered.

The first research question asked if the co-creation process would bring better clarity to the role of workplace supervisors. In planning the research, the co-creation process was theorised as an

intervention that would bring positive outcomes, specifically clarity to the workplace supervisors on their roles in developing transferable skills in the students that they supervise. Hence, coming from a conceptual framework to support the intervention, the first research question would have to be answered from a deductive approach.

The second research question was clearly one that was open to whether the benefits of a co-creation process outweigh the challenges, or vice versa. Data collected to answer this research question could be used to further tweak the conceptual framework which was first theorised. In the sense that we would use data to refine theory, there was clearly an inductive approach here which complemented the earlier deductive approach.

In the deliberation between inductive and deductive approaches, a third approach known as the abductive approach (Haig, 2005) was brought to the author's attention. This approach was non-deductive in nature but does not rely only on the collected data to make a conclusion. The abductive approach acknowledged the researcher's schema in making sense of the data, such as drawing from theories that were known to the researcher. Hence, the abductive process was clearly one that would be relevant to both research questions – the first concerned refinements to a conceptual framework conjured by the author, and the second was an attempt to make sense of data which represented the experience of work-based supervisors, some of which might concur with the author's own experience.

Hence, in summary, both deductive and inductive approaches were relevant to answering the research questions. There was also an element of an abductive approach acknowledging the role of the researcher. An iterative approach to education research is also echoed by Themelis et al (2022).

3.4 Qualitative Methodology

Based on a subjectivist world view with a pragmatic paradigm, as well as a complementary approach to the research questions, a qualitative methodology was chosen to be employed in this research to uncover an in-depth understanding of the process of co-creating learning outcomes from the point of view of the workplace supervisors.

While the first of the two research questions could be answered through quantitative means, adopting a qualitative methodology would elicit the reasons for greater "clarity" and what it meant to be "clear" about their roles as teachers of transferable skills. In addition, the terms "developing" and "transferable skills" were also terms that required further interpretation if one were to delve deeper into meanings from the perspectives of the supervisors. While a mixed-method study was also considered, the subjectivity of viewpoints would still be best clarified through a pure qualitative methodology from the considerations of interpretivism and pragmatism.

As a research study, it was also uncertain if clarity of the supervisor's role was to be the only benefit, or that it was indeed an effect of the co-creation process. Further data in this respect could only be obtained through a qualitative methodology that provided opportunity for probing deeper. In fact, it was a pragmatic perspective that led to a decision midway through

the research that a case study approach would best represent the varying “truths” presented by each work supervisor. This is further elaborated in the next subsection.

3.5 Case Studies

The five approaches proposed by Creswell & Poth (2018) were used to deliberate on the research strategy. The original intent was to treat this research as a phenomenological study as clearly, we were after the workplace supervisors’ lived experience of the co-creation process.

However, as data collection proceeded, it was also evident that each participants’ circumstance is unique in many ways, such as background of the supervisor and company, details of intervention and follow-up, as well as responses from the student as a result of the intervention. Hence, it was then thought that a case study strategy was a possible alternative – to first derive themes from within a case study before looking for themes that cut across the case studies.

In that sense, from a data analysis perspective, it was decided that a case study strategy would be more appropriate, looking at the nuances of each case rather than immediately coding based on phenomenological observations. The decision to employ the case study approach also stemmed from pragmatist principles.

3.6 Duration of Study

This sub-section deals with the next layer of the Onion model that concerns the time horizon. Each case study was an intervention over a period stretching from three to eight months depending on a few conditions:

- The availability of the subject for the pre-interview. Some subjects started the intervention close to the start of the work attachment, while others implemented the intervention mid-way through the work attachment.
- The duration of the work-based learning programme. These ranged from six months to a year depending on the programme.
- The cut-off time for the post-interview data collection. This applied to work attachment of a longer duration, that it was not possible to extend the study indefinitely that a cut-off point had to be decided for work attachment that was still ongoing at the point of data collection.

However, a minimum time horizon of three months was expected from each case study to provide enough time to implement the intervention and experience any follow-up benefits or challenges. Perhaps another reason to consider a case study approach rather than a phenomenological study was the variations in the intervention time frame and the start and end point of each case study with respect to the entire duration of the work attachment.

The data collection took place at two distinct points – the pre- and post-intervention interviews.

The pre-intervention interview aimed to establish basic details about the subject as well as perspectives towards their role in developing transferable skills in the students that they had supervised previously, were supervising or will be supervising at the point of interview. The intervention was also introduced at the pre-intervention interview.

The post-intervention interview was then to collect data on the description of what happened during the work-based learning co-creation session, any follow-ups, benefits, challenges and changes in perspectives on their roles.

Between the pre- and post-intervention interview sessions, I sought to keep in contact with the work supervisors for the purpose of keeping them on task, letting them clarify any doubts about the intervention and reminding them to record any thoughts or collect any artefacts relevant to the co-creation process.

More details of the intervention and interviews are described in sub-sections 3.8 and 3.9 respectively.

3.7 Recruitment of Participants

Participants for the study were sourced from work-based learning supervisors of engineering and technology programmes at a university in Singapore. The choice of engineering and technology was to uncover, from the perspectives of work supervisors, themes about the value of transferable skills in professions where technical knowledge and skills were important, and the challenges of developing transferable skills from someone who trained primarily in the technical domain of their field. This contrasted with health, social sciences, communications, design or business-related disciplines where a certain degree of transferable skills were already emphasised in the curriculum and by the industry. The increasing importance of transferable skills in engineering education has also been previously emphasised (Johnston & McGregor, 2005) and thus relevant to this study.

The selection of participants was purposive in that I aimed to source participants from a variety of engineering and technology professions; and convenient in that these were from personal contacts, and on a voluntary basis, as opposed to a systematic recruitment exercise through mass mailing or publicity. The benefits of this recruitment method were that the participants were willing to undertake the intervention and share their experiences on a deeper level. The disadvantages were also acknowledged as limitations of the research, that the number of participants were few, and they tended to have more positive views about transferable skills and the role that they play. In addition, the participants were enthusiastic to suggest ideas and themes that would improve the current practice of supervising students on work-based learning value-adding to the data collection.

3.8 Intervention: The Co-Creation Protocol

As part of standardising the methodology, a protocol for co-creating workplace learning outcomes was introduced to the work-based learning supervisors. This was done at the end of the pre-intervention interview session after collecting data on their initial perspectives on their role as work-based supervisors and their thoughts on developing transferable skills in the students that they supervised.

The intervention protocol was designed as follows:

Pre-session work

(1) Prior to meeting the supervisor, the student was to prepare three outcomes regarding transferable skills to be developed during the work attachment.

(2) Similarly, the supervisor was to prepare a list of three outcomes that could be based on the job requirement, company culture, university desired graduate outcomes and his or her own experience and personal values.

At the initial meeting session

(3) The student would present his or her desired outcomes first, with justifications. The supervisor would listen without judgement and ask questions only to seek clarification.

(4) In the event the student's outcomes were matched closely with the supervisor's own outcomes, the supervisor could suggest modifications to the student's outcomes to make them more encompassing.

(5) The supervisor could then suggest new outcomes that the students could consider if these were not already on the student's list, and only if the supervisor deemed these to be crucial to add on to the list at the initial stage. It was suggested that for manageability, the final list of outcomes be not more than five after consolidating both the student's and supervisor's inputs. In any case, developmental outcomes were flexible, and changes could be made during the work attachment period in subsequent coaching conversations, hence there was no impetus to get the initial list perfect.

Post-session work

(6) The student would consolidate the inputs from the meeting in a document to be emailed to the supervisor. Having the student perform this step would signal that the responsibility of learning lay with the student.

(7) The supervisor could then follow-up on these outcomes in future coaching conversations with the student, such as work that would help the student acquire the learning outcomes, the performance standards to aim for (can be raised subsequently as part of development), and feedback to help the student improve on the desired outcomes.

The intervention protocol was put forward as a recommendation for the work-based learning supervisors' consideration. Variations on the format of the intervention were allowed given the unique situation of each work supervisor.

3.9 Interviews

Having established the research methodology to adopt a case studies approach, Creswell & Poth (2018) recommended a variety of data collection methods. While the subjects were encouraged to collect artefacts of the students' work, and take notes about what they observed, the main mode of data collection was still through interviews. The purpose of conducting interviews was to understand the process of co-creating workplace learning outcomes, particularly from the perspectives of the workplace supervisors. Interviews also explored the second research question that was open-ended allowing more in-depth questions following the participants' responses.

Interviews were conducted at two points – a pre- and a post-intervention interview.

The pre-intervention interview sought to collect data on baseline experiences and perspectives of the subject, including:

- Their work and supervision experiences.
- Their perspectives on the value of transferable skills.
- How they would typically set learning outcomes for students.
- How they saw their role in developing transferable skills in the students that they supervised.
- How they would measure their own success in this role.

Clarification on fundamental concepts related to the study was also infused into the pre-interview including the definition of transferable skills, the difference between coaching and mentoring and the possible sources of learning outcomes. Such interview questions might include:

- What are some transferable skills you deemed are important for your industry?
- Do you see yourself more of a coach or a mentor?
- Where do you derive your learning outcomes from?
- Do you set learning outcomes collaboratively with students?

The intervention protocol was also introduced at the end of the pre-intervention interview and a slide deck was sent to the work supervisors as a follow-up for their reference.

The post-intervention interview sought to collect data on their experiences with the intervention, including:

- The manner and extent in which students were involved in the co-creation process.
- Whether the process brought about greater clarity on their role in developing transferable skills, and the work-based learning process in general.

- Whether the process provided further benefits and insights.
- Whether there were challenges that were encountered with the co-creation process.

In both the pre- and post-intervention interviews, a semi-structured format was adopted to allow for deeper probing where required. Scaling questions were used to generate conversations around certain topics of interest. An example of such a question could be: On a scale of 1 to 10, how clear are you on your role in developing transferable skills as a work supervisor? While questions like this were sometimes used in quantitative methodology, such questions when used in a qualitative methodology could be expanded into further questions for probing. Supposed if the subject were to put on the scale a "7", we could follow up with questions such as: What makes it an "7"? Why is it not lower than "7"? How can we make it a "8" or "9"? What would "10" look like? In the pre-intervention interview, you gave a "7", did the rating change after the intervention? In short, scaling questions were not used in this study to generate quantitative data, but to generate deeper qualitative responses. In any case, the small number of participants did not make the collection of any quantitative data statistically significant.

Finally, it was appropriate to also note here that the interviews were conducted remotely via video conferencing given the post COVID-19 normal where meetings were expected to be virtual in line with safe distancing practices. Conducting interviews using a video-conferencing platform such as Zoom had the additional benefits to allow the meetings to be recorded and transcribed by the software for subsequent data analysis.

3.10 Thematic Analysis

A thematic analysis process (Braun & Clarke, 2006) was chosen to be employed as part of the data analysis. This involved a system of sifting through the data to identify "codes" and develop "themes" to answer the research questions. The process was also chosen for its flexibility in dealing with multiple viewpoints including those that were unanticipated.

As suggested by Creswell & Poth (2018), the case study approach would involve two stages of data analysis. The intra-case themes would be elaborated in the Findings chapter (Chapter 4) as each individual case study and their characteristics were presented. The cross-case themes would be included in the Discussion chapter (Chapter 5) as the benefits and challenges of the intervention were discussed and synthesised.

From the Literature Review chapter (Chapter 2), the concepts of "clarity" (Rosenshine & Furst, 1971; Titsworth et al., 2015) and "gift" (Dobbins & Fell, 2020) were two starting themes for the data analysis process. These related to the cross-case discussion to be deliberated in the Discussion chapter. In addition, the PERMA model (Seligman, 2011) was also used to classify the benefits mentioned by the work supervisors under the supplementary *a priori* codes of positive emotions, engagement, relationships, meaning and achievement (see Section 2.9).

The thematic analysis made use of both *a priori* and inductive codes. In addition to the *a priori* codes discussed, they also form the basis of the categories of themes based on the research questions. Table 3.2 lists the *a priori* codes used.

Table 3.2

List of A Priori Codes for Thematic Analysis

Category of Themes	Related *A Priori* Codes
Clarity of Process	Constructive alignment
Clarity of Role	Coaching ("Pull" method) vs Mentoring ("Push" method)
Gifts (Benefits)	PERMA model i.e. Positive emotions, Engagement, Relationship, Meaning, Achievement

Inductive (or *a posteriori*) codes were developed from the data where the *a priori* codes were inadequate. The fully developed themes are presented in sub-section 4.11.

3.11 Ethics

Ethical approval was gained at both the Lancaster university as well as the Singapore Institute of Technology, the latter being where workplace supervisors that were supervising students on work attachment were sought. As the process of co-creating workplace learning outcomes were inclusive of the university's workplace learning outcomes, and the co-created outcomes were used in a formative manner, students' summative grades would not be adversely affected by the process and thus no ethical implications were foreseen. The participation of the workplace supervisors was also voluntary and would not affect their work performance nor appraisal process. There were however time and effort needed from the work supervisors to first understand the co-creation process to try it out with the students they supervised, as well as subsequently participate in in-depth interviews mostly done through video conferencing. The work supervisors did not receive payment for their participation but the benefits of understanding their roles as supervisors and getting the most out of the coaching and mentoring journey were highlighted during recruitment and their subsequent participation.

3.12 Objectivity of the Researcher

The treatise in this sub-section expanded on the research philosophy to justify the use of an interpretivist paradigm while preserving the rigour of the research. In particular, the ideas of researcher's bias and objectivity were discussed here.

Bias is closely linked with one's perception and was often thought to be in opposition to the idea of good research being "objective". Eisner (1992) wrote:

> *Perception of the world is perception influenced by skill, point of view, focus, language, and framework. The eye, after all, is not only a part of the brain, it is a part of tradition. How shall teaching be perceived? It depends on what I think counts. Am I interested in 'wait time'? If I am, then I will look for it. The clarity of language, the teacher's relationship and rapport with students, the significance of the ideas presented, the teacher's personal style, warmth and enthusiasm are all candidates for attention. Which to choose depends upon framework. To paraphrase Kant, percepts without frameworks are empty, and frameworks without percepts are blind. We secure frameworks through socialisation, professional and otherwise. What we come to see depends upon what we seek, and what we seek depends upon what we know how to say. Artists, Gombrich reminds us, do not paint what they can see, they see what they are able to paint. An empty mind sees nothing. (pp.11 – 12)*

There lay the tension between having a view about issues versus having no framework to base our perception on, in which Eisner concluded that "an empty mind sees nothing". One's perception would be constantly shaped by what was experienced in life, and it helped to be aware of the framework (or multiple frameworks) in which one looked at the world.

As mentioned in the Introduction chapter (Chapter 1), the choice of the research topic itself also stemmed from experience. These included the recent national focus on workplace and continual learning as well as SIT's introduction of an industry-ready skills framework that included the idea of developing transferable skills alongside domain technical competencies. In addition, the choice of the intervention of co-creating workplace learning outcomes was also a result of my training in learning design and coaching. Hence, the personal interest in the subject matter might have contributed to a potential for researcher bias.

To further deliberate on the idea of researcher bias, revisiting the research paradigm covered earlier in this chapter would be appropriate. As social science research, this study adopted an approach that deviated from positivism, often recognised as the "gold standard" in natural science research. Usher (1996) pointed out that research as a critical activity would only be possible when a claim was made, very much analogous to hypothesis testing in natural science research. However, where social science research deviated from here was that claims in social science research tend to be "value-laden". Usher further stated that:

> *Positivist/empiricist epistemology projects a picture of the natural sciences and generally of any research carried out in a 'scientific' way, as essentially who can detach themselves from the world they are researching... But the 'individual' of positivist/empiricist research is unlike anyone recognisable in the real world. These are abstracted individuals with no history and unaffected by culture, values, discourses and social structures. (pp. 15)*

In a way, Usher's view argued that it was not possible for social scientists to be completely objective given that social scientists were part of the system that they were studying. Regardless of any defence that it was justifiable for social scientists to be biased, Eisner (1995) suggested

three ways in which social scientists might also be objective: ontological objectivity, procedural objectivity and pluralism.

Ontological objectivity was to see things as they are. For this research, it was endeavoured to capture data representing actions of the participants before trying to explain the action.

Procedural objectivity involved using methods that eliminate personal judgment. For example, scaling questions used in the interview would help to clarify degrees rather than using words that can be open to different interpretation.

