INSTITUTE FOR ADULT LEARNING SINGAPORE

Developing Future-Oriented Pedagogical Practices in the TAE Sector

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Date: Oct 2023

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This publication should be attributed as Institute for Adult Learning (2023). ***Developing Future-Oriented Pedagogical Practices in the TAE Sector*** by Helen BOUND, Ilona MURPHY, Shannon CHAN, Michael CHOY and Fadhil MOHAMED.

With Acknowledgements of Renee TAN, Priscilla PANG, Chia ying, Dr Kim Yong Sek (visiting Research Fellow) for the contributions and guidance from the advisory panel members:

Emeritus Professor Anne Edwards
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RD-2023-01

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Acronyms

AE	Adult Educator
AI	Artificial Intelligence
ALC	Adult Learning Collaboratory
BC	Boundary Crossing
CD	Curriculum Designer
CIQ	Critical Incident Questionnaire
DK	Distributed Knowledge
DGK	Dynamic Generative Knowledge
FOPP	Future Oriented Pedagogical Practices
IAL	Institute for Adult Education
IHL	Institutes of Higher Learning
PP	Pedagogical Practices
QA	Quality Assurance
RK	Reproducing Knowing
SSG	SkillsFuture Singapore
TAE	Teaching and Adult Education
TP	Training Provider
WSQ	Workforce Skills Qualifications

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Terminology in this report

Educator: refers to a range of roles in different contexts. In an enterprise, or industry setting for example, we use the term educator to refer to anyone who is supporting the learning of others. These may be a supervisor, an expert other, a designated mentor or coach. In educational institutions and private training providers 'educator' includes those who are variously called trainer, lecturer, facilitator, guide and so on.

Pedagogy: Current dictionary definitions commonly define pedagogy as the method and practice of teaching. The original meaning comes from the Greek paidos "boy, child" plus agogos "leader" (https://www.vocabulary.com/dictionary/pedagogy). However, for many decades now, pedagogy refers not just to the teaching of children but to teaching of groups and individuals of any age. We use pedagogy to refer to the interactions and relations between educator and learner(s), the space, artefacts and intent.

Practices The term practices can be confusing as there are many ways in which it is used, for example, practice theory, practice-based education, to practice a skill, e.g. piano practice. In this study we use the term practices as in practice theory. The plural – practices – as in the title of our project, assumes there are "associations of practices" (Nicolini, 2017, p.102), variously referred to as assemblages of practices, bundles, nexuses, knots of practice, ecology.

Schatzki (2012) sums up practices as the "doings, sayings and relatings around here" (p.x). Around here implies a situated context. Doings, sayings and relatings indicate a relational understanding being brought to bear on activities in situated context. Doings, sayings and relatings are inherent in what Nicolini (2017) describes as "a chain, sequence or combination of performances plus their relationships – what keeps them connected in space and time." (p.101). Nicolini notes that what happens here and now is inextricably linked to what is happening in another 'here and now' or what has happened in a here and now' in the past. He uses the metaphor of rhizomatic sensitivity, bringing attention not only to associations of practices as a living connection of performances, but to how practices grow, expand and "conquer new territory" (p.102).

This is important as a practice theory approach is about more than what happens in a situated context; what happens in that context is inextricably connected to what happens beyond the practice and what has happened historically.

Core to observing practices is performances, evident in the doings, says and relatings, the materiality of the practice(s) and the relations between these in space and time. Practices are evident in language (e.g. specialist vocabulary, discourses (e.g. 'we cannot change the curriculum', because the funding body says so), the stories, myths, ways of talking (e.g. the processes of educators' initiation, learners' responses, educators' feedback (IRF).), in artefacts (e.g. table arrangements, white boards, mentimetre, etc.), and spaces. Spaces includes not only the physical space and its arrangement but, the material, cultural, the atmosphere (Reckwitz, 2017). Reckwitz (2017) also draws attention to the senses and the affective or emotional aspects of learning. Capturing how artefacts, language and spaces are used (e.g. how people move around in the space, emotional responses such as excitement, boredom etc.) and the interactions and relations between these, enables us to 'see' power relations; how sense-making is enacted (e.g. by the adult educator); the capabilities of those involved; how capabilities and sense-making are grown, evolve, reinforced; what are normative forces, and so on.

Pedagogical practices Pedagogical practices are what creates and enables learners' learning experience, be it in a workplace, online in a laboratory setting or a classroom of lecture hall. The

creation and enactment is mediated by institutional, system and individual epistemological beliefs, the learning spaces and how different learning spaces are crossed, cultures of learning, policies, individual and system competences and discourses. Pedagogical practices involve more than an individual educator. Why? Because the educator's beliefs, experiences, design, and decision-making are mediated by the systems they work within. That is, using the term pedagogical practices, allows us to understand what is influencing, mediating the educator's beliefs, decision-making, design and enacting of learning design to create learning experiences and outcomes for their learners.

1. Introduction

1.1 Why a project on future-oriented pedagogical practices?

What kind of learning we want and the pedagogical practices to support that learning, needs to begin with big questions about "What kind of society do we want, how can it be realised sustainably, and what models of learning will serve us best?" (James, Sadik & Brown, 2017, p. 15). When we think about the now, and the future of learning we get to questions such as, "What sort of learning might support citizens in this changing landscape, what might enhance their understanding of such social change, and what could assist them with not just surviving but thriving in new and emerging contexts?" (Bound, et al 2020). Our responses to these bigger questions indelibly shape the pedagogical practices used in any setting.

There is no shortage of literature claiming the need for a focus on the future of teaching and learning to develop learners' capabilities for their futures (Misko, 2020; Guthrie & Waters, 2022; Wheelahan, Moodie & Doughney, 2022; Kemmis, 2021; Strydom, 2021; Avcı, 2021; UNESCO, 2021). Triggers for this call for fundamental shifts in pedagogical practices and education include: the increasing acceleration in the pace of technological change requiring people to learn through life in order to keep abreast of not only technological changes, but the impact it has on jobs, and work-life balance; the impact of climate change and transition towards a green economy; the need to address growing inequalities, and injustices locally and globally, (James, Sadik & Brown, 2022; UNESCO, 2021); the shifting landscapes between labour markets and education (James et al., 2022); and of course pandemics, and geopolitical tensions that impact on supply and logistics across the world that exacerbates existing inequalities.

This focus on change has seen a plethora of terminology: "future thinking", "future proofing", and even "foresight" (Bound, Tan & Lim, 2022). Steinberg et al (2009) for example, explain such terms as referring to the extent that individuals think about their future, anticipate future consequences, and set goals toward their aspired states. Such terminology and their accompanying discourse are connected to "trends" and an anticipation of a certain future arising from these trends. This is a common approach used in the business and technology literature (Ramiel & Dishon,2021). These discourses often reflect a deterministic approach to the future, that is that the future will be determined by, for example, technology, or 'inevitable changes in work and so on. Deterministic approaches result in calls for adaptivity, particularly for individuals but also for businesses (Ramiel & Dishon, 2021). They also call for innovation, but often within a rational, economic and instrumentalist framework. However, these deterministic approaches are the antithesis of our argument for people to be future-oriented.

However, the discourses used to capture these capabilities often position people as having deficits, rather than valuing what they already bring to learning situations. Terms such as future-skills (e.g. Voß & Pawlowski, 2019), "future smart" (e.g. OCBC, 2018), and 'future-proofing (e.g. SSG?) have entered the lexicon. Terminology and groups of skills, such as 21st century skills, future-ready skills, have entered the lexicon and are touted as the means to equip a nation's people for the future. The issue when examining those approaches is not about any lists of 'skills' that people need but rather the question, toward what end? Their aim of ensuring that people can 'adapt' to the future suggests that people are 'adapting' to for example, corporate needs that may not align with personal values and societal and global needs, or government economic agendas that position workers as economic cogs. The language of adaptation suggests that people have limited agency in contributing to, and/or creating their own futures and that of the societies they live and work in.

In this study, we take a different approach. We understand the future, not as an inevitable result of some phenomena such as technology, but as being shaped by collective and individual human agency. This is a position of hope, moving away from fears of what is to come, to informing, shaping, and directing what is to come. We use the term, 'future-oriented' to signify that this is a journey without end; we are always growing and becoming, both individually and collectively. We use a lens that highlights the "increasing recognition that future orientation powerfully shapes, and is shaped by identity formation and transitions, and deeply embedded within socio-cultural and historical contexts (Ronkainen & Ryba, 2018; Seginer, 2009)" (Bound et al, p.21). While we have no dispute with the claim that future-orientation is evident in the actions of individuals it is also manifest in the actions of collectives, organisations (such as training providers) systems, discourses, and policies. This is acknowledged in the 2021 UNESCO publication, Reimagining our futures together: A new social contract for education.

"Our inner lives influence our environments, and at the same time are deeply affected by them" UNESCO, 2021, p.51). UNESCO calls for a new social contract for education where pedagogical practices centre on learners and their contexts.

Reimagining the future together calls for pedagogies that foster cooperation and solidarity. How we learn must be determined by why and what we learn. A foundational commitment to teaching and advancing human rights means that we must respect the rights of the learner. We must create occasions for people to learn from one another and value one another across all lines of difference whether of gender, religion, race, sexual identity, social class, disability, nationality, etc. Respecting the dignity of people means teaching them to think for themselves, not what or how to think. This means creating opportunities for students to discover their own sense of purpose and to determine what will be a flourishing life for them. At the same time, we collectively need to build a world where such lives can be realized and this means collaborating to build capacities to improve the world. (UNECSO, 2021, p.50)

We, the authors, position future-oriented, in future-oriented pedagogical practices, as that *which promotes human dignity, enables learners to flourish in and contribute to just societies, to be empowered to act individually and collectively to improve their own lives and those of others in emerging, as yet unknown circumstances*. Future-oriented pedagogical practices should promote for example, the spirit of learning, curiosity, an ability to critically question, and embody growth that enables future flourishing for individuals and collectives. Further, given that pedagogical practices are relational, future-oriented pedagogical practices must also attend to the transforming of organisational and learning structures. Changing practices requires changing not only the actions of individual learners and educators, but also requires making changes in the social, discursive and historical dimensions in which practices are constituted and reconstituted, as they evolve over time (Kemmis, 2005, p.393). What is means to transform organizational, learning structures, cultures and systems will be addressed in Chapters 3 and 6.

Some may label calls such as ours, and that of UNESCO (2021) as demonstrating lofty ideals. If we do no more than make such statements, then that is all they will ever be. To move such ideals to become reality is indeed a challenge and one we address in this report. The framework and related change processes for creating future-oriented pedagogical practices that we shall offer address UNESCO's call to "continually recast" pedagogical practices "in the light of exigencies of the present and the future" (2021, p.50).

1.2 Background: the TAE sector in Singapore

There is certainly a recognition in Singapore of the need for the forward-looking approach that we shall offer. Yet, as we shall reveal, the challenges include established systems of funding and assessment that mediate the planning, delivery and evaluation of programmes. Singapore's TAE sector, sometimes referred to as Continuing Education and Training (CET), refers to educational provision for working adults. In Singapore, adult education has always been inextricably linked to the notion of lifelong learning, largely conceived of as training (Bound & Chen, 2022). The TAE sector is positioned as core to Singapore continuing to have a strong, advanced economy (ibid). A key plank is what the government has coined, The SkillsFuture Movement, the intent of which is to develop people to their "fullest potential throughout life, regardless of their starting points" as part of "driving Singapore's next phase of development towards an advanced economy and inclusive society" (SkillsFuture Singapore, no date). Since this statement posted on the SkillsFuture Singapore web site, there is now a greater sense of urgency, as expressed by Minister Chan Chun Sing in his opening of the SkillsFuture Festival this year (2023).

> With frequent tech disruptions, shortened half-life of skills and knowledge, and new job roles emerging everyday - our workforce must retool, at scale and at speed. And in the current fragmenting world, upskilling or reskilling to ensure our people's relevance and Singapore's competitiveness becomes more important than ever before. … First, our ecosystem has to be more agile and responsive to the needs of the individuals and enterprises… (Minister Chan Chun Sing, 2023)

The up-skilling, reskilling discourse in Singapore, is pervasive. It is supported by generous funding provisions for Workforce Skills Qualifications (WSQ) and non WSQ training. The sector has grown up on WSQ whichare competency-based, supported by over 23 industry Skills Frameworks that set out the knowledge, abilities, and career pathways in each of the sectors. Many Skills Frameworks were redeveloped just before COVID, with the intent to lessen the emphasis on discrete tasks and skills that had been in the previous standards. Review of these Frameworks is soon to begin again. There have been claims that the Frameworks do not reflect the needs of industry, are out of date and are restrictive and prescriptive (see for example, Bi, Bound, Mohemad, Cai, & Chuen, 2019; and findings from the present study).

The myriad of generously funded programmes and initiatives are targeted at different stakeholders, including initiatives such as education and career guidance, a one-stop online portal, and enhanced internships for youth, and for adult learners, SkillsFuture Credit and mid-career subsidies for course fees. The 23 Skills Frameworks are resources for enterprises and TAE sector providers; the list of initiatives includes SkillsFuture Enterprise Credits; iN.LEARN 2020 (Innovative Learning 2020) for training providers to enhance blended learning; and the Skills Framework for the Training and Adult Education sector. At the opening of the 2023 Skills Future Festival Minister Chan Chun Sing proudly reported that in 2022 some 560,000 Singaporeans and 20,000 enterprises participated in SkillsFuture Singapore (SSG)-supported programmes.

The 1000 or so training providers (Minister of State for Education Ms Gan Siow Huang, 2023) include private for-profit training providers, and CET centres in the Institutes for Higher Learning (IHLs), namely Polytechnics and public and private universities. Recent shifts in policy to direct greater provision to IHLs as a means of increasing the quality of provision, sees the number of providers continuing to drop. Adult educators in Singapore are a major part of the work force. Their roles include any, or various combinations of, learning facilitator, assessor, courseware developer, learning technology designer, learning consultant/learning solutionist, curriculum lead (SkillsFuture, 2018).

In their survey of the TAE Landscape study, Chen, Ramos, Puah & Cheng (2020) report that close to 95% of the training provider respondents are small-medium enterprises with less than 200 employees. Almost half (46%) of these had less than 10 employees. These authors also note that training providers, including the IHLs, engage and largely rely on adjunct (elsewhere known as associate, casual, short-term contract or, freelance) adult educators (AEs). Only about 40% of AEs were employed on a permanent basis. Their study found that the TAE workforce is generally well qualified in terms of academic qualifications not related to pedagogy. Over 80% have at least degree or above qualifications. As for training qualifications, 83% have at least one WSQ training qualification or equivalent. As the Advanced Certificate level, now called the ACLP is required to teach WSQ courses it is seen as foundational even for those who do not deliver WSQ. This workforce is also quite experienced with at least half of them having more than five years of work in the TAE sector, and more than 80% of AEs have experience working in a sector other than the TAE. At the time of data collection, only 1 in 3 AEs still hold an industry position outside the TAE sector (ibid). Historically, the work of adult educators was segregated into that of a trainer, or a curriculum designer, or an assessor. In recent years there has been considerable aggregation of these roles, that are more reflective of educators in IHLs.

Curriculum design processes have been and continue to be accredited by the Quality Management Division of SSG. Funding to providers follows from gaining approval of the curriculum. Historically, the requirements were very strict and onerous, but as the TAE sector has matured, SSG has sought to give greater control and autonomy to the providers (Bound & Chen, 2022). Assessment practices in WSQ courses focus heavily on summative assessment through standard activities such as multiple-choice questions, short answer questions, roles plays and one on one oral questioning. Funding to providers requires that all participants are deemed competent, that is that all participants pass in order for funding to flow to the provider.

Over a decade of studies in the TAE sector indicates that the variety of teaching and learning strategies used is increasing, and that there is innovative design and enactment of design. However, these same studies also indicate that the dominant pedagogical practices are trainer and content centred (see for example, Bi et al, 2019; Bound, Chia & Karmel, 2016; Stack & Bound, 2012; Bound & Lin, 2011). Given the dynamically changing landscape of work and labour markets, these more traditional approaches do not meet current and future needs of Singapore's workforce. Hence, the need for this project on developing future-oriented pedagogical practices in the TAE sector.

1.3 The Research Project

As we write the team of researchers working on this project have already been called on in multiple ways to apply what we were learning and developing through the research. This is an exciting development and has enabled us to nuance our offering of the Future-oriented Pedagogical Practices (FoPPs) Framework and change processes developed to meet the project objectives.

Our intent in undertaking this research is to develop and uncover how the TAE sector can move towards teaching, and learning enables our learners to thrive in changing circumstances. Our objectives are to:

- Develop a framework for future-oriented pedagogical practices
- Develop change processes for individual Adult Educators and systems (training providers, institutions, and policy)

1.4 Methodology

This study adopted a mixed methods approach and draws upon different qualitative and quantitative approaches to examine current pedagogical practices and analyse the factors within Singapore's TAE ecosystem that enable these practices. The research team observed and captured experiences of learning and teaching in five industries: business and finance, food and beverage, healthcare, manufacturing, the TAE sector, and the ed-tech sector.

Mixed Methods Approach

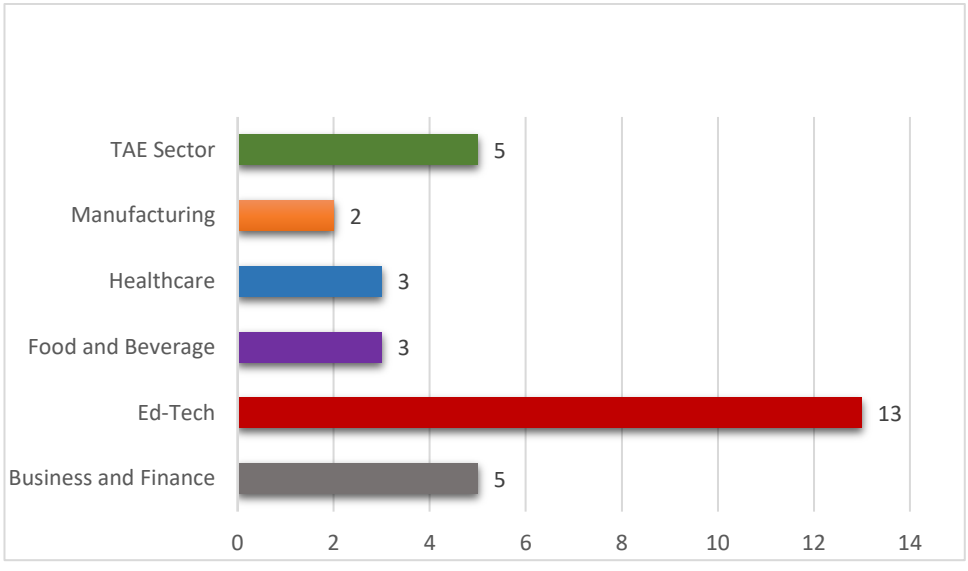
The mixed methods approach we have taken offers a broad view of the TAE system and provides a sound platform to initiate a system change (Strijker et al., 2020). This approach also lends itself to providing rich descriptive data that captures:

- the learners' actual learning experiences,
- the perspectives of the adult educators on the lessons they conduct,
- the thoughts of curriculum developers when designing curricula,
- the understandings of quality assurance managers when evaluating courses, and
- the visions of the heads of the training departments in various training organisations and IHLs (See Fig 1).

In addition, the thoughts and experiences of academic and industry experts were captured through academic panel discussions (2 meetings with the whole panel plus 3 meetings with selected panel members) and two reference group discussions. A survey was also administered to 800 adult educators in the TAE sector focusing on beliefs and practices.

The analysis of the qualitative data gathered from 6 different sectors (see fig. 1) through interviews, dialogue sessions, observations, and curriculum documents (see fig 2), allowed the research team to move beyond the rich descriptions. The analyses revealed what mediated and shaped pedagogical practices. The survey data were then used to check the validity of the findings from analyses of the qualitative data.

Figure 1: Number of Organizations by Sectors



Research participants

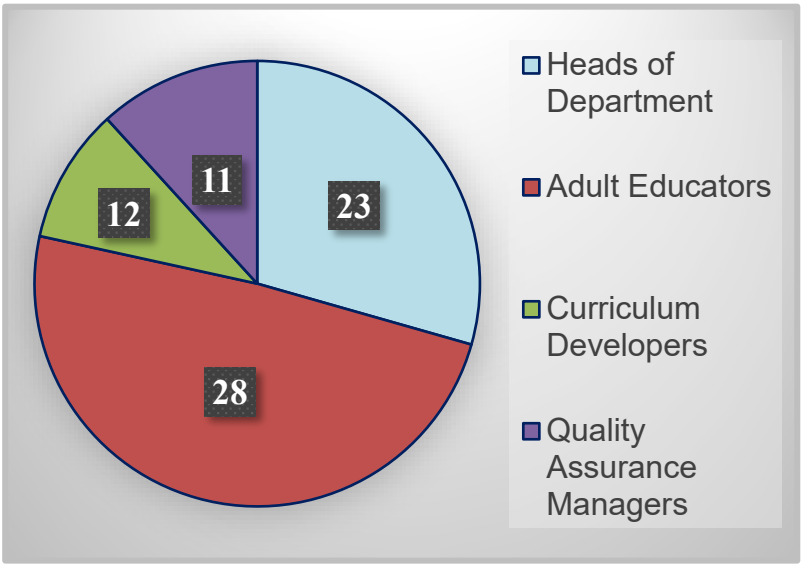
The researchers worked with adult educators andtraining providers, and observed lessons by training providers (see Fig 1, Fig 2, and Fig 3) delivering programme(s) across 6 industry sectors (Ed-tech, healthcare, F&B, Finance, Manufacturing, and the TAE sector). The training providers from these industry sectors include IHLs and private training organisations that offer training courses (both WSQ and non-WSQ) training. 45 interviews were conducted with the different stakeholders in the five different industries and 20 observations (See Fig 3) were carried out capturing between two hours to a full day of teaching (see Fig 3). In addition to the survey with educators, Brookfield's Critical Incident Questionnaire (CIQ) (Brookfield, 2005) was administered to the learners after the lessons in 13 of the courses observed to gather learners' perspectives on the lesson they had just completed. The questions from the CIQ questionnaire are:

1. At what moment in class did you feel most engaged with what was happening?
2. At what moment in class were you most distanced from what was happening?
3. What action that anyone (teacher or student) took this weekend did you find most affirming and helpful?
4. What action that anyone took this weekend did you find most puzzling or confusing?
5. What about the class this surprised you the most? (This could be about your own reactions to what went on, something that someone did, or anything else that occurs to you).

The responses from the CIQ questionnaire were analysed to reveal common themes.

While every effort was made to ensure that the team worked with participants across a range of roles, backgrounds, and industries and in a variety of situations, this was not always possible to achieve asccess was reliant on consent from participants. For example, one limitation of the data is the lack of observations in workplace settings as these were impossible to arrange within the time-frame of the study..

Figure 2: Qualitative Data Sources



This research study sought to include relevant examples across different types of key industries requiring contrasting skill sets, all of which are vital contributors to Singapore's economic wellbeing and employment needs (Qua et al., 2021;).

The reasons for the selection of the industries examined in this study are as follows.:

a) An other core industry sector in Singapore is the healthcare industry. Singapore has an ageing population, confronted with rising chronic diseases, and escalating healthcare costs resulting in a complex healthcare landscape with critical needs (Lim et al., 2017).

b) Food Industry Asia (2023) reported that Singapore's food and beverage industry contributes an estimated S$14.4 billion (US$10.6bn) to its GDP and employs nearly 300,000 people which makes it a significant contributor to the economy.

c) The manufacturing industry accounts for approximately 20 percent of Singapore's GDP, is an important cornerstone for the economy, and sustains Singapore's competitiveness in Industry 4.0 (Medina, 2022).

d) Singapore offers financial institutions and FinTechs a pro-business environment, excellent infrastructure, international connectivity, as well as a highly skilled, cosmopolitan labour force (Chow & Pei, 2018). In 2021, the sectors that contributed the most to Singapore's growth were the manufacturing and finance & insurance sectors (Ministry of Trade and Industry 2022). The business and finance sector in Singapore plays a pivotal role in maintaining Singapore's reputation as a trade hub and financial centre (Ministry of Trade and Industry 2022).

e) The ed-tech industry in Singapore is key to Singapore's economic and technological progress. Singapore is considered to be the digital capital of Asia and is the preferred location for ICT firms and MNCs (Neo et al., 2023). Singapore's ed-tech sector supports a vibrant ecosystem in supporting the TAE sector and digitalisation efforts in many organizations and training providers (Leow et al., 2023).

f) As the TAE sector is the major target of the recommendations arising from this study, we included educators, training providers, including IHLs, from this sector. This sector plays a critical role in responding to a comprehensive sets of needs in Singapore, from the industry, the workforce, and the society (Chen et al, 2021). The rapid growth in Asia, the evolving nature of work, the pandemic, as well as the challenges and opportunities related to globalisation have led to increased need for both skills upgrading and the development of new skills to drive industry competitiveness (Rotatori et al., 2021). This is supported by a rise of interest in adult training and professional learning from both the demand and supply sides (OECD, 2019).

The range of sectors provides a broad base to understanding how and what pedagogical practices are used in these industries in Singapore, and identify changes needed to contribute to enabling the workforce develop the required expertise to prepare for with a focus on the structure of the lesson and the pedagogical strategies used in them. Semi-structured interviews, observations of lessons, dialogue sessions, and a document analysis of relevant curriculum documents and materials were used to understand the different pedagogical practices used in these industries and how factors within Singapore's ecosystem influenced the type of pedagogies used. To to check the reliability of the data gathered in this way, adult educators, learners, curriculum designers and, where possible, quality assurance managers and heads of departments were also interviewed. The intention was to gather their views on learners' learning experiences, as well as the pedagogical practices used. They were also asked to share their thoughts on the rationales for the curriculum design, course delivery, and the learning support provided. The data collected are illustrated in figure 3. The number of participants involved in the dialogue sessions is shown in figure 4.

Figure 3: Data Collected

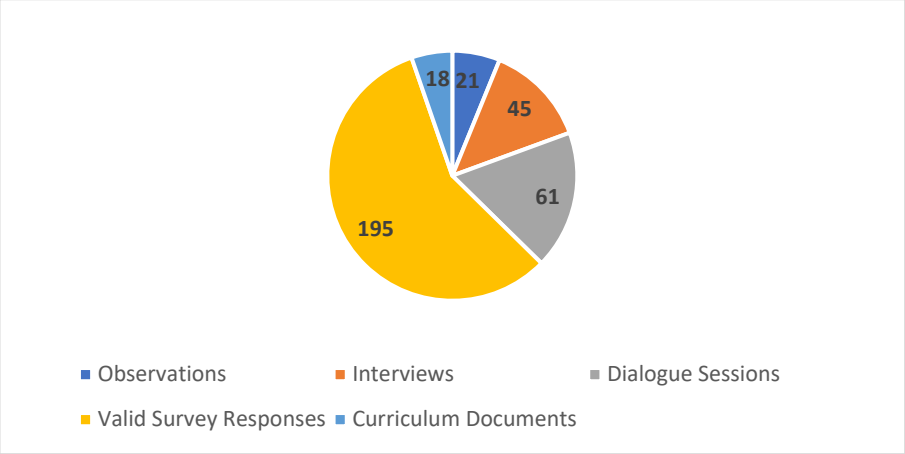
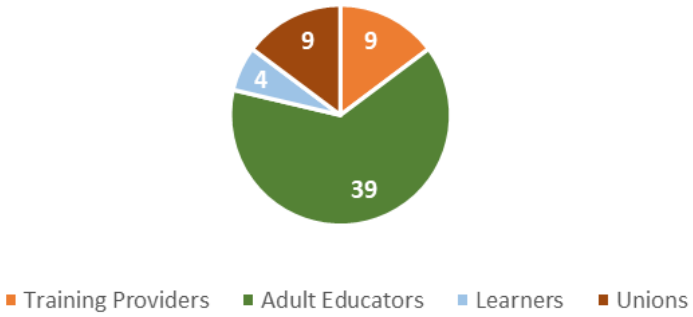


Figure 4. Number of Participants in the Dialogue Sessions



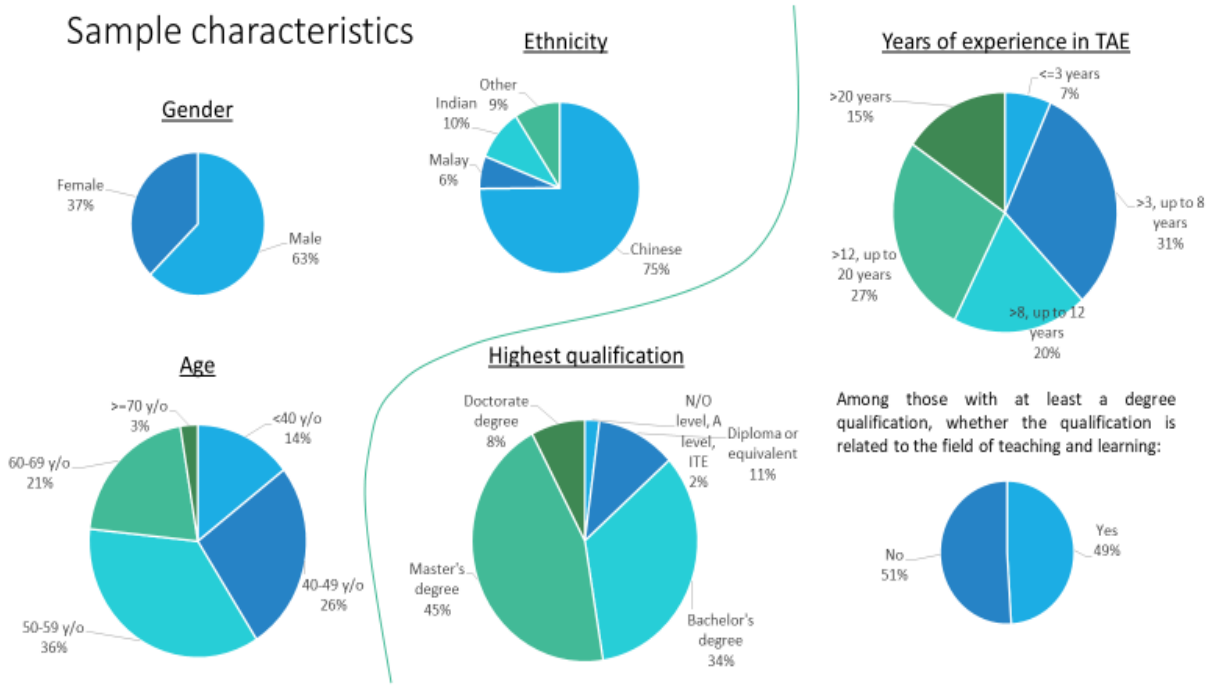
Survey

The survey for educators was administered to 800 members of the Adult Education Network in Singapore. Its purpose was to gather the beliefs and practices of AEs. A total of 355 members responded. After removing duplicate entries and ineligible respondents, there were 195 completed surveys (See Fig 5 and Fig 6). The sample characteristics of the 195 respondents who participated in the survey can be seen in figure 6.

Figure 5. Number of Respondents (Survey Data)

Total Number of Attempts	**355**
False Starts / Incompletes/Duplicates	145
Ineligible **(e.g., not active in TAE work in the last 12 months)**	15
Complete	195

Figure 6: Respondents Characteristics (Survey Data)



1.5 Structure of the Report

Following on the from the introduction, the second Chapter reviews literature on current pedagogical practices. A literature review of ecosystems and change constitutes our third chapter. Chapter 4, the conceptual framework, developed through iterative movement between literature and data sets the frame for our analysis of the following findings chapters. The first of these, Chapter 5 is a series of four case studies consisting of Training Provider activities and Educator activities in each case. Chapter 6 addresses the first research question, what mediates PPs in the TAE sector? The second research question, how are PPs mediated? Is addressed in Chapter 7. Chapter 8, our final chapter considers implications, and recommendations.

2. What do we know about current pedagogical practices?

This chapter pulls together the literature on current pedagogical practices that are used in learning environments, such as classrooms, workplaces, online environments, laboratories, practice spaces, and the spaces in between. But first, a caveat. Given that our consideration is pedagogical practices, we need to be constantly aware of how institutional, organisational and national practices, discourses, and polices mediate educator pedagogical practices. While educators are responsible, they are not solely responsible for pedagogical practices. While there are various references to the mediation of pedagogical practices in this Chapter, it is in the next Chapter about ecosystems and change, that we discuss the mediation of pedagogical practices.

We begin by framing our discussion of pedagogical practices in relation to knowledge reproduction and knowledge creation. . Having identified different aspects of these pedagogical approaches, we complete the Chapter by considering what enables movement between these approaches. The latter is particularly important in considering how to support educators in making changes to their practice.

2.1 Framing the discussion about current pedagogical practices

There is a plethora of articles that promote the wonders and advantages of different pedagogical strategies and tools such as, questioning, jigsaw grouping, the use of multimedia, case studies, reflection, simulation, debriefing techniques, scaffolding, cognitive apprenticeships, flipped classrooms and on and on. Tools such as cloze procedure, the many different types of questioning, classroom management techniques such as different structures for group work, and so on, come together in various combinations as strategies such as flipped classrooms, and cognitive apprenticeships. However, literature focusing on or promoting a particular strategy or tool rarely reveals the pedagogical assumptions being worked with. The result is that the same strategy or tool can require learners to reproduce knowledge, or build knowledge, accept /reproduce what is taught or develop critical thinking and evaluation capabilities, be an active, curious inquirer or a passive respondent seeking to give correct responses.

For example, it is not unusual for reflection activities where learners produce little more than a description, a recall of what took place. Or the typical use of flipped classrooms where learners ‘learn the knowledge’, so they can discuss in class or synchronous online sessions. In both these examples, low cognitive levels of engagement with the subject matter often predominate. The design of learning in the flipped classrooms example is down to the designer, their beliefs, practices, competence and importantly the institutional/organisational and national requirements, funding arrangements and common discourses. The reflection example may be a case of learners requiring some scaffolding about how to recognise and make assumptions explicit, and to imagine what alternatives are possible. Deep reflection is more likely to occur in a work setting where the subject sees or senses tensions or contradictions in their activity system(s); educators need to use these complexities as teachable moments, be it in classroom, online or workplace settings. Industry norms also mediate design and enactment decisions for learning. Be it in the workplace, classroom or other learning spaces, demonstration, for example, is a standard pedagogical tool used in the food and beverage industry, and other industry sectors. Demonstration can powerfully develop observational capabilities and thus contribute to diagnostic capabilities. But demonstration is more often used for recall and repetition of the required behavioural performance. Again, learners are positioned to engage at low cognitive

levels. There is no connection with emotion and the considerable potential in demonstration to use multiple senses and environmental awareness which may impact the quality of the performance.

That the same tools and strategies can be used to achieve very different outcomes for learners, suggests a need to understand what is it that drives these different pedagogies and their outcomes. What is it that accounts for the same pedagogic tool being used differently with very different outcomes? In large part, it is different pedagogical assumptions (on the part of educators, their institutions, and national requirements). Assumptions about learners, learning, teaching and knowledge are at work in the way pedagogical tools are used.

To address this issue, some might argue that we need a shift for example, from teacher centred to learner centred approaches (see Bound, Tan & Lim, 2022), and/or from surface learning to deep learning (Entwhistle, 2000) or to an approach based on teaching for understanding (Wiske, 1998). But while the authors would agree with each of these claims, we argue that they are not sufficient to meet the needs of our changing world. Such claims, like the one we make in this report, are also indicative of their time, and consequently their enactment appears different over different periods of time in the field of education.

A shift from teacher centred pedagogical approaches towards learner centred pedagogical approaches has been around for some 50 years in higher education in various permutations, from behaviourist approaches to personalised instruction in the 1950s to 1960s, to humanist self-directed learning (or more appropriately, negotiated learning), and constructivist problem-based learning in the 1970s-80s, to work-based learning partnerships since the 1990s (Boud, 2012). These permutations are indicative of a) understandings of learning at the time and b) of the need to meet changing work arrangements and requirements, and the circumstances in which these changes take place. Not surprisingly the importance of learner centred approaches continues in an expanded form to include flexible, personalised learning and innovative learning methods.

Wiske's work on teaching for understanding (1998) developed for school teachers has over the years, become embedded in the preparation of teachers, in for example Australian schools. The NSW Department of Education, for example, has incorporated this into the backwards design model of curriculum design. However, this approach has not been part of educators of adults, pedagogical tool kit and ways of thinking about teaching and learning.

Notions of deep and surface learning come from studies of university students. Some students had sought a thorough understanding of the author's message, while others had relied on 'question-spotting' - learning just those pieces of information expected to come up in the test. In the deep approach, the intention to extract meaning leads to active learning processes that involve relating ideas and looking for patterns and principles on the one hand, and using evidence and examining the logic of the argument on the other. The approach has also been found to involve monitoring the development of your own understanding (Entwistle, McCune & Walker, 2000). (Entwhistle, 2000, p.9)

The work of Entwhistle and others identified the driving role assessment plays and its relation to how learners perceive learning. Some understand learning for examinations as a process of memorising material, others will actively make meaning, link ideas, see relations between concepts and so on. However, as Entwhistle (2000) states deep and surface and the added category of strategic learning are indicative labels which do not give recognition to the complexity of ways individual learners study. Additionally, learners study approaches are dependent on the context and content and only partially reflect routine study habits (ibid).

An alternative approach to understand current pedagogical practices is found in more recent literature instructional or monologic pedagogical approaches (discussed in for example, Skidmore,

2006) and dialogic approaches (Wells & Mejia, 2006; Alexander, 2008; Guzman & Lorrain, 2022). In the next section we unravel these distinctions.

2.2 Approaches to pedagogical practices

In this section, we begin with considering what is meant by monologic and dialogic approaches. Importantly, we will also discuss the learners' experiences, and differences in learning outcomes of monologic and dialogic approaches. The danger of making these distinctions is that a dualism is set up. The intent is not to establish a dualism, but rather to a) differentiate these approaches and b) as our data have shown, understand the dance that happens between these pedagogical practices and the implications for understandings of knowledge, learners, learning and teaching. This is important as there is always a need, time and place for monologic instruction. However, we argue that the world has changed so much that for today and that of the future worlds of our learners, we need pedagogical practices that grow curiosity, critical evaluation, agency, creativity and more. Monologic approaches alone or as a dominant pedagogical approach are not able to support these capabilities.

Monologic

"In monologic recitation, classroom talk is closely controlled by the teacher, with the aim of transmitting knowledge which students are required to remember" (Skidmore, 2006, p.504). A monologue is a long speech by one speaker. In monologic teaching settings (in workplaces, classrooms or digital environments) the educator does a lot of the talking often in the form of lecturing and/or sharing of stories. This means learners are cast in the role of listeners. The division of labour is distinct, with the educator being the 'sage on the stage' (the expert transmitting knowledge), and learners as recipients who seek to give correct responses when questions are asked. There is always a need and a place for this approach, the question is about the length of time this approach is used.

Interaction in the form of educator-initiated questions in monologic instruction is often about assessing (testing) learners' acquired knowledge – can learners give correct responses showing they 'know and perhaps understand the material? This pattern of interaction, known as the I-R-F (initiation-response-feedback) sequence is initiated by the educator who is seeking a correct response from learners, which the educator follows with a form of feedback, for example, 'Good', or "Correct" (see for example, Skidmore, 2006). If the response is incorrect the educator usually moves to another learner. This pattern of interaction "reinforces the educator's authority as the transmitter of received wisdom and severely restricts the possibilities open to students to contribute thoughtfully to classroom talk" (Skidmore, 2006, p.507).

Design of monologic instruction, be it formal curriculum, or intentional learning in work settings is based on agreed texts and methods of instruction to assist students in negotiating summative assessments designed to evaluate performance. The designed purpose and direction of interaction is pre-set; interaction is a means where teachers highlight and correct 'misunderstandings' and 'inconsequential knowledge' (Adames , 2006). Learners are treated as the object of curriculum implementation (Macneill, Cavanagh & Slicox, 2005); instruction is done to them. Perhaps not surprisingly curriculum design that is largely monologic is often tightly controlled, affording very limited autonomy for educators to change or adapt the curriculum / intentional learning. For example, multiple Institute for Adult Learning (IAL) studies have heard educators and training providers claim that a curriculum cannot be changed; training providers have responded to requests from adult educators to change curricula with a flat no, except perhaps to add in to the many existing power point slides (Bi, Bound, Mohemad, Cai & Chuen, 2020; Bound & Choy, 2016; Bound, Rushbrook & Sivalingham, 2013). Also not surprising is the limited teaching and learning strategies employed by educators in predominantly monologic settings. These typically include educators lecturing, telling

stories, using IRF, using group discussions often followed by long report back sessions where groups discuss the same topic (e.g. advantages and disadvantages).

It is not surprising that monologic instruction remains dominant, as terms such as acquired/ acquisition /transfer /reception /transmission /accumulation /grasp of knowledge are so common in our language in the discussion of learning. It is important to note that monologic instruction is important for passing on cultural meanings, “providing a common memory for the group” (Lotman, 1988, p. 35), thus preserving continuity and stability of beliefs and values within a culture” (Wells & Meija Arauz 2006, p. x). This is perhaps one reason why learners enjoy hearing stories of their educators’ experiences. The issue is thus about learning design and enactment that is predominantly monologic, not about a monologic approach having no place in pedagogical practices.

There is now research that has found for example, that IRF forms of interaction have a negative effect on learning (Skidmore, 2006; Nystrand, 1997). These recitational forms of talk have been found to be “overwhelmingly prevalent, and to have a negative effect on learning. They were particularly prevalent in lower-track classes” (Skidmore, 2006, p.504). This finding came from Nystrand’s study of 400 English lessons in 25 US high schools (Nystrand, 1997). In school settings, the use of behaviourist approaches such as reward systems (in adult learning environments, sweets are commonly used as a reward) can undermine interest and demotivate learners (Black & William, 1998). Such reward systems do not require mindful commitment that develops persistence, a sense of purpose and intrinsic motivation.

Studies in the adult learning field reflect similar findings. For example, Guzmán and Larrain (2023) state that the problem is that global evidence shows that a transmissive and monological pedagogy is still maintained. In her study of working with adults in writing conferences, Barker (2003) found monologic discourses to have negative effects on learners. In studying adult learners experience of a monologic second language curriculum, Worthman (2009) found that while there were some gains in skills, these learners were not engaged in critical types of learning experiences.

Dialogic

Skidmore offers a simple explanation of the differences between monologic instruction and dialogic teaching. Dialogic teaching, he states, “is based on different relations that requires students to think, not simply to remember” (Skidmore, 2006, p.504). But there is much more to dialogic teaching, including that learners become comfortable with difference, manage multiple perspectives, learn how to build on knowledge from multiple sources, improve on ideas, learn how to learn (Bound, Tan, Chow, Wang & Chuen, 2019: Wells & Mejia Arauz, 2006; Guzman & Lorrain, 2022), all of which contribute to their ability to navigate and hopefully thrive in emergent, changing circumstances. Dialogic teaching requires the educator to have deep pedagogical knowing and a strong repertoire of pedagogical tools.

Dialogic teaching begins with the premise that use of language is the primary vehicle for learning and plays a central role in connecting teaching, learning, and cognitive development (Kim & Wilkinson, 2019). The expression and building of meaning in dialogue are never complete, never closed and always oriented toward the future (Bakhtin, 1986), thus the mechanism of dialogue, requires the appropriation of meanings, requiring interpretation and making the meaning your own (ibid). This is a process of filtering through prior experience, knowing, and negotiation of meaning (Hung, Tan, & Chen, 2005, p.38). These processes take place through psychological signs, symbols, and other tools that mediate (Vygotsky, 1978) the meaning making process. As a primary resource, language takes time and practice to use in meaningful ways. Different disciplines, concepts, spaces, and practices all have their own language. As "language is the essential condition of knowing, the process by which experience becomes knowledge" (Halliday, 1993, p.94), it is the very basis of dialogue and inquiry.

In this brief review we couple the notion of dialogue with that of inquiry. This connection is not new. Dewey (1938) argued that education should be based on inquiry into issues of social and personal significance. The processes of inquiry and dialogue are unified; inquiry cannot happen without dialogue with self and others. Inquiry can be defined as the process of examining, to "explore, delve into, catechize, query, question, quiz, investigate, probe, search scrutinise, interrogate, and study" (Martinello & Cook, 2000, p.3). When we inquire, we move across different ways of thinking, often experiencing the accompanying emotions and sense of body. Inquiry may range from posing questions and experimenting with possibilities to challenging long held assumptions. Inquiry, therefore, encounters difference and with exposure participants learn to be comfortable with difference (Bound, 2010; Bound, et al, 2019). The process of inquiry can be specifically taught (Stack, 2007). Stack (2007), for example, found that by asking four critical thinking questions in her physics classes, her 16- to 17-year-old physics students moved from being educator dependent to owning the inquiry process themselves. When posing these four questions[1], Stack used an experiential, problematising approach, asking students to apply the four questions to the explanations they and others arrived at when solving problems. In the process her students took responsibility for the inquiry process. Inquiry needs dialogue.

In dialogic inquiry, we want learners to be reflective, to examine assumptions, to construct knowledge of oneself and one's practices, to observe and exercise agency. To do this, learners are constantly working with different interpretations of knowledge and experience, requiring high levels of cognitive engagement. Future-oriented learners can question taken for-granted practices, important in handling change, and being responsive and flexible (Dadds, 2009; Webster-Wright, 2009). This positions learners to work with what is emergent, unknown, and highly complex, potentially enabling learners to be part of contributing to new practices, ideas, and of course, to improve on what is currently practiced (Engeström, 2022).

What does dialogic inquiry look like and require? The list below is based on Alexander's (2008) work, which we have expanded on.

Educator needs a repertoire of approaches for organizing interaction and engaging in talk.
Dialogic inquiry needs educators to develop their learners' ability for learning talk (e.g. learners learning to narrate, to explain, to argue), to engage in collaborative inquiry, build knowledge, uncover assumptions, be inclusive, develop self-awareness and become comfortable with difference, tensions, contradictions and their ability to work through these collaboratively (Bound et al, 2019). Such talk may begin with teaching talk that is found in monologic instruction (e.g., rote, recitation, discussion), but the intent of the trajectory of the talk is towards dialogic inquiry.

Learners' voices matter - build a supportive, democratic environment

To engage learners in dialogic inquiry a supportive, environment is a must. A safe space is needed for learners to feel comfortable to put forward tentative thoughts, explore possibilities, and much more. Educator and learners need to listen respectfully and willingly to, each other, and seek to understand the perspectives and arguments of others. The purpose is to advance the collective understanding by ensuring space, opportunity and time is given for all voices. This requires more than discussion where some put forward their views and issues of status and power may be ignored. Rather, dialogue involves building on each other's contributions, respectfully and collaboratively, questioning and challenging each other, capturing all voices. This more democratic environment means that for the educator, keeping control of the floor does not necessarily entail also keeping

[1] Is it intelligible? (What further explanations or experiences can help me understand it?)
Is it plausible? (How is it convincing, logical, relevant, trustworthy, fit into a bigger picture? What might be the flaws or limitations?)
Is it useful? (How does it have greater explanatory or predictive power over other models? How does it fit into other ways of explaining the world? How is it significant?)
Is it believable? (What are my underlying beliefs and values about the world and how do these new ideas interact with these?)

control of the content of the discussion. What matters for the quality of interaction, it seems, is not so much how the sequence starts, but how it develops, and this, as we have argued, depends critically on the teacher's choice of roles and on how he or she utilizes the follow-up move. (Wells & Mejia Arauz 2006, p.420)

These processes call for learners to develop new skills. It is therefore likely thatit will be necessary to devote time to explicit teaching of skills necessary for dialogue (Dawes, Mercer, & Wegerif, 2000; Wegerif, Mercer, & Dawes, 1999).

Collective and collaborative

Working collaboratively as a whole class and in groups harnesses interests and enables learners to achieve together more than any of them individually could have achieved alone (Kim & Wilkinson, 2019). The individual develops into what he/she is through what he/she produces for others," (Vygotsky, 1981, p. 162) and it is in the effort to formulate our own ideas for others that we most effectively clarify them for ourselves. Learning collaboratively implies that the "other" functions inter-psychologically as a scaffolding structure, helping to learn something the learner could not achieve by themselves (Guzman & Larrain, 2023).