Pluralism was to embrace different viewpoints, seeking possible alternative explanations for the data. Usher (1996) described this as "a fusion of horizons… where different and conflicting interpretations are harmonised". The process was very much like presenting a news article in a way that is balanced and unbiased.

While the methodology section outlined the decisions that were made for the research to proceed, an awareness of the issue of bias were translated to efforts to ensure the rigour of the research. For example, suspending judgement when hearing something that were surprising or contrary to my own schema, and acknowledging the challenges that the participants faced during the intervention.

Chapter 4: Findings

4.1 Key Characteristics of the Case Studies

In the preceding chapter, it was decided as part of the thesis methodology that each participant's pre- and post-intervention interviews would be analysed together as a case study due to the nuances of each case, such as the industry, the culture of the company, the duration and stage of the work-based learning and the characteristics of the work supervisor. While a common intervention was introduced, the specifics concerning how the intervention was implemented were also left to the work supervisor based on their unique circumstances.

Table 4.1 lists a summary of the nine cases and some key characteristics of each case.

Table 4.1

Key Characteristics of Each Case Study

Case Study	Supervisor's name* (*not their real name)	Key characteristics
1	Alan	Male, chemical engineer, over 20 years of work experience with 8 years of supervision
2	Belinda	Female, renewable energy engineer, 2.5 years of work experience and supervision
3	Charles	Male, marine engineer, 21 years of work experience with 12 years of supervision but only 2 year working with interns
4	Dan	Male, software engineer, 11 years of industry experience, started own company for 10 years, 4 years working with interns
5	Edna	Female, food development engineer, 4 years in the food industry, first time taking an intern (less than a year)
6	Felix	Male, research engineer, 6 years in the biotechnology industry, started supervising students since his PhD days (8 years ago)
7	George	Male, electrical engineer, 10 years of industry experience with 5 – 6 years supervising students

Table 4.1 (continued)

Case Study	Supervisor's name* (*not their real name)	Key characteristics
8	Harry	Male, marine engineer, 17 years of industry experience with 8 – 10 years of supervising students
9	Ivy	Female, food flavour engineer, 8 years in the flavour industry, 5 years supervising students

In addition, the Findings chapter attempts to describe each case in detail and lists some themes that were brought up through the interviews by subjecting the transcripts to qualitative thematic studies as described by Braun and Clarke (2006). The key characteristics and themes for each case study are highlighted in the section headings that follow.

4.2 Case Study 1: Alan, experienced go-getter felt the need to slow down and listen

Pre-Intervention

The work supervisor, Alan, in this first case study was a very experienced supervisor with over 20 years of work experience as a chemical engineer in the petroleum and petrochemical industry. In his role as a technical supervisor, Alan supervised a small team of engineers, as well as student interns from the local universities and polytechnics for around 8 years. He saw the turnover in the industry as an issue and sought to retain staff as a priority. In his dealings with students, he saw the value of an internship as exposure to students to try out the role of a chemical engineer and whether it was something the students would see themselves doing in the long run.

> *"The mantra that I preach to students is that this is not the organisation assessing you whether you are suitable for us, it is more for you to understand if this is an industry you want to be in for the long term." (Alan)*

In that sense, he described the internship as a taster for the intern to experience what the job was like, having to wake up as early as 5.30 am in the morning to travel to the plant every day, and having to attend to technical work such as climbing up and down tall ladders leading to top of the equipment, doing work that cannot be done "working from home". Internships at the company were typically six months to a year and a long enough time for the intern to experience the work. One of the satisfactions of supervising interns for him was to see an intern finding passion in the industry and continuing to work in the company after graduation.

Even as a technical professional, Alan thought that transferable skills were important in his area of work. There was a fair bit of communication and teamwork even in a technical role, as there was a need to work with colleagues from different departments and communicate ideas to get things done. Resilience was also an important attribute as solving problems in the industry is not a straightforward endeavour. He would like his engineers to follow up on problems, rather than hoping that the problems would be forgotten. As a supervisor, he saw his role as putting them in situations where the students could learn these transferable skills and then having deeper conversations with the students on these learning experiences. Alan saw himself as a coach first by asking questions to find out what the students were thinking of, then as a mentor later to explain his thought processes. Alan felt he had clarity on his role as a supervisor to develop transferable skills, but he admitted that he needed to listen more to feedback from his subordinates. Hence, he was willing to try the intervention as he had not tried a collaborative method of setting learning outcomes with students. He also sought to get feedback from other colleagues on the success of his interns and depended on the university learning outcomes and his own professional experience to judge the work on the interns. He was concerned that the students might not have a good idea of what they themselves wanted out of the internship, and that outcomes on transferable skills could be difficult to measure.

Post-Intervention

As part of the intervention, Alan had regular sessions every two weeks to a month with his student intern to co-create goals and review the co-created outcomes. Each session was around half-an-hour to an hour. These were sessions over and above the daily interactions with the students. During the review sessions, Alan was interested to know about the progress at every meeting, and particularly on the evidence of achievement. He also used the sessions to look forward to what else could have been done to move the progress. He was mindful that the student drove the conversation, and not him.

> *"It is important that he (the student) feels that he came up with the ideas and have that sense of accomplishment. I think that's where I want to get up with." (Alan)*

In terms of goals, Alan estimated that about 60% came from the student while the rest would come from the supervisor. A large part of the goals from the students concerned technical skills, such as learning about the operations of a distillation tower. However, Alan would try to include transferable skills such as planning, analysis, and problem-solving skills into the actual learning process. He would also provide feedback on the student's communication skills with other stakeholders that the student worked with. Alan felt that the process had to enthuse the student a lot more, and there were a lot more opportunities for him to give feedback through these regular sessions. By focussing on the progress and achievement, he was satisfied with the soft skills that the student had developed along the way.

He admitted that the co-creation process was something he should do more. He used post-it pads to remind himself that he should listen more than just tell the student what to do. As a results-oriented person, he felt that telling was more natural and more efficient, but the

listening was essential to help the student grow. This was something he would practice with his subordinate as well as other interns that he supervised. An example of his post-it message pasted on his laptop:

"Do not jump into solutions but allow them to think it through." (Alan)

In his interaction with the student, he tried to coach him as much as he could through asking questions before he presented his own solutions. He found that sometimes he was surprised by the solutions that the student would come up with. The challenge was that he had to always remind himself to step back and not go into a "telling" mode and that he was always right. In order to tease out more from the students, he would delve deeper into issues such as asking for challenges and rationale on the actions the student had taken. The motivation to continue to use a coaching approach was his desire to see people develop through this process of co-creating learning outcomes. Even with over 20 years of industry experience, he found this to be a re-learning process. He found the process slower than a more direct telling method, but he derived greater satisfaction in seeing people being developed.

One example of satisfaction was when the student was able to resolve an issue with a test run which the company had shelved for a while. The student had to interact with several stakeholders and organise the resources to plan the trial run. This was complicated by the fact that during the COVID pandemic period, it was not easy to reach out to some of these stakeholders. He was proud that the student was able to execute the plan for the trial and the results provided a solution that helped save money for the company. With that experience, Alan would definitely continue to use this co-creation method of working with students, and even his own subordinates, in future.

Findings and Key Themes

Some findings and key themes brought up in this case study were as follows:

- In the case of Alan, it was found that it promoted a developmental mindset in him and provided an insight into his role as a person developer. This was evident in the post-interview where the focus was on helping the student grow and develop transferable skills rather than getting work done. He also found the follow-up sessions good opportunities to have conversations and provide feedback that developed the student. [Key Theme: Developmental Mindset]
- As part of the re-learning process, Alan consistently mentioned having to actively listen for the response of students and their perspectives while holding on to his own thoughts even though he believed he might have a solution. He mentioned having to remind himself to coach as a first option to allow the student's views to be heard before putting his own comments or opinions. [Key Theme: Coaching as a Relearning Process]
- By allowing the student voice to be heard, Alan discovered that he was surprised by what the student could perform, successfully undertaking a complex project by communicating with several stakeholders. [Key Theme: Drawing out the Student Potential]

- Alan also described the student as displaying more enthusiasm when working on co-created goals. An important point he mentioned was to have the student drive the conversations, which was also about having the student own the goals. [Key Themes: Enhancing Student Motivation, Student Ownership of Goals]
- Alan described himself as "results-oriented". Even in the pre-intervention interview, one of his concerns was how he could measure outcomes in terms of the students' growth in transferable skills. In the post-intervention interview, one of the keywords he mentioned was "progress" and he was interested to know what had been achieved or improved. [Key Theme: Measurement of Growth]

4.3 Case Study 2: Belinda, young engineer found communication to be important

Pre-Intervention

Belinda was a researcher on renewable energy technologies with two and a half years work industry in her first job after graduation. Despite her lack of industry experience, she had been working with many student interns as part of her research work. She found the aptitude and attitude of interns to be wide ranging, some more enthusiastic and able, but some less so.

As a young engineer, Belinda felt that transferable skills would be important in her role. She named critical thinking, growth mindset and resilience as some important transferable skills. She also thought that a strong technical background was equally important as this would also be needed for her day-to-day work. However, she noted that depending on roles in the company, some roles might not require as much technical skills, but transferable skills were definitely required for career success as an engineer in most cases.

When probed about her role in developing transferable skills in the students that she had previously supervised, she mentioned that her role was mainly in guiding the students. For example, she would ask questions about the students' data to help students develop critical thinking skills. She would observe the students to see if they have developed those skills. In addition, she would also be teaching more technical skills such as using patent search software. However, she did not feel that she was always successful in her developer role. One reason was that she felt she did not have prior training in the area of supervision.

In her interaction with students, Belinda used both a coaching and mentoring approach, sometimes asking questions and sometimes giving solutions. She did try to cater to students' requests for internship learning outcomes. She gave an example of a student who wanted to learn about financial modelling in one instance and actively sought projects that would help the student develop this area. However, she conceded that this might be dependent on the availability of a matching project. Where a project was not available, she would point to online learning resources instead. Belinda saw the creation of learning outcomes as an endeavour that the supervisor and student both play a role. She thought this was an important process that students think through what they wanted out of the internship. She made it a point to have the conversation on the first day of the internship. When probed further, she admitted that the

university requirements on transferable skills were more an afterthought when filling the assessment forms, and she was not confident that she can deliver on broad criteria such as university graduate attributes.

Belinda also believed hands-on was the way to develop transferable skills, such as giving students opportunity to prepare presentations and she would then provide feedback based on the work that they did. She would also informally catch up with the students every now and then to review their progress. However, Belinda saw it challenging during the COVID pandemic period to have to schedule Zoom sessions with the students as she did not see the students in person since she was working from home. She found it a balancing act to have the interns get the work done, and at the same time to develop and nurture the students.

> *"If I am in a rush, I will tell them what to do and it doesn't teach them anything. If I have the time, I would give them time to think through and have the freedom to explore and learn." (Belinda)*

She found the protocol for the co-creation of learning outcomes something that she had previously attempted but in an informal manner. She found the protocol suggested was more organised, such as having the students prepare for the meeting instead of thinking on the spot. She also felt the follow-up sessions would be useful. Hence, Belinda went ahead to implement the intervention around the mid-point of the student's work attachment.

Post-Intervention

As part of the intervention, Belinda gave the student work goals while the student provided the list of transferable skills she wished to be developed while working on the goals. Belinda ensured that she met the student monthly over Zoom to follow up specifically on the development of transferable skills.

She found the process useful for her to plan projects and work for the student. Among the transferable skills the student mentioned presentation and time management skills. As a co-creation process, Belinda included an additional learning goal for the student to learn a software. However, she noted that the student did not manage to complete the software learning goal, perhaps it was not something the student had wanted to learn. In terms of the development of transferable skills, the student appeared to be more aware of her own presentation and time management skills. Belinda also gave feedback to the student in terms of her (the student's) presentation skills. She found that the process also helped her in the assessment of the student at the end of the work attachment such as being able to pinpoint examples to support the grade she would give the student.

Belinda felt the benefit of the intervention was to get students to sit down and think about what they would like to develop as transferable skills. The conversation would help her tailor the work for the student. She also found that she could focus on those growth areas when giving feedback, both positive and constructive, for the student. She realised that she adopted a more mentoring style when she gave feedback to the student. She attempted to use a questioning approach but had limited success as the student was unable to reflect and gave only vague

answers. She suggested that open-ended questions might work better with some students but not others. In this case, Belinda did attempt a coaching approach but realised the student had blind spots and had little confidence of herself in terms of areas done well. Belinda realised she would need to give students enough time to reflect and to practice reflecting more. She felt students also need to move away from the mentality of exam-based thinking, focus more on learning rather than grades. As of now, she would match her supervision style to how receptive the students would be to coaching or mentoring.

> *"The awareness of the two supervision styles helped me communicate with the student better." (Belinda)*

Belinda found satisfaction when students did well. When she could match her supervision style with the student, Belinda discovered the work processes became more efficient when she could communicate well with the intern. However, she stressed that finding the balance between getting students to complete the work and giving them time to develop was challenging. Belinda also noted sometimes her student was still unable to translate learning from one area to another despite having learnt skills in one project. Belinda suggested that if she were to have students who were more self-directed, she might ask the students to do more, such as developing their own work-related checklists.

> *"You cannot expect answers from your boss, and I think the students need time to develop this [mindset]." (Belinda)*

Despite the experience, Belinda found the intervention a useful first step to co-create work goals with the students, and as a follow-up for further conversation and the assessment of the students' achievement. The process also forced students to reflect more critically, something she felt that not all students were used to.

Findings and Key Themes

Some findings and key themes brought up in this case study were as follows:

- As a relatively less experienced supervisor, Belinda welcomed the idea of having a process whereby she could plan work for the student. The process of co-creating learning outcomes with students was something that she felt made the process more streamlined. [Key Theme: Co-creating of Learning Goals as a Structure]
- Belinda mentioned that she observed the student to have an increased awareness of her transferable skills after setting it as a goal. This was because of a focus on the co-created list and having the student set them would give them ownership of the goals. [Key Theme: Student Ownership of Goals]
- Belinda stressed that the co-creation process provided opportunities for students to reflect on their development and this was not something students were used to. [Key Theme: Opportunity to Reflect]
- Belinda mentioned instances where coaching was not productive because of the student's blind spots. She suggested that whether the coaching or mentoring approach

worked better could depend on the dynamics of the supervisor and student interaction. [Key Theme: Coaching vs Mentoring]

- Belinda discovered she had better communication with the student over conversations about the co-created outcomes. Hence, such conversations had the potential to improve supervisor-student relationship and enhance the working process [Key Theme: Enhancing Communication]
- Belinda also mentioned at the post-intervention interview that she could appraise the students better at the end of the attachment. Prior to the intervention, she mentioned at the pre-intervention interview that filling the assessment form was difficult as the university's graduate attributes were vague. [Key Theme: Constructive Alignment]

4.4 Case Study 3: Charles, experienced supervisor discovering his role as a "teacher"

Pre-Intervention

Charles was an experienced work supervisor with 21 years in the marine engineering industry and over 12 years of supervising junior staff and students. He thought that a positive working attitude would be very important for student interns to be contributing to the company. This would include transferable skills such as taking initiative and asking the correct questions. He would also like student interns to be practical oriented, taking a hands-on approach to get the most out of the internship. An example he gave was a student given a job to translate a technical document from English to Chinese. Other than translating, the student was able to also ask good questions and make suggestions to improve the processes described in the manual.

As a supervisor, Charles would be happy to answer questions from students, demonstrating skills to students and putting them in real work situations such as getting their hands dirty working on board a ship. He felt extremely clear about his role and used an equal mix of coaching and mentoring approaches. However, when probed further on learning outcomes, Charles admitted he was less familiar with the idea of learning outcomes but relied more on his own experience when it came to his own style of supervision. He also adopted a more friendly approach to the students in order to find out students' motivations through his informal interactions with them.

Post-Intervention

For the intervention, Charles implemented the co-creation of learning outcomes with four student interns for an internship period of six months. For the first session, he had the students present their goals in a formal presentation involving the university academic supervisors. Some of the learning outcomes that the students presented concerned learning the company's

proprietary technical know-how. Charles made it a point to give the students opportunity to have hands-on experience on the various systems on commercial ship vessels, through simulations, access to technical manuals and his own experience sharing. However, when probed further, Charles did not recall that the students wanted to work on any specific transferable skills. Hence, the co-creation process focussed very much on work goals that relied on applying theory in real work situations.