Cumulative

Learners and educator(s) build on their own and each other's ideas and chain them into coherent lines of thinking and enquiry. This requires the educator to exercise their ability to scaffold learner's thinking towards lines of thinking and inquiry. Some learners will also be able to contribute to this process. Knowledge building (Scardamalia & Bereiter, 2014) is an example of this in action. (See Bound & Tan, 2022, pp.139-140 for principles of knowledge building.) For example, in the Bound & Tan study, when learners were working with solving their own workplace authentic problems, sharing these with peers and moving iteratively between their onw examples and workplace realties and the literature, they feel into patterns of building on each other's ideas, improving them and gaining deep insights into their own practice and setting and those of their peers.

Purposeful synergising of educator and learner intent

Plan and facilitate dialogic teaching with broad goals and outcomes. The purpose or intent of dialogic teaching, as discussed above, is to develop practitioners who are curious, can critically evaluate, be comfortable with difference, and know how to navigate the unfamiliar. Dialogic inquiry processes contribute strongly to the identity of practitioners, including their identity as learners (Bound et al, 2019).

In the school-based literature, there is now a considerable body of evidence across diverse countries (Resnick et al 2105a; Alexander, 2005; Sedova, 2021) that dialogic teaching improves performance in students' content knowledge, comprehension, and reasoning, and that besides improving performance on standardised tests, the knowledge developed in certain areas was maintained for years, and was transferred to different disciplinary domains (Resnick, Asterhan, & Clarke, 2015a). Collective understanding is a feature of dialogic inquiry and has been found to provide superior opportunities for the development of understanding compared to monologic approaches (Kim & Wilkinson, 2019). Dialogue and inquiry bring with them opportunities for learner choice resulting in high levels of learner engagement as learners select the site and/or focus of their inquiry and determine how they would investigate and conduct their inquiries (Wells & Chang-Wells, 1992). Collaborative engagement in inquiry dialogue makes the thinking processes visible to group members. Linguistic skills become part of their cognitive functioning, as mental schemas change (Resnitskaya & Gregory, 2013). Resnitskaya and Gregory (2013) argue that the capabilities of the educator and more advanced learners become distributed amongst the group, "who observe, practice, and gradually internalize new ways of speaking and thinking….. stimulating new rounds of development" (p.121).

Nystrand (1997) argued that teachers use of questions that promote high level thinking (analysis, generalisation and speculation) afford students more control over the flow of discourse and agency in their construction of knowledge and subsequent development of deep understanding. Educators contribute to these outcomes in their enactment of epistemological values that signify to learners that their thinking is important, and their ideas are taken seriously, promoting substantial engagement. In the school-based literature where far more research has been conducted, there is clear evidence of the superiority of dialogue and dialogic inquiry pedagogical approaches.

The adult learning literature reflects similar outcomes (see for example, Bound, 2010; Bound et al, 2019; Guzman & Larrain, 2021; Freire, 2017). Bound et al (2019), and Stack & Bound (2012) found that dialogic inquiry not only led to deep understanding and making connections between ideas, but a commitment by learners to act on their learning. Learners demonstrated increased confidence and capability in their approach to professional issues and additionally became aware of and built their identity as learners. A notable difference between the literature related to adults, is that the relationship between change (related to work and / or societal issues), learning and developing agency is often a focus.

Dialogic pedagogical approaches are important in achieving what our learners require in addressing the social, economic, environmental, and political demands of dynamically changing circumstances of our current and near futures. Dialogic pedagogical approaches are therefore an important, necessary feature of future-oriented pedagogical practices. However, as noted above, monologic approaches pass on cultural meanings, providing a common memory. Further, the starting point of dialogic approaches is not necessarily dialogic, it may be monologic. The research clearly informs us that educators need multiple tools and interactive strategies (Boyd, 2023; Alexander, 2005; Stack & Bound, 2012) to move across different pedagogical practices. Given the different epistemological stances, division of labour and patterns of interaction inherent in monological and dialogic approaches, what enables this movement across these very different approaches and intent of learning?

2.3 What enables movement across dialogic & monologic pedagogical practices?

In part, our purpose in undertaking this study on developing pedagogical practices in Singapore's TAE sector is to create a tool that would enable practitioners to develop:

- their awareness of different pedagogical assumptions, values and practices, and
- help them move between different pedagogical tools in a knowing, considered way that would promote their learners' capacity and capability to thrive in changing circumstances.

To this end, we committed to developing a future-oriented pedagogical practices framework that can be a tool for change.

Therefore, in this section, we strive to address two different purposes 1) to identify aspects of pedagogical practices that can bring a focus to change efforts, and 2) to consider these in the development of our future-oriented pedagogical practices framework. The latter, which forms part of our conceptual framing for how we analysed our data, is explored in Chapter 4.

One way of getting to grips with different pedagogical assumptions is to think about beliefs on which educators, institutions and policy makers draw about knowledge, learners, learning and teaching, and training. In the literature the term epistemological beliefs or stances (see Table 1) is used as one point of departure for understanding how seemingly different pedagogical approaches are used within a given time frame (Resnitskaya & Gregory, 2013). Decisions about pedagogical practices are informed by understandings and beliefs about knowledge, learners, learning and what it means to teach. Beliefs and understandings about knowledge flow through to how an educator positions

themselves and their learners, (the division of labour) and the patterns of interaction that follow from this. It goes without saying that the degree of autonomy an educator has over the enactment of the design and intent of learning also has an impact on an educator's decision making. Institutional practices, commonly held discourses about learning, learners and teaching within an organisation, the organisation of the TAE sector and national polices and funding arrangements, are often strongly evident in decisions about curriculum design and associated pedagogies.

Table 1 : Epistemological stances

EPISTEMOLOGICAL STANCE ON:	MONOLOGIC	DIALOGIC
KNOWLEDGE	• Stable • Canonical knowledge	Changes as new priorities and technologies emerge. Is worked on and shaped and developed in use.
LEARNING	• Focus on individual • Learners acquire knowledge and make sense of it • Assessment is about testing knowledge acquired	• Dialogic inquiry requiring engagement with different perspectives & experiences, use of (& often collection) of data; critical evaluation; questioning; etc. • Knowledge building, deep understanding, and the evolution and development of new practices • Assessment is judgements from multiple sources of holistic performance
TEACHING	Teacher as • unquestioned expert • 'sage on the stage' Learners as • listeners • providers of correct responses	Teacher as • expert guide and resource • nurturer • challenger Learners as • Actively engaged, intrinsically motivated inquirers, knowledge builders • Comfortable with difference • Collectively interpret material, experiences, interactions, etc. and make sense of these

An epistemological stance is evident in language. In relation to knowledge, for example, 'acquiring knowledge", "transmitting knowledge", transfer of knowledge" (Sfard, 1998) is used by educators, managers, directors, and policy makers and learners. The assumption in such language is that knowledge is unchanging, it is static and authority figures (such as educators) are the ones who hold and have legitimate knowledge, that is truth (Resnitskaya & Gregory, 2013). It is therefore not necessary to question it, to consider multiple interpretations, perspectives and applications. It

naturally follows from these beliefs and understandings that the division of labour is that educator holds the power, sets the direction, content and focus, and that the learner is largely passive. It makes sense that the educator does much of the talking, tightly controls interaction and institutionally is positioned as the 'sage on the stage' that contributes to an identity of educator as the source of expertise. If this is the case, it makes it almost impossible for the educator to teach dialogically, as dialogical teaching demands a more democratic environment with some power shared and exercised by learners (Alexander, 2008; Resnitskaya & Gregory, 2013; Bound et al, 2019). That is, knowledge understood as unchanging and independent from cognition and reality is "incompatible with dialogic teaching" (Resnitskaya & Gregory, 2013, p.116).

However, knowledge is also understood as being distributed across tools, artefacts, and practices (Niccolini, 2012; Lave, 1996), requiring not just individual, but collective interaction and use, to address complex problems. Knowledge is understood as socially constructed. The work of Scardamalia and Bereiter (2014) on knowledge building and much of the more recent literature on change, notes that as we interact on complex problems, we build knowledge. Engeström (2001), Sannino (2023) and Edwards & Sutherland Olsen (2023) for example, inform us that knowledge and experience of workplace practitioners generates more expansive possibilities, understandings, and also contribute to the identification and naming of problems. These understandings demand dialogic practices and particularly inquiry.

Different patterns of interaction follow from epistemological stances on knowledge and the division of labour. For example, the IRF is typical of monologic pedagogical practices. Feedback such as 'correct' or good' reinforce the educator's authority as the transmitter of knowledge and wisdom (Skidmore, 2006). Questions asked seek a correct response, close down discussion and limit interaction amongst learners. The purpose of reproduction, or what Nystrand (1998) calls recitation is to transmit information to students and to recap it with them. Nystrand notes that this results in problems of motivation and listlessness (ibid). Power and authority belong to the educator and learners are passive recipients limited to particular types of responses.

Dialogic pedagogical approaches involve complex interactions from all in a learning setting. In discussing how one teacher (Rachel) used a dialogic approach with her learners, Boyd (2023) notes: Dialogic oracy practices are not just about a series of in-the-moment interactions, they are about big picture, across time repertoires of talk practices (for teacher and students) that purposively and coherently work together to serve a dialogic instructional stance within and across settings, groupings, space, time, and ways of managing interactions. Across these instructional repertoires, Rachel showed how language of possibility, response-able talk practices, and dialogic local space signal her epistemological commitment to the value of student ideas and student talk. Indeed, these three partial discourse markers of dialogic instructional stance focus on teacher talk as they guide planning and participation in classroom talk for individual teachers know what is needed in a particular context and time. (p.10)

Notably, Rachel's "epistemological commitment to the value of student ideas and student talk" is what underpins her interactions. Boyd also noted that Rachel would move between monologic actions and what may be clearly labelled as dialogic. This process shows a) clear intent and set of values and b) the necessity of using input, IRF approaches in response to her learners in order to develop their capabilities in dialogic inquiry and knowledge building.

It follows that in designing learning, learners must be engaged in authentic problems/ issues where they bring their knowledge and, using dialogue, inquiry, and knowledge building processes, apply 'new' knowledge. When in work settings authentic experiences are naturally in place, but in other settings the educator has to plan to bring into the classroom, online practice space and so on, the complexity of the work. The role of the educator fundamentally changes from being 'sage on the

stage' to one source of credible expertise which they establish as they work together with learners (Resnitskaya & Gregory, 2013). When inquiry processes are used, the educator moves beyond being a guide, nurturer and resource to someone who challenges learners, works with learners' natural curiosity through tapping into and using learners' authentic issues, provides safe spaces and time for all voices in the learning space, and establishes the expectation that learners will improve ideas to build knowledge, and possibly practices. These approaches engage learners and lead to their deep understanding of the rationales for existing practices as well as preparing them for working in changing workplaces.

Figure 7: Epistemological stance on Monologic and Dialogic approaches

EPISTEMOLOGICAL STANCE ON:	MONOLOGIC	DIALOGIC
KNOWLEDGE	• Stable • Canonical knowledge	Changes as new priorities and technologies emerge. Is worked on and shaped and developed in use.
LEARNING	• Focus on individual • Learners acquire knowledge and make sense of it • Assessment is about testing knowledge acquired	• Dialogic inquiry requiring engagement with different perspectives & experiences, use of (& often collection) of data; critical evaluation; questioning; etc. • Knowledge building, deep understanding, and the evolution and development of new practices • Assessment is judgements from multiple sources of holistic performance
TEACHING	Teacher as • unquestioned expert • 'sage on the stage' Learners as • listeners • providers of correct responses	Teacher as • expert guide and resource • nurturer • challenger Learners as • Actively engaged, intrinsically motivated inquirers, knowledge builders • Comfortable with difference • Collectively interpret material, experiences, interactions, etc. and make sense of these

As dialogic inquiry and knowledge building capabilities are not finite, there is always a need for input. This is why Aukerman and Boyd (2019) argue that what is important is the intent and focus towards dialogic purposes and value-orientations. This is perhaps why Robin Alexander discusses dialogic pedagogy in terms of principles (collective, supportive, reciprocal, cumulative, purposeful in

2020 he added deliberative) that guide dialogic teaching across repertoires of teacher and student. (ibid)

Markers of dialogic intent

The markers of dialogic intent seem to be evident when the **educator** includes the following:

believes in and trusts learners' abilities (Sedova 2021; Bound et al, 2019; Wells & Meija Arauz 2006)
creates a safe psychological space (Bound et al, 2019)
asks higher-order thinking questions (Sherry, 2019)
challenges learners by for example, reframing what learners have contributed (the intent being to go deeper, make connections, think about the argument or logic, question assumptions, etc.) (Sherry, 2019)
encourages learners to reframe contributions (Sherry, 2019, Sawyer, 2003)
shares responsibility with learners in considering multiple interpretations (Sherry, 2019, Sedova, 2021; Bound et al, 2019)
works with, draws on learners' experiences (Bound et al, 2019; Sherry, 2019)
provides a choice to learners on their specific focus to meet learning outcomes (Bound, et al, 2019)
treats learners as sources of knowledge and opinion (Resnitskaya & Gregory, 2013)

Such lists will never be exhaustive, and will vary in their emphasis over time, purpose and context. The evidence in learner responses of educator dialogic intent in interactions, division of labour and epistemological stances about knowledge, include when **learners**:

- are engaged in reasoning, analysing, reflecting to uncover assumptions (Sedova, 2021; Bound et al, 2019)
- spontaneously contribute their thoughts, ideas and tentative thinking, bouncing off each other's contributions (Stack & Bound, 2012; Boyd, 2019)
- collectively formulate, defend, scrutinize each other's viewpoints, evidence and argument. In the process they appropriate (internalise) linguistic skills needed to resolve complex issues (Resnitskaya & Gregory, 2013)
- engage in metalevel talk as they reflect on and monitor the processes and products of interaction (ibid)
- engage in critical evaluation, making lengthy, elaborate contributions in explaining their thinking to the group (ibid)
- are co-constructing knowledge (Scardamalia & Bereiter, 2014; Bound et al, 2019; Sedova, 2021; Wells, 2000)

For those new to dialogic inquiry there is often a concern that learners will get it wrong, misunderstand and develop false perceptions. However, in dialogic inquiry interactions, accountability is valued.

Through collectively engaging in inquiry dialogue, students eventually formulate conclusions that are "most reasonable by account of all available arguments and evidence" (Gregory, 2006). These conclusions represent the products of dialogic teaching. During inquiry dialogue student misconceptions, gaps in knowledge, and flaws in reasoning become visible to the group and are "put to the test of public accountability" (Gregory, 2006). (Resnitskaya & Gregory, 2013, p.117)

2.4 Conclusion

This chapter has framed the discussion about pedagogical practices using two key approaches discussed in the literature – monologic and dialogic approaches. The literature reports that monologic approaches remain dominant. Singaporean studies have found this to be the case in Singapore's TAE sector, as evidenced in the 11 IAL studies undertaken over the last decade (see https://www.ial.edu.sg/research/). Nationally and internationally, there is a growing interest in and research into dialogic approaches.

As discussed in the section, what enables movement between monologic and dialogic approaches, aspects that appear to be important to consider in dialogic approaches are:

- understandings and beliefs about knowledge, learners and learning
- division of labour and how that impacts opportunities to open dialogue and learner choice
- design of learning, particularly working with authentic examples, issues, problems

This review has highlighted that dialogic approaches are complex, much more so than monologic approaches. Dialogic inquiry demands high levels of pedagogical capability and agency on the part of the educator. Despite the difficulties of dialogic inquiry, it is these types of pedagogical approaches that contribute to learners' ability to thrive in changing circumstances. Dialogic inquiry appears to be a necessary plank in any future-oriented pedagogical practices Framework.

For the purposes of how to think, feel and engage in dialogue about pedagogical practices and how to design and enact our practices such that they enable our learners to thrive in changing circumstances a two-pronged approach is needed. In addition to analysing different pedagogical tools and how they are used (for monologic, dialogic, or somewhere in between), we also need to analyse the cultures and ecosystems in which different pedagogical practices are used. This is a focus of the following chapter as it explores the idea of ecosystems in education that mediate pedagogical practices and system change.

3. An ecosystems lens to change

Learning ecosystem analysis has emerged as a distinctive approach that endeavours to provide a framework for reviewing how the learning ecosystem mediates pedagogical practices. The model of the learning ecosystem provides a means of understanding the relations between the system and its sub-ecosystems. This approach can be used to examine the health and efficiency of an existing system, identifying the need for system change and its requirements. System change is notoriously difficult and slow (Bruner, 2018). Hence, following a discussion about ecosystems and how they apply to adult education, as understood in the context of Singapore, in the second part of this Chapter, we examine change processes in some detail. We position change processes as involving boundary crossing work or work at the boundaries and explore possible tools and processes to aid such change across multiple interconnected ecosystems. Finally, in this Chapter we consider the impact on educators and circle back to what is required to support them.

3.1 Ecosystems: definitions, characteristics and functions

The notion of ecosystems was first articulated in 1930 by the British botanist Arthur Roy Clapham (Willis, 1994). In 1935, the term found greater resonance through the work of ecologist, Sir Arthur Tansley. He defined an ecosystem as a 'biotic community or assemblage and its associated physical environment in a specific place'. He referred to a systemic community of living organisms which interact with the non-living elements in their environment, emphasising how biotic and abiotic components are regarded as linked together through nutrient cycles and energy flows.

Pickett and Cadenasso (2002) remark on several important characteristics of Tansley's basic definition of the ecosystem – some of which are reported here. Firstly, Allan and Hoekstra (1992 cited in Pickett and Cadenasso, 2002) observe it is scale independent – meaning an ecosystem can be of any size so long as organisms, physical environment, and interactions can exist within it. Secondly, the ecosystem concept is free of narrow assumptions – meaning, an ecosystem is not restricted to equilibrium, but that it is changing in composition, content or by the way it processes nutrients and energy. By definition, ecosystems can be simple, complex, include humans, human generated processes, non-humans, be fleeting or exist for some time.

It is widely acknowledged and subsequently observed that the power of the generic definition of ecosystem articulated by Tansley in 1935, has led to broad applicability to many different systems, capturing the interactions between living and non-living components of an ecosystem (see for example Pickett and Cadenasso (2002); Güt and Chang 2008).

While a biological analogy based on Tansley's early definition is useful for understanding the process of growth, relational interaction and independence among organisms, ecosystems applied to education and training systems are situated in complex contexts. Within the education and training discourse, the concept of ecosystems emerged in the late 1990's, with David Finegold's conceptualisation of a high-skills ecosystem. Since then, the analogy of ecologic ‘ecosystems’ continues to be used to define the components, characteristics, interrelations of a system for learning, which can be used to better understand the conditions for future pedagogical practices.

Characteristics of ecosystems

Ecosystems are dynamic (Dimitrov (2001) Gütl and Chang, 2008) the health of the ecosystems, is indicated by the tightness of the connections between actors (material and non-material) and the adaptive nature of the ecosystem (Turner & Baker, 2019). Hannon et al., (2019) note that ecosystems can adapt and respond to learner needs and changes of institutional environments (this is the critical

feature that distinguishes ecosystems from earlier, and more rigid, approaches of 'partnership'). An ecosystem is the dynamic interactions between things. It's about how people meet, talk, trust, share, collaborate, team, experiment, and grow together. When an ecosystem thrives, it means that the people have developed patterns of behaviour – or culture – that streamline the flow of ideas, expertise, and capital throughout a system (Mitleton-Kelly, 2009).

Ecosystems can grow and develop in stages—hypothesis and visioning, catalysing and initiating, dynamic experimentation and mainstreaming/ sustaining (Hannon et al., (2019). For example, the impact of a learning ecosystem can be designed for how they might be navigated, provide support, target, integrate and be transparent (Strada Education Network, 2020[2]). Ecosystems can be both emergent and designed. This latter is congruent with the notion of identifying levers for changing and supporting change of pedagogical practices. It also speaks to relations between, core to a practice theoretical lens.

Hecht and Crowley (2019:7) describe ecosystems existing on multiple scales—'from microscopic systems in the soil to forests that extend for hundreds of miles. They are also nested, with smaller ecosystems situated "inside" larger ecosystems. These authors pose important questions, about the mean for applying a learning ecosystem framework to education and how the ecosystem mediates pedagogical practices. As they contend, the relative sizes of systems do not require subordination of the smaller to the larger. While each system interacts with other systems, the smaller system may actually influence the larger system as much as the reverse occurrence'

Learning ecosystems

There are different types of ecosystems documented in the literature, namely learning ecosystems (Gütl & Chang, 2008), skills ecosystems (Buchanan, Anderson & Power, 2017), e-learning ecosystems (Cowley et al., 2002) knowledge sharing ecosystems (Shrivastava, 1998 in Gütl & Chang, 2008), and innovation ecosystems. While skills ecosystems appeared in the literature some two decades or more ago, more recent literature discusses the connections between knowledge sharing, innovation and learning ecosystems.

There are several accounts in the literature of how an ecosystem approach can be applied to teaching and learning that emphasise the whole system and the complexity of the interactions with people, places and possibilities associated with different sectors and systems of education and training.

KnowledgeWorks in their 2015 research into innovative learning ecosystems think of learning ecosystems as operating at multiple levels. Situated in the US, the authors perceive this as being from the entire US education system or the macro learning ecosystem, down to local networks and relationships serving a range of learners across a range of geographies – this they term 'local ecosystems'. As with natural ecosystems, KnowledgeWorks (2015) view how local leaning ecosystems interact and sometimes overlap but have a role to play in contributing the health of regional, state and national learning ecosystems. They identify four key attributes of the learning ecosystem. They must be learner centred, equitable, modular and interoperable, and resilient. KnowledgeWorks has undertaken extensive work in this field, including the development of guiding principles and pathways to developing vibrant learning ecosystems.

Hannon et al (2019:2)., in their review of learning ecosystem literature comment that research into the potential of learning ecosystems appear to be driven by a shared view of interrelated issues facing education systems. Firstly, 'exhaustion of the existing educational paradigm' referring to difficulties education systems face in keeping up to date with rapid changes in society and the

[2] https://stradaeducation.org/report/the-new-learning-ecosystem/

workplace. Secondly, the need for a shift in purpose in the context of rapid, fundamental change and lastly, the need for a new organizational paradigm to deliver this shift. They highlight how education reforms, (often resulting in incremental improvements with narrow success) can have significant (detrimental) implications for learners and teachers – thus stifling innovative practices.

To understand the barriers and enablers to learning ecosystems – they examined governance and funding arrangements, new roles for people and organizations, the role of context and place, and implications and opportunities for assessment in each case study. The authors developed a framework to explore the stages through which they progress as they develop and grow. This is discussed in section 2.2 in more detail as a possible research approach to the current study. Overall, the authors found that the movement towards learning ecosystems is full of potential for a transformation in how learning happens. They also warned however that the 'rhetoric and aspirations for ecosystemic approaches is running well ahead of what is to be found in practice' Hannon et al (2019:87).

Building on the idea of relations between the parts of an ecosystem, Chang and Gütl (2007) proposed that the learning ecosystem consists of the stakeholders incorporating the whole chain of the learning process and the learning utilities, the learning environment, within specific boundaries, which the authors call learning environmental borders. It is this idea of boundaries that can help explain tensions and difficulties that are an inevitable part of any ecosystem. This approach is helpful in moving away from descriptive accounts of interconnected elements.

Hecht and Crowley (2019:15) advocate a move toward learning happening via relational processes between system elements and look more deeply at the ways in which those dynamic elements are interacting in complex, multiscalar ways. They advocate that 'applying the lens of relational processes to learning ecosystems requires moving away from thinking of the ecosystem as a complicated set of interconnected pieces and toward thinking of the ecosystem as a complex with elements that exist through their relationship with each other' Hecht and Crowley (2019:6)

When applying a learning and development ecosystem framework to advance the youth field, Akiva et al., (2018) report that within a typical model, the individual learner is placed in the centre of a system as depicted in Bronfenbrenner's Ecological System Theory, to inform ways we think about context differently. In this approach, the learner at the centre is surrounded by microsystems (such as schools, peer group, family). The mesosystem includes interactions between microsystems, for example, relationships between educators, parents and the 'exosystem' (such as local communities, media) that then even more distally, interacts with macrosystem that includes cultural, political and economic foresees that affect the learner. Akiva et al., (2018) further point out that these types of models, learning and development happens over time and influences are bidirectional, with the learner shaping them as well as being shaped by them. While Bronfenbrenner's approach enables a deeper understanding of what Akiva et al., (2018) refer to as an 'individualised developmental ecosystem', the model helps us see that learning is not a universal process but one that requires working outward from the individual to more distal influences.

Hecht and Crowley, 2019) argue that unlike Brofenbrenner's model, an ecosystem has no centre. They further insist that all elements of a system are influencers of and are influenced by their context; and that elements of an ecosystem can never be fully teased apart. This represents a shift away from thinking about the individual learner, to a learner can only exist in relation to other learning ecosystem elements. Here Hecht and Crowley (2019:10) call for a 'decentering of the individual learner' to learners as groups connected with other ecosystem elements. The argue that this decentering provides the scope to 'shift policies and practices that rely on the myth of individual meritocracy and toward those policies and practices that can begin to address more systemic causes of inequity and injustice'.

Skills ecosystem

The concept of a skills ecosystem is not a new phenomenon. Buchanan et al., (2016) argue that recent interest in skill ecosystems and initiatives associated with their reform represent the latest manifestation of a long-standing tradition of skills analysis which recognises the importance of the context in which skills are developed and used. Finegold (1999) - drawing on the work of Keep and Mayhew (1999), defined skill ecosystems as regional or sectoral social formations in which human capability is developed and deployed for productive purposes. He described skills ecosystem as clusters of high, intermediate and low-level competencies in a particular region or industry, which are shaped by interlocking networks of firms, markets and institutions.

Much of the skills narrative in the past 50 years or so has been rooted in human capital theory as the driver of economic and social development. The narrative outlines the need for economic gains from expanding education, leading to more competitive educational and labour markets. The evolution of the skills discourse overtime is reflected in changing understandings of lifelong learning since the 1970s toward the present-day focus on 21st century skills (Wheelahan, 2022). Within the context of vocational education and training, the focus of market-oriented skills policy discourse has led to the development of competency-based training models of curriculum. Some argue that this approach is based on the premise that skills policies is to 'fix' education so that it supplies the right skills by tying it ever tighter to the 'demands' of the labour market and employers (Wheelahan, 2022). Wheelahan (2022) argues that this takes for granted that 'demands' from employers are coherent and well formulated, and that individuals will be able to use the skills they have in the workplace.

A key concern raised in the literature, as Keep and James (2012) Buchanan (2006), Brown and Lauder (2010), and others have demonstrated, is the nature of (poor) jobs. There have been some attempts by the OECD (2019), and some national jurisdictions to emphasise Cultivating interconnections for vibrant learning ecosystem – nine principles for applying an ecosystem approach to practice and how employers use skills. However, as Bosch and Charest (2009) explain, the links between education and the labour market will remain weak without the close involvement of social partners such as employers and unions. Indeed, Hall and Landbury (2006), and BVET (2006), emphasise strong cooperation between the social partners (employers, unions and government) at the firm, industry or national levels and opportunities for workers (in the context of the proposed study this refers to adult educators) to use higher order 'skills'. Thus, the design of the work of our educators is important in enabling highly professional educators to flourish.

This speaks to the issue of who and what organisations are involved in change and at what levels in different interconnected ecosystems. In the introduction to this chapter, we acknowledged the difficulty of change in education. In the following second part of this Chapter, we discuss change processes, beginning with unpacking why changing pedagogical practices is "tough".

3.2 Changing pedagogical practices

Pedagogical change requires educational system change. Such change has been described as "a tough one" (Alexander, 2015, p. 14). Gore et al. (2015) notes "evidence-based approaches to teacher development that improve teaching have been glacially slow to emerge in a context where rapid reform is urgently sought" (p.82). These observations come from long efforts to change pedagogical practices from monologic transmission practices to include a wide range of practices, in K-12 schooling. However, in relation to changing pedagogical practice in the adult learning space, outside of Institutions of Higher Learning (IHLs) there is limited literature, so we broadened our search to consider change processes involved in addressing complex wicked problems. Changing pedagogical practices is a wicked problem involving multiple stakeholders at different levels, different disciplines,

and different horizons of understandings and possibilities, depending on their position in the relevant systems. It involves multiple, complex webs of problems at every level.

In studying changing teacher practices, Guzmán and Larrain (2021) observe that change from, for example monological transmission pedagogical practices is difficult because it challenges the dominant asymmetrical, pre-existing and historically constructed power relations between teachers and learners – a sense of loss of power for teachers. It is necessary, state these authors, to consider sub-systems and target these as they influence one and another, affecting the learning of educators. Change happens in a reciprocal, complex system of influence. Others support this view, pointing out that change often focuses only on structural issues such as infrastructure, and scheduling (Fullan, 2020). Fullan argues that what will really drive change is change in pedagogical culture. He says, this consists of the role of learners in defining and pursuing their own learning in the context of crucial individual and societal issues. This aligns with the values driving change, discussed in Chapter 1 such as learner-focused, inclusion, amplified by technology and driven by education that is steeped in purpose, meaning and quality (Fullan et al., 2020) and the importance of the educator's intent, discussed in Chapter 2. To develop pedagogical practices that meet learners' current and future needs, we need feedback loops, making it necessary to engage those for whom the education is designed to serve (Cook-Sather, 2002). Knowing the values driven direction of change and the desired impact, is about aligning the means and the ends of change.

Approaches to change

In writing about change processes, Pregmark (2021) comments that the traditional, hierarchical approaches to change need to be challenged and reinterpreted. What is agreed in the change literature is clarity about the need for change for and direction of change, accompanied by a clear narrative (xxxx). Also agreed in the literature is the need for a shared understanding and decisions about change processes that include bottom-up processes (Edmondson, 2019).
To minimise fear and the resistance that accompanies top-down change, collaborative approaches that engender and develop trust, create space for creativity, learning and a continuously updated strategic direction are necessary (Fredburg & Pregmark, 2021). This includes collaboration about establishing the need for change and the direction of change. As noted by Pregmark (2021) change is emergent, no-one has a clear view of the future configuration, but there must be a shared direction and meaning, and a need to "break out of… complacency" (p.268). When living and thinking about change in these ways, it naturally follows that the active involvement of key stakeholders is pivotal in driving system change. The collective efforts of different actors, including educational institutions, businesses, community organisations, policymakers, educators, professional and licencing bodies builds on the collective agency, intelligence, and creativity of individuals (UNESCO, 2021a, p.5). Diverse stakeholders ensure diverse perspectives, offering possibilities for the mobilisation of their expertise, and resources. In a comparative study on policymaker perspectives of future oriented skills Ioannidou and Erduran (2022) found that countries with higher levels of stakeholder engagement, such as Finland, enjoy more collaborative and iterative processes. To build a well-qualified workforce argue Sakamoto and Sung (2018), participatory approaches that give voice to diverse stakeholder views is necessary, along with international expertise.

Change implementation is a non-linear process involving various players at different levels who collectively shape and are shaped by actions occurring in diverse contexts. Literature on education system change makes reference to factors such as:

- 'readiness for change'. Traditional management literature tells us that a sense of urgency needs to be created (ref). However recent literature indicates this is not necessarily helpful. More important is the need for inclusivity by providing opportunity for change participants to align with the motive for change (ref).

- Building capacity to lead change (McLure & Aldridge, 2022). The role of system leaders is important as they hold power, authority and are accountable. Capacity building needs to include the ability to give voice to bottom-up contributions, ideas and innovations, as top-down approaches limit autonomy (ibid).
- identifying and resourcing change agents (e.g. coordinator, steering group, external expertise) as advocates in guiding and supporting change processes (Fullen at al, 2020).
- building collective and individual agency (Fullen, at al, 2020); McLure & Aldridge, 2022; Burner, 2018). This requires flexibility in the form of differentiation of change strategies, based on different contexts. Prescriptive changes do not allow for adaption to changing contexts.
- Giving those on the ground voice, and autonomy to shape and adapt professional development and change strategies (McLure & Aldridge, 2022). This gives recognition that different contexts, and individuals have differing needs, practices and experiences.
- Making connections between what is already happening in the system and how such change impacts on overall cohesiveness. Strategies that are incompatible with each other create confusion, frustration and are indicative of limited or a lack of inclusiveness.
- Coordination of implementation (McLure & Aldridge, 2022). This includes allowing sufficient time and guidance to education institutions, training providers and government agencies and educators to plan how to implement change. Coordination requires understanding the complex co-constructed nature of the change process and developing a timeline for change that includes identifying and preparing those responsible for each part of the change process.
- Accept insecurity / tensions / contradictions as natural elements of change (Burner, 2018). As change is non-linear, there will be differing trajectories of change. Support and trust are critical in achieving transformations collectively and individually.

These factors are important in the overall thinking about the how of change, but they present something of a black box. While these are important and necessary factors involved in change, what is not addressed is, what motivates change, how do we gain commitment, input, trust and ideas for how to move forward at all levels in the system? The authors argue that *the means needs to reflect the ends, that is, it is necessary to move forward in ways that enact where we want to get to.*

For all that this appears to be obvious, it is necessary to explain why. When means and ends are aligned the process of change is modelled at all levels, necessitating inclusive bottom-up and top-down approaches that live the values and types of interactions in learning situations. This contributes to future-orientedness in change participants, helping to ensure sustainable and ongoing emergent change. After all, change is a learning process for all involved.

What might system level generative and dialogic change ‘look like’? Given that the evidence supports that future-oriented pedagogical practices are dialogic, involve generative practices, and that we argue that there is a dance between these and monologic practices, then our change processes need to be generative and dialogic.

3.3 Generative, dialogic approaches to change

Generative, dialogic approaches to change can be found in the literature on boundary crossing and activity theory. Wenger (1998, p. 140) defines boundary crossing as taking place when activity is carried out across different practices, with different forms of engagement, different histories, different definitions of what matters and different repertoires. Differences are revealed through who is included and excluded from interactions, what knowledge and meaning system(s) is considered relevant in those interactions and different practices, and making differences visible (Edwards, 2010) in the various activity systems involved. To implement FOPP stakeholders are involved in boundary crossing work and/or working at the boundaries.

Luff et al. (2000, p. 14) suggest boundary crossing is achieved when tools are used in ways that distribute cognitive activities:

> People appear to think in conjunction or partnership with others and with the help of culturally provided tools and implements … The thinking of these individuals might be considered to entail not just 'solo' cognitive activities, but distributed ones. In other words, it is not just the 'person-solo' who learns, but the 'person-plus', the whole system of interrelated factors (Salomon, 1993, xii-xiii, original italics). (Luff et al., 2000, p. 18)

But the question remains, how do we think about change processes where different stakeholders across different systems and organisations not only 'think in conjunction' but act collectively to create dynamic sustainable change? Dynamic in that the processes build in motives, intelligence (data) and processes to be able to recognise and act on circumstances that are themselves dynamic and in flux.

Engeström and Sannino (2021) offer possibilities for what they refer to as "heterogenous coalitions" from their series or generations of activity-theoretical studies. It is the third and fourth generations of activity-theoretical studies that are most relevant to changing pedagogical practices and the systems that mediate these practices. However, it is necessary to refer to the earlier generation concepts that are integral to the later generations, namely tensions and contradictions in and between different activity systems, and a cycle of expansive learning. Identifying contradictions and tensions within a system, such as between new tools in use and rigid rules for workplace practices, is critical for change efforts. Although any system will have tensions and contradictions as it continues to evolve, making these tensions and contradictions visible to those involved provides a trigger for change. Dialogue around understanding these tensions and contradictions from multiple perspectives contributes to what is at stake, the framing of core values embedded in an evolving narrative about where to move to, and what needs to change.

> Power becomes something that can be generated from below, by grasping the contradictions and by re-forging the activity to transcend the contradictions. Individuals gain agency and power by joining their efforts and constructing what Leont'ev characterized as "motive-goals", referring to a merger of conscious goals of individual actions and the motive of the entire collective activity. … This implies re-orchestration of social relations at work, creation of generative microcosms of collaboration and design of alternative futures. (Engeström & Sannino, 2021, p.11)

The processes involved are expansive and generative. "learning is understood as a collective process of creating and acquiring something that is not yet there" (ibid, p.9). Engeström & Sannino (2010) capture this expansive learning process as a cycle of expansive learning, beginning from questioning and analysing existing practices (fuelled by making tensions and contradictions visible), modelling a new solution, examining and testing the new model, implementing it, reflecting on the processes to consolidating and generalising the new practice. The process often unearths and leads to additional tensions and contradictions. These change tools are used as part of their Change Laboratory process, accompanied by formal training sessions organised by the researchers and informal workshops led by key stakeholders in order to promote peer learning.

With these analytic resources in mind, the next generation of activity theory involved multiple activity systems in "negotiated knotworking" (ibid. p.11). 'Knotworking' was created as a term to capture the fleeting collaborations that occur within and across different activity systems in changing circumstances. It reflects the view that because different institutions, specialities and practitioners are involved in working on a specific focus such as a sick child, no single institution or activity system is at the centre of the work. All need to know how to bring their specialisms to bear while respecting those of their collaborators. As Engeström explains, there "was no unit that could conceivably be

the centre of coordination" (ibid, p.12). The challenge for the researchers involved in supporting the change needed within activity systems was "to touch and trigger some internal tensions and dynamics in their respective activity systems, dynamics that could energize a serious transformation effort on their part" (Ibid).

In a healthcare study the team brought together, people from each of the major institutions involved having identified tensions and contradictions with each system, their major tools relevant to the issue of fragmented care and key relevant tools and the different objects i.e. focuses of their work.. The object of each of the major activity systems is listed in Table 2.

Table 2: Objects of the three activity systems involved in the change process

Activity system	Object
Health Centre	Children moving between primary care and hospital
Children's Hospital	Children moving between primary care and hospital
Patient's family	Chronically ill child with multiple problems

The intended outcome of bringing these systems together was to identify gaps, overlap and dis-coordinations of care. In coming together, the intent to address the issues of fragmented care led to identifying contradictions of the rule of cost efficiency and the object of moving patients between primary and hospital care; and this same object and instruments such as the care relationships and critical paths in hospital work. These were named up in a Boundary Crossing Laboratory, i.e. a meeting of the stakeholders which was structured by the analytic resources of activity theory, such as contradictions. They showed videos of troublesome cases and asked participants to articulate contradictions inherent in their own work. The videos served as a boundary object to prompt dialogue, questioning and analysis. In the process the flow of work and division of labour (roles, tasks, power relations) is made visible as are the various tools and understandings in the different activity systems.

The Boundary Crossing Laboratory is so called because in bringing people together from different activity systems, they are stepping outside or working at the boundaries of their own activity systems, to be exposed to different motives (what matters), rules, decision -making, power relations, ways of thinking and other tools. Tools identified in the literature that may assist in developing 'different types of shared external representation of a problem or domain' (Engeström et al., 1995, p. 322) are mediating artefacts or what Star (1989) calls, 'boundary objects'. They can help to make systemic tensions 'visible' (Engeström, 1999). Boundary objects or mediating artefacts may include a physical object, and/or a set of cognitive tools. The boundary objects become the focus of dialogue, of knowledge construction, of argumentation, of story-telling to make meaning, facilitating shared understanding (Bound, 2007).

Cultural historical activity theory (CHAT) (Engeström, 1987) is a powerful tool to enable participants to identify contradictions and tensions, including historical practices that may be contradictory to new motives or tools or organising the work. But the processes involved in working at the boundary to achieve change, are complex and difficult, involving more than identifying tensions and contradictions.

Anne Edwards' (2011) work on relational expertise and relational agency, helps to open the 'black box' of change. She explains that practitioners come to recognise the specialist expertise that is distributed across practices and settings, and second, they bring to bear both their core expertise and an additional form of expertise, which she calls relational expertise (2011, p.34). In the process the motives of participants are revealed as different stakeholders bring their resources (knowledge, norms, agendas, ways of 'doing' and relating) to bear on the work of collectively interpreting the 'object of activity' or task being worked on. In the process individual stakeholders may align their own responses to the newly enhanced and evolving collective interpretation of the task while at the same time, acting on the expanding object. There is an expanding and expansive spiral of understanding and naming the problem, developing collective intent, putting these understandings to work, and reflecting and evaluating them. The latter processes, continue to build deepening collective shared understanding of the motives that shape the different interpretations, language, problem solving approaches and goals which she calls 'common knowledge'.

Common knowledge is only possible if participants can recognise the different motives and meanings that others are employing when interpreting a task (Edwards, 2011). This takes place through dialogue, argumentation, shared artefacts and the attempt to combine theory and practice (Engeström et al., 1995). As participants are exposed to different forms of engagement, difference is encountered, unfamiliar territory is entered (Suchman, 1994, p. 25) and uncertainty is experienced. As Blackler (2004, p. 187) notes, collective development depends on the ways in which people deal with tensions.

From a different theoretical perspective, others talk about perspective-taking and perspective-making to develop shared understanding. From their study of communication in knowledge-intensive firms, Boland and Tenaski (1995) concluded that 'perspective taking' and 'perspective making' are ways of making visible the perspectives of others to facilitate shared understanding. These authors define perspective taking as the process of examining one's own assumptions and those of others, and of imagining the point of view of others. Perspective making is defined as the development of more coherent meaning structures (moving from general naming and understanding to more specific understandings and naming) as individual and groups work together. Boland & Tenaski argue that for the process of perspective taking to proceed, the diverse knowledge held by individuals must be made available for others to incorporate in a perspective-taking process – that is, differences are recognised, acknowledged and valued. The unique thought worlds of others need to be made visible and accessible to others. The first step, claim Boland and Tenaski (1995, p. 359), is differentiation. Only after a perspective is differentiated can it be reflected on and represented so the actors from different groups or activity systems have something to integrate. Once a representation has been made of an individual's knowledge, it becomes a boundary tool, providing a basis for perspective taking (Boland and Tenaski, 1995). Shared experiences, language, values, processes, procedures (Tomassini, 1993, p. 42) and tools (Engeström, 1987) contribute to individual and collective learning, and importantly, develop agency, necessary for change. Such capabilities require openness to difference, developing a comfort level with differences, tensions, contradictions and the language to keep the dialogue open and generative. These capabilities need to be developed in those who take leading roles in change processes.

In summary, change processes in relation to changing pedagogical practices across systems, involves boundary crossing. The process is complex and takes time and needs many people with the capabilities to broker change, who are supported by multiple different teams, similar to the work done in boundary crossing laboratories. The question of who is involved depends on the locus of change but would variously include, policy makers, educational institutions, professional bodies, licensing bodies, enterprises and so on. A group that is oft left out are learners. Depending on the locus of change they can be included through opting in or represented by their unions or minimally their voices captured as data. Positioning learners, not as targets of change but as partners in change processes (Burner, 2018; Hargreaves, 2009) helps educators understand learners' perspectives,

make education more accessible, and promotes collaborative teaching and learning (Cook-Sather, 2002). Recognising learner agency and involving them in co-constructing what is important to do and to know is essential for a learner-centred approach that values diversity and learner voice, core to dialogic inquiry processes.

Essentially, change processes address interconnected ecosystems and the relations between them. The following section aims to explore the various ways that the concept of contemporary ecosystems can be used within the education and training systems and how it mediates pedagogical practices. An ecosystem and its conceptual analogy has gained 'paradigm status' allowing for a deeper understanding of the interactions between living and non-living components of any given system. When applying this conceptual approach to education and training systems, the living components can be considered as the wide ranging internal and external actors, including learners. The non-living components refer to infrastructures (digital, physical), learning materials and content, structures and processes for quality assurance, accountability, funding etc. Differentiating between the living and non-living components is however not enough as it requires in-depth understanding of the dynamics between the different actors, structures, processes, and their interrelationships, alongside an understanding of how and why relationships are created, how they evolve and adapt.

3.4 Including and supporting educators

When educators engage in changing their pedagogical practices (PPs) they are often working with a complex mix of questioning their identity, their capability, their beliefs about learning, teaching and learners. For some it can mean a loss in confidence and a sense of uncertainty, others may thrive and become important role models. The change process necessarily involves more than educators. As described earlier in this Chapter, changing PPs is a wicked problem as it involves multiple stakeholders, disciplines, and horizons of understanding. This section will examine approaches to changing PPs by brings a focus to including educators in the change process, and supporting them in multiple ways.

To include educators in the change process requires understanding of management structures in an organisation. Existing organisational structures can hamper the change process as PPs are often initiated top down and driven by policy. Kloubert (2015) argues that when cascaded down, those tasked to execute with little prior notice or consultation will either accommodate or resist. This results in educator responses that are often reactionary instead of anticipatory. Being peripheral to the decision-making process, can result in tensions and misunderstandings and misalignment between educator beliefs and the intent of system change (Filipiak, 2023).

To support educators in changing PPs requires action and interventions to mitigate the effects of change. Supports include the rethinking of professional development and learning programmes as well as the provision of sufficient resources and tools for enactment of PPs. Stack & Bound (2012) propose a new model of professional learning based on the four dimensions of delivery, growth, praxis, and dialogical inquiry. In the Singapore context, professional learning often falls into a delivery model that focuses on the provision of skill-building or content-based courses, this happens when knowledge is perceived as a commodity. Curriculum design orients towards the creation of discrete tasks, outcomes, cultural reproduction and programme of planned activities (Stack & Bound, 2012). This model of learning design is problematic as the learner and educator are positioned in traditional roles that perpetuate monologic pedagogical practices (see Chapter 2). However, Singapore simultaneously offers another model of professional development evident in the Adult Education Network and their interest Groups, run by the Institute for Adult Learning, SUSS. These sessions can be led and initiated by educators themselves. This model reflects some aspects of professional development as praxis – practitioner research, agency, contribution, real concerns and contexts, and new products. And is this an existing structure that offers possibilities for further development.

The literature is quite clear about the need for educators to have at hand specific tools and strategies to enable them to move towards dialogic approaches (See Guzmán & Larrain, 2021; Alexander, 2008). In Chapter 4, we describe future-oriented pedagogical practices as being epitomised in what we call Dynamic generative knowing (DGK). An important basis of DGK is the dialogic inquiry approach. This section discusses the following supporting strategies:

- Supporting strategies to foster stronger professional identities, examples include the use of "Guiding coalition" (Kotter (1995), Gill (2002) and Twembeke & Goeman (2018)), dialogic spaces (Filipiak, 2023), Communities of Practice (CoP) (Larsen & McCormick, 2021), new "kernel" routines (Resnick et al., 2010), learner insights as a reflective tool (Treacy & Leavy, 2021), coaching (NCSM, 2019)

- Dialogic tools to support teaching and learning, examples include "talk moves" (Michael & O'Connor, 2015), Argumentation Rating Tool (ART) Reznitskaya & Wilkinson (2021), "The Teacher Scheme for Educational Dialogue Analysis" (T-SEDA)

These strategies are meant to be non-prescriptive, and the list is not exhaustive. The purpose is to provide a range for educators to adapt to their context and to develop educator agency.

Supporting strategies to foster stronger professional Identity

Professional identity affects how an educator identifies and relates to the profession in the workplace. An educator's experiences from any previous professional career, formal pedagogical training, and engagement with wider geographical, policy and economic landscape forms the professional identity (Hodgson & Spours, 2019). In a society, professional identity is commonly marked systematically by professional knowledge (Eraut, 1994) and stages of professional development or a professional code governed by ethics (Stratum, 2004). For Foley (2011), professional identity can also be seen as constructed through the understanding of the 'substantial self' or the 'core moral purpose' (Foley, 2011). Professional identity encompasses different aspects, in relation to supporting educators, we refer to professional identities in terms of agency and learning capabilities. Professional identity is not defined by professional qualifications alone, it encompasses an educator's belief systems, orientations towards learning, classroom practices and perceptions of the profession. Through the discussions on identity, we also unpack tensions and fragmentations so that targeted strategies can be implement to support educators.