Charles noted that two of the students already displayed very good soft skills such as taking initiative and able to work well with other colleagues in the team. He also mentioned that these were students who had some previous work experience. The third student had good attitude but lacked work experience, and Charles felt the quality of work had improved towards the end of the internship. However, he commented that the fourth student lacked initiative and was caught playing games during work hours. However, Charles felt that the student was already an adult and therefore did not reprimand the student. The incident did affect his willingness to teach him as the student did not display enthusiasm. He observed that despite his lack of initiative, the fourth student still completed work that was assigned and showed increased energy levels when going on board a ship compared to normal office work.

Charles noted that he still used a mix of coaching and mentoring approaches when dealing with the students, such as asking students what they discovered from reading the manuals (coaching) and sharing his own experiences (mentoring). He was open to coaching and was sometimes surprised by students giving him good answers when asked questions. For this intervention, he did not feel he had a preference for either coaching or mentoring as an approach.

Charles depended on a very informal manner to communicate with the students. Follow-up sessions after the first session were conducted mostly over meals at the canteen. He found the intervention a more systematic way to manage a student internship supervision as he previously did not have any idea how he could supervise students differently, although he had supervised junior staff for over 10 years. He realised students were different from junior staff that it was not just about assigning tasks to the students but also taking an interest in their learning. He started to think of his role as a "teacher" and a person developer. He found the engagement with the students was closer as a result of the intervention and had extremely good satisfaction from this round of internships, especially with the two students who had performed very well at the job. He would continue to adopt the intervention for future student interns.

Findings and Key Themes

Some findings and key themes brought up in this case study were as follows:

- Charles mentioned involving the university's academic supervisor in the co-creation process in the form of a formal presentation. This highlighted the possibility of team coaching with the academic supervisor in the spirit of the tripartite approach mooted by Feldmann (2016). [Key Theme: Tripartite Relationship with University Academic Supervisor]

- Charles mentioned that he preferred an informal means of following up with the students on conversations relating to their learning goals. In this case, he demonstrated a close relationship with some of the interns through these informal conversations. [Key Theme: Formal vs Informal Interactions]
- Charles conceded that transferable skills were not particularly featured in the co-created learning goals. In this instance, the pre-intervention interview had not impressed upon him the importance of transferable skills in this research study. [Key Theme: Emphasis on Transferable Skills]
- Charles went into details to describe his assessment of the four students he was supervising. One interesting statement that he made was about students' attitudes towards learning and that some students already come with very good attitudes. Nevertheless, he was able to see those who were less "interested" found areas that raised their energy levels. This meant that every student would benefit from their personalised learning goals. [Key Theme: Personalisation of Learning Goals, Enhancing Student Motivation]
- Charles emphasised at various points in the post-intervention interview that he did not naturally see himself as a "teacher" or people developer when working with students and the co-creation process had made him more aware of what was needed. [Key Theme: Developmental Mindset]

4.5 Case Study 4: Dan, owner who adopted the intervention for his entire company

Pre-Intervention

Dan was a software developer who started his own company around 10 years ago. His company had a small team of programmers and the company started to take interns 4 years ago. While programming skills were valued, he also felt that transferable skills were important for his company as programmers were required to communicate with clients directly. He also thought digital literacy such as familiarity with online collaborative workspace as important. Another transferable skill he mentioned concerned thinking about one's mental wellbeing, such as skills for self-care and personal growth, which Dan felt was more crucial post-COVID pandemic.

Dan believed that workplace supervisors worked in an implicit manner when developing transferable skills in students that they would supervise through all aspects of their interaction with students. These included assigning work that get students to experience solving problems in real life, engaging students during team meetings and sharing resources that could be of help to students. Dan also felt that work supervisors should take courses to broaden the range of tools that they can use to interact with students. The area of self-care was something he picked up recently and he was willing to even sponsor junior staff and students for short courses that he himself found useful. He adopted a systematic approach to provide training for the students, such as training them to debug programs before putting them to solve new problems.

In terms of coaching, he would ask questions to have students think on their feet. For example, to point out bugs in a computer program, and getting them to explain and communicate their ideas clearly. He would however use a mentoring approach when he wanted to teach a skill, but he tended slightly towards a questioning or coaching approach on all other interactions. He noted that sometimes his staff got stressed when he asked questions. He had learnt to wait for answers rather than fire question after question which he thought could be quite pressurising for a junior staff member or student. He believed that he had still to learn about asking the right question as he had sometimes to rephrase his questions to get an answer.

As a company director, he thought the growth of the company was a result of the growth of individuals in the company. Hence, he placed emphasis on staff training and development regardless of seniority. He treated student interns no different from junior software developers and was willing to sponsor them for external training courses. As a people developer, he also started to have conversations with all the staff in the team about their personal development but found it challenging to follow up due to his busy work schedule. He intended to also extend such conversations with student interns and was happy that this intervention provided the motivation to do so. He had full confidence that students can perform up to the level of a junior staff member.

> *"Depending on the skills of the students, I can let them talk to clients by themselves." (Dan)*

Whether a student performed well in the role, Dan felt it depended if there were to be a match in expectations. Hence, Dan felt the co-creation of learning outcomes would be helpful. He was hoping that this would help him know if he was successful in his role through feedback from students.

Post-Intervention

Dan attempted to implement the intervention throughout the company, with his two senior developers, two of his new hires (fresh graduates) and a student intern. He also volunteered to share his own learning outcomes with his staff to lead by example. Dan decided to involve his senior developers in the discussion to come up with plans for each new hire and the student intern, the intention was to also have his senior staff develop some experience in human capital development in the company. However, he made it a point to meet all the staff one-on-one for the actual conversation for the co-creation of learning outcomes. Hence it was a whole company involvement for this exercise.

> *"One of the senior developers wanted to lead his own team, hence it becomes logical to involve them in the intervention." (Dan)*

He also had everyone share the learning goals on a spreadsheet, including how they intended to reach the goals they had laid down, how the company could support them, and how the outcomes could be measured. The learning outcomes included both technical and transferable skills. However, he asked to leave the measurement of the outcomes blank as he thought such measurements would be difficult.

In his discussion with the senior developers, they set down interaction with clients, working as a team, contributing to team meetings, solving problems independently as learning goals from the management team. The list was then given to the student to review, where the student could ask questions to clarify but did not add to the list. Dan admitted that he had assumed the student might not know much about the company at the start of the internship to articulate their learning goals, but he suggested students may be able to come up with something meaningful after working in the company for a few weeks. He recalled a previous example where the company was unable to cater to an intern's learning request and the experience revealed a mismatch in expectations. Dan felt that interns should remain open on their learning expectations until they know the company better. He would then encourage students to start their own learning list a few weeks into the internship.

Dan planned to review the list monthly, but work had gotten so busy that he admitted there were no follow-up discussions. However, he hoped to have a mid-year review with everyone soon. When probed how could this be overcome, Dan admitted that work would be a priority because it brings revenue to the company but staff development was something also very important if not more important.

Revisiting the challenge on the measurement of learning outcomes of transferable skills, Dan saw this as incremental improvement that could be difficult to measure. He agreed that coaching might be a way to ascertain if there were improvements through a questioning approach. He also thought he was able to observe these changes.

> *"Soft skill I can see there are improvement with this particular student. For example, he (the student) can now use the right jargon when communicating with the team and he was more confident to let his views be heard." (Dan)*

Dan also strived to give positive feedback to the student, especially after a job well done. He employed both a coaching and mentoring approach. He found the mentoring approach worked better with technical skills. Otherwise, he preferred a coaching approach.

> *"I like people to discover things for themselves. That's the way I work as well, as I keep asking myself questions although I do not always have answers." (Dan)*

He also admitted that he could be better in asking questions despite having taken courses on coaching.

Dan found the intervention was an improvement over previous ways of engaging staff. He gained better clarity because this time things were written down. He observed that the team was more engaged, and both the staff and intern were asking more questions about their development, such as details on the courses that the company was willing to sponsor them. He suspected this had also motivated one of his senior developers to stay on with the company whereas this staff had previously mentioned his desire to leave. He thought this exercise helped staff to see their personal development with the company. As a team exercise, he also observed the team got along much better and he felt the student could gel well with the rest of the team.

All in all, he found the intervention beneficial although he regretted not finding time to have follow-up conversations on this important agenda.

Findings and Key Themes

Some findings and key themes brought up in this case study were as follows:

- In this case, Dan as a company owner, already possessed a human capital development mindset. He enjoyed learning and also encouraged his staff to go on courses that were sponsored by the company. [Key Theme: Developmental Mindset]
- In the exercise that Dan described, his staff had written down the learning goals in detail and this afforded clarity for everyone. As a team exercise, it also helped to promote team dynamics. [Key Theme: Enhancing Communication]
- Dan realised that the follow-up after the learning goal co-creation exercise was time consuming and something he failed to do. However, the intention and desire were there. It was unclear if the process would be better followed up in other ways, such as having individuals take ownership of their own learning goals. In this case, it appeared to be Dan driving the initiative and even the student was not given much opportunity to participate because Dan felt that students might not know the company well enough at the onset to list goals that were aligned to the company's operations. [Key Themes: Student Ownership of Goals; Organisational Culture]
- Dan admitted that despite having prior coaching training, his coaching skills were still being developed. Skills such as asking good questions might require practice. [Key Theme: Developing Coaching Skills]

4.6 Case Study 5: Edna, first-time intern supervisor adopting a collaborative approach

Pre-Intervention

Edna was a first-time work-based learning supervisor for a university student on attachment in her company. She felt that both technical and transferable skills were equally important for students on work attachment. She listed teamwork, communication, and critical thinking as top transferable skills on her mind, besides translating textbook knowledge to work on real world projects. Edna saw her role as crucial, being the first point of guidance for the interns. She also saw the rest of the team members providing the context of how a work team in the industry function. Edna thought of herself as a mentor to give instructions and feedback to the students. She relied on observation to know if she was doing a good job on the supervision, such as whether the student was confused or whether the student was doing well based on her own assessment of her work. She would also obtain feedback from other colleagues with regards to the performance of the student. She thought she would lean towards the coaching method a

little more as she tended to ask the student to think through problems, facilitating a self-discovery approach rather than provide solution.

> *"At times when we had discussions, and I see that she doesn't fully understand the problem, I would ask her to find out more and have the discussion later. So, I think I lean towards coaching." (Edna)*

Edna felt that one of her roles as a supervisor was to help the student develop transferable skills at the workplace and strived to touch base with the student on a regular basis. She also felt students generally would need to take ownership of their learning, such as taking initiative on work issues. Depending on the students' initiative and responses to her questions, Edna could also change her mode of engagement with them.

As for co-creating learning outcomes, Edna mentioned that this was already practiced at the company by asking the students at the first interview session to share their expectations on their goals and motivations. The student's learning goals became inputs to craft projects for the students. However, as the interview was about some time back, she would still find it a meaningful exercise to revisit the student's motivations. She was eager to implement the intervention and as an inexperienced supervisor, she was happy to learn from this process. It was also noted that prior to the intervention, Edna observed her intern to be already hungry to learn and had an excellent attitude towards work.

Post-Intervention

For the actual intervention, Edna arranged for a session to have a conversation on the intern's goals and motivations, which she termed as a refresher session with the student since internship had started. The student was asked what else she would like to achieve. The student's response focused mostly on the project that she had to complete for the university. Edna noted the student was more an introvert and less vocal about the skills that she (the student) wanted to develop. Hence, Edna added her own expectations as part of the conversation. In terms of transferable skills, Edna wanted the student to develop independent research and critical thinking skills. However, she admitted these were not explicitly from the student, but rather based on experience with the team manager (Edna's supervisor) at a recent team meeting. The manager made everyone at the meeting, including interns, share their observations and approaches towards a few case studies. The intern participated as part of the team. Edna then used this as a learning opportunity to have conversations with the student on her development. Even though the student was introverted, Edna noted that the student would still often ask questions. She used a coaching method in most parts rather than answering the student's questions directly. This was also to help her develop the independent research and critical thinking skills mentioned earlier.

> *"When she asked me a question on why we do things this way, I would ask her 'why not you search and tell me more?'. I don't want to spoon-feed her." (Edna)*

Edna noted that sometimes she also learnt from the student's answers and points of view. One example was that the student had researched a nut coating technique and Edna learnt from the students' research that over-coating the nut might reduce the adhesiveness of the coating, something she had not thought of. Edna felt the relationship with her intern was more like a collaboration. As this was her first intern, Edna felt she was still discovering her style of supervision. Her use of the coaching method appeared to be based on her team dynamics and the style that her manager had adopted.

One of the challenges of the coaching method, Edna noted was that the student was introverted and sometimes required prompting to get her to speak out. However, the student was open to speak to her whenever prompted. She thought that her role was more like a friend because of the closeness in age and hence less intimidating. She believed that her approachability as a supervisor was her strength.

> *"To others, she (the student) might feel more intimidated so she might not share her thoughts. Bringing myself to her level might help her to open up more." (Edna)*

Edna's communication with her intern was more informal, but there were bi-weekly formal meetings although these were brief. During the formal meetings, Edna would give feedback to the student based on her observation of the student's growth in terms of transferable skills.

Edna also shared an experience when she worked together with the intern to make a presentation to the senior management. She gave positive feedback to the intern as she was able to make the presentation in short notice and despite her (the student's) nervousness. Edna thought the students' confidence in this situation was due to the frequent discussions that they had, enabling the student to develop good knowledge about her work. In a way, this experience had confirmed her role as a person that can develop transferable skills in students that she would supervise. However, she was still grappling with how to perform this role well.

The student had a chance to sit in interviews of the next intern as part of the team's practice. She found this a meaningful exercise when the student could see things from the interviewer's perspective. This was then followed by discussion with the students on their observations of the interviewees and hopefully they too derived learning points.

Edna was definitely implementing the intervention with future interns but she felt she would need to sharpen and refine the learning goals, so they become more explicit. In terms of the process, Edna felt she could be more well-prepared using the intervention as a guide. In this round, she was only trying to derive the goals from the student's responses rather than confirming those goals with the students and getting them to verbalise their own goals. However, she found that she had already benefited from knowing more about the motivation of the student and had chances to engage in conversations with the student. Her observations about the student's growth did help her justify the student's performance when asked to assess the student at the end of the work attachment. She felt that in future if students were not performing up to par, this could also be a basis to provide feedback to help them improve. All in all, Edna felt the co-creation process was a more structured approach that benefited her as a new supervisor. It gave her more confidence that she was doing something right.

"The process gave me more confidence and is a more defined and clear approach on what I can do as a supervisor. If I am clear, the intern would be even clearer and not lost." (Edna)

Edna would also continue her style of being a "friend" and coaching them with questions. She believed communication with the student was an important ingredient for her success with the intern. She found satisfaction in seeing the intern learn something in the time they spent with the company.

Findings and Key Themes

Some findings and key themes brought up in this case study were as follows:

- As a first-time supervisor, the co-creation process gave Edna a structure for her supervision and assured her that she was doing something right. This was despite that she mentioned the company already had a similar coaching practice between her supervisor and herself. [Key Themes: Co-creation of Learning Goals as a Structure, Organisational Culture]
- As a younger supervisor, although she was less confident on her supervision approach, she felt she had an advantage of a closer age gap with the student to establish better rapport. Rapport building was essential for her satisfaction as a supervisor. [Key Theme: Rapport Building]
- Edna found that coaching an introverted student was challenging because she (the student) was not forthcoming with words. This was where she admitted that she could do better if she continued to encourage the student to speak up so that she could take ownership of the learning goals [Key Themes: Student Voice & Ownership of Learning]
- Edna mentioned that the student was focussing her learning goal on the university's requirement for her to submit a project. This was a pity as students tend to sometimes focus on the short-term rather than their longer-term learning. [Key Theme: Short-Term Assessment Goals vs Long-Term Transferable Skills Development]
- Despite being a first-time supervisor, Edna could still see herself as a person developer when she observed growth in her student and participated in the process of giving her opportunities to develop transferable skills and providing the necessary feedback. [Key Theme: Developmental Mindset]
- Edna found that she was also learning from the student when the student shared her findings on nut coating. This was somewhat of a reverse mentoring where a supervisor learned from the mentee. [Key Theme: Reverse Mentoring]

4.7 Case Study 6: Felix, researcher found the co-creation journey a motivational tool

Pre-Intervention

Felix was a research engineer in the biotechnology industry with 8 years of supervision experience of students. He found university students easier to work with due to their higher knowledge level compared to polytechnic students. However, he noted the attitude of the students mattered. Felix felt transferable skills were very important in his role as a researcher. He cited the transferability of skills from school to work, and also the transferability to future work. He distinguished between transferable hard skills and transferable soft skills - an example of a transferable hard skill would be working with laboratory equipment, a hard skill that would be helpful for working in any laboratory. In terms of soft skills, he found them underrated but nevertheless important. He thought it was difficult to assess and could only be observed through one's behaviour and interaction with others, such as observing if one were able to communicate well. He cited being able to sell his ideas through writing proposals and reports to get funding as an important soft skill that he himself would need as a senior researcher. He thought soft skills would become more important than hard skills as people advanced in their career. He also gave examples of poor attitudes, such as finding students sleeping in a laboratory was totally unacceptable. Felix thought bosses nowadays thought that transferable skills were a given and that it was the university's role to help students develop them.

> *"Nowadays these (transferable) skills are taken for granted and I think these have to be developed from university days and they can stick with you forever." (Felix)*

He also thought students should be better trained in terms of report writing and being able to take negative feedback. He found today's students can sometimes be quite over-sensitive to negative feedback.

As a "teacher" to the students, Felix would meet up with students regularly over lunch and share his own experiences through a story-telling approach. For example, he thought students could learn about resilience through sharing of his own stories about setbacks and how he bounced back from failures. Other than informal meetups, Felix mentioned that formal meetings where students would make presentation of their work were also avenues in which he could give feedback to the students to develop their transferable skills. In some instances, he gave larger tasks that required students to collaborate with one another instead of working alone. He also frequently assessed students on their hard transferable skills by asking them to show him their calculations done by hand. He would take it that if the students could do work independently and if he observed their growth in transferable skills, these would be evidence that he had done his role well. One example was whether the quality of the presentation over the work attachment period had improved. He also hoped that students can see themselves developing beyond the work attachment, such as becoming a better science researcher.

Felix did not explicitly have discussions with students on their transferable skills nor included them as learning outcomes. This was in line with his idea that transferable skills were a given and that the students should continuously improve themselves. Many of the transferable skills that he deemed important were from his own experience as a researcher. Felix felt that he tended towards a mentoring approach and would use it more especially at the start of the work attachment. Only after students had been in the role for a period, would he then use a coaching approach and not provide answers straightaway. He shared that one polytechnic had students look for mentors in the workplace other than their assigned work supervisors, and he felt this initiative was very meaningful for the students to find someone else to informally learn from. He suggested all institutes could follow such a good initiative. He found that in terms of graduate outcomes, some universities communicated them well, but it was not always so. In what he could recall, the outcomes were sometimes very focused on projects rather than learning. As such, students were more interested in their final reports rather than learning more from the job. His organisation also made it a point to have all interns make a final presentation to everyone in the organisation at the end of the attachment. He conceded that most learning outcomes set for the work attachment did not involve the students' inputs. As such, he was excited to be using the intervention and thought the co-created list would be great as a review for the students.

Post-Intervention

Felix applied the intervention on a university student he was supervising about two months into the work attachment. The student failed to achieve all the co-created outcomes as research work was unpredictable. However, the value of the intervention was that it provided a good way to have the student's growth monitored despite the lack of success in fully achieving any outcome. He noted that the student's inputs were focussed mostly on hard laboratory skills, such as wanting to learn hands-on techniques related to the project. Transferable skills were only added after prompting from the supervisor. Some of these include teamwork and communication skills. This was related to the work that the student had to do, such as to email suppliers and coordinate some procurement of the laboratory resources. He thought this work was relevant to working in any laboratory and he found that the student's initial email communication with vendors was not up to par. However, he observed the students got better in such communication subsequently. He added teamwork as an important skill the student could develop as much of the work in the laboratory was done as a team. Other than that, he felt the student also gathered research skills in a broader sense, such as planning research, managing resources and monitoring progress. This was in line with what the student wanted to figure out whether research was a career he would be interested to pursue.

Felix noted that there were some issues which became learning points for the students, such as delays in the procurement as a result of red tape and making decisions on whether to order from an alternative vendor despite the higher prices. He found such learning points to be very real for the student. On top of that, there were also learning from points that were not originally included in the co-created outcomes, such as presentation skills during weekly team meetings. There, he observed the student's quality of presentation improved over time. He also noted that

the student had taken the initiative to take on new work from other team members as evidence that he had also developed the teamwork skills originally discussed.

Felix checked in with the student over a group lunch, monthly. He felt a casual setting would help the student feel comfortable to speak up. While the initial meeting was in a formal meeting room setting, he had kept the tone more casual to get the conversation going. Felix liked the co-creation idea and the value of having something to refer to for subsequent follow-up meetings. He referred to this as the "big picture" that both him and the student could talk about.

> *"I think the co-creation process is good in that the co-created big picture can be followed-up easily by asking the student to include those in his weekly meeting slides." (Felix)*

In terms of clarity, he thought the intervention was more helpful for the student rather than for himself. He made sure that the student could articulate his own achievement. The sessions also helped him know whether the student was on track with his goals. He liked it that the student took ownership of his own learning. His success was when he saw the passion in a student and when the student drove his own learning rather than needing the supervisor to nudge him to do more. As such, the co-creation process became a motivational tool for Felix in his supervisory journey.

Felix found that the learning outcomes were still very much driven by the university as the student was focussed on scoring well for his project report. In terms of supervisory style, Felix found it was still predominantly mentoring as most work in research was new and he had to give instructions more often. However, coaching elements were used later in the project such as when the student had to troubleshoot issues that cropped up during the project. He found that he would need to give the student time to come up with his own ideas and was comfortable to facilitate this for the student's self-discovery. However, on reflection, he admitted that when it came to troubleshooting, he would still tend to give advice. Moving forward, Felix felt that for future students, he would still use the intervention to co-create learning outcomes to get the students to talk more. He found the current student was sometimes too passive when it came to verbalising his thoughts. He suggested that including such a process into the work attachment requirement would definitely make students become more serious about their learning. He saw the intervention also as something very similar to the appraisal process for staff in the organisation.

Findings and Key Themes

Some findings and key themes brought up in this case study were as follows:

- Felix noted that not all the co-created outcomes were achieved. This could be due to the outcomes focussed on the work itself, which could be unpredictable. Even when applied to transferable skills, these were not easily achieved within a short duration of a work attachment and could be seen more as stretched goals. [Key Theme: Achievement of Outcomes]

- In the discussion with Felix, he shared about adding on other learning outcomes along the way on top of the ones originally created, and also giving feedback on other areas not in the original list. In a way, it might be difficult for the initial co-created learning outcomes to be comprehensive and learning at the workplace could also be incidental. [Key Theme: Evolvement of List of Co-created Outcomes]
- Felix mentioned that his observation of the student's development was a means in which he measured the student's growth and achievement of the learning outcomes. [Key Theme: Measurement of Growth]
- Felix mentioned that he was giving advice more at the start of the work attachment as the student was relatively new to the job, but he was able to coach more as the student became more independent in their job role. [Key Themes: Mentoring vs Coaching]
- Where grades were involved in the work attachment, Felix noted his student was focussing more on the grades rather than on the learning. [Key Theme: Grade vs Learning]
- Felix felt that the co-created learning outcomes might be a way to motivate the student as he was asked to articulate his growth with regards to the goals set. [Key Themes: Student Ownership of Goals & Enhancing Student Motivation]
- Felix commented that the learning outcomes co-creation process mirrored aspects of the staff appraisal process in his organisations. [Key Themes: Similarity with Staff Appraisal, Organisational Culture]

4.8 Case Study 7: George, engineer shifting outcomes from projects to soft skills

Pre-Intervention

George had around 10 years of work experience with around 5 to 6 years of supervision experience. He started his career as an electrical engineer and was currently doing more operations work in the marine industry and leading a small team of engineers. George had previously worked across cultures with engineers from China and India, and he also had experience working with fresh local graduates (from Singapore universities). He found local graduates lacking in hands-on experience until they were put on the job, and thus placed value on university work-based learning as a hands-on opportunity. However, he noted some internships were quite short-term in duration (less than 6 months) and there were challenges in providing good learning experiences for the students within a short duration. He felt that students should take initiative for their own learning as they were not subject to any project goals nor work responsibilities unlike a full-time staff. George also tended to give students more specific instructions than full-timers as he felt they needed more guidance. He also thought that one over-arching objective of internships was for students to get a feel of the industry and for the company to consider recruiting interns as full-time employees if the match was good.

George thought transferable skills were slightly more important for the workplace than technical skills. Some skills he mentioned that would be important included problem solving and having a growth mindset.

"Nowadays things move so fast you have to be like a sponge to learn and provide value for the business." (George)

In terms of his role, George described himself as a guide to the students and he would help the students approach the work assigned in a step-by-step manner. For example, he would get students to understand the problem first, do research, discuss possible solutions with the students and describe their role in relation to the project, such as coming up with a presentation of the proposed solution. He had attempted to use a coaching approach by asking students for their ideas, but he found that it was not always efficient because the students might come back with many more questions as real world problems could be quite ill-defined. For attitudes such as a growth mindset, George would show by example by sharing his own learning, such as sharing about recent advances in battery technology. He would then tell the students not to be limited by what information was available but to always seek to learn the latest. However, he admitted that he did not have a good sense of how successful he was as a supervisor as he did not receive much feedback from the students on his supervisory work. On the assessment of students, George would still be able to quote examples whereby students did well or fell short. He had wished the university would provide more support to work supervisors on their role and the learning outcomes.

Despite his challenges in getting students to respond to questions, George would still use the coaching approach given that technology was fast-changing, and he did not want to limit the solutions to problems based on what he knew. He found that sometimes students could come up with new things that he could consider.

On setting learning outcomes for the students, he placed emphasis on helping students learn about the industry and achieve work-based outcomes for the project, which were mainly outcomes related to technical skills the students could develop. Such outcomes were also based on George's own planning in the hope that the students would learn something from the attachment. However, he admitted the project-driven way to set learning outcomes may not be student-centric. Hence, he was happy to try out the co-creation process.

Post-Intervention

For the intervention, George met up with his two student interns. Both students were already more than halfway through the work attachment, but he went ahead to try out the process. Both students wanted to learn more about the industry, and one of them also wanted to know the technical know-how about electrical systems on ships. No transferable skills were mentioned by the students during the session. However, after the session, George decided to add on the development of transferable skills to the students' training. George felt that it was important that the students acquire communication skills as part of the process of preparing documentation for government licensing. As the students were already more than halfway through the internship, the co-created learning outcomes were more used as a means to check whether the internship had matched their original goals than to craft new goals. However, slight tweaks were still made on the learning goals to cater to knowledge and skills that the students raised, but these are more on technical skills such as research into newer electrical systems.

Since there were no related projects on new electrical systems, the learning goals were mainly realised through Internet research instead of real-life exposure. George also facilitated other colleagues to talk to the students to fulfil their desire to learn more about the industry. At the only follow-up meeting, the students shared what they have learnt briefly.

George felt that the intervention helped him to understand learning outcomes better and had him think more deeply into transferable skills. This made him focus on transferable skills in subsequent work that the students did.

> *"Before the intervention, the goals were more project-driven and based on projects. The intervention allowed me to go beyond this and how soft skills can come in, also involving my colleagues who can share other aspects of the work in the industry." (George)*

Moving forward, George would definitely implement this process earlier in the attachment process. This would allow him to make plans earlier to skew the training programme towards what the students would like to learn. In the event he might not be able to cater to the students' learning needs, he could involve his company's training department to see what else could be done. He thought the process was very structured and gave him clarity on how to develop a training programme. As such, he saw his role also as a facilitator to ensure students' learning needs were met through additional resources that he could garner.

Where opportunity arose, George attempted to explain his thinking process to students and how they were relevant to the industry. However, he felt the students may not have the experience to understand the deeper significance of what he shared. As much as he tried the coaching method, the students were not always responsive. Hence, he found himself using more of a mentoring approach. He was also more comfortable with the mentoring approach because it gave him more certainty on the students' work outcomes and had the work carried out in an efficient way. He felt the coaching approach might end up in a lot of guesswork on the part of the student and might waste time. He was also concerned if the students were to lose respect if he appeared not to have an answer to the questions that the students ask.

> *"The students might think 'If you already know what you want, why did you keep us guessing?'. Hence, the mentoring approach can speed up the process (for the students' learning)." (George)*

However, George did feel that there was value in the coaching approach but it was not something he was comfortable with and probably not trained in. He was open to attending training to learn how to coach more effectively and suggested that the university can provide such training for workplace supervisors.

The process of co-creating learning goals was a different way for George to think about the work that was done in the company, and he was keen to also apply this to new hires in the company. He found the learning goals conversation also a good way to uncover students' impressions on the company and the job scope. For example, he was surprised that the students did not see the company as forward looking when it came to newer technology. He saw this as a benefit from the organisation point of view to see how others view the company. In his future

implementation, George was also interested to know how the process will benefit the students and sought to get feedback from students.

Findings and Key Themes

Some findings and key themes brought up in this case study were as follows:

- The approach of co-creating learning goals encouraged supervisors like George who were more project-focused or task-focused to think about their role in developing transferable skills in the students that they supervised [Key Theme: Development Mindset]
- George found that the approach forced him to listen more to students for a different perspective. This had helped him learn something about his own company from the students' perspective. [Key Theme: Student Voice & Reverse Mentoring]
- George preferred a mentoring approach as he found it to be more direct and efficient, despite seeing value in a coaching approach. This could be either due to his preferred way of supervision or the company had a time-sensitive work culture. [Key Theme: Coaching vs Mentoring, Organisational Culture]
- George recounted that an instance when a coaching approach might work was when he had to explore new technologies with the student, where he admitted that the answers might not be immediately clear even to him. [Key Theme: Coaching vs Mentoring]
- George was open to developing his coaching skills and thought that the university might be able to facilitate that [Key Theme: Tripartite Relationship with the University & Developing Coaching Skills]
- In this case, George implemented the intervention halfway through the work attachment. He felt that if he had started earlier, a longer timeline would allow him to follow-up on the students' development of transferable skills. [Key Theme: Time Horizon to Develop Transferable Skills]

4.9 Case Study 8: Harry, a motivator who already used aspects of the intervention

Pre-Intervention

Harry was a relatively experienced work supervisor with 17 years of experience in the marine industry and close to 10 years of experience supervising students. He found university students able to pick up skills in the industry quite quickly and apply them at the workplace.

> *"The university students have a high level of adaptability, [are] able to pick up the ropes quite fast and contribute in their own way." (Harry)*

Other than adaptability, Harry felt the growth mindset and critical thinking were also important transferable skills students could develop. He would encourage his students to break out from their comfort zone and solve problems in the real world. He felt his role was to provide opportunities for students to experience the workplace and link classroom theory to real-world practice. He would then follow up with discussions with students on what they had learnt. Harry would use a coaching approach to allow students to discover their own career options and think like someone in the industry. He also encouraged students to ask questions and would ask questions to confirm the students' understanding. He saw the interaction with students as a two-way process. He also felt the interaction depended on the students' willingness to learn. He would also encourage students to think of themselves as a staff member, carry themselves professionally and participate in discussions. He also talked about the company's "can-do" spirit, asking students to be actively engaged in the workplace and not shy away from challenges.

When introduced the intervention, Harry mentioned that this was something he was already practising to some extent in his interactions with students. He found there was similarity with the staff appraisal system of goal setting and outcomes monitoring. As such, he was happy to implement the intervention with students that he would be supervising.

Post-Intervention

Harry implemented the intervention on three students that he directly supervised for this round of work attachment. The meetings with the students were one-on-one so that the students can participate fully in this co-creation process. Harry noted that their initial goals were vague and broader, such as wanting to learn about the industry. Harry saw this as natural as the students did not know the company well enough. As time went on, the learning goals became more precise, such as one student wanting to focus on the software coding aspect of the work. This student was attached to a programmer so he could go deeper into the topic and contributed in this aspect to the company. Harry mentioned that the students learning goals were steered towards company's operations, including supporting the company's current automation and change management processes. The other two students were also working on app development to support this initiative. Harry recounted that the students learnt about the current company procedures and how work processes could be digitised. Hence, the other two students had similar learning goals related to app design. These students were also attached to mentors so they can pick up the digital skills from the mentors. Harry highlighted that the learning goals were linked to the students' initial desire to learn more about the marine industry.