Professional agency is an aspect of identity that influences the educator's ability to make independent decisions, enact autonomous actions in the classroom and exercise their own judgement (Campbell, 2012). The concept of agency highlights that the agent is not only responsible for what she does, for the degree to which she acts in line witheris evaluations, but also as responsible in some sense for these evaluations (Taylor, 1977, p. 118). Agentic work involves an individual making responsible strong judgements about their intentions and self-evaluating their achievements (Edwards, 2015; Taylor, 1997). Agency is both individual and collective. Biesta & Tedder (2007) provide a broader definition of agency as one that involves actors that act by means of their environment so that the achievement of agency results from the interplay of individual efforts, available resources and contextual and structural factors that come together in unique situations. In a post Covid-19 pandemic era, Campbell (2020) argues that rethinking of an educator's agency in terms of autonomy and power are central. Campbell explains that the pandemic has challenged the norms of learning, moved the world into a new norm. Educational institutions have witnessed the collaborative efforts of the schools in response to the crisis, institutions have bonded together to

ensure continuity of learning. These actions are commendable actions of individual and collective agentic actions.

There is a considerable body of literature on strategies to support educators in changing pedagogical practices. Some supporting strategies can be weaved into professional development programmes, others can be implemented separately, examples include:

- ***Guiding coalition***: The appointment of a "guiding coalition" to acknowledge change efforts was floated by scholars like Kotter (1995a), Gill (2002) and Twembeke & Goeman (2018). A "guiding coalition", is the putting together of a team of individuals with enough power to work together and lead change (Kotter, 1995a) in specific settings. The coalition fosters a stronger identity by appealing to the need for relatedness, the need to belong to a community (Harris 2007; Deci & Ryan 2014). Kotter (1995a) emphasies the need for the guiding coalition to model expected behaviours and to maintain constant communication. Gill (2002) said that representation in terms of diversity in the coalition is important as it narrows the distance between the coalition and those affected by the change. In a study conducted by Stanleigh (2008), he found that educators believed that the inclusion of colleagues from different training departments can help improve the group's integration. In a more recent study by Twembeke & Goeman's study, educators shared that having a representation of various age groups, different expertise levels, visibility and accessibility of the group are important factors to enable change. One educator cited the lack of time and resources as challenges to membershipsin the coalition. The educator explained that this is considered an additional task on top of the existing teaching load and educators are not compensated. Despite the challenge, the mobilisation of a guiding coalition offers potential for including educators to change. However, it would be important for members of the coalition to see themselves as representatives, to capture the voices of those they represent and to be in constant dialogue with colleagues to ensure that all voices and ideas are included.

- ***Critical spaces for dialogue***: The creation of critical spaces for dialogue on complex issues encountered by educators in their teaching helps foster agency (Filipiak, 2023). These spaces provide opportunities for the inclusion of educators when deciding on the pace and level of adoption of change (Twembeke & Goeman, 2018). These dialogic spaces can be physical or virtual, formal or informal spaces. The purpose is to facilitate change dialogue through periodic peer exchanges and enhance an educator's sense of relatedness (sense of belonging to a community) (Deci & Ryan 2014). Educators tend to downplay their pedagogical competency when there is a misalignment between their personal theories and beliefs and practical knowledge (Filipiak, 2023). Improving on relatedness will help to soften the belief and practice gaps, because there is opportunity to work through these misalignments. Thus, there is a need for psychological safety within that space. Strong agency is required to help practitioners facilitate collaboration across boundaries and to find moments of stability as they move in and out of different settings with the protection of what Sennett describes as "institutional shelters' (Edwards, 2005; 169; Sennett, 1997). Shelters are safe spaces that allow for distribution of expertise, using social relationships to enhance collective competence, and including educators in the construction of a positive organisational climate (Edwards 2015; Pappa et al. 2019; Pyhältö, Pietarinen & Soini 2015). The problem space that is created in dialogic inquiry by educators is complex, the creation of dialogic space for peer exchanges can help educators work through their beliefs, practices, and narrow the gaps between theoretical and practical knowledge.

- ***Communities of Practice***. The creation and participation in Communities of Practice (CoP) can help educators improve their teaching and define their professional identities (Larsen & McCormick, 2021). CoPs are formed when like-minded educators come together to share knowledge, expertise, and experiences (Fadzil, Harun & Jaidin, 2019). These CoPs are sometimes referred to as collaborative or professional learning communities (PLCs) in academic literature (Sowndappan, 2023), they share similarities as they rely on relationship building and networking as

a driver for learning (Fadzil et al., 2019; Lee & Kwak, 2020; Wang & Chen, 2018). CoP help sustained a social network of likeminded individuals that share a common set of core values, knowledge and practices, they play a central role in shaping collective practices (Hung et al, 2005). Collective practice can strengthen an educator's sense autonomy and power, necessary work for fostering identity.

In a system with change driven top down, CoPs offer educators a bottom-up approach and direct contribution to change processes and outcomes. Educators are given a voice and situated in a less formal context for interaction and peer facilitation, Educators can readily help others connect to materials and identify limitations (Calcagni et al., 2023) without the fears of backlash from employers. CoPs when implemented effectively can lead to powerful and positive changes in AE practices, it de-privatises classroom practice and offers support in pedagogical learning and action (Owen, 2014). In a concept paper of Professional Learning Committee, Sowndappan (2023) proposed the unpacking of PLC into five dimensions; sharing of mission and vision values, sharing and leadership recommendations, collective learning and application, individual practice sharing, and supportive environmental conditions. Together, these dimensions work towards improving quality of teaching through PLCs.

CoPs have the potential to support educators to translate research into practice, however it lacks the one-on-one support needed that coaching provides (Larsen & McCormick, 2021).

Coaching: Coaching of educators offers a personalised approach, it is intentional, ongoing, non-evaluative and supportive (NCSM, 2019). Effective coaching is centered on improving teaching and learning and conducted before and after lesson observation (Loucks-Horsley et al., 2010). Coaching is a relationship based on trust (Larsen and McCormick, 2021) and when paired with PLCs, it leads to greater teacher empowerment over current practices and strengthens professional identity and agency.

Kernal routines: Introducing of new "kernel" routines can transform less productive practices (Resnick et al., 2010). "Kernel" routines can be activities like weekly "learning walks" which allows educators to visit and observe classes, followed by debriefing sessions. The objective is for change leaders to identify current routines grounded in existing instructional practices and "seed" productive discussions. This helps to minimise disruptions to ongoing practice. It is a bottom-up approach of including educators in the change process.

Learner insights: Using learner insights as a reflective tool to understand educators motivation to engage in and commit to reform processes (Treacy & Leavy, 2021). Learner insights can be obtained from insightful reflections from learners about their experiences prior to intervention and insights about changing practice during intervention. These insights were effective as feedback for motivating educators (Treacy & Leavy, 2021). Feedback from learners is also a power tool for motivating reflection and change. Bound (2010), found that despite multiple efforts to coach and inform vocational educators that change was needed, it was feedback from learners that triggered the journey to change practices and develop new understandings.

Supporting educators through identity and agency work is complex. One way to understand agency is to unpack it into pedagogical agency and relational agency (Ruohotie-Lyhty & Moate 2016). Pedagogical agency empowers educators to construct collaborative learning environments, reflect and implement different instructional strategies (Pappa, Ruohotie-Lyhty & Eteläpelto, 2019; Soini et al. 2015). Relational agency develops educators' capacities to offer and ask for support from others (Edwards & Mackenzie, 2005: 282). Relational intimacy, an aspect of relational agency is critical in collective social encounters to mitigate the effects of risks and tensions experienced by educators

during change (Kidd, 2012). It promotes understanding amongst educators so that mutual support can be established to help redefine how and what it means to teach.

In addition to the above supporting strategies on fostering greater identity, some scholars have designed and proposed instruments to support educator practices in the classrooms, examples include different types of speech repertoires.

Dialogic Tools to support teaching and learning

Notably, dialogue is an essential ingredient to all the above. Dialogues are the intermediary between collective and individual thinking (Vygotsky, 1962). Dialogues are human encounters where participants engage actively, evaluate different perspectives critically, pose open questions and build on others' ideas (Bakhtin, 1981) to co-construct new meanings (Vygotsky, 1978). The dialogic approach discussed in Chapter 2 builds on the principles of dialogue, it enables learners to co-construct new meanings (Vygotsky, 1978) and is an important aspect of learning design. *The strategies discussed above, to support change in pedagogical practices have been shown to be necessary but not sufficient. Initiatives centred on scaffolding the practice with dialogic discursive repertoires have seen more successful results.* This suggests that centering on the practice seems to be fundamental to change (Guzman & Larrain, 2021, p.1). Consistent in much of the literature on dialogic teaching is the emphasis on scaffolding a new speech genre and orchestrating academically productive discussions (Michaels & O'Connor, 2015). It involves developing educator skills to "open up" conversations rather than "closing down". Dialogic teaching is not only learning a new speech genre; it is also initiating a process of appropriation of a foreign word, where one's own words enter into a relationship of contestation, agreement and disagreement, resistance, bonding, acceptance and tension, with the new words (Guzmán & Larrain, 2021, p.10). It is a process marked by conflict at the same time as a recreation process of something new. Conflicts are a necessary part of the process, these "Discomforting dialogues" help to generate cognitive dissonance which contradicts deeply held teaching beliefs and triggering deep reflection (Treacy & Leavy, 2021). Guzmán and Treacy's proposition that dialogic teaching involves conflicts and disagreements highlights the importance of supporting educators in designing speech genres.

Changing from monologic to dialogic approaches is difficult on a large scale without adequate support to orchestrate productive talk (Michaels & O'Connor 2015). Scaffolding the talk is important (Guzmán & Larrain, 2021) as dialogic teaching requires specific dialogic skills necessary to foster reciprocal interactions with learners in group discussions (Gillies, 2015). Alexander (2008) proposes the use of certain speech repertoires to promote the construction of knowledge and collective problem solving. Michael & O'Connor (2015) and Reznitskaya & Wilkinson (2021) designed speech repertoire tools and conducted studies on the use of "talk moves" and developed an argumentation rating tool (ART) to support educators in dialogic teaching.

Talk Moves

Michael & O'Connor (2015) conceptualised the use of what they refer to as "talk moves" which are simple roughly utterance-sized units of talks that are intended to move other learners to respond in some way to bring something particular to the table (O'Connor & Michaels, 2019). "Talk moves" are speech repertoire tools that educators can call on to facilitate and address gaps and problem solve during interactive dialogues (Asterhan, Resnick, & Clarke, 2015; Michael & O'Connor, 2015). One example of a talk tool is the "revoicing" tool which can be used purposefully to build on the contributions of a learner-originator for other learners to clarify, correct, elaborate, affirm, cast doubts and provide alternatives, this provides greater learner agency (O'Connor & Michaels, 2019). Other talk moves in the family includes the "press for reasoning" moves (McElhone, 2013), "marking" moves (McKeown & Beck, 2004) and the "say more" moves which helps to give the educator more mental space to decide on where to go next in the dialogue (O'Connor & Michaels, 2019).

Argumentation rating tool (ART)

To help educators improve the quality of facilitation, Reznitskaya & Wilkinson (2021) designed an observational rating scale described as the Argumentation rating tool (ART). The ART was developed for a particular type of talk underpinned by inquiry dialogue, it is differentiated from the persuasion dialogue which emphasizes on winning over the opponents (Gregory, 2007b). In that sense, even though it is named ART, it is not about arguing for the purpose of winning. Inquiry dialogue is a higher epistemic requirement that takes into account all available tentative propositions, it is cumulative and moves learners towards well-reasoned conclusions (Gregory, 2007b; Walton, 1998). The ART sets out four criteria for quality argumentation and eleven ways of enacting it (Reznitskaya & Wilkinson, 2021). The four criteria are the diversity of perspectives, clarity, acceptability of reasons and evidence and lastly, logical validity. The criteria is translated into a list of 11 practices for easy application, each practice is assigned a 6 point rubric and included detailed descriptions of underlying principles and examples of specific prompts or talk moves. For example, one of the practice under the clarity criteria is "connecting ideas", this practice will be used as the basis for assessing the quality of the questions raised by the educator. Although it is used as a quality assessment tool, the objective is be a form of feedback and professional development for the educator. This tool has the potential to narrow the gap between what educators perceive they do in the classroom and their actual practices. The perception-practice gap is real, studies on the gap have been conducted by scholars like Alvermann & Hayes (1989) and Nystrand et al., (2003). For the latter, empirical data obtained from more than 200 classes was collected and analysed, Nystrand and colleagues concluded that "despite considerable lip service among teachers to "discussion," we found little discussion in any classes in the sense of an open and in-depth exchange of ideas" (Nystrand, 2003, p. 178). Apart from the ART, other practitioner observational tools like the "Teacher Scheme for Educational Dialogue Analysis" (T-SEDA) have been widely used to assess the quality of dialogic pedagogy in a non-prescriptive way.

The Teacher Scheme for Educational Dialogue Analysis (T-SEDA)

The "The Teacher Scheme for Educational Dialogue Analysis (T-SEDA)" is a readily available resource pack, it is an open resource that includes a set of tools and resources for supporting development of dialogic pedagogy (Hennessy et al., 2021). T-SEDA offers practical guidance and a coding scheme for educators to systematically micro-analyse classroom interaction and self reflect on an individual's and peers' dialogic practices. It is premised on a practitioner based inquiry approach. Hennessy and colleagues' (2021) study found that the use of T-SEDA, was successful in offering insights on knowledge mobilisation and educational change processes. Participants in the study successfully used and adapted the resources to their own goals, needs and context across different countries.

Dialogic tools like the T-SEDA are useful contributions to educators' professional development as they are scalability (Howe & Mercer, 2017) and sustainability. Intervention programmes like physical observations of classes, monthly coaching, field work, workshops are effective but they tend to be time consuming and resource intensive, this makes scaling up and sustaining it difficult (Vrikki et al. 2019). The long-term impact and follow up actions of interventions are seldom measured and tracked, making such intervention programmes not sustainable. Vrikki et al. (2019)'s study found that when "model" dialogue forms are used, "model" dialogues are enabled. An AE has the power to shape dialogue and this is evidenced from the "pockets of excellence" observed in the classrooms despite considerable variations across classrooms and high frequencies of elaborated and reasoned talk observed. The availability and interest in developing speech repertoire tools like talk moves, ART and T-SEDA shows a potential in scaffolding dialogue through professional development of educators.

Summary

Supporting educators during the change process is no easy task, it requires a multipronged approach that involves changing practices and beliefs of systems, groups and individuals in the ecosystem. At the individual level, it involves the unlearning and relearning of habits to bridge the gaps between research and practice. educators need to be cognizant of the gaps between their perception and enactment of learning in the classrooms. At the group and system level, management and policy holders need a sound understanding of current practices and the underlying beliefs and tensions associated with it to enact change positively. They need to understand how top down management undermines the effectiveness of change. When considering strategies to support educators, all stakeholders will need to be cognizant of identity and agency related issues. Agency and identity work can help educators to boost relatedness, competence and autonomy, all of which we argued as necessary work for motivating educators during the change process. The use of speech repertoire tools like ART, "talk moves", T-SEDA provides practical resources for educators to improve the quality teaching through professional development. Lastly, the discussion on CoPs, PLCs and coaching offers a social means to achieving success in managing change. There is no one size fits all in our approach, the best approach is one that is customised to the needs and context of the educators.

3.5 Including and supporting Learners

When learners have historically experienced monologic approaches, they become accustomed to the educator providing them with what is needed to pass assessments and to do the work of learning for them. It is not surprising then that some learners with this learning history feel frustrated, angry, and even cheated, if they find themselves part of a learning experience that is dialogic. The role of the learner and the capabilities required to fully participate and make the most of the learning experience are very different from what they have been used to (Bound, et al., 2019). Learners are our key stakeholders and as such, when pedagogical practices are changed, so we need to enable learners to be and be constantly becoming future-oriented learners.

Educators can scaffold their learners' entree into dialogic learning experiences. In this section we focus on the following: Feedback, Reflective Questions, developing metacognition, and Evaluative Judgement. These teaching tools set the stage to enable learners to participate fully in dialogic inquiry.

Feedback

Feedback is a term often heard and used in educational contexts, however the meaning is of feedback is differently interpreted in different settings and by different practitioners (Winstone et al., 2022). Feedback can be thought of as a summative process where learners are told where they have gone wrong and what they need to do to improve (Reimann et al., 2019). It can also be considered as a form of a shared inquiry where learners are encouraged to explore the issues with the facilitator and their peers (Oates, & Bignell, 2022) to work on the areas of improvement (Dawson et al., 2019). Mahoney et al. (2019) describes feedback as feedback to be 'a process through which learners make sense of information from various sources and use it to enhance their work or learning strategies' (p. 1). The study also lists the following steps to enable effective feedback (Mahoney et al., 2019):

1. Design follow-on tasks so that learners can apply information received.
2. Move feedback earlier in the unit so learners have time to act.
3. Have learners judge their own work against criteria before they submit it.
4. Support learners to know what feedback is and how they can make it work for themselves.
5. Focus on comments for improvement rather than corrections.

6. Initiate peer feedback activities that focus on producing improved work.
7. Invest time in developing your teaching/ marking team.
8. Personalise feedback comments to individual learners.
9. Consider different modes of providing feedback comments.

Timing and frequency of the feedback given can be critical in terms of the modalities used, and the connected tasks in relation to the assessment given. Learners have highlighted that feedback is effective especially when the comments given are practical, detailed, considerate of affect and personalised to the learner's own work (Dawson et al., 2019). In addition, many professionals have also highlighted that receiving practical and useful feedback on their learning helps them develop the skills required for them to flourish at the workplace (Henderson et al., 2019).

Recent feedback literature suggests that the development of student feedback literacy has potential to address problems in current feedback practice. Feedback literacy involves developing the capacity to benefit from feedback opportunities by being actively involved in feedback processes (Malecka et al., 2022). Evidence indicated that many positive feedback behaviours, such as managing perceptions and attitudes, improving understanding of the role of a learner in the feedback process, and having more confidence and agency in the feedback process (Carless & Boud, 2018), may be improved through active participation of learners in feedback literacy interventions in the classroom (Little et al., 2023).

When feedback is inaccurate and/or poorly designed (Henderson et al., 2021), learners may become confused, and lose motivation in learning (Mahoney et al., 2019). Molloy et al. (2020) highlight the importance of feedback being a dialogue with learners. Opportunities for learners to provide feedback to one another offers the opportunity to gain different understandings (Wisniewski et al., 2020). One way feedback encourages reproduction of knowledge without learners having the opportunity to understand how they went wrong and reflect on how they can do better in future (Boud & Molloy, 2013). Focus must be given to the timing of feedback and on processes to get work completed before final summative assessments to enable learners to improve and work towards their summative assessment (Winstone & Boud, 2022).

Feedback does not have to be only through formal means but can also include informal professional and peer conversations, not limited by time and setting (Carless, 2022).

Reflective Questions

'Reflection is considered as a mental process of an individual's internal problem-solving activity and rarely observed in face-to-face instruction' (Yang, 2010, p. 1202). Chen et al. (2011) argue that a reflective process requires the facilitator's intervention, facilitation, and guidance during the learning process. In the classroom, well crafted reflective questions, can help learners connect critical concepts and relate what they have learnt to real-world situations and workplace demands (Zawawi et al., 2023). In addition, such questions can improve learners' understanding, through relevant structures of meaning of a particular subject or skill as they can connect the different aspects of what is taught through this reflective process (Fenwick & Tennant, 2020). A deep understanding of self-reflection enables learners to use it as a means to integrate learning and real-world experience to mitigate emergent challenges in the workplace (Boud et al., 2013).

Reflective questioning involves asking well-formed questions and encouraging learners to continue the investigation instead of finding absolute answers (Yaacob, et al., 2021). There are several approaches in the literature about how questioning can be used to engage and challenge learners. One of the most frequently cited method is the Socratic method of questioning (Delić and Bećirović 2016; Healey 2012). Delić and Bećirović (2016) described the Socratic method as a pedagogical strategy using carefully crafted guided questions, dialogues, and arguments to help learners critically

reflect on their understanding of a particular concept or challenge. During the reflective process, the educator's questions stimulate learners cognitively to reject misconceptions, gain insights and encourage a deeper understanding what they are learning. Garrison et al. (2000) pointed out that "the tone of the messages is questioning but engaging, expressive but responsive, challenging but respectful" (p. 96). Reflective questions seek to open up the discussion to more critical thought and debate (Choi et al., 2005), encouraging learner's contributions, and critical responses (Liu, 2019). Reflective questioning can also be carried out using reflective journals and recall activities of significant takeaways at the end of a lesson (Alt & Raichel, 2020). Fadhil – any examples of Qs

Metacognitive Activities

Metacognition is essentially 'thinking about thinking' (IAL, 2012b, p.1). Although still considered to be a concept that is "ambiguous" that comes with many different interpretations and understandings by researchers across psychological and educational fields, metacognition is generally considered to consist of two core aspects. These are: cognitive knowledge and cognitive regulation, which are important in developing 'learning how to learn' capacities (IAL, 2012b). usually conceptualized as an interrelated set of competencies for learning and thinking and include many of the skills required for active learning, critical thinking, reflective judgment, problem solving, and decision-making. Adults with well-developed metacognitive skills tend to be better problem-solvers, decision makers, and critical thinkers (Dawson, 2008). These learners are likely more motivated about learning and are able to regulate their emotions well, even when confronted with challenging and complex situations, and cope with conflicts more confidently (Dawson, 2016).

Metacognitive skills include planning, mental scripting, positive self-talk, self-questioning, self-evaluation, and a range of other learning and study strategies (Zawawi et al., 2023). To develop metacognitive skills in the classroom, it is vital for educators to engage learners by providing explicit strategy instruction, modelling of learned strategy, memorisation of a learning strategy, providing scaffolded practice, independent practice, and structured reflection (Buin et al., 2022). Other metacognitive strategies include: 1)) identification of problems, 2) thinking-aloud protocols, 3) walking through images, 4) crafting semantic maps, and 5) selective attention (Henter, 2014).

However, despite the significant benefits of metacognitive activities to empower learners, it is not easily taught and introduced in the classroom (Craig et al., 2020). However, simple teaching strategies such as making visible to learners, individually and collectively, when they use metacognitive strategies is a powerful means of unobtrusively developing this capability (Bound et al, 2019). The Map of Dialogic Inquiry with its eight aspects of thinking (theorising, imagining, reflecting, relating, experiencing, procedural, analysing, applying) is an example of a tool that helps learners become aware of the ways in which they habitually think and how they can expand the repertoire (Stack & Bound, 2012).

Evaluative judgement

Evaluative judgement is the capability to make decisions about the quality of work of oneself and that of others (Tai et al., 2018). Being able to do this is important to deal with the rapid changes in an uncertain world of work. Such an endeavour would rarely come from the reproduction of technical or disciplinary knowledge, but instead from the ability to evaluate, synthesise, and apply learning appropriately in real life contexts (Bound & Chia, 2020).

Boud (2007) sought to develop an inclusive perspective of assessment, suggesting that it ought to be considered as a practice at the disposal of both educators and learners rather than simply an evaluative action from educators only (Boud, 2007). Considering the dichotomy between summative and formative assessments, Boud (2000) created the term 'sustainable assessment' to indicate a purpose of assessment that would be more comprehensive and equitable (Tai et al., 2018).

Sustainable assessment is focused on developing learners' capacity to make judgements of their own work and that of others through engagement in a variety of assessment activities to become more effective learners and fulfil the demands of work (Boud, 2000).

To encourage the development of learners' informed judgement and evaluative capabilities, the following factors are critical: (a) identifying oneself as an active learner, (b) identifying one's level of knowledge and the gaps in this, (c) practising testing and judging, (d) developing these skills over time, and (e) embodying reflexivity and commitment. (Boud & Falchikov, 2007). Some common examples of developing learner's evaluative and judgment capabilities are by using: (1) active and iterative engagement with criteria, (2) enactment of judgements on diverse samples of work, (3) dialogic feedback with peers, and (5) articulation and justification of judgements with a focus on both immediate and future tasks. Evaluative judgement brings together these different activities and refocuses them as pedagogies to be used towards producing students who can make effective judgements within and beyond the course (Tai et al., 2018).