> *"I am in this department to lead in this digitisation initiative, it is still linked to the marine industry processes. The students still get exposed to the current way of doing work in the industry. So the students get to meet stakeholders to understand how things are done and what are the pain points." (Harry)*

When it came to transferable skills, Harry included these in the subsequent follow-up with the students while not explicitly mentioning them as learning goals. Some examples included problem-solving and teamwork. Communication was one of the important skills in which Harry would encourage the students to take initiative to talk to stakeholders as part of their project.

Hence, he trained the students to approach colleagues on their own, rather than himself reaching out to colleagues on behalf of the students. He believed that if the students made the move, colleagues would be more willing to help. When the COVID pandemic happened, he taught the students to be adaptive to look for the stakeholders using teleconferencing platforms such as Microsoft Teams. The students had fed back that colleagues were indeed approachable and helpful.

Harry was happy with the growth of the students, and found the students stood up to challenges when performing their tasks. He was satisfied that the students had picked up useful digital and people skills. He felt the intervention process of co-creating learning outcomes had a role to play by having the students set a goal and helped them kept focus by working towards the goal. He made it a point to follow-up on these goals on a regular basis. It also helped that this batch of students were extremely proactive. He felt that the two-way communication he had with the students made this process successful.

As a result of the intervention, Harry felt he had better clarity on the assessment of the students by virtue of the goals that were set at the start of the work attachment, which he used to appraise the students at the end of the work attachment. While he did not meet up with the students regarding their learning goals in a formal manner, he did informally surface them in their day-to-day conversations. He would also ask questions about the progress and the next steps that had to be taken to reach the goals. If need be, he would intervene and guide the students. As such, he would see his approach as a mix of coaching and mentoring. He said that it was difficult to keep track of when he was playing the coach role, and when he was playing the mentor role. When faced with a question from the students, Harry would ask the students what was their "first impression" of the issue. This would help him know the students' understanding and allowed him to intervene only if the understanding was inadequate or skewed. Harry felt that this batch of students also took to the coaching approach well as they responded well to his questions.

> *"The intern must be pro-actively participating (in the coaching process) so that the engagement is two-way. If the students lack drive, then it may not be easy to coach them." (Harry)*

The engagement helped Harry understand the students better, including their personalities and motivations. Harry would encourage them not to think of their role as interns but an employee that could contribute positively to the company. As such, the intervention was helpful to Harry in building rapport with the students. He also saw the support provided by the supervisor as part of the intervention process.

When asked about the benefits he had received, he mentioned that the students did help him reinforce some of his thoughts about the work and organisation from a different perspective. He also felt a sense of responsibility to take care of the students' development. He found the students' passion and enthusiasm also encouraged him.

As Harry felt that the intervention was something he had practiced all along, he would continue to work on it and he felt this was an important step to establish rapport with the students and get the students to feed back issues to him. He emphasised that the process was a two-way communication. When asked how he would implement the intervention differently in future,

Harry mentioned that he might include a visualisation exercise as part of the learning goal setting as he felt having a vision could be a powerful motivator.

> *"When you think of how your work can change the organisation, solve people's pain points, make people happy, it can be a powerful motivator." (Harry)*

In addition, he would continue to encourage his students to be vocal and empower them to do things that they would not imagine they could do.

Findings and Key Themes

Some findings and key themes brought up in this case study were as follows:

- Harry was an experienced supervisor who had been interacting with his student interns using the co-creation of learning goals as an approach. He emphasised that this was a motivational tool to drive students to achieve more. He observed that the students had indeed developed transferable skills as a result. [Key Theme: Enhancing Student Motivation & Drawing Out the Student Potential]
- For Harry, a key outcome he experienced in this intervention was the clarity of the constructive alignment between the learning outcomes and his assessment of the students. [Key Theme: Constructive Alignment]
- Harry suggested that the initial co-created goals need not be perfect. Follow-up conversations might allow the initial goals to be sharpened so they become more specific. [Key Theme: Evolvement of List of Co-created Outcomes]
- Harry was comfortable switching between coaching and mentoring roles depending on the situation. He did that in both his formal and informal interactions with the students. [Key Theme: Coaching vs Mentoring & Formal vs Informal Interactions]
- In this case, the co-creation process also reinforced ideas of responsibility in Harry on his role as a people developer through a more personal interaction with the students. One thing he enjoyed was getting to know the students better and building rapport with them. [Key Theme: Developmental Mindset & Rapport Building]

4.10 Case Study 9: Ivy, supervisor who found letting go allowed student to grow

Pre-Intervention

Ivy had 8 years of work experience with 5 years supervising students on attachment. She also led a small team of junior staff members as part of her job. Compared to staff, she found students were less independent and lacked confidence in their laboratory skills, hence she had to do more "coaching" for the students.

Ivy placed a lot of emphasis on transferable skills. She felt that a good learning attitude would be enough to make up for lack of technical skills. Another transferable skill that she emphasised was verbal communication. Her experience with students was that they would not speak up enough to ask questions when working with others. In her role as an experienced engineer, Ivy thought critical thinking became more important as she had to grapple with issues such as how to grow the team, or how to identify good research topics. She did not think values and attitudes were easily transferable as they were linked to a person's personality or upbringing.

Ivy saw herself as a "teacher" of transferable skills by guiding students on their laboratory work to help students link their laboratory skills learnt at the university to similar skills at the workplace laboratory. She also saw herself as a guide to show students how an organisation function. For example, she had to explain why the organisation made certain decisions. Often Ivy would pose questions to tease out the understanding of the student and encourage them to think critically about the data from the laboratory. The students were also exposed to some of the work meetings to experience how different departments work closely together. She would also give students opportunities to lead projects with regards to food flavour analyses. Students were expected to actively participate in the meetings by contributing their perspective to the data evaluation. Such projects also allowed students to practice planning and time management skills. Ivy would show them how she managed her own project as a role model.

However, Ivy admitted that she did not have a good idea of how much the students had learnt through her supervision. The only clues she had had been based on her observation of the students' growth. She had hoped that she could find out more from the students about their own motivations and interest towards the work and cater to the students' interests. She would observe the students' skills in order to decide if they would be able to independently perform the laboratory work. If need be, she would intervene and provide more guidance. Ivy noted that her supervision approach tended to be more mentoring than coaching.

Ivy mentioned that the students' focus was mainly on the university requirements for their learning. For example, students sometimes would need to complete a project at the workplace for presentation back at the university. She also found herself giving guidance to the students on the range of projects that were possible and provided the students opportunities to present their project in the presence of other colleagues. She found students not that forthcoming to come up with their own project ideas. Hence, Ivy was keen to apply the intervention to listen more from the students and have them speak up more. She felt this would give students more ownership of their learning goals.

Post-Intervention

Ivy implemented the intervention to co-create learning goals with a student through a formal meeting. However, follow-up sessions on learning goals were informal and sometimes such conversations did go back to the learning goals.

Ivy noted that the student was quiet and lacked confidence with her laboratory skills. Hence, the student suggested laboratory skills as a learning goal for herself. The student mentioned that

she did not take initiative during university for hands-on work in the laboratory, especially when some laboratory work at the university was done in groups and the student could depend on group mates to do the hands-on work. In the context of the company, Ivy also ensured that the student not just got more practice on laboratory work, but also attempted to operate more complicated equipment used in laboratory analyses. Ivy observed an improvement in the student's confidence in doing the laboratory work and her ability to complete the work independently. She noted that initially, the student tended to need more guidance through asking lots of questions and showed signs of worry about making mistakes. Ivy mentioned she had to let go and have the student do the work instead of always being there to guide the student. To help the student understand the work better, Ivy made it a point to explain why certain steps were done as part of the laboratory processes. She also highlighted that laboratory work was not just about performing the steps, but also attitudes like making sure one cleans up after using the equipment.

On top of that, Ivy also added presentation skills as something that, as a supervisor, she felt would be a good transferable skill for the student to acquire. Ivy felt the presentation skills training was also good for the student being someone that was relatively quiet. In this respect, Ivy gave the student a topic for her to research on and make a presentation to the technical team. Ivy added that the process of packaging information was also part and parcel of presenting and something that engineers often had to do. When it came to preparing the student for the presentation, she described her role as guiding the student to make sense of the research data and to organise the information in an easy-to-understand manner for the audience.

Ivy described her approach to be more mentoring initially but as she observed the student got better with the skills, she would use a more coaching approach. She gave the example of the student's laboratory skills that she had to avoid hand-holding the student in order for the student to develop confidence through independently performing the work. She would also ask more questions to get the student to speak up whenever she felt the student to be too quiet. She was pleasantly surprised that the student did read up and came back with answers, instead of expecting all the answers to come from the supervisor. However, when she saw the student struggling, Ivy would intervene and provide more guidance. All in all, Ivy found that she had used a slightly more coaching approach as she could appreciate the process as designed to be more student-centred.

"For myself, I need to learn to let go and let students explore more." (Ivy)

As a result of her letting go and hand-holding less, she thought that the process had helped the student acquire skills faster. However, Ivy found the process of getting students to speak up was still a challenge especially dealing with a student with a quiet personality. In fact, the student initially did not respond much until Ivy probed further with questions and gave her more time to think through those questions. She felt this required more effort and patience from her. She suggested that the university could prepare students more in terms of their ability to reflect and also prepare workplace supervisors to coach students better.

Despite having years of supervising students, Ivy felt that the intervention helped her to see more about the work attachment from the student's point of view. She thought that if she had more "formal" follow-up sessions, she could listen more to the student. In her regular day-to-

day conversations with the students, broader goals were often not part of those conversations. Ivy also thought the process allowed the student to reflect and take greater ownership of her learning.

> *"The responsibility to get the student to be occupied (to do more for the work) is not completely on me. The student also shared the responsibility." (Ivy)*

Ivy felt the process also helped to highlight the importance of transferable skills, which she deemed as very important. Such skills were normally not explicitly discussed during her previous experience of supervising students.

Findings and Key Themes

Some findings and key themes brought up in this case study were as follows:

- An important thing that Ivy learnt from this intervention experience was that letting go and having less handholding was a way to facilitate growth through coaching. In a way, she had to rethink her previous mode of always hand-holding students. [Key Theme: Coaching as a Relearning Process]
- Ivy's case suggested that technical skills such as laboratory skills may have a transferable side, such as etiquette of working in a laboratory. In other words, it confirmed there was an affective side to developing transferable skills at the workplace. [Key Theme: Emphasis on Transferable Skills]
- Ivy suggested the university might play a role to prepare students for work by encouraging students to reflect more in classrooms, even before starting work attachments. [Key Themes: Opportunity for Students to Reflect, Tripartite Relationship with University]

4.11 Summary of Key Themes

Table 4.2 below summarised the key themes brought out through the case studies. The broader categories aligned with the concepts of "clarity" and "gifts" that I sought to uncover, as well as challenges and other themes. These are discussed further in chapter 5.

Table 4.2

Summary of Key Themes

Category	Themes	Case Studies
Clarity of Process	Student Ownership of Goals	1, 4, 5, 6
	"They have vested interest in this, rather than something shoved down on them." (Dan)	
	Co-creating of Learning Goals as a Structure	2, 3, 5, 7
	"The process gave me more confidence and is a more defined and clear approach on what I can do as a supervisor. If I am clear, the intern would be even clearer and not lost." (Edna)	
	Opportunity for Students to Reflect	2, 9
	"You cannot expect answers from your boss, and I think the students need time to develop this [mindset]." (Belinda)	
	Constructive Alignment	2, 6, 8
	"It is important that [the students] achieve what we set out to and along the way, we take stock of the deliverables that forms their appraisal" (Harry)	
	Formal vs Informal Interactions	3, 8
	"The students prepared slides [on their learning goals] and presented to us and the lecturers." (Charles)	
	"We don't have something formal, but more of conversations we have" (Harry)	
	Personalisation of Learning Goals	3, 4
	"Soft skills [gap] is subjective and differs from person to person." (Dan)	
	Evolvement of List of Co-created Outcomes	6, 8
	"Along the way, there may be twists and turns [in the work assignment] and the students developed other areas of interest which is different from what they initially wanted." (Harry)	

Table 4.2 (continued)

Category	Themes	Case Studies
Clarity of Role	Developmental Mindset	1, 3, 4, 5, 8
	"Instead of just using them as manpower to do the job, it is a chance for us to train them, to make them better. This is some sort of contribution to the society." (Charles)	
	Drawing out the Student Potential	1, 8
	"Do not jump into solutions but allow them to think it through." (Alan)	
	Coaching vs Mentoring	2, 6, 7
	"I start with mentoring, then as they get more independent, I slowly move towards coaching." (Felix) *"When I saw students are not getting it after giving them time for self-discovery, I will come in and give the solutions so as to speed up the process." (George)*	
	Emphasis on Transferable Skills	3, 4, 7, 9
	"Before the intervention, the goals were more project-driven and based on projects. The intervention allowed me to go beyond this and how soft skills can come in, also involving my colleagues who can share other aspects of the work in the industry." (George)	

Table 4.2 (continued)

Category	Themes	Case Studies
Benefits ("Gifts")	Enhancing Student Motivation	1, 3, 6, 8
	"When you think of how your work can change the organisation, solve people's pain points, make people happy, it can be a powerful motivator." (Harry)	
	Enhancing Communication	2, 4
	"The awareness of the two supervision styles helped me communicate with the student better." (Belinda)	
	Developing Coaching Skills	4, 7
	"I had to adjust a bit on asking questions. I tend to ask a series of questions like a machine gun." (Dan)	
	Rapport Building	3, 5, 8
	"To others, she (the student) might feel more intimidated so she might not share her thoughts. Bringing myself to her level helped her to open up more." (Edna)	
	Reverse Mentoring	5, 7
	"When students put up their learning goals, I also learn how they perceive us as a company and what we are good at." (George)	
	Achievement of Outcomes	4, 6, 8
	"Soft skill I can see there are improvement with this particular student. For example, he (the student) can now use the right jargon when communicating with the team and he was more confident to let his views be heard." (Dan)	
	"I am quite impressed of what they've achieved within a short time." (Harry)	

Table 4.2 (continued)

Category	Themes	Case Studies
Challenges	Coaching as a Relearning Process	1, 9
	"For myself, I need to learn to let go and let students explore more." (Ivy)	
	Measurement of Growth	1, 4, 6
	"How to measure is very vague, we just put in something we can think of, the degree of how well they can do it is also difficult [to measure]." (Dan)	
	Organisational Culture	4, 5, 6, 7
	"We prioritise the projects that bring in the revenue, that's why we put on hold [following up on the co-created list]." (Dan) *"While it was good learning for them, it took longer for us to produce results for the company." (George)*	
	Short-Term Goals vs Long-Term Transferable Skills Development	5
	"The students' concern was on the university project [as her learning goal]. I could see independent research and critical thinking [could be developed] although the student did not come up with them." (Edna)	
	Grade vs Learning	6
	"If it affects their grades, it is a big factor. We have seminars every now and then for students to learn, but I rarely see students [attend] that. If we want students to be more serious, [the co-creation process] has to be graded." (Felix)	
	Time Horizon to Develop Transferable Skills	7
	"When I implemented this, it was already too late in the attachment. If we do this earlier, we can achieve more [in terms of the students' growth in transferable skills]." (George)	

Table 4.2 (continued)

Category	Themes	Case Studies
Others	Tripartite Relationship with University	3, 7, 9
	"For us industry supervisors, we do not have much coaching experience. If we can get training from the university, it would be great." (George)	
	Similarity with Staff Appraisal	6
	"Not exactly the same, but I do check in with my staff on their career growth when we sit down to talk about it. However, they (staff) do not have a fixed duration to achieve it whereas student attachment has a fixed duration." (Felix)	

Chapter 5: Discussion

5.1 Overarching Themes

As set out by the Methodology chapter (Chapter 3), the Discussion chapter is based on themes that cut across the nine case studies presented in the Findings chapter (Chapter 4). These themes are discussed under the broad headings of "clarity" and "gift", as well as theoretical concepts that were envisioned in the Literature Review chapter (Chapter 2) so as to answer the research questions laid down in the Introduction chapter (Chapter 1). In addition, discussion also centres around the benefits and challenges in implementing the intervention as well as other themes related to this thesis.

5.2 Clarity of Workplace Supervisors on the Work-Based Learning Process

The first key concept of "clarity" was discussed in two separate sub-sections to expand on themes that refer to the clarity of the work-based learning process (see sub-section 5.2), and themes that refer to the clarity of the workplace supervisor's role in the process (see sub-section 5.3).