Sadler (2010) proposed that educators needed to provide justification and articulate the reasons for the feedback given rather than merely providing information. Although providing the assessment criteria for learners is a positive step in facilitating evaluative judgement in learners, it is unlikely that such criteria will be helpful in communicating complex tacit and critical knowledge embedded in standards and quality (Sadler 2007). Sadler (2010) also suggested that one way of developing this capability was using peer review or peer assessment. Engaging in peer evaluation and review activities would help learners develop their evaluative capacity and understandings of quality (Mahoney et al., 2018).

There are many other ways of developing evaluative judgement capabilities, and it is important that this is considered in the context of the subject matter being taught. Some potential ways in which learners can be supported to develop evaluative judgement (Bouwer,2018) are:

1. educators can use exemplars of other learners' work (whose identities have been anonymised) to demonstrate work of varying qualities and to understand annotated markers' comments.
2. learners are given the opportunity to assess their own work-in-progress against grading criteria. When submitting work for assessment, learners self-assess their own work against the criteria first and include this assessment in their submission. Feedback is then given by the educator in relation to the learners' own self-assessment, helping to hone their evaluative judgement.
3. Learners engage with the work of their peers, providing feedback on work-in-progress against the grading criteria provided.
4. Learners to engage with criteria by discussing their meaning and articulating the distinguishing features of work expected at each level of the grading scheme.

Bound and Chia (2020) highlighted that the ability to evaluate and give judgement allows learners to compare and contrast; to work out the advantages and disadvantages of different ideas, approaches, solutions, and provides exposure to multiple perspectives and approaches, all of which are critical 21st Century Skills. To develop evaluative and judgement capabilities, learners must also be given the opportunity to analyse and solve case-studies based on real world challenges (McDowell & Tasker, 2023) and benefit from constructive feedback that comes from both educators and peers (Chong & Lin, 2023).

4. The Future-oriented Pedagogical Practices Framework

4.1 Introduction

> Instead, our new "product specification" for our teaching-learning system must be our ability to create new ideas, perspectives, and products of value to the world.
>
> 1. To create then requires us to be able to connect and collaborate.
> 2. To connect means our ability to understand other people and perspectives forms the foundation for us to develop new ideas to meet new and emerging needs.
> 3. To collaborate is the ability for us to be able to leverage our collective strengths, and that of others, to harness the ideas and energies of diverse people and perspectives and bring them together in a trusted environment for them to create something new and of value for ourselves and the world. (Minister Chan Chun Sing speech, 30/05/2022)

In this Chapter we share the journey undertaken by the research team in developing the Future-oriented Pedagogical Practices (FOPP) Framework and the FOPP Framework itself. But first, Minister Chan's comment requires some recognition, as the final version of the FOPP Framework speaks directly to Minister Chan Chun Sing's statement that teaching can no longer be the transmission of knowledge, and neither can learning be about the absorption of knowledge or known ideas alone.

If learning is more than individuals acquiring knowledge, what is the 'more'? Bound, Evans, Sadik & Karmel (2019) partially address this question in their definition of learning as "a process contributing to an increased capability of learners to act differently and leading to new sets of relations in their multiple environments" (p.89). These authors add that:

> "Engagement in practices contributes to our sense of who we are, our meaning-making and participation in different practices – our dispositions - in different contexts… Learning to act differently is not only about developing specific capabilities, but a constant process and journey of evolving identity and the enacted agency of those identities." (ibid, pp.89-90)

Participation implies interaction and collaboration indicative of the social nature of learning. In the process of interaction with others, with material and non-material things, and all that makes up the myriad of work practices, we make meaning (internalise) and then in continued interaction continue this cycle leading to a spiral of developing expertise. Strong meta-cognitive, learning to learn knowing is important in developing improved mastery and capacity (ref). In Chapter 2, the dialogic approach to teaching highlights the value of going beyond collaboration to knowledge building, requiring an evolving collective shared understanding. As Minister Chan states, trust is necessary to develop something of value, that is new (to us, our work groups, organisation, collective activities, etc.) and

contributes to the ability to meet emerging needs. Trust is necessary for inquiry processes (see Chapter 2) that are usually the precedent for building knowledge, improving on ideas and potentially developing something 'new'. The FOPP Framework sets out what pedagogical practices look like when they support learners' "ability to create new ideas, perspectives, and products of value to the world" (Chan, 2022). Minister Chan's reference to "our teaching-learning system" rightly points out that a system approach is required. In other words, changing pedagogical practices is not the work of educators alone, but of every player and material artefact in our systems, as discussed in the final Chapters of this report.

In this Chapter, we introduce the FOPP Framework. The FOPP Framework is then used in the following chapters as an analytical tool for our observations of teaching (training) practices. More importantly, the FOPP Framework is the basis for discussion about what needs changing and how the TAE system can move forward in contributing to developing future-oriented learners.

4.2 Future-oriented

We use the term future-oriented to convey the idea that we can never be future-ready, because the future is always out there, it never arrives. We define FOPPs as the pedagogical intent and enactment of growing future-oriented learners who:

- work with what is emergent, unknown and complex
- question taken for-granted practices, necessary in working in and with changing circumstances
- exercise their natural curiosity, critically evaluate, be comfortable with difference, and know how to navigate the unfamiliar
- grow their identity as learners and as practitioners

Illustrative of our iterative movement between literature and data in developing the FOPP Framework, this statement was developed in the final stages of interview and observation data analysis and adjusted and further crafted through feedback from the dialogue sessions across different stakeholder groups.

Before proceeding further, it is helpful to understand why the research team placed so much importance on developing a Framework. As indicated in Chapter 3, delivery -based approaches to changing practices have achieved little, producing few measurable effects on pedagogical practices or learner outcomes (Bowe & Gore, 2017). Similarly, shifts towards more collaborative professional development, communities of practice (CoPs), along with work on epistemological beliefs, critical thinking and so on have shown these approaches are necessary, but not sufficient (Alexander, 2008; Guzmán & Larrain, 2021; Solbrekke, Englund, Karseth & Beck, 2016; Bowe & Gore, 2017). There is evidence of success when professional development through practice, combines all the above, plus learning and teaching talk. In learning through practice, educators need tools to make sense of their own and their institution's / organisation's pedagogical practices. *This is the role of the FOPP Framework. While the FOPP Framework is not a stand-alone tool for change, our final product enables educators, institutions and organisations to identify where their current practices are to see what is possible*. In the second stage of this project (when it is picked up for use in IAL's Adult Learning Collaboratory), it will be important to also develop supporting tools such as examples of teacher talk that can initially be used by educators in supporting their changing practices, until they are able to sustain their practice without these crutches because the ways of thinking and speech genres have been deeply internalised.

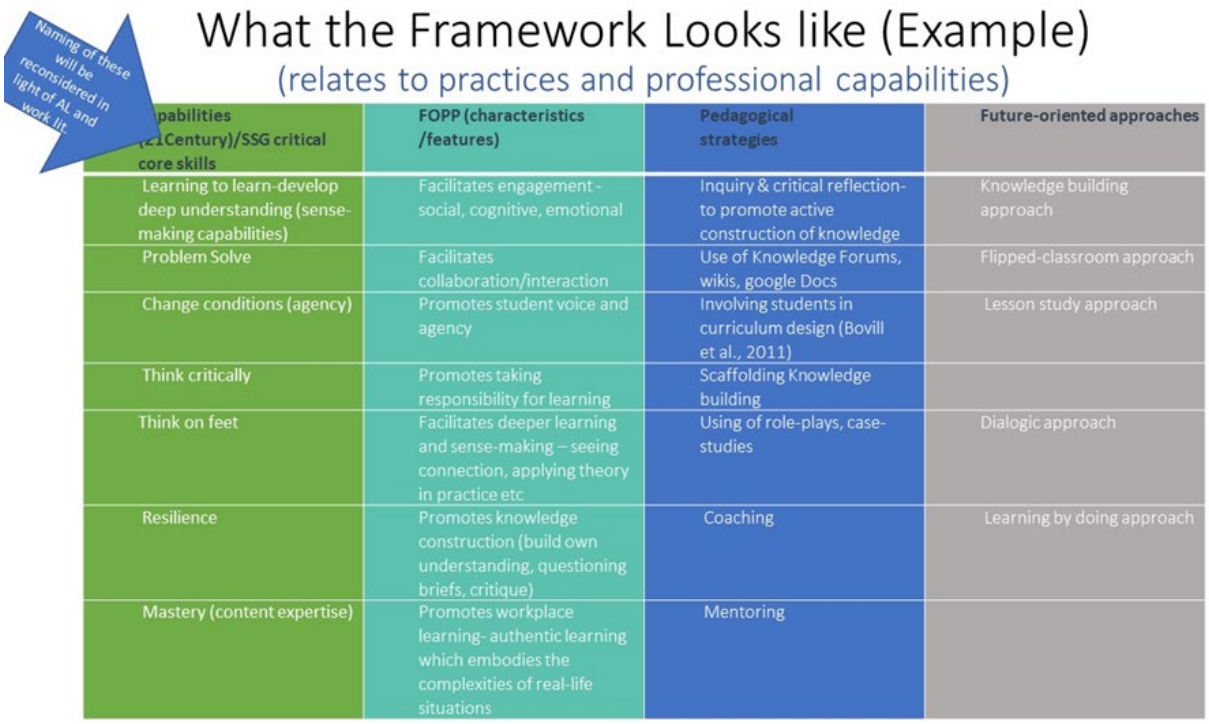
The first section in this chapter outlines the journey in the development of the FOPP Framework. The second section explains the final Framework, expounding on each of the four aspects of the

Framework. Aspects of the Framework and the continuum are shown in Figure 8 below to provide a means for the reader to see the differences in the early versions and the final Framework as you read the following section capturing the journey.

4.3 The Journey towards the final FOPP Framework

The research team began the development of the FOPP Framework with little idea of what the final Framework would look like, so we commenced by working with current tools, such as SSG's critical Core Skills, what some in the team saw as future-oriented in current practices, as shown in Figure 8.

Figure 8: An early version of the Framework



The research team quickly moved on from this Framing, as we read further and began to analyse curriculum documentation collected across the five sectors listed in Chapter 1.

This second iteration was more sophisticated and afforded analytical possibilities. The two Xs in Figure 8 relate to the analysis of a specific curriculum. The controlled curriculum reflected what has been found in a range of other IAL studies when looking at Workforce Qualification System (WSQ_ curriculum (see for example, Stack & Bound, 2012; Bound & Lin, 2012; Choy & Bound, 2020; Bi et al, 2020). The ideas of sense-making came from the Bi et al (2019) study on learners' sense-making. As one moves from controlled towards relational inquiry there is an intent to capture increasingly collaborative pedagogical practices, and a shift from transmissive approaches to one where pedagogical practice encourages and supports learner inquiry.

The rows of teaching and learning philosophy; pedagogical practices, and evaluation practices were an attempt to break down the different aspects along the x axis. At this stage we were debating if each of the X axis descriptors were points on a continuum or were categorically different.

Figure 9: Second iteration of the Framework

F&B_TP01	1 Controlled	2 Functional sense-making	3 Participative sense-making	4 Relational inquiry
Teaching and learning philosophy	Learning is assumed to be about individuals acquiring knowledge. Teaching is assumed to be a mainly one-way process from trainer to learner and testing of knowledge that needs to be acquired X	Learning is assumed to be about individuals acquiring knowledge and making sense of this knowledge through interaction such as group discussions. However, the trainer controls and directs the interaction. (e.g. Q&A between trainer and learner(s)). Often discussion is initiation from trainer, response from learners and feedback from trainer (often confirming or correcting).	Knowledge is distributed through the community of practice. Learning is about developing one's identity as part of the community. Trainers are strongly facilitative, drawing out the different expertise and experience of learners as part of developing a sense of community; there is considerable exchange between learners.	Knowledge is assumed to be co-constructed by learners & between learners and 'expert others', including facilitators in a community of inquiry. Learning is understood as embodied, holistic, working with problems and authentic experiences etc. and developing identity, & meta-cognitive capabilities & ability to thrive in changing circumstances.
Pedagogical practices	Transmissive approaches predominate X	Transmission with interaction (eg group work) between learners and Q&A. Trainer may share interesting stories of their own industry experience.	Facilitator provides many opportunities for learners to share knowledge, experience discuss topics, reflect etc. enabling learners to 'see' where and how they are part of different communities of practice(s). Trainer will provide short inputs and encourage peer support and discussion.	Future-oriented pedagogical practices (e.g. co-configuration of business solutioning, pedagogical approaches such as dialogic inquiry, authentic problem based learning, etc.). Facilitator will give short inputs, challenge learners, develop critical questioning, meta-cognitive and resilience etc. capabilities
Evaluation practices	Collects learner satisfaction evaluation sheets, often using these to determine continuous (or not) engagement of adjunct trainers. Collects TRAQAM data as required by SSG. Accepts the common discourse that 'we cannot change' the curriculum (aka perceived as an SSG requirement). Makes changes as required by funder.	Collects a range of data but may not have well developed systems and processes in place to interpret the data and use it strategically. Consequently, the quality of data and its interpretation is at times erratic and not organisation wide.	Collects data from diverse sources but is not as embedded in a variety of networks as 4 Relational inquiry, so may not have early access, for example, to upcoming policy changes. Interprets data on an ongoing basis and has systems in place to support these processes across the organisation.	Collects varied data from diverse sources including having knowledge of competitors, partners and potential partners, industry and government sources. Employs appropriate interpretative tools and processes including data analytics and uses the findings strategically to make continuous adjustments and changes to products and services offered. These processes are supported through having organisation wide dynamic (high performance) work systems in place.

We analysed all the curriculum documents using this version of the Framework, and in the process found that pedagogical practices for example was too broad; it was this we needed to break down. Evaluation practices were problematic as they are beyond the control of educators and more the province of training providers and quality assurance processes throughout the TAE system.

Once interviews and observation data came in, they helped us to see what was happening. Namely, that the role of the educator and learner (the division of labour) strongly mediates the nature of interaction in the learning process. This was supported in the literature (see Skidmore, 2006; Falabella, 2019; Trede & McEwen, 2016). We noticed that epistemological beliefs, a common theme in the literature on changing pedagogical practices, continued to be evident in the pedagogical practices we observed and heard about in interviews – be it conscious or not, on the part of the educator and/or training providers. We also found that learning design was an important consideration. This was important as the curriculum designer has far greater control over learning design than evaluation. The six principles of learning design (developed through IAL research completed in 2016) (Bound & Chia, 2020; Bound, Chia & Karmel, 2016) have been gaining traction in the TAE sector, and support dialogic and inquiry processes as was evident in our study on dialogic inquiry (Bound, Tan, Chow, Wang & Chuen, 2019). These insights resulted in identifying three aspects of pedagogical practices that contributed to version 3 of the framework:

- Epistemological beliefs (about knowledge, learners, teaching, and learning)
- Division of labour
- Learning design

The X axis underwent considerable change as well. Working with our observations on how knowledge was understood used and/or developed and what we saw in the literature (see Chapter 2) we coined the terms reproduction, distributed knowing and generative knowing.

Figure 10: Version 3 of the Framework

PEDAGOGICAL PRACTICES	KNOWLEDGE	DIVISION OF LABOUR	DESIGN OF LEARNING
Reproduction			
Distributed Knowing			
Generative Knowing			

At this stage we continued to debate if the pedagogical practices (reproduction, distributed knowing and generative knowing were a continuum or categorically different. However, as we analysed our observations, we reversed the X and Y axis to develop a mapping tool that could be used to visually represent the different pedagogical practices we were observing. As we mapped, we debated why a particular pedagogical activity was one type of pedagogical practice or in between pedagogical practices. This process began to clarify what was different between distributed knowing and generative knowing. Reproduction was much easier to 'see'. In the process of these discussions, we identified the link between division of labour and patterns of interaction between educator and learners and between learners and others involved in the learning setting. This realisation fed into the fourth and final version of the Framework, captured in Figure 11). In discussions with a member of our Academic Advisory Panel we also changed reproduction to reproducing knowledge so that the terms were consistent.

The following section unpacks this Framework, drawing on data from our dialogue sessions with AEs, Training providers and learners, our latest Reference Group meeting and feedback from the project's Academic Advisory Panel to illustrate how we arrived at this version. In the process we provide examples of how the Framework is interpreted and supported.

Figure 11: Version 4 of the FOPP Framework (final)

Aspects of PPs	**Reproducing knowledge**	**Distributed Knowing**	**Dynamic Generative Knowing**
Epistemic beliefs			
Who is doing the work? (division of labour)			
Assessment			
Learning Design			

4.4 The FOPP framework

The core of the Framework is the X axis – Reproducing Knowledge (RK), Distributed Knowing (DK), and Dynamic Generative Knowing (DGK).

FOPPs are evident in DGK. However, as will be seen in the following Chapters, to achieve DGK, it is necessary to dance along the continuum of pedagogical practices. The longer the structured learning experience, the more likely an educator can spend more time using pedagogical practices that are DGK, as learners need to develop the skills to generate knowledge and knowing.

Our reference group suggested that DGK can be seen in workplaces and are what should be happening in workplaces. As DGK requires a supportive community and a community of inquiry, these need to be found in cultural practices in the workplace to enable DGK.

We begin this section with a brief general explanation of each of the four aspects of pedagogical practices in the FOPP Framework. This is followed by an explanation of the three pedagogical practices, unpacked by explaining each of the four aspects as they relate to RK, DK and DGK.

A brief explanation of each of the four aspects is listed below:

Epistemological beliefs: Refers to beliefs and assumptions made about learning, teaching, learners, and knowledge that educators, their organisations, and others who have influence on pedagogical practices. As discussed in Chapter 2, beliefs are considered an important aspect of changing practices. Beliefs are an aspect of identity, promoting or limiting agency. However, the literature also states that mismatches between beliefs and practices are also common. We found examples of this in our data, see for example, the manufacturing case study in Chapter 6. Making these mismatches, or contradictions, visible to practitioners and organisations contributes to motives for change.

Who is doing what: Refers to the division of labour between educator(s) and learners. For example, who is doing most of the talking, who contributes expertise, who is asking questions, the extent to which learners have choice. The division of labour establishes relations of power and can make or break the potential to establish a safe psychological space, necessary for collaboration in DK and a basic requirement for DGK which develops a community of inquiry. In DGK, learners' voices (opinions, contributions etc) matter. As such division of labour mediates patterns of interaction, for example, who is asking questions, and do the questions and responses close down dialogue or open up dialogue? In these ways, learner agency is enhanced or limited.

Assessment: refers to the different types of assessment – summative, formative, diagnostic (Darling-Hammond, 2014) and sustainable assessment (Boud, 2000). Courses that lead to accreditation require summative assessment but ideally include other forms of assessment to support learning, as learning and assessment are intertwined (Bound, et al, 2016). The Six Principles of Learning Design (6PoLD) (Bound & Chia, 2020) are premised on the intertwinement of learning and assessment. They are a set of principles (authentic, alignment, holistic, feedback, judgement, future-oriented) that capture learning as holistic and what learners should be given time and space for doing. The 6PoLD can guide the design of all forms of assessment (and learning).

The power educators have to design, change or adjust assessment is important as, for example, assessment that only requires learners to reproduce knowledge or understand knowledge does not align with learning activities in DK or DGK.

Design of learning: using this phrase, 'design of learning' is deliberate as curriculum is not commonly applied to, for example, work settings (albeit that the work itself, forms the curriculum (Billett, 2001)). As referred to in the explanation of assessment, the 6PoLD provide guidance for designing curriculum. Implicit in the 6PoLD are other models of learning design,

such as, learning for understanding (Wiske, 1998) and universal design (inclusion) (CAST, no date). The design of learning creates possibilities for varied pedagogical practices, or what we call the 'dance' along the pedagogical practices continuum, that include DGK.

To achieve DGK, educators need the power and agency to adjust the curriculum as needed. Educators with strong pedagogical knowledge and agency will make such adjustments to the extent their institutional / organisational requirements allow them to.

The four aspects of the FOPP Framework differ in each of the pedagogical practices – RK, DK and DGK enabling pedagogical practices to be made visible when mapped across the PPs continuum. When, for example, deciding that a teaching and learning activity falls between the different pedagogical practices, it is a matter of making a judgement about where along the continuum it is placed. Making that judgement should be based on a careful reading and understanding of the Framework and its four aspects (see Figure 12).

To further explain the FOPP Framework in Figure 12, we introduce a brief explanation of learners' experience for each of the three different pedagogical practices.

Reproducing Knowledge (RK)

If this is the dominant or sole pedagogical practice learners have limited opportunities to engage with the content. Albeit the educator may have well-presented materials, entertaining stories and a well-modulated voice, learners spend much of their time in the learning setting listening and watching power point slides. Questions learners respond to may often be closed questions to check that learners can reproduce their understanding of concepts, or processes. Learners learn to expect answers to be given by the educator.

Having noted this, when RK is used as part of a dance, involving DK and DGK, learners experience educator input or corrections in understandings, often in much shorter, purposeful doses. When the educator dances along the continuum, and move into RK PPs, they have established with learners that they (the educator) value learners' voices. Thus, learners feel they can pose questions, explore and inquire as they engage in and with the material.

Distributed Knowing (DK)

Learners feel part of a shared community with their peers and provide support to each other. Learners implicitly access each other's knowledge and experience to develop deeper understanding. Learners will experience a range of different learning activities, where they share experiences and understandings. Learners will often be engaged in authentic (reflective of the complexities of work / life / community) learning activities and in making sense of this in relation to the content being covered. Learners are engaged in making sense of content and understanding about current practices. They will pose questions to understand how to put their knowledge to work (to develop knowing – knowledge in action), for example, what if x happens? They will seek answers from what is known and practiced. In DK learners are learning accepted practices and ways of understanding.

Dynamic Generative Knowing (DGK)

Learners exercise choice in for example, the project they will take on. They collectively work together to make sense of content, striving to improve on ideas, and together build knowledge. Learners become skilled at critical evaluation, collaboration and learn to feel comfortable with being out of their comfort zone in working through what is not yet known (for them). They are involved in constantly

making judgements about the quality of ideas, performances of themselves and others and in the process give and receive constructive, supportive feedback.

A key difference between DK and DGK for learners is that in DGK learners are the inquirers, seeking different or new or innovative ways of naming problems/issues, working out how to solve them and developing solutions.

Learners new to this kind of learning experience may initially feel frustrated (they expect answers to be given by the educator), even angry and certainly, uncomfortable. This is likely their first experience at being given responsibility for their own learning in a structured learning environment. In Chapter 3, we discussed some ways of supporting learners move towards being comfortable when experiencing DGK PPs.

In the following section each of the pedagogical practices is unpacked from a pedagogical perspective.

Figure 12: The final FOPP Framework

Aspects of PPs	Reproducing knowledge	Distributed Knowing	Dynamic Generative Knowing
Epistemic beliefs	• Knowledge that is already known, codified and thought of as transferable (canonical knowledge). • Learning is knowledge / skills acquired. Learners individually make sense of what is being imparted, refine and combine concepts, to develop rich cognitive structures. • Teaching is typically believed to be giving lectures, providing knowledge, and covering the required content. • Learners are assumed to have limited knowledge relevant to the topic Some believe learners need to be stepped through the basics first before undertaking more complex learning tasks.	• Knowledge is understood as distributed over and embodied in people, tools and other artifacts and environment. • Knowledge is socially constructed through using it (knowing). • Learning is embodied, involving emotions, social cognition and thus, social activity. • Teaching is about introducing learners to the ways of knowing and practices of relevant communities, involving both canonical and distributed knowledge, ways of being in that community. • A purpose of teaching is to enculturate learners into the accepted practices, ways of understanding and beliefs. • Learners are assumed to be natural sense-makers and motivated when working with their own authentic issues.	• Knowledge emerges and generated in and through dialogue and practice. • Learners are naturally curious and motivated through working on their own authentic problems. • Learning is collective, necessarily involving social cognition enabling learners to make the most of being involved in collective inquiry processes. • Learning is embodied involving Internal and external cognition in a expanding cycles. • A purpose of teaching it to develop learners' ability to thrive in unknown, unexpected circumstances (i.e. to develop future-oriented learners who exercise their own epistemic agency).
Who is doing the work? (division of labour)	• The role of the educator is to impart knowledge and ensure learners recall it. • The educator does most of the talking as they impart knowledge.	• Together educator and learners develop a community of learning that is a safe space. • Learners are actively engaged.	• Together, learners and educator(s) build a collective community of dialogic inquiry. • Learners think, feel, and do with curiosity, are naturally motivated as

Aspects of PPs	Reproducing knowledge	Distributed Knowing	Dynamic Generative Knowing
	• Questions asked by the educator often close down dialogue. For example, the use of Initiation, Response, Feedback/Evaluation (IRF) is common in this pedagogical practice. • The role of learners is to listen and make sense of what they are listening to and seeing. • Learners seek to give correct responses, individually and in group work.	• Learners develop learn to learn skills through becoming aware of how to access knowledge, develops observational skills, and comes to know what questions to ask to understand different settings. • Educator is a facilitator and guide, providing access to, delivery of, and opportunities for learners to use canonical knowledge and distributed knowing. • Educator opens up discussion and facilitates deep understanding. • Educator seeks to deepen understanding (e.g. through seeking extended responses from learners, encourages learners to tap on each other's expertise, encourages questions, consistently links theory and practice, etc.). • Educator provides necessary scaffolding.	they engage in authentic activities. • Learners take responsibility for their learning, contribute to improving on ideas through asking questions, sharing experiences, capturing dialogue etc. and in the process exercise their agency through taking ownership of their inquiry efforts. • Learners build knowledge, improve on ideas, solve problems of understanding and/or problems that needs solutions to be developed and how those solutions will be developed. • Educator shares power and is comfortable with being challenged. • Educator prepares the ground and draws on learners' authentic problems/issues in understanding etc., to trigger inquiry, to provide input, corrections as needed. • Educator provides scaffolding as required (like a gardener) and supports learners towards being comfortable with unknown, unexpected challenges, etc. • Educator provides access to multiple perspectives, challenges and supports learners to uncover assumptions, engages learners in cognitive, kinaesthetic, emotive experiences, etc. • Educator role is to ensure a safe psychological space; provide opportunities for choice; challenge learners to improve on ideas, consider different perspectives, processes etc.; develop learners' ability to gather/identify relevant data, analyse it to make evidence informed decisions; to provide learners with access to resources and encourage them to access their own resources.
Assessment	• Assessment understood as testing what (knowledge) has been learnt. • Assessment tasks require learners to reproduce what has been	• Assessment understood as judgement of holistic performance in which understanding is embedded. • Assessment is entwined with learning, thus multiple forms of	• Assessment focuses on feedback and data that contribute to learners improving on ideas, understanding, solutions. • Learners continually evaluate their own & ideas, understandings and

Aspects of PPs	Reproducing knowledge	Distributed Knowing	Dynamic Generative Knowing
	taught. • Learners are not required to put their learning to work (apply). • There is usually a focus on summative assessment.	assessment are used - assessment for (diagnostic), as (formative), and of (summative) learning. • Assessment activities require learners to put their knowledge to work. • Assessment requires learners to engage at higher cognitive levels as they move iteratively between theory and practice.	solutions of others. • All forms of assessment (for, as, and of) plus sustainable assessment# are included as and when required.
Learning Design	• Evidence of 6PoLD is weak; limited use of authentic (except for examples or stories provided by educator). The senses most commonly appealed to are hearing and seeing. Learners are not required to make judgements or give feedback. They have little opportunity to learn how to learn or develop deep understanding through actively engaging with the content. • Focus is on content. • Theory and practice are treated as separate, and designed to be taught at different times to each other. • Standard lesson sequencing structures are often used • Learning design documentation is often expected to be followed with limited or no change.	• All 6PoLD are evident: Materials and activities are based on authentic experiences and data; theory and practice are integrated, as are generic and technical skills, and activities and materials call on multiple senses and emotions (holistic); learners have opportunities to make judgements about their own and others' performance and feedback is given and received from multiple sources. Additionally, feedback loops are built into the learning design. Learning is designed to develop deep understanding and learning to learn skills. All aspects of the learning design are aligned. • Focus is on the process of learning. • A variety of teaching and learning activities are designed, contributing to meeting the needs of diverse learners. • Learning design documentation can be adapted to some extent to meet specific needs of learners and the context of learning.	• Learning design is aimed at developing learners' abilities to not only engage in inquiry, but to develop learners in ways that enable them to be comfortable with unexpected, complex challenges that are a feature of our possible futures. • The 6PoLD will be strongly evident, as using learners' authentic issues / problems of understanding etc. is a core premise of DGK. Once authentic is strongly met this creates the space for the remaining principles to be in action. In addition, necessary in DGK are plentiful opportunities for learners to make judgments in, for example evaluating others' ideas and giving feedback in constant iterative cycles of dialogue. • Learning design needs to include improving learners' collaborative inquiry skills. • Focus is on developing learners as future-oriented, human centred practitioners with strong agency. • Learning design documentation enables fluidity, while providing clarity on qualities and capabilities required of participants and teaching and learning strategies that evidence DGK.

Reproducing Knowledge

In RK, the content worked with is canonical knowledge, considered as relatively stable. Canonical knowledge is fundamental to our everyday practices at work and is necessary to grow expertise in a field or set of practices. Its authoritative power can be expressed through, for example, research, or captured in Standard Operating Procedures (SOPs). When pedagogical practices are predominantly

RK, educators tend to ***believe*** it is transferable from a learning setting to for example a work setting. However, to put knowledge to work requires further learning, and when RK is the dominant practice, there is limited time given over to learners to engage with the knowledge. This considerably decreases the likelihood of knowledge being put to work. This can, at least in part, be because knowledge is assumed to be a) separate from doing and b) that knowledge is individual and self-structured (discussed in Brown, Collins & Duguid, 1989). Learning is believed to be about telling learners, taking them through step by step for example, and in these ways, learners are said to acquire knowledge.

In terms of the aspect, ***Who is doing What?*** educator talk takes up most of the time. As discussed in Chapter 2, interactions between educator and learners often take the form of the I-R-F (initiation-response-feedback) sequence. It is initiated by the educator who is seeking a correct response from learners, which the educator follows with a form of feedback, for example, 'Good', or "Correct" (see for example, Skidmore, 2006). This pattern of interaction "reinforces the educator's authority as the transmitter of received wisdom and severely restricts the possibilities open to students to contribute thoughtfully to classroom talk" (Skidmore, 2006, p.507).

Assessment is thought of as testing learners' ability to recall or to show their understanding of concepts in summative assessment activities. These activities may be limited in their form, for example, multiple choice questions (MCQ), short answer questions, role plays (sometimes scripted), and in WSQ, oral questioning which in some instances require learners to recall content verbatim. In Institutes of Higher Education (IHLs), essays and exams tend to predominate.

The ***design of learning*** centres on the educator and what they are doing. The Six Principles of Learning Design (6PoLD) (Bound & Chia, 202; Bound, Chia & Karmel, 2016) are barely evident, as outlined in Figure 10 under RK/Learning Design. For example, authentic material may be evident in the stories of the educator, but learners are not actively engaged in authentic learning content or activities. In the 6PoLD the authentic principal is in use when learners are working with authentic materials-experiences-problems.

Distributed Knowing

The concept of DK comes from the communities of practice literature (Lave & Wenger, 1991) where knowledge and cognition are believed to be distributed across the environment, both social and physical, requiring the adoption of the belief system of the culture in which they are used (Brown et al, 1989). Newcomers are gradually introduced to the community and its norms and ways of knowing. Thus, in DK, knowledge in use is a combination of canonical knowledge and distributed knowledge; it is knowledge that is known and available somewhere in the community and its resources. Distributed knowing reinforces, and reproduces practices. Learners learn how to 'be' part of a community of practitioners. There is a belief and intent to develop a learning community and enable learners to feel and become part of a profession, vocation or role. Systems and educators believe learners are natural sense makers, able to work through problems through accessing the canonical knowledge and knowledge distributed across relevant community(ies).

Because knowing is an "ongoing social accomplishment" (Orlikowski, 2002, p.249) that is constantly reconstructed as people engage in practice, in DK who is doing what means learners are actively engaged. The role of educator is to enable access to canonical knowledge and distributed knowing, including developing learners' capabilities in knowing how to judge its credibility against the norms and belief system(s) of the relevant community(ies). As learners actively engage with canonical knowledge and access and use distributed knowing there is potential for them to appreciate that with each new use, and particularly in different settings, knowing is constantly under construction, even for "apparently well defined, abstract technical concepts" (Brown et al., 1989, p.33). That is, different

settings, purposes and timeframes highlight, value, or require putting knowledge to work (Evans & Guile, 2012) or reconstruct knowledge in different ways such that it conforms to common practices. As learners share their experience and knowledge to learn and grow together, this interactive process can result in learners shifting roles from for example, a subordinate status, "sole responsible agent in minor parts of the performance, aspiring expert, and so forth – each implying a different sort of responsibility, a different set of role relations, and a different interactive engagement" (Lave & Wenger, 1991, p.23). Such processes contribute to learners learning to know what questions to ask as they move across different settings (Bound, 2014).

As such, assessment in DK is about holistic performance. There is provision for multiple rounds of practice, feedback, and improvement (as in the Illume case study in Chapter 5). Forms of assessment used include assessment for, as, and of learning (Darling-Hammond, 2014). Learning and assessment are entwined, each in the other. Feedback and judgement are built into the learning process, along with opportunities for learners to give and receive feedback from multiple sources.

In the design of learning there is evidence of the Six Principles of Learning Design (6PoLD), attention is paid to learning for understanding (Wiske, 1998) and differentiated learning for inclusiveness (CAST, no date). Both the latter should be evident if the 6PoLD are evident. Learning activities are based on authentic experiences, there is an integration between theory and practice, generic and holistic capabilities (holistic), and embodied learning is integral to the design of learning activities (holistic). Learners are given opportunities to make judgments about their own and others' performance and give feedback to self and peers in addition to receiving feedback from multiple sources. Learners learn how to learn and develop deep understanding. There is strong alignment across all aspects of the design. The focus of design is on the process of learning and the intent to enculturate learners into the accepted ways of being and becoming.

Educators have some leeway to adjust the learning design to meet the needs of learners and to address learner's context.

Dynamic Generative Knowing (DGK)

DGK IS WHAT WE IDENTIFY AS FUTURE-ORIENTED PEDAGOGICAL PRACTICES. A dance along the PPs continuum is integral to DGK PPs. The more time, the greater potential there is for DGK to be practised. In part this is due to learners developing collaborative inquiry skills (e.g. open, divergent questioning, engaging collectively and collaboratively to improve ideas, capturing evolving dialogue, being comfortable to challenge and question, giving and receiving critical supportive feedback).

Educators who use teaching and learning strategies in ways that support DGK, **believe** that knowledge is generated in practice; that learners are naturally curious and that learning involves learners generating their own understanding through collective dialogue, ideas, and possibilities. It follows from these beliefs that the educator is comfortable with sharing power and being challenged. This means that **who is doing what**, is distributed across educator and learners. The role of educator is to draw on learners' authentic problems/issues in understanding etc., to trigger inquiry, to provide input, corrections as needed, and to scaffold the inquiry process when learners are new to inquiry in formal learning settings. The role of learners is to take responsibility for their learning, to contribute to improving on ideas through asking questions, sharing experiences, capturing dialogue etc. The consequence of such actions is that learners exercise their agency through taking ownership of their inquiry efforts.

Assessment involves use of all forms of assessment (with the exception of unaccredited learning, summative assessment for accreditation purposes may not be used). Assessment (including feedback loops) is evident as learners constantly improve understanding and/or problem solving.

Peer and self-assessment are built-into the design of learning, as learners evaluate their ideas and their capturing of them in knowledge artefacts (see below), as part of an evolving process of improving on ideas, understanding, solutions. Learners are constantly individually and collectively monitoring their learning and understanding. They engage in self-directed learning which they bring back to the collective where a process of evaluation takes place through dialogue with the goal of understanding and/or problem solving.

The **design of learning** is aimed at developing learners' abilities to not only engage in inquiry, but to develop learners in ways that enable them to be comfortable with unexpected, complex challenges that are a feature of our possible futures. The 6PoLD will be strongly evident, as using learners' authentic issues / problems of understanding etc. is a core premise of DGK. Once authentic is strongly met this creates the space for the remaining principles to be in action. In addition, necessary in DGK, are plentiful opportunities for learners to make judgments in, for example evaluating others' ideas and giving feedback in constant iterative cycles of dialogue. It is often also necessary in the design process to attend to improving learners' collaborative inquiry skills.

An important difference between DK and DGK is that in DK PPs, knowing reproduces practices inclusive of what is known, it is about deeply understanding these practices and appropriating (Wertsch, 1998) (internalising) them, making these practices and norms your own. Whereas in DGK, such knowledge, and practices are questioned, and in the process, participants improve on ideas collectively and build knowledge, towards a shared goal of solving a problem or in addressing a problem in understanding.

What is involved in this process?

- *Authentic problems*: problems are authentic for the learners, that is, they are raised by the learners. These problems are what triggers inquiry; they are a motive, for generating understanding or something different from what has been

- *Open or divergent questions*: these questions are asked by learners and educator(s); their purpose is to trigger inquiry.

- *Space for ideas*: by ideas, we mean a unit of thought that can be a question, an explanation, an observation, an opinion (Tan, Bound & Wangz 2020), thinking aloud and so on. Space refers to the culture of the learning space such that learners feel psychologically safe to participate in putting forward what may be tentative thoughts, to pose questions, and feel supported and encouraged to do so.

- *Making visible evolving knowledge artefacts*: As learners engage in dialogue, they are evolving their understanding, following threads that may or may not be useful. A means of capturing these dialogues is important as it makes visible to learners where they are at, where they have come from and are a means for collectively assessing if they have 'arrived' at where they want to be. That is, learners need to be able to 'see' what is not yet fully worked through. Ways to capture dialogue and thinking include the use of multiple collective (e.g. group(s)) concept maps over time, that are shared across the whole group to generate further dialogue; technology platforms such as Knowledge Forum; capturing ideas through the use of metaphor as a means to explore possibilities, and so on. Making evolving knowledge artefacts visible is also valuable for the educator who can use these artefacts to further challenge learners towards improving ideas, understandings, or ways of naming problems, working out how to solve them, and developing solutions.

- *Shared control*: control is shared between educator and learners over the teaching and learning process. Learners exercise choice (e.g. in the selection of the authentic problems they work with and on); they take responsibility for pursuing their inquiry questions(s), managing the

dialogue, offering new ideas, clarifying, suggesting changes, and evaluating each other's ideas (Tan, et al, 2020).

Conclusion

This Chapter has told the story of how the research team evolved the FOPP Framework, moving iteratively between the literature and data. The unpacking of the final version of the FOPP Framework provides an explanation of the four different aspects and the PPs continuum.

The FOPP Framework is both aspirational and pragmatic. Aspirational in that the research team's hope is that the FOPP Framework will become embedded in the TAE sector as a tool for naming and mapping current practices, reflecting on how to move the design and facilitation of PPs to support future-oriented learning. It is a tool that can be used by educators, quality assurance personnel and departments, training providers, and enterprises who want to develop their people's "ability to create new ideas, perspectives, and products of value to the world" (Minister Chan, 30/05/2022).

Pragmatic in that we acknowledge the range of PPs across the sector, enabling practitioners and systems to recognise where their PPs are and where they could be. This makes it possible to start from where individual practitioners and/or systems are at and strive to move towards DGK – the epitome of FOPPs. For many reasons the dance along the PPs continuum, as shown in the following two chapters is a necessary attribute of FOPPs, hence our claim that FOPPs are about belief and intent to move towards FOPPs (i.e. DGK).

The research team acknowledges that we still see a need for some nuancing of the continuum, as when aiming for DGK PPs, the intent of using RK PPs differs than if predominantly using RK PPs. The same holds if predominantly using DK PPs. However, the continuum holds through the building of different kinds of knowledge – canonical, distributed, and generative.

The following Chapter uses the Framework in analysing the PPs we observed in five different case studies.

5. Case Studies

5.1 Introduction

These case studies provide examples of each of the three PPs (RK, DK, DGK), plus a case of an inhouse provider and their practice of DGK. The value of the case studies is that they do not present the PPs in isolation, rather each case commences with an explanation of the context in which the PPs are designed and enacted. We do this through analysing the activities of the training provider, capturing what matters to them, and how they use resources such as leadership, learning culture, pedagogies, partnerships and technology. Different providers treat these resources very differently. In some cases there is evidence of organisational dynamic capabilities (see Chen et al, forthcoming), evident in the training provider engaging actively in boundary crossing work and exhibiting expansive horizons of possibilities in moving forward. Interestingly, this study confirms Chen et al (forthcoming) findings that training providers with dynamic capabilities who engage in boundary crossing and exhibit expansive horizons of possibilities are those who are more likely to engage in a variety of pedagogies, be innovative in their teaching and learning and place learning and learner at the centre. This is an important finding in relation to how ecosystem mediates pedagogical practices. It should be noted that there is some but minimal reference in the case write ups of how national policy and TAE sector discourses mediate PPs. These are addressed more fully in Chapter 7, which addresses the question, how ecosystem mediates PPs.

The case studies are unpacked in Chapter 6, (current PPs in the TAE sector) and in Chapter 7.
The first case (USH) illustrates PPs in a large organisation that conducts its own inhouse training (as well as accessing learning and training opportunities externally). The first three cases illustrate observations of WSQ courses in private for-profit training providers. We present these cases in the following order:

- USH (examples of DGK, non-WSQ)
- Rohei (an example DGK, WSQ course)
- Illume (2 examples of DK, WSQ courses)
- Fabrico (an example of RK, WSQ course)

5.2 Dynamic Generative Knowing: USH Healthcare Provider (Inhouse)

Mandated to drive innovations in the healthcare sector, USH is uniquely positioned to provide quality healthcare services to the general population in Singapore. The organisational development unit is responsible for more than 9,500 staff across the various levels and functional divisions in the Hospital Group. This, and other units cater to the needs of diverse staff profiles from leaders at all levels, medical specialists, ward support staff to administrative officers managing accounts and facilities. Given the large number of staff, being able to deliver training and learning services at scale is critical to achieve a level of impact that is meaningful and aligns to their change strategy.
The people in the case study include Eric, Vivean and Biance who are leaders (for consistency throughout the report we refer to them as Management) at various levels but who also teach. Janine is an educator.

Training Provider Activity

Staff who design and deliver learning and training in USH are very much aligned in their vision and commitment to patient care and developing their people such that they make a difference. Those

we observed and interviewed, across different divisions and settings have an expansive horizon of possibilities - needed for the change processes they develop and support. At different levels of leadership and staff we heard different expressions of the shared narrative of change that each person had internalised as their own:

> honestly for me what drives me is I like to be a game changer. … So, for me it's about, you know, pushing the boundaries ... I don't, I hate to lead L&D teams where we are compliant and we will never be able to make a difference. I think one thing we do very differently here is the fact that we strongly believe in collective. … we're all here to make a difference in however small or big ways to... I mean the ultimate… The ultimate endgame is for our patients actually. (Eric_Management).
>
> Vivian (Management) describes herself as a “culture architect”
>
> Janine (Educator) wants her learners to be a “contributor of a shared mission … agents of change and stuff like that.”
>
> “But when … uh, I don’t know what the end point is, you’re really creating a whole new model. Then I think we’ve got to uh create those realities together.” (Bianca_Management)

Common across these quotes is the importance of collective, creating new realities together to develop cultures that support change for holistic patient care. Notable also is the reference to creating change agents at all levels in the organisation. The focus is not just on individual staff but on creating capabilities, tools and systems that support collective change (creating those realities together).

Holistic patient centred care is the core narrative, evident in USH’s use of technology, emphasis on growing and sustaining a learning culture, pedagogical practices, leadership, and partnerhsips that support their people in putting change to work.

Technology is used to enhance people’s work. For example, in the work of patient service associates, automation robots are being introduced to free up these workers for basic clinical tasks such as drawing blood, putting in catheter tubes and other value-added services. Examples of redesigning work that broadens and deepens capability development not only contributes to improvements in the patient experience but recognises and grows those involved. Similarly this broadening of capabilities is evident in developing and supporting “the transdisciplinary discipline” to assist the patient. That is, while health practitioners’ core discipline is expected to grow, other disciplines are being taken on by these practitioners that are relevant to the population(s) they serve.

Learning culture, says Eric, is what we want to get at “that to me is the end goal, right? … And the engine to get that will be about pedagogy” (Eric, Management). Vivean (Management) highlighted the importance of creating, growing and sustaining “learning culture: if we don’t have that in the organization, actually after a while people are just comfortable with what they’re doing and don’t look out for improvement and all that, then to enhance the capability is really tough.”

Leaders led by example in holding the vision, says Vivean, and constantly seek how their own work and that of those who report to them, relate to organisational and individual performance and the organisation’s “agility and resilience”.

> … including like giving constructive feedback, you know, that kind of thing. And because we start to have a shared language, we actually started to use it a lot. So, what is your offer request? [a phrase learnt in the Convo course, see AE activities]. So even when we talk about, you know, self-care and all that we ask about offers and requests, and we often will... it's a

> practice lah. When we really want to make a very strong assessment, we will state, this is my assessment, yeah, so that I, think with that then... a safer environment that, that we, we may have created. (Vivian & Bianca, Observation debrief discussion)

An expansive understanding of the pedagogical work undertaken means they see it is not just delivering content, "but we see it as an intervention to really develop people" (Janine, AE). Identity work is woven through the work of these leader-pedagogues. Eric (management) spoke of the need for holistic understanding of change and developing change agents:

> "as a person, the character and define who they are, actually. … I help them make better sense of what's going on in their lives". Beyond clinical capabilities, the need for staff to be "making sense" of what is happening across the sector, the hospital and specifically of the why and value of the change processes….Enables them [staff] to be all-rounded… to do the job that they need to do … [and] contribute to a shared mission.. [be] agents of change." (Eric_Management)

Other initiatives include:

- Leadership conversations where they have "a curious moderator" (Bianca) from a different discipline than the participants, in a 45 minute virtual session

- Time and space are provided for teams to talk about their daily experience, and leaders help participants connect to a tool(s) to help them on their journey

- A collectively developed and evaluated HOD check list that serves as a tool that reflects the essence of the Convo course and align with the strategic change initiatives. Users of the tool are given data and are required to complete it on a regular basis. The completed form is sent to highest levels of management. The check list is a "pulse check" (Bianca). It serves the purpose of constantly evaluating which teams are doing well and which teams need support. The team leader is asked to rate their team as green, or amber ("we need some help, send more experts down" (Bianca))

- The Organisational Development team gather qualitative data through the HOD tool and spend considerable time to "crunch" the data. "It always give you the direction of when and how the next conversation should go." (Bianca, Management)

Partnerships, internal and external to the organisation, are used to further strengthen the quality, reach and growth of the change strategy. The range of partnerships are used "to co-learn, co-develop and co-create new models of care at the same time workforce transformation" (Eric). Some partners lead to access to funding grants, innovations, and research to ensure the science is behind the need for change.. Partnerships are a key plank in seven strategic innovative programs over the next 10 years. One unit looks after these programs enabling synergies of the commonalities across the programs.

Adult Educator Activities

A core focus of the design and facilitation of learning in USH is using concepts embedded in teaching and learning strategies that enable learners to put their learning to work, to use it as and when needed. For example, in their Convo Leadership course, designed with the assistance of consultants and many rounds of evaluation and dialogue with multiple stakeholders, learners are equipped with a repertoire of tools, a "magic tool box" (Eric) to enable problem solving and use of a common, shared language, in their day-to-day work.

> what is really important about learning is that it helps the person to use it actually. You can learn, but if you don't use it, or if you don't see the relevance, it's not. It's not. It's not important. … you can read so many things on the Internet and learn on your own right. But, but if you, if we could sharply point you to the fastest way to pick out tools, the best way to help you to make sense of things and … and see problems and turn them into possibilities. Then that will be the best. (Eric_Management)

A considerable variety of teaching and learning tools are used in USH, including storytelling, learners sharing of experience, simulations, archetypes and metaphor, ranking activities to generate discussion, posing questions and discussion to "have the words and vocabulary first" (Eric-Management) then tell them the theory. Sharing learning with peers and across the organisation, underpins learning interventions, as it is seen as one means to support putting learning to work or as discussed in the previous section, getting it into the flow of the work.