The basis for evaluating clarity of the process stemmed from the idea of constructive alignment in the design of work-based learning to mirror that of classroom curricula design (see Figure 2.4). Constructive alignment requires three elements of learning outcomes, learning activities and assessment to be aligned as a hallmark of good curricula design.

In a pilot study (see sub-section 1.4), evidence of constructive alignment in work-based learning was found to be sporadic (Ong, 2022). One of the possible reasons for this could be the weak communication between the university and the work-based learning partner, that the university's learning outcomes were not emphasised enough to be on the minds of the work supervisors. Another possible reason could be that the work-based learning outcomes were communicated chiefly to the senior management of the organisation or the human resource department but might not have filtered down to the work supervisors at the frontline. Yet another possible reason could be that experienced work supervisors were supervisors to students from different universities and thus be confused between the learning outcomes required by different universities. In some cases, these university learning outcomes could be based on graduate attributes that were broad and not very specific to the job roles of the student interns. Lastly, learning outcomes as set down by the university might not have been internalised by the work supervisors whose chief concern was the work-related goals of the workplace on a day-to-day basis. As a result, learning activities at the workplace and the assessment of the students were more of an afterthought.

The same observation was made during the pre-intervention interviews when the data for the thesis was being collected. Workplace supervisors did not think of the university's requirements as a possible source of learning outcomes, or they may be too vague or broad to be used for

setting any learning goals for the students. Some supervisors might focus on the projects that students were required to complete at the workplace as the university's requirements without reference to the associated learning outcomes. For example, in Edna's case (case study 5), the student referred to the university project as her learning goal, but it was only through this intervention that both she and the student would distil the associated skills of independent research and critical thinking needed in this project from their co-creation exercise. Otherwise, it would just be the supervisor giving advice to help students complete their project without reference to the students' learning and acquisition of transferable skills.

The intent of the intervention to co-create workplace learning outcomes with students was meant to address some of the possible shortcomings of the existing practice. Firstly, the workplace supervisors and students would have to reflect upon the university's learning outcomes as part of the preparation process. Secondly, the workplace supervisors would have to rephrase the learning outcomes in a way that would be relevant to the students' job roles. Thirdly, the act of co-creating the learning outcomes would have helped both the supervisor and student to get clarity on the learning goals and hopefully pave the way to reach these goals.

As evidenced through the case studies, constructive alignment was made more obvious through the intervention with evidence that the follow-up sessions referred to the learning outcomes, and the supervisors were able to assess the students based on the agreed learning outcomes. One example would be from the case of Harry (case study 8) who frequently referred to the agreed learning outcomes and used it as part of the appraisal of the student. He did this over informal conversations with the student. Another example was that of Felix (case study 6) where he would have meetings where the student would include his own assessment of the learning goals in the form of PowerPoint slides presentation so that the growth of transferable skills can be tracked and appraised.

The sense of curricula design was evident in that workplace supervisors made use of the co-created learning outcomes to formulate work projects for the students, assigned mentors and provided opportunities so that students could learn what was set out. This mirrored the role of professors in universities as they designed their courses to enable students to achieve those learning outcomes although co-creating learning outcomes with students was not a common practice in designing university courses. In the case of George (case study 7), he made sure that he involved colleagues to mentor the students in areas that he was not an expert in after hearing what the students wanted to learn, effectively designing an intervening activity that met one of the co-created learning outcome.

The idea of curricula design of work-based learning also included the choices that workplace supervisors could make in implementing the process of co-creating learning outcomes and its subsequent follow-up. It was noted that the way work-based learning was to be designed was different from how formal courses were designed in universities. For a start, there was a fair bit of personalisation of learning goals because every student was different in terms of his or her personal values, abilities and motivation, and every supervisor would also have their own personal values, experience, and organisational context. Work-based learning allowed such personalisation of learning goals to take place, and even allowed these goals to evolve with time. As reported by the participants, there were follow-up sessions where previous goals were refined further, and new goals were set. In the case of Harry (case study 8), these were needed

because the student developed a new learning goal when the scope of his work project was refined to include some computer programming.

In terms of the manner in which the co-creation process took place, it was found out that several variations were possible, with formal presentation on one extreme and informal conversations on the other. There were also variations in the way the follow-up sessions took place, such as regular check-point meetings that specifically centred around the co-created learning goals (such as in the case of Charles in case study 3) or simply built into the day-to-day interactions with the students (such as in the case of Harry in case study 8). Both formal and informal sessions have their pros and cons. While formal and regular sessions would lend more weight to the process, informal and ad-hoc sessions would create a safer environment for the student voice to be heard.

An important feature of the co-creation process as well as subsequent follow-up sessions was the opportunity for students to reflect. Some participants had pointed out that this was a good thing as students mostly did not get a lot of opportunity to do such reflection as part of the university course, nor are they used to reflecting on their learning. As pointed out in the case of Belinda (case study 2), she felt the student needed more practice in thinking as she was only able to give vague answers to some of her coaching questions. Gerhardt (2021) had pointed out that such reflection could be helpful in the context of work-based learning in engaging students and they took a greater interest and ownership in their learning.

As a summary, it was observed that clarity of the process had improved from the intervention as experienced from the perspective of work supervisors. Supervisors had indicated that the intervention provided a "clearer" or "better" structure for planning and administering the work attachment. The alignment of the co-created learning outcomes with subsequent follow-up sessions and appraisal was also evident. Despite variations in how the process differed from one supervisor to another, there was common understanding of the importance of personalisation of goals and providing the much-needed opportunity for the student to reflect and articulate their learning. The clarity of the learning process could also provide clarity for the work supervisors on their curriculum design decisions, such as making decisions on how best to support the student in their learning goals, and subsequently throw light on the clarity of their own roles in this process. The clarity of the supervisor's role is further discussed in sub-section 5.3 next.

5.3 Clarity of Workplace Supervisors on their Role as Supervisors

It was seen how the co-creation process brought clarity to the workplace supervisors on the learning process in sub-section 5.2 previously. The idea of "clarity" could further apply to the perception of the role or roles that the participants play as workplace supervisors. It was earlier envisaged that the process of co-creating work-based learning outcomes with students could be a wise intervention (see sub-section 2.6) to provide clarity first on the process from the concept of constructive alignment, and second on the work supervisor's role as a coach. Hence, this sub-section discusses if the latter was achieved.

The co-creation process mimicked the start of coaching as a self-discovery process where the work supervisor acted as a coach to ask questions to facilitate the development of transferable skills in the students. However, there were case studies when the student voice was relatively weaker due to the quieter, passive or introverted personality of the student. In the case of Dan (case study 4), he recounted an incident where he realised the students had made some wrong assumptions only after his prompting. Otherwise, students can be quite passive, or not used to articulating their views. In such cases, the work supervisor tended to adopt a more directive approach of mentoring.

To fully appreciate the degree of coaching and mentoring, the roles that the participants mentioned during the post-interview were coded as coaching (C), mentoring (M) or a mix of both coaching and mentoring (C/M). This was to assess the tendency of the supervisor towards either coaching or mentoring.

- Probing and asking questions instead of providing answers. (C)
- Sharing of experience, such as how the supervisor would approach a problem. (M)
- Teaching actual skills, such as use of a software or equipment. (M)
- Providing resources for the student to self-learn, such as in-house manuals. (M)
- Suggesting learning paths for students, including searching on the Internet. (M)
- Modelling by being an example, such as sharing checklists the supervisor came up with. (M)
- Linking to other colleagues, who might be resource person for an area that the student would like to develop. (C/M)
- Providing opportunities for practice of transferable skills as brought up by the student, including a safe environment for the student to experiment. (C)
- Giving feedback on the students' progress, especially if it is a blind spot for the student. (M)
- Offering praises and encouragement for progress and achievement made. (C/M)
- Being a trusted friend or listening ear when student encountered issues. (C/M)

Again, the prevalence of items coded "M" for mentoring suggested that mentoring was something that came more naturally to the supervisors as they gave more examples of those, rather than examples of coaching. Yet, many participants were grateful for the reminder that they needed to coach more and pay attention to the student voice to realise their potential.

From the interviews, the decision to adopt a coaching or mentoring approach was based on many different considerations, which could include the following:

- Natural tendency of the work supervisor to be directive or otherwise.
- Response of the student to a coaching or mentoring approach.
- Culture of the organisation to support either coaching or mentoring.

A deeper analysis of the above is elaborated in sub-section 5.5 as a perceived challenge to the intervention. While the purest definition of coaching and mentoring might put them on opposite ends of a spectrum, all the participants reported using a mix of both coaching and mentoring strategies in their interactions with students. In some cases, it was also not a conscious approach to be using coaching or mentoring, and sometimes applying both within the same

session with the student. Generally, a coaching approach draw out more of the student voice, whereas a mentoring approach would provide guidance for the students when it was most needed, such as when the students were totally clueless.

At this point, it was found that "clarity" of role was developed by work supervisors through the intervention as they shared about the awareness of moving along the coaching-mentoring spectrum. In some cases, the work supervisors discovered they could move away from their usual style and work at a different point on the spectrum, such as moving consciously towards a more coaching approach. As work supervisors adopted more of the coaching approach, they heard more of the student voice, which was useful in providing feedback on their supervision. In other words, the intervention had encouraged the participants to coach more, and the result was a greater understanding of the power of coaching to draw out the potential of the student.

Regardless of whether it was a coach or mentor role, the sense of person developer was evident. A major theme that was brought out from the research findings was the supervisor's mindset of being a person developer. This included a desire to see the student grow and achieve more during the work attachment, as well as an increased awareness of such growth although it was not easy to measure the growth. In the case of Alan (case study 1), his student was able to complete a significant work project to help the company reduce cost. Alan felt a sense of satisfaction as the one who have coached the student and saw him grow in his ability to communicate and co-ordinate work with various stakeholders. Otherwise, work supervision in the most directive sense would be just assignment of work to the student without reference to the student's learning. The idea of a person's role in developing someone else, whether as a coach or mentor, was hence made clearer by virtue of hearing the student voice, no matter how small it may be.

Another observation that supported the clarity of the supervisor's role was the focus on transferable skills. During the pre-intervention interviews, many work supervisors supported the importance of developing transferable skills in addition to the technical skills or placed higher value on transferable skills. On a scale of 1 to 10, where 10 is the most important, all the supervisors have placed transferable skills on the higher end of the scale. However, transferable skills may be less observable than technical skills unless purposefully looking for them. The intervention forced the work supervisors and students to focus back on the co-created outcomes and reflect on the growth such as in transferable skills. This further enhanced the sense of the work supervisor as a person developer when they were able to observe growth in this area.

There was, however, an issue with adopting a broad definition of transferable skills as set out in Literature Review chapter (see sub-section 2.2). Including the application of classroom knowledge to real work as a "transferable" skill could overlap with our idea of "technical" skill. In some of the post-intervention interviews, the author was faced with the question of whether something like software usage skill or laboratory work skill were transferable because the students were applying what they learnt at the university but at the workplace, or were they really technical skills? As the participants were briefed at the pre-intervention interviews that a broad definition of transferable skills was to be adopted for the intervention, it would be unfair to be strict about the definition at the point of the post-intervention interview. This would therefore become an issue whereby any work assignment would be considered an activity to

develop transferable skills. In order to rationalise this contradiction, it was decided to be comfortable with the idea that all work assignment would develop both technical and transferable skills. The emphasis acknowledged that the development of technical and transferable skills would sometimes go hand-in-hand. While learning to use a software, or a laboratory equipment, was technical in nature, the skill would nevertheless be applicable to another work situation, another project or even similar work in a different organisation. There were also attitudes involved in working with software (a digitalisation mindset) or a laboratory equipment (etiquette in taking care of a common workspace and equipment). Such attitudes were also part of the broad definition of transferable skills that were laid down earlier in sub-section 2.2.

The idea of partnership was very much a core principle based on the definition of coaching as a "creative process between a coach and a client" (see sub-section 2.6). Hence, the role of the supervisor was also in relationship to the role of the student. In that respect, supervisors pointed out that the coaching approach assumed a greater responsibility on the part of the student for their learning. Alan (in case study 1) made it clear that because the students came up with their own ideas of what to learn, it would give them motivation to achieve them. When Edna (in case study 5) was asked a question, she made the student research for the answer instead of giving the solution. This in turn made clearer the role of the supervisor in this partnership as a coach to draw out the learner's potential versus the role of the student as a passive learner waiting to learn what the supervisor will teach. The greater sense of ownership for the students' own learning resulted in some perceived benefits, such as an increased motivation or enthusiasm observed in the students. Such benefits, including others, which are elaborated in sub-section 5.4 next.

As a summary to this sub-section, it was also gathered that the work supervisors derived greater clarity on their role through this intervention. The most evident was a sense of being a person developer, someone who took interest in the development of the students' transferable skills. The idea of their role as a coach was also discussed in all the case studies where the students were given a chance to voice their own learning goals and take ownership of their own growth. Even when success as a coach was not guaranteed, work supervisors could gain clarity on when it was time to coach and when it was time to mentor. In some cases, there was an awareness of moving towards a more coaching approach as a means to draw out more of the student voice.

5.4 Perceived Benefits of the Intervention

The person developer theme discussed in the preceding sub-section also brought about other benefits from the intervention. Many participants reported an extremely good experience supervising their students, ranging from a better sense of rapport, seeing the students grow in the job role, having better team dynamics with the rest of the team, and getting the students to achieve something of significance. This further reinforced the notion of their role as supervisors, giving it a more personal dimension from their viewpoint. For example, in the case of Harry (case study 8), he was impressed by what the students could achieve within a short duration of the attachment. It was my belief that good relationships were built on the quality of the human

interactions. Hence, this sub-section hoped to uncover and discuss overarching themes that were related to "benefits" and how these were related to the intervention.

The work supervisors came from a range of differing work and supervision experiences. While it might be possible that they were in different stages of Kegan's adult maturity model (1982), there was a common thread of satisfaction around person development that is described mainly at the later stages of adult maturity. Hence, a successful role as a work supervisor could help work supervisors mature further in terms of Kegan stages. In one of the case studies in this research that involved a younger supervisor, Belinda (case study 2), the relationship was described as a "friend" but there was nevertheless the same sense of satisfaction in seeing and helping someone else grow.

It was mentioned in the preceding sub-section that students were observed to be taking more ownership of their learning at the work attachment as a result of the clarity of roles. These ranged from examples of students being able to do things more independently to taking initiative to take on more work. While this thesis focuses on the work supervisor's perspective, the success of the student placement was nevertheless dependent on the student's response to the intervention as well. The students' motivations could be explained by the co-creation of learning outcomes as a more student-centred approach, lending voice to the student and giving them a choice of how they could see themselves learn from the work attachment. It was also thought that the increased motivation was also due to a better chemistry between the supervisor and the student given that the intervention required supervisors to take an interest in the students that they supervised. As a result, supervisors reported better rapport building with their students, as well as better team dynamics where there were other significant stakeholders working with the student.

The sense of satisfaction of seeing a person grow and develop their transferable skills could be described as a "gift", a concept was discussed in the Literature Review chapter (see sub-section 2.9). Unlike monetary transactions, gift giving was thought to make the receiver feel obligated to reciprocate or feel gratitude towards the giver as a form of social exchange (Mauss, 1990). In the case of mentoring someone, although no physical gift was given, Kamvounias et al. (2008) still likened it to be a gift for the mentees in that the mentor would have given his or her time, energy, guidance and wisdom, among other things the mentor would set out to do for the mentee. This "gift-debt" would result in the mentee's obligation to return in kind, such as being more co-operative, working harder and showing gratitude towards the mentor. This idea of "gift exchange" occurring in the context of a mentoring relationship (Dobbins & Fell, 2020) was observed in the analyses of the interview data, and a possible way to organise themes around the idea of "gifts" as benefits the intervention had provided to the participants.

When probed on the benefits or "gifts" the students had given to them, some participants quoted being pleasantly surprised by what the students came up with when given a free rein to develop solutions at the workplace. By employing a less directive approach, work supervisors gave examples of learning from the students too. One example was a student (in case study 5) researched a technique for nut coating and found that overcoating might reduce the adhesiveness of the coating. Another example was a student (in case study 1) able to complete a test run which was stalled because no one in the company had time to look at the project.

These ideas were related to the concept of “reverse mentoring” when an older or seemingly more experienced person could be learning from someone younger and less experienced.

Also on the theme of “gift” was the idea that developing the students helped the work supervisors develop their own transferable skills, notably those relevant to supervision and human resource development. Some work supervisors mentioned that they had become a better supervisor by being a better listener, being more responsive to the student voice, and being able to plan a work supervision more confidently. These “gifts” were a result of the intervention providing a basis for the supervisor’s own learning. In fact, many supervisors were open to attending courses to become a better coach. This thread of how supervisors could become better is further discussed in sub-section 5.8.

The PERMA model (Seligman, 2011) was also used as a framework to analyse the benefits mentioned by the work supervisors. Seligman’s model was originally developed to measure happiness and well-being as observed under the themes of positive emotions, engagement, relationships, meaning and achievement. In Seligman’s terms, the themes would help us determine if there was evidence of the work supervisors “flourishing” in their role and to confirm the “gifts” that they had received as a result of the intervention.

Firstly, positive emotions were observed through the supervisors’ interview transcripts in terms of words used such as “happy”, “satisfied”, “pleasantly surprised”, “enthusiasm” in describing their interactions with the students. The tones that were observed also tended to be positive. Even in the discussion of challenges, supervisors tended towards a neutral tone that it was part of the experience dealing with individual students, rather than frustration that the intervention was too challenging. There were also positive tones towards the challenges where supervisors took it as a need to remind themselves to practice listening, or get better in their coaching approach through attending coaching training.

Secondly, engagement was observed through the frequency of meetings with the students and having deeper conversations about longer-term career and learning goals rather than just focussing on shorter-term work goals. This demonstrated the idea of “flow” in the positive psychology field (Csikszentmihalyi, 1997) where the participants were absorbed in the process. One example would be Alan (see Case Study 1) using post-it pads to remind himself as he reflected on how he could listen more to the student. Here, Alan was absorbed in his role of being a coach by using innovative ways to remind him to practice active listening skills during his interaction with the student. During the post-interview session, he was able to instantaneously pull out an example of a post-it pad he had used because it was where he could see it all the time.

Thirdly, the theme of relationship was observed, not just in terms of a formal supervisor-supervisee relationship, but a sense of trust building as a result of the intervention. Examples include Edna (case study 5) who was able to establish a good rapport with her student despite her lack of supervision experience and Dan (case study 4) who was able to retain his senior staff by involving him in the co-creation exercise. In other cases, the intervention allowed deeper conversations on development and a closer follow-up on how students developed their transferable skills.

Fourthly, meaning was observed in both experienced and new supervisors. The experienced supervisors found a renewed sense of their role in developing people, while less experienced supervisors mentioned that they found the intervention useful as a guide to how they could supervise better citing what they did to facilitate transferable skills development in the students. Supervisors also developed meaning in what they do, citing themselves as coach, mentor, friend or facilitator.

And lastly, achievement was observed in several instances where supervisors observe growth in their students. Examples included Belinda (case study 2) observing better presentation skills in her student, Alan (case study 1) recounting how the student independently completed a project to help the company achieve significant savings and Edna (case study 5) collaborating with her student to better understand a nut coating issue.

In summarising the use of the PERMA model, there were evidence that the work supervisors were experiencing a "gift" of wellbeing and satisfaction as a result of the intervention. Could similar benefits be achieved without the intervention? It would also be likely depending on a good rapport being built between the supervisor and supervisee, but it was believed that the use of the intervention had purposefully driven it in that direction. To further confirm the intervention had made a difference, sub-section 5.6 discusses if the intervention would fit the criteria as being "wise" (Walton, 2014).

Beyond the PERMA model, it was also observed that other benefits such as an increased clarity of the supervisors' role and the supervision process, better effectiveness and efficiency in the supervision process as students take ownership of their own learning, growth in the supervisors' competencies in supervision through the experience, and the potential for reverse mentoring through learning from the students. These have been discussed earlier in this section and represented "gifts" beyond what the PERMA model presented.

5.5 Perceived Challenges of the Intervention

While the intervention had benefits and accorded "gifts" to the workplace supervisors, challenges were also raised as perceived by the participants. The intervention was designed to facilitate coaching as a basis for subsequent coaching conversations. Referring to ICF's definition of coaching (see sub-section 2.6), the workplace supervisors would have to ask questions to facilitate self-discovery on the part of the student rather than a mentoring approach, which is a more direct telling or experience sharing. Another way to see it was that coaching would be considered a "pull" approach to draw out things from the student, whereas mentoring would be considered a "push" approach to give specific advice to the student (Downey, 2014).

Supervisors found the coaching approach more challenging than the mentoring approach. They required skills such as active listening and effective questioning, which might in turn require more effort than simply telling and giving answers. While supervisors might develop some expertise in this area through the intervention (i.e., the idea of learning by doing), there were some supervisors who might still struggle to be successful in employing the coaching skills.

To make coaching work, supervisors discovered that the role of the student was also crucial. Students who were quiet by nature might be a challenge for supervisors to draw out their voices. Even if students were to respond positively by participating in the co-creation process, their lack of maturity, experience and critical thought might also affect the quality of the options that they could provide. In some cases, the goals themselves might be quite vague for a start and would become difficult to follow-up if not further refined or built upon.

In terms of following up, supervisors often found transferable skills difficult to measure in terms of their achievement. Although in many cases, supervisors could pinpoint instances where such skills were observed, the lack of concrete measurement caused some uneasiness. The nature of transferable skills as a development goal for students also had to be thought of as work-in-progress due to the short duration of the university work attachment, and supervisors might have been more comfortable with the notion of facilitating improvement rather than measuring achievement. Viewing transferable skills as formative would also make sense to some of the follow-up that supervisors had mentioned, such as giving opportunity for practice and providing feedback.

From the work supervisors' perspective, they might also have preferences in which they operate as supervisors, especially those with years of experience supervising students in a certain manner. For supervisors to make changes to the way they supervise might also be a challenge. The motivation to effect a change might begin with an awareness (Hiatt, 2006), and the intervention provided the awareness on how they operated as supervisors and how they could be better coaches. In this aspect, the intervention fulfilled the role of a "wise" intervention (see sub-section 2.6) where the intervention was centred around people and situations and the work supervisors were encouraged to make meaning out of the experience. The idea of wise interventions is further discussed further in sub-section 5.6 in this chapter.

Other than the work supervisors' way of thinking, the case studies also presented the effect of the organisational culture providing the context in which the intervention took place. It was intended for the supervisors to implement the intervention that was appropriate to the work situation and make changes to the protocol as required (see sub-section 3.8). This decision resulted in seeing different possibilities in which the intervention could be carried out, such as whether meetings were formal or informal. The variations also revealed the effect that the organisational culture had on the way that the work supervisors functioned. In some instances, work supervisors allowed students room to experiment and make mistakes. In other instances, work supervisors found it necessary to step in to direct the students as the pace at which the company operated might value efficiency. Such organisational cultures might have an impact on the work supervisors' motivation to coach or mentor. These nuances also supported the analysis of the data to adopt a case study approach to see each case as unique (see sub-section 3.5).

Beyond the organisational culture, the larger context of the local Singapore culture might also present challenges. Singapore could be described as a meritocratic society based on Confucian values. The education system has been criticised as emphasising, too heavily, high-stakes examinations and grades. Hence, one challenge brought up by supervisors was that students tended not to be interested unless it was linked to university graduation requirements, or a grade was to be attached to the intervention process. While debates have prompted a move away from high-stakes examinations and a focus on holistic education, the grade mindset was

still very much imbued in local students in Singapore. The other challenge came from the lack of critical thought that students put into the intervention. The education system, and in the same way the work environment emphasised Confucian values such as respect for the role of teachers and mentors. In a Confucian mindset, the teacher's role would be to give instructions and share knowledge, and the student's role would be to follow and listen. Hence, Asian students were thought to be more passive in class and lacked the impetus to speak out and argue for what they stand for. From the intervention perspective, it was not surprising to find supervisors lamenting that students could sometimes not be very responsive unless being probed and encouraged. The idea of the Asian student as a passive learner was also observed by educators, such as Seow (2019) who attempted to engage students in partnership in the classroom. Regardless of the context, Cook-Sather (2023) suggested that both educators and students need to "learn" and "unlearn" for pedagogical partnerships to be more equitable. It meant to learn a new paradigm that placed the student voice as important and unlearn a fixed mindset that placed a limit on the students' abilities.

In summary, challenges raised by work supervisors were focussed primarily on the difficulty in coaching as an intervention. This could be a lack of skills and experience in coaching, and difficulty in changing the supervision approach that some supervisors were used to. The issue of transferable skills as something challenging to measure was also brought up, especially if supervisors (and students) did not adopt a long-term view of its development nor viewed it as formative rather than summative. Such mindsets were in turn linked to either an organisation culture where risk taking was or was not encouraged, as well as the larger context of Singapore as a Confucian society where students were used to being passive learners and the focus very much on grades rather than learning.

5.6 Co-creating Work-Based Learning Outcomes as a Wise Intervention

In the Literature Review chapter (see sub-section 2.6), a justification for the use of the co-creation process as a prelude to a coaching relationship between the workplace supervisor and student was on the basis that it was a "wise" intervention (Walton & Wilson, 2018). The idea of wise interventions was introduced in the field of positive psychology that certain small interventions that were well conceived could result in a significant impact (Walton, 2014). Walton and Wilson (2018) believed that wise interventions could be used to address social and personal problems. The problem that the thesis wanted to address in this case would be the gap between work-based learning outcomes envisioned by the university, specifically in the area of transferable skills, and that of work-based outcomes perceived by work supervisors. The gap was evident in the pilot study that assessment of the students' transferable skills by the work supervisors was not linked to any pre-agreed outcome nor coaching opportunities during the work attachment, thereby the lack of constructive alignment (Ong, 2022). On a macro level, this translated to a need to close the gap between university and work, which is further discussed in sub-section 5.9 of this chapter.

In a handbook of wise interventions, Walton and Crum (2020) laid down some considerations for wise interventions (keywords in italics were emphasised by the authors):

1. The *background* in which the intervention drew from was researched and theorised.
2. The intervention was based on a critical *psychological process*.
3. The *evidence* for its effectiveness was clear.
4. The *mechanisms* for its effectiveness were clearly explained.
5. The positive *effects* over time were long lasting.
6. *Heterogeneity* considerations were made in the context in which the intervention might work better than other contexts.
7. Whether there were *cousins* in which the intervention was closely linked to.
8. The *content and implementation* were clear.
9. The *nuances and misconceptions* about the intervention were pointed out.
10. The *implications for practice* made a difference for people's lives or institutional goals.
11. The *implications for theory* resulted in a better understanding of current issues and theories surrounding the issues.
12. There would be *future directions* resulting from the intervention.

The twelve considerations provided good criteria by which the intervention could be critically analysed. The following is a simple discussion of whether the intervention could be considered wise.

Firstly, the background drew theory and research from the field of education, specifically on the ideas of constructive alignment (Biggs & Tang, 2011) in work-based learning practices. If there were to be a psychological process behind the intervention, it would have been the process of coaching, initiated by the step of co-creating learning outcomes akin to the idea of a coaching contract (Gettman et al, 2019). This process was shown to bring about clarity from the perspective of work supervisors in terms of their role and the processes involved in supervision. The evidence for effectiveness was preliminary but positive based on the case studies, although Walton had suggested randomised controlled trials as the gold standard. The difference between a positivist and subjectivist world view was discussed extensively in the Methodology chapter (see sub-section 3.2) to explain why the thesis followed the latter paradigm. The mechanisms for the effectiveness followed the same line of thought that clarity brought about critical reflection of the supervisors' own supervision with each supervisor achieving different clarity specific to their practice. The effects over time were considered long lasting in two ways – the initial co-creation meeting extended to further coaching conversations throughout the work attachment, and the clarity supervisors achieved could cascade to supervision of future students. As for heterogeneity, the case study approach undertaken made considerations for slightly different work contexts although the specific context of working with an applied university in Asia (Singapore), and supervisors from engineering and technology fields, might limit its application to other contexts. More discussion is made in sub-section 5.9 in this chapter on its limitations. The idea that the co-creation process mimicked work goal setting in some company's appraisal system was semblance of a cousin. The content and implementation were kept simple although variations on the co-creation process by the work supervisors created different manners of implementation that would not sit well for a positivist paradigm where implementation needs to be standardised. If there were any nuances and misconceptions, these could be the idea of coaching in which different supervisors might be differently skilled, and the need to pursue the student voice for the implementation to be considered as a co-creation

process. The implications for practice were clear in this case to be beneficial to work supervisors from their perspective, and the implications for theory were also addressed through a thorough discussion of themes in this chapter. Future directions were available, and these are discussed in sub-section 5.11 in this chapter.

In summary, the considerations for the intervention to be considered "wise" were largely satisfied, notwithstanding the issue of a positivist paradigm for its effects to be "proven". A subjectivist paradigm while not able to provide a single mechanism of explanation, could provide multiple possible explanations instead that could be far richer in content. The idea that each supervisor had to reflect and consider clarity in their own context was also aligned with the understanding of "wise interventions" as resulting from insights drawn from the intervention and a changed behaviour with regards to the supervisors' individual supervision practices.

5.7 Work-Based Learning Coaching as an Emerging Area of Coaching

It was proposed earlier in sub-section 2.10 when the conceptual framework of the thesis was discussed that the framework was built on three distinct disciplines – education, business management and psychology. In the same thread, the idea of work-based learning coaching as an emerging area of coaching was conceived.

Two other areas of coaching that were relevant for this discussion included workplace coaching and academic success coaching.

Coaching at the workplace formed a part of organisation development practices, such as improving factory processes or reducing wastes through training and coaching (Passmore, 2021). Also relevant to transferable skills would be executive coaching for leaders and managers of organisations where the leaders and potential leaders were identified as key stakeholders for the success of an organisation. Unlike the preceding descriptions for coaching at the workplace, coaching students focused on their learning needs more than that of the organisation's needs.

Academic success coaching, on the other hand, stemmed from the university's desire to provide coaching to students to help them be successful at the university, and in some cases career coaching to prepare students for their first job. Some aspects of transferable skills could be developed such as learning techniques and mindsets, time management skills and personal branding for career management. The coaching of students to acquire transferable skills through work-based learning would be an extension to this role. Based on the tripartite model adopted as the conceptual framework for this thesis (see Figure 2.5), the coaching occurring in a work-based learning context could be a combined endeavour performed by the academic supervisor and work supervisor.

As an emerging area of coaching, it is proposed that work-based learning coaching has the following characteristics:

- Based on learning outcomes from the work attachment from both university and work organisation perspectives.

- A clear inclusion of the student voice to craft specific growth areas from the student's perspective.
- Views the role of the work and academic supervisors as coaches, working independently or as a team.

In other words, it was suggested that work-based learning coaching could be different from workplace coaching where the former is person-centred while the latter focuses on the organisational goals. Work-based learning coaching could be seen as a subset of (or overlapping with) academic success coaching or career coaching but places an emphasis on the learner's broader transferable skills while according greater emphasis on the role of the work supervisor through a possible tripartite partnership with the student and the university (e.g., through an academic supervisor).

5.8 Helping Supervisors Become Better

As a pragmatist approach was adopted for this thesis (see sub-section 3.2), this sub-section discusses how this piece of work done with the work supervisors could be a starting point to help work supervisors become better in what they do. For this, reference was taken from a framework for effective supervision that was developed by Dancza et al. (2022) in the field of occupational therapy. The framework suggested the 3Cs of connections, content and continuing development are relevant for work supervisors from any discipline seeking to develop transferable skills in the students that they supervise.

The first C of connections involves forming an impactful supervisor-supervisee relationship that would be empathetic, congruent, accepting and respectful. Empathy involved seeing another person's point of view and the intervention of co-creating learning outcomes would allow this to take place through the encouragement of hearing the student voice. Congruency was about being genuine and authentic, in which the intervention allows the supervisors' experiences and values to be considered in a co-creation process. Acceptance and respect go hand-in-hand in forming a relationship that is built on trust. The co-creation process allows the communication of such expectations from both the supervisor's and supervisee's points of view, including how feedback could be communicated to facilitate the students' learning and growth. In short, the co-creation process as an intervention would already include the elements for meaningful connections to form, and these elements would have to be emphasised when the process was to be introduced to work supervisors.