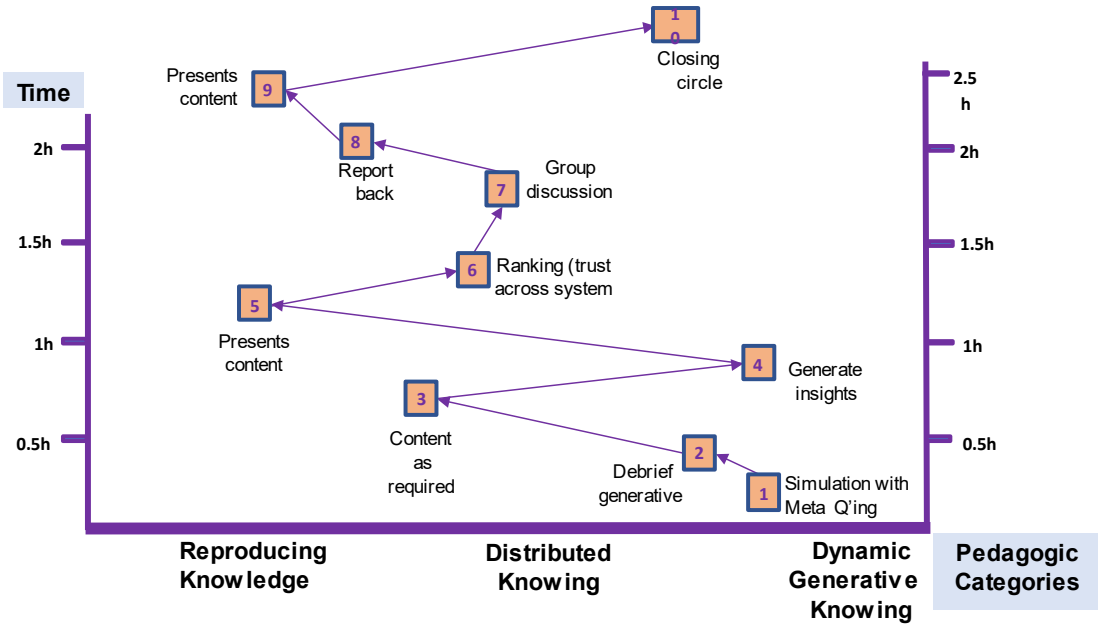
In this section of the case study, we share four observations of 2 different courses. The first is the Convo course (observed for half a day). The same course (but a different part of the programme) was observed being delivered over ZOOM. Following participation in this course, most learners accessed a WhatsApp group to share experiences, challenges and gain feedback and suggestions. This seemingly informal blended learning is possible within an organisation committed to learning, as is USH.

The second set of observations involved two runs of a coaching course where USH were piloting a different pedagogical approach. This course involved the use of flipped learning - learners were required to access LinkedIn Learning. For this course, we linked up with another research project (with the required permissions and consent) giving us access to additional data including interviews with learners and surveys of learners following their participation in the pilot run.

We use the FOPP framework to discuss what we observed and heard from interviewees, beginning with the Convo course.

Convo course

Figure 13: Healthcare-USH/Convo Leadership (Classroom) (non-WSQ)



In entering the classroom while learners were finishing lunch, we noted 2 tables and a circle of chairs had been set up with considerable space between them. What was called the T (top) table had a table cloth, flowers, glasses, a jug of water, and gourmet snacks set out on plates; the M (middle) table had bottles of water and baskets of packaged snacks; the B (bottom) was a circle of chairs with a bottle of water, no snacks. Learners had drawn lots as to where they would sit as they returned from lunch. As learners settled into their 'table' those in the B circle, joked that what they had was each other. This was a simulation about power (see Figure 13, number 1 activity). In their tables learners were asked to discuss:

1. What is your perception of your own group?
2. What is the group's perception of other groups?
3. How does your group envision other groups to change health care for the better?

The M group at different points got up and gifted a basket of snacks to the B group, later they did the same for the T group. In the discussion that followed Group M shared that they see themselves as a balanced group, that they can make things better for each side. These and other insights were captured on the board by the educators as knowledge artefacts and later the educator wove these insights into the theory; for example, the middle group are integrators. The educator followed this with a combination of inputs and questions such as, "What is power? The ability to push things towards where they want to go." The ensuing cross group discussion erupted spontaneously, with learners building on each other's comments, thoughts and observations, beginning to daw deeper meaning into their lived experience of power in their daily work and understanding of the system they are a part of. The educators pulled the discussion together linking it to the morning discussion about sharing a vision, and each participant's role as a leader.

As they introduced other content, the educators danced across the PPs continuum, moving across inputs, learner activities and discussion, followed by further inputs, ending with a closing circle where participants shared one thing they will do differently from today.

What matters to these two experienced leaders and educators is that their learners use the tools they have learnt about in their daily work "which means for me that their mental models have shifted" (Vivian). The educators deliberately use social learning to draw from learners' experience – this is both part of the design of the course and their enactment of it. Attention has been paid to building psychological safety. For example, in the debrief discussion following the observation, Bianca shared that:

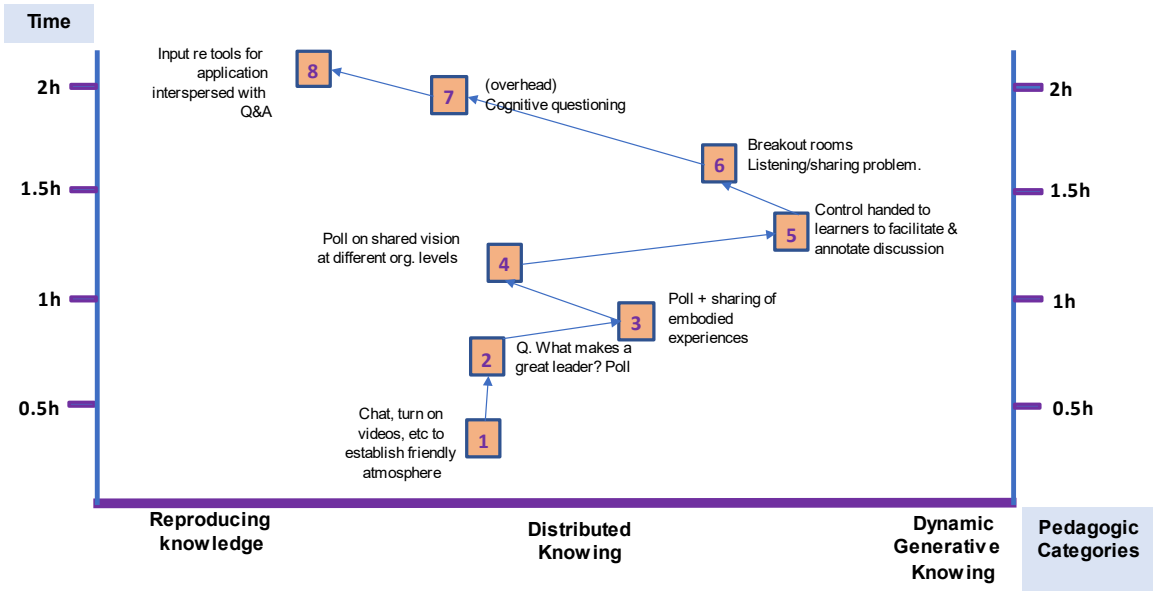
> some of them trusting the larger system was higher, and then when it came to trusting their own institution, they will fight for. So why? So when they get into the group, it gave them that psychological safety to talk about why, that shift, and move and when you look and unpack trust the four indicators is really an interplay of these four indicators. (Bianca)

Even in this half day observation, the educators use of teaching and learning strategies not only showed a strong dance across the three PPs but touched on DGK PPs. DGK PPs were enabled because of the shared vision and values across the organisation as discussed in TP Activities. Bianca sums this up when she shares that "At a personal level, umm, is to see myself as a guide where, umm, the people who have journeyed with me, uh, have seen new possibilities and that they themselves can continue on that journey".

The same course is also delivered over ZOOM. Teaching in ZOOM requires very deliberate efforts to share power and control. Additionally, it is possible, but harder, for learners to work collectively on and with shared knowledge objects. Nevertheless, Janine, the educator, did at one point hand over control to two learners to facilitate a short session (See Figure 14, number 5 in the mapping of activities). The result was a lively discussion, as learners exercised their released agency and

growing sense of psychological safety. The dance across the PPs was not as extensive as in the classroom session, rather it centred around DK, with a couple of activities towards DGK, finishing with RK. This comparison highlights the different affordances and the possibilities of different learning spaces. There is a need for technologies that can be coupled easily within ZOOM or embedded in it that enable learners to easily move objects around and share knowledge objects.

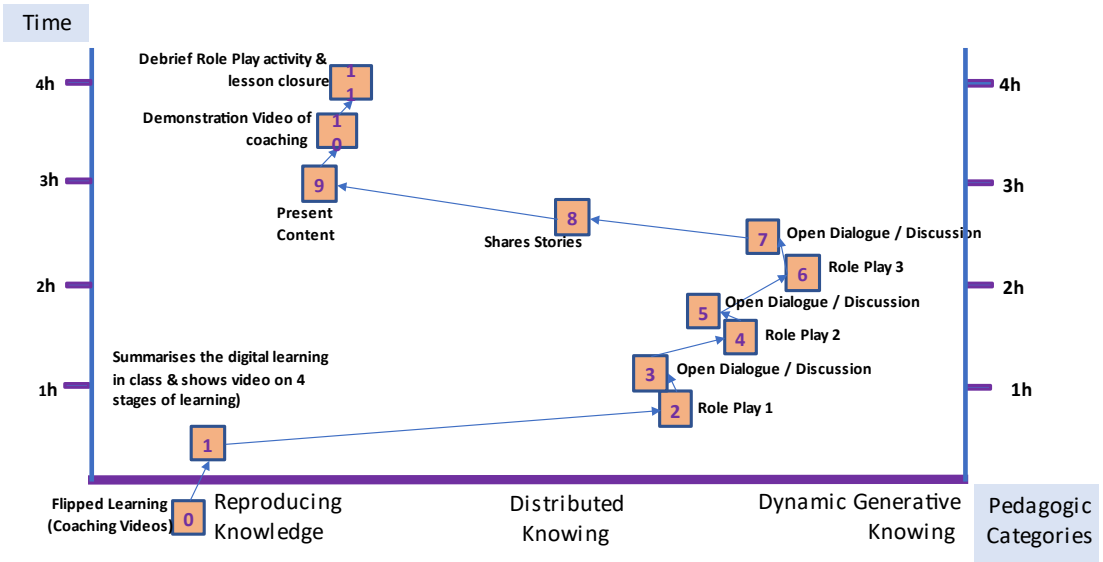
Figure 14: Healthcare-USH/Collective leadership (ZOOM) (non-WSQ)



Coaching course

The two runs of this course were a pilot and part of another research project the FOPP research team coupled with. As shown in in Figures 14 and 15, the observed sessions were for four hours. In each pilot there were 12 learners.

Figure 15: Healthcare-USH/Coaching Pilot 1



Both lessons from pilot runs 1 and 2 utilised an initial segment of experimentation for the first hour when learners were tasked to conduct the role play with no theory-building prior to the practice (except for the first pilot class where learners undertook the 1h online learning before the lesson).

In pilot 1 learners were looking for specific feedback that would guide them or at least help them understand if they were correct. Being new to this approach to learning (encompassing many aspects of DGK PPs), learners were out of their comfort zones and experienced cognitive dissonance with high levels of confusion at this point.

> I think we did not know where we were going - the direction of the role play exactly. But then over time, we somehow have the idea. But then there is nobody actually coming to us for personal feedback. So we do not know whether whatever that we understand, is actually correct or not. (A1, Learner, Pilot01)

Some learners (especially the medical practitioners) undertook coaching using a similar patient consultation approach of investigating the issues and then providing the remedy or the 'answer'. Contributing to learner discomfort was the use of familiar strategies used in different settings such as investigating the issues and then providing the remedy. This approach did not 'fit' as there is no 'single remedy' in coaching. Yet, having learners figure things out as they went along is a powerful pedagogical practice as it requires them to become comfortable with being uncomfortable and in the process learn resilience and learning to learn strategies. Such approaches contribute to building learner identity (Bound et al, 2019). Learners' confusion subsided as the learners worked through the coaching role play and attempted to figure out the process through trial and error.

> Role play - it was the first activity that we did, I was quite lost. We bounced ideas off our group mates so it was not the traditional way of knowledge impartation – learning through discussions and realising points or points from them. (A1, Learner, Pilot01)

Peer learning was evident ("realising points" (A1)), and learners were observed to provide peer feedback to the 'coach' in their group. Each learner took turns to coach others in groups of three. The series of 3 coaching scenarios was designed to escalate in complexity with each round of coaching. The learners had to generate innovative means of engaging their coachee, trying different means of resolving the issues presented to them. The learners looked awkward and lost at times. However, encouragement provided by the facilitator helped keep learners on track and working on the problems encountered. The repeated role plays, and facilitator encouragement resulted in learners building layers of understanding as A3 explains:

> I think, because I watched the videos and came up (in the pre learning), I came with some … some goal, which is to how to coach without giving solutions to the coachee. And this is a skill that I do not practise every day. In fact, we are very used to giving directions and answers to our junior staff but I think when explanations were given, it builds upon layers in a subsequent video, it got a little clearer from then on. (A3, Learner, Pilot01)

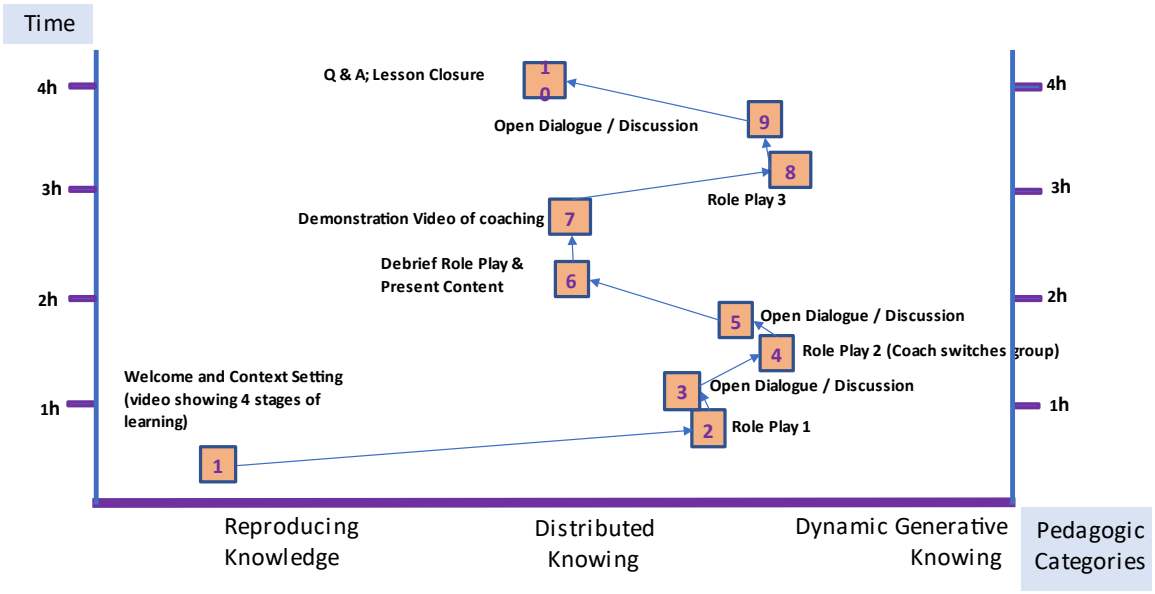
In this first pilot run, activities 9 to 11 (see Figure 15) towards the end of the session Eric, the educator, pulled together learners' learning, confirming, correcting, and expanding on understandings and principles they had developed.

Eric ran both sessions, reviewing session 1 and fine-tuning the second run based on feedback from the learners in the first pilot. The decision was made to shift, the video demonstration and guiding of participants to deconstruct the coaching process to after the second experimental role play, for the second pilot. Learners found this helpful as indicated by learners R2.

> The demonstration… was interesting to try it out on my own and to really experience what my style of (coaching) …, but I think seeing someone experience was also very helpful and the (demonstration) video (shown after the second role play) also shared pointers on what the coach is doing … it also help me to reflect on what I was doing in my previous demonstrations or like what I could do better. (R2 Learner, Pilot02)

This seemingly small shift to provide some scaffolding, lessened learner discomfort and dissonance, yet retained the powerful collective learning that takes place in DGK PP. The shift enabled learners to work confidently on refining and enhancing what they had learnt in the final role play, as much of their learning was confirmed and enhanced through the video and guided discussion.

Figure 15: Healthcare-USH/Coaching Pilot 2



Another difference between the first and second pilot was that the majority of learners (8 out of 12 learners) in the second pilot run were made up of management associates who knew each other prior to the session due to the induction activities and involvement in projects. The familiarity with each other was important in the trust that was more evident in this group.

> Because it helps that we know a bit of one another in a room so there's like a common… like familiarity also. But I think if the learners are meeting one another the first time, it might be a bit challenging (R2, Learner, Pilot02)

This may be what contributed to learners in the second pilot run, seeming to be more open to figuring out what was involved in coaching. Self-discovery of their own 'answers' made the learning powerful and built motive to keep trying.

> Yes. So for me, similar experiences. I felt that the first… the initial part … I felt like I was thrown into the deep end and I really no direction of what I wanted… what was expected as a coach… it was interesting … to learn from literally nothing … I just make the learning points for myself … it is more personal because I know what I have tried … coaching … (R2 Learner, Pilot02)

Eric commented that his confidence level on the first run was a 'six or seven' on a scale of one to ten. The first pilot had allowed him to experience the potential of learners learning from each other and working it out for themselves. In the second round, Eric's 'confidence level increased to an eight or nine'. Eric was also clearer about the process and structure of the session. Having seen the process in the first pilot run, Eric highlighted that participants were learning from each other, and by round three they try to "replicate what is the right way to do it. **Because they would have reinforced what they thought were principles, but then they got a clearer picture of what are truly principles and what are the fundamentals** (Eric, AE, Pilot02). Through experimentation, learners themselves extracted the principles, generating deep understanding. This positions the teaching and learning activities as increasingly moving towards DGK PPs. Evie concludes that "I think it (creative solutioning) fits perfectly well … I feel more of this needs to happen. they need to generate a new level of learning. So I think that this is the way to go" (Evie, AE, Pilot02).

The findings from the learner survey revealed differences in the learners' perceptions of the lesson between the two pilot runs (see Fig 2.). For example, 7 learners in the second pilot compared to 3 learners in the first pilot 'always' or 'most of the time' felt more encouraged to challenge fellow learners' solutions and ideas. Similarly, 10 learners in the second pilot class compared to 5 learners in the first pilot class 'always' or 'most of the time' felt encouraged to work with other learners to find solutions / ideas, pointing to learners' generative understanding. In terms of creative solutioning opportunities, more learners in Pilot Run 2 (8 learners) responded 'always' and 'most of the time' to being 'encouraged to 'think out of the box' than Pilot Run 1 (5 learners). The improvement in perceptions between the two pilot runs suggests it is important to conduct such trials, gather and analyse learners' feedback and make necessary adjustments that in this instance contributed to dynamic generative knowing.

This comment from R2 provides an insight on how the activity was holistic (involving affective and metacognitive capabilities) and its impact on learning,

> I would say it's very memorable… Memorable like… because we tried it out on our own and then like… there's the… a bit of vulnerability or embarrassment when we fail and picking up ourselves from that is a very interesting process also. So, I think that was something that was quite memorable for me… I would say yes, it's effective. (R2, Learner, Pilot02)

The use of blended learning in the coaching course

Pilot 1 required learners to access LinkedIn learning prior to the face-to-face session. Not all learners engaged in the online learning or if they did, some had forgotten much of the content as reflected in this comment:

> I did my ABC Online Learning a couple of weeks back, so when I came here, don't remember what I did anymore. So again, when I did my first role play, I was super confused, so I kept wondering what am I what am I trying to do? Yeah, such sessions, it does save time for the facilitators but how do you ensure trainees have done it …. (A3, Learner, Pilot01)

There is nothing new in this experience. Like many flipped learning arrangements, the online section uses RK PPs. Flipped learning arrangements often require learners not only to spend time that is precious to them, but they usually do not have the context and thus little motive for undertaking the required online learning. For those who do complete the pre-reading, there can be frustration as expressed by learner A3.

> I think if you want to do sessions where you come in straight and do without the theory, then you need to make the pre-reading compulsory. And how you validate it is a question mark…

> You know, if it's not gonna be compulsory, and everyone comes in and comes in with different levels of understanding … your session, may not come in to be useful. (A3, Learner, Pilot01)

Following the second pilot where the online learning was not a requirement before the classroom session, Eric, the educator, points out that it is a resource that can be accessed as and when individual learners see the need.

> I think the blended learning should be a space that is self-directed. Whether you do it before, whether you do it after, it should allow the learner to be able to decide... Does it mean that you learn, you have content, you will learn better versus you learn it after, you will learn better? I think it's subjective…The learner needs to discover (how) he or she wants to learn. I think that's highly fundamental and then allowing the blended learning to be available anytime, anywhere. (Eric, AE, Pilot02)

These reflections from learners and educator suggest a need to rethink the holy grail of flipped learning. When considered in the light of the PPs continuum, and other studies undertaken in IAL (Bi, et al, 2020) the transitions between different learning spaces:

a) need to be seamless
b) the design to achieve this seamlessness requires attention to motive for learners accessing and completing the online activities
c) depending on the purpose of the use of Edtech design for moving beyond traditional RK PPs in the Edtech activity(ies)
d) RK PPs in the design of the online activities do provide useful resources that learners can access anytime, anywhere.
e) Hence the purpose of the use of different learning spaces requires purposeful design considerations. We also should be challenging EdTech experts to design EdTech that can better support DK and DGK PPs

In line with the USH change strategy, digital transformation will move beyond designing for their staff. Educating community is an important plank in changing client-patient relations. Extending engagement to the residents in the neighbourhood helps to uplift and build bonds with the community at large.

> So today, we build for the employees, right. By 5 to 8 years' time, we will be building content that would be pushed out to the ultimate learners which are the residents. Because today … we are in the business of healthcare… we have to look at population health … we envision a learning experience platform that's not only traditionally used by staff, it will be shared with community, care organization, workers out there, other healthcare workers … building this learning eco system. (Eric, AE_Mgt, Pilot01)

5.3 Intent towards Dynamic Generative Knowing: Rohei

ROHEI are well known in the TAE sector for their different, namely experiential approach to teaching and learning practices. They develop close relations with their business clients who they position as partners to address learning issues within these businesses. Their learners' range across organisational levels, but courses are generally geared to specific organisational levels. ROHEI also run some public courses.

TP Activities

The professionalism of ROHEI is evident as soon as one walks through their doors. The visitor is greeted with a welcoming, artfully arranged lounge space, including tables, chairs, sofas, a small pantry area and to the side, a reception desk. Art pieces adorn the walls. The effect is overwhelmingly welcoming and invites one into the space. Professionalism carries through into their quality assurance processes that see their educators doing dry run practice sessions prior to meeting learners. This is important when multiple props are required.

Xane (AE) reflected that her decision to join ROHEI was based on ROHEI living up to their claims, their high levels of professionalism and commitment to clients and their learners – "these things that really feel unique" (Xane_AE). Management notes that as they are about developing strong working cultures with their clients, they reflect this in their own organisation, where people matter. Xane (AE) shared that "over here in [ROHEI], you'll always see we come from a good place, whenever we give each other feedback, is really meant for development of the student. So that is one thing that is really unique."

That learners and learning take centre stage in the ethos of ROHEI is also evident in how they worked to continue to ensure learners experienced active cognitive and emotional engagement during COVID. For example, packages of materials to use as props for experiential learning were and are sent to each learner prior to fully online sessions (Chen et al, forthcoming). This work continues, accompanied by ongoing quality assurance processes.

ROHEI have a strong pedagogical stance based on experiential learning, for which they are known. The rationale for this is that it enables learners to put their learning to work. An important rationale for this approach is that once learners' emotions are tapped into the link between emotion and cognition, minimally result in an understanding of why the need to change. However, leadership in the organization is seeking to understand the use of experiential learning more fully and how it can be more targeted and improved. This questioning began with a reflective questioning of the reliance on experiential learning to the extent that perhaps it has become a crutch (Seng