The second C of content involves the process of "how to do it". While a protocol had been developed as part of this research, there are areas to be clarified. These areas involve the time point when the co-creation process occurs and subsequent follow-up time points as well as clarifying the difference between longer-term learning goals and shorter-term work goals. While the intervention in this thesis has not specified the details and left it to the participants, it was believed that this allowed flexibility in implementation although these decisions might impact the effectiveness of the intervention. The idea of coaching as a supervision style was also mooted in the research and was something most supervisors found challenging compared to a more natural style of mentoring. As a compromise, such areas could have been brought up in

subsequent involvement with supervisors in discussion prior to the implementation to still maintain the flexibility of implementation while having these implementation issues thought through. Regardless, the co-creation process has put in place a structure to an otherwise unstructured manner of learning in a work-based context. Supervisors reported being clearer on their roles and the process facilitated constructive alignment between the learning goals and the subsequent coaching and appraisal activities at work.

The final C of continuing development acknowledged the formative nature of the professional skill of supervision as well as the supervisee's development of transferable skills. As an ongoing endeavour, the follow-up sessions after the initial co-creation process naturally become points of reflection for both the supervisor and supervisee. While the frequency of follow-up might differ, it was observed that those who followed with slightly more formal sessions focussing on the transferable skills development had clearer outcomes as the students were forced to articulate their own growth such as in the case of Charles (case study 3) and Felix (case study 6). At least it was clearer to the students by making it obvious that they have to take ownership of their learning. What was not evident in this research was the reflection that supervisors also went through, although elements of reflection were drawn out through the post-interview questions. While some supervisors had suggested formal training as a means of developing their coaching skills, it could be emphasised that such skills could also be developed through practice on-the-job and regular reflection far more effectively than formal classroom-based courses (Dale & Bell, 1999; Eraut, 2004; Manuti et al., 2015; Marsick & Warkins, K. E, 2001). Where there was interest to pursue formal training, a partnership with the university could be appropriate as discussed in sub-section 5.9 below. It should also not be forgotten that reverse mentoring could result in the supervisor's learning and his or her development as a supervisor, which was Dancza et al (2022)'s intention to have both the supervisor's and supervisee's point of views lumped under the final C of continuing development.

In summary, it was observed that the co-creation process in itself was able to fulfil aspects of the 3Cs of effective supervision. The discussion in this sub-section suggested how some of these elements could be better brought out in the universities' engagement with the work supervisors.

5.9 Closing the Gap between University and Work

The preceding discussion from sub-section 5.5 on the challenges encountered by workplace supervisors, sub-section 5.6 on the possibility of the co-creation process as a wise intervention, sub-section 5.7 on an emerging area of co-operation between the work and academic supervisors, and sub-section 5.8 on how work supervisors could become better would provide much food for thought for this sub-section where the roles of the university and the workplace partner are discussed in respect to the holistic development of the student in the work-based learning context. This discussion fulfils the greater objective of the thesis to contribute to closing the gap between university and work.

It was established previously (see sub-section 2.3) that the university has a role to play in the development of talent for the workplace. It was also argued that this role was also aligned to

the university's desire to educate and develop the minds of the learners. This role was also seen in the light of a university's relationship with industry and its contribution to a country's economic progress (see sub-section 2.5).

It was quite clear that the classroom and the workplace are two distinct environments that transferable skills sought to bridge. Saunders & Machell (2000) described work-based learning as a rehearsal for real work when the students graduate. Hence, the design of work-based learning is crucial (see sub-section 2.4). As pointed out by some participants, appreciating an analogy between work-based learning (where student learning goals were set and assessed) and work performance management (where work goals were set and appraised) is helpful.

This discussion uses a conceptual framework (see Figure 2.6) based on the tripartite relationship between the student, workplace supervisor and academic supervisor. The conceptual framework postulated that both the student and workplace supervisor come with their personal values and motivations, which made the process of co-creating of learning outcomes a process that involved the coming together of minds.

As the thesis was based on the work supervisor's perspective, their roles were discussed first. As developers of people, work supervisors' roles could be summarised as:

- Work curriculum designers (to provide opportunities for transferable skills development).
- Coaches and mentors (to guide students).
- Appraisers (to provide formative feedback to students).

This was very much in line with the constructive alignment analogy previously presented in Figure 2.4. The subsequent paragraphs elaborate these three roles further.

Work supervisors as work curriculum designers were evident in inputs provided by the participants. Some examples include assigning work where the transferable skills can be picked up, scheduling review sessions on a regular basis to follow-up on progress, providing resources for the students' self-learning and linking to other colleagues who could mentor the students. The last example about the involvement of other stakeholders in the organisation that could influence the students' development of their transferable skills was one that extended beyond what a single work supervisor might offer, but a shift to thinking about what the entire organisation might offer the student in terms of their learning and development.

Supervisors fed back that one of the benefits of using the co-creation process was that they could make plans more clearly for the students' learning, reflecting an increased clarity in their roles as curriculum designers although the term was never used given that work supervisors were not familiar with terms used in education settings. Subconsciously, they were playing the role of curriculum designers and applying constructive alignment to make these learning opportunities link back to the co-created learning outcomes.

The role of work supervisors as coaches and mentors was a key theme in this study forming the coaching-mentoring continuum described by Downey (2014). Sub-section 5.3 discussed the various coaching and mentoring styles which the work supervisors were engaged in, and that very much depended on their personality, values, and the company culture. The co-creation process had placed a greater focus on their roles as coaches, but work supervisors also pointed

out that either coaching or mentoring could work in different situations. Even those who had tendencies to a more directive approach found themselves equally effective in their role. The co-creation intervention only served to create awareness for a more student-centric approach. The idea of work supervisors as coaches also operated on a more psychological level to provide the needed motivation to keep students focused on their goals.

Work supervisors as appraisers was instituted in the work-based learning process in this study as work supervisors were required to provide both formative and summative assessment formally to the university. However, this was not the only appraisal being carried out by the work supervisors. From the participants' responses, there were also instances of formative assessment being made informally through follow-up review sessions and daily interactions with the students. These were in terms of giving feedback to students, affirming work that was well done and reflecting with the students on areas of improvement. Again, the co-creation process facilitated the constructive alignment of the appraisal with the earlier goals set.

The responses provided by each supervisor were unique in how these roles were played out and demonstrated their personal values in action while dealing with the students' learning including its challenges. While work supervisors placed importance on the development of transferable skills, conflicting challenges could make way for other priorities, such as getting work done. The use of either a coaching or mentoring approach could also be an issue of personal values when it comes to making judgement about people, in this case, the students that they worked with.

This is where the role of the student can be discussed next in the tripartite framework. While the obvious role was to complete the work-based learning experience as part of the university requirement, there was an implicit role for the student to also take ownership of their learning and development. Based on the observations of the workplace supervisors, students might be at different stages of their maturity depending on whether they had previously given adequate thought to their own long-term career goals and aspirations and had a fair assessment of where the learning gaps were. In Case Study 3, Charles had four students under his care, students who previously had work experience were more likely to display such maturity compared to students who had yet to experience what real work was like. In this respect, the co-creation mechanism would be a way to kick-start the long-term planning and reflection with the guidance of the work supervisors. At this point, it is important to point out that the reflection was not just limited to the first meeting where the co-created goals were set, but also subsequent meetings where the goals were referred to again and again. The feedback from the supervisors was also instrumental in helping the students make connections between the set goals and their personal development, prompting further reflection and increasing their maturity in taking ownership of their own learning. In short, the role of the students was to reflect and take ownership of their own development of transferable skills.

A discussion of the tripartite model would not be complete without looking at the role of the university, in this case represented by an academic supervisor at the micro level. In this study, the university had assigned academic supervisors who were teaching staff of the university to be touch-points for the student and the work-supervisors. While this practice was common, the role of the academic supervisor might have been articulated differently in different work-based learning contexts. Nevertheless, for the tripartite model to be effective, the role of the academic supervisor would have to be clarified.

As a study from the perspective of workplace supervisors, some clues on the role of the academic supervisor may be found from the participants' responses. One key idea from the co-creation of learning outcomes was the source of them. In sub-section 2.6, it was proposed that they could be derived from the work supervisor's experience and values, the company's goals and values, the students' own motivation and abilities, and the university graduate attributes. Of these, the first two were natural considerations from the work supervisors while the students derived learning outcomes from the remaining two. While the student might be clear of his or her own motivation and abilities, the link to the university graduate attributes would be a longer-term goal that might not have resonated with students, especially those who were less mature as we discussed in the earlier discussion on student maturity. This is where the academic supervisor could play a role to remind both the work supervisor and the student on the university's vision of the ideal graduate and how the work-based learning experience could help build towards these ideals. It would be reasonable to envision that this would take place prior to the student reporting to the company, or minimally in the initial weeks of the work attachment. Having the additional inputs from the academic supervisor would facilitate the co-creation process to take the university's position into stronger consideration, where appropriate.

The academic supervisors' touch points with the student and work supervisor during the work-based learning experience would be described as more discrete, compared to the continuous engagement the work supervisors have with the students. This would make the touch points important instances where the university's role would play out. As suggested by the workplace supervisors during the interviews, these could range from involving the academic supervisor in formal presentations by the student, alignment with university required deliverables such as work-based projects, to being a resource for training in teaching concepts and coaching skills. The last point was echoed by work supervisors who had the desire to become better work supervisors and the university could play the role of equipping work supervisors with the needed supervisory skills.

Referring to the analogy between university curriculum design, and the work-based learning curriculum design (see Figure 2.4), the commonality between both could be a starting point for the engagement between the university and the industry. A tighter working relationship between the academic supervisor and the workplace supervisor would be a key to closing the gap between university and work. This is notwithstanding the coaching opportunities that the academic supervisor could have with the student prior, during and after the work attachment. The gap between university and work might also not be a wide one, considering that some work supervisors had pointed out the similarities between the co-creation process and the work appraisal process that was practised in their respective organisations.

In summary, the tripartite model envisioned in the Literature Review chapter (see Figure 2.6) would be an excellent way to explore closer links between the industry and the university. This sub-section discussed the possible roles of the work supervisor and the university's academic supervisor, as well as that of the student, as the model is ultimately a student-centric one – one that helps him or her close the gap between university and work.

5.10 Limitations of the Current Research

A discussion of the current research would not have been complete without a critical evaluation of its limitations. This was also to acknowledge that as a PhD study of a limited duration, as undertaken by a single researcher, there were areas that were not ideal. This sub-section attempts to point out the limitations and suggest how further research might be carried out by other researchers interested in this area (see also sub-section 5.11).

The first issue to be discussed as a limitation of the study was the number of participants. A small number of participants might invite questions on the validity of any conclusions that were derived. From a subjectivist point of view, I adopted the view that each case study had its unique circumstances, and each perspective was equally valid. The idea of cross-case themes brought out discussions on points that were common across two or more case studies. While some sense of data saturation had occurred with the repetition of major themes, such as the challenges of coaching, it was nevertheless acknowledged that new minor themes might still arise through recruiting more participants. However, in the limitation of time and resources, the numbers were sufficient for a PhD thesis with a conclusion that could still contribute to the knowledge base of research into an emerging area of work-based learning coaching, particularly in a less-researched perspective from work supervisors. It was further noted that participants represented a reasonable spectrum of work supervisors in various technical fields, of varying work and supervision experience, and coming from different personal backgrounds and values.

The second limitation of the research concerned is how participants were recruited. As the participants were volunteers with little to gain from participation, there could be self-selection bias in that these participants might be work supervisors who were reasonably motivated to reflect and improve on their supervision skills. Such motivation might influence the intervention towards more positive outcomes. Yet despite that, it was quite clear that there were challenges encountered as part of the intervention even while the benefits were also achieved. The different backgrounds also uncovered different motivations for the success of the intervention and perspectives of their roles as work supervisors. An added advantage of any motivated participant was that there was no dropping out of participation with every participant willing to follow through the intervention and the post-intervention interview.

A final limitation to be discussed concerns the Asian context in which the study took place, specifically that of a Singapore environment and a single university context. While that could limit the generalisability of the research conclusions, the perspective from a Singaporean and applied university would fill in gaps in work-based learning research that are apparently dominated by European and North American research. The Singapore context could be described as a more fast-paced and stressful environment where supervisors care more about the company's financial bottom-line, and learners are more used to following instructions to achieve good grades. While these characteristics cannot be generalised to all work supervisors and all learners in Singapore, they are also characteristics not solely limited to Singapore. The influence of the local context on this research could hopefully provide a view in which universities in similar contexts might find insights.

5.11 Opportunities for Further Research

There are undoubtedly further research opportunities that might arise from this study. It is attempted hereby to list some of these opportunities in this sub-section.

The effect of culture and values on the process of co-creating learning outcomes was evident. Exactly what these influences are can be a source of further research, such as global and national agenda, company and university vision and mission, work supervisors' and learners' personal values, just to name some of the influences.

The coaching-mentoring continuum as a model for supervision can provide further insights to how work supervisors operate within this continuum. For example, data can be collected to identify instances where supervisors act in a more directive manner (as a mentor) or a less directive manner (as a coach), perhaps even correlating with their own personal values and experiences.

While this study focussed on the work supervisors' perspectives, there are other perspectives based on the tripartite model, namely the learners' perspective and that of the academic supervisors. Having different perspectives being explored might provide a more holistic evaluation of the co-creation process and allowed data to be triangulated and validated.

Chapter 6: Conclusion

This thesis set out to uncover the perspectives of workplace supervisors in developing transferable skills in the students that they supervised as part of a university work-based learning programme. More specifically, the research questions revolved around an intervention of co-creation of workplace learning outcomes with the students.

It was expected that the co-creation process would result in an increased clarity of the developmental process and meaning of the participants' role as workplace supervisors. Clarity could be manifested in the way they understood their role either as a coach or a mentor to the students, or in the way they constructively aligned subsequent learning opportunities and appraisal to the learning outcomes, very much analogous to the manner in which curriculum design in the university followed a backward design principle.

Based on case studies of nine workplace supervisors, each with their own unique context, pre- and post-intervention interviews were conducted to draw out themes to support the increased clarity that work supervisors have of their role and the supervision process. It was found that clarity was evident in an increased awareness of how the workplace learning outcomes could be derived and referred to for planning and appraisal, as well as the role that work supervisors could play to further draw out the student voice in a coaching process. Depending on the unique context in each case study, the workplace supervisors also mentioned benefits and challenges in the coaching process.

As a result of the intervention, participants observed increased motivation in the students and hence, a higher level of satisfaction as work supervisors. These benefits stemmed from a single act of co-creating learning outcomes which produced ripple effects from subsequent follow-up conversations with the students, many of which are coaching conversations that tended to draw out responses from the students rather than being directive in approach. Hence, we could classify the co-creation process as a "wise" intervention as suggested by Walton and Wilson (2018). In this respect, further work could be done through potential interviews with the students to generate a corresponding set of triangulated data.

Key challenges to coaching were also brought up by participants. A relevant factor was the personal values and experiences of the supervisor in using a coaching approach. Actively seeking out the student voice was not something that came naturally to some work supervisors, while other supervisors found coaching a time-consuming process in the light of other priorities that had higher urgency to get done. Nevertheless, participants were clear about the important role that they played, especially when it came to transferable skills which they too deemed as important as long-term development for the students. Further research was also suggested in the areas of exploring the coaching-mentoring continuum and the effect of culture on a coaching approach.

In summary, the answers to the research questions posed (see sub-section 1.5) were as follows:

- On research question 1, it was thought that the process of co-creating work-based learning outcomes did provide clarity to the work supervisors on both their role in

developing transferable skills in the students that they supervised, and the supervision process at large. While clarity might appear differently in the context of each supervisor, the intervention made the supervisors reflect on their role in relation to what they heard from the student. Constructive alignment between the learning outcomes and the final appraisal of the students was also more evident.

- On research question 2, benefits and challenges were varied based on each supervisor's context. Some described the benefits in terms of a greater sense of satisfaction observing the students' growth while others saw more connectedness with the student when rapport was being built. The idea of gift exchange was evident in cases where students came up with better ideas of doing things and the supervisor experienced learning to be a better coach. The challenges did reveal aspects where the university could partner work supervisors to coach the students regardless of the level of their coaching expertise, the specific organisational and larger context of culture in Singapore.

Justifying the study and its contribution to knowledge

- The process of co-creating learning outcomes with students was found to accord greater clarity in the work supervisors in terms of their roles and the supervision process. In this respect, it was a wise intervention.
- The success of the intervention requires further work in understanding the challenges faced by the work supervisors in terms of coaching the students to draw out the student voice. This work would be key given that transferable skills were deemed as important for career success.
- The contribution of knowledge in the areas of positive psychology, human resource development and work-based learning curriculum design. Also, specifically in defining an emerging area of work-based learning coaching.

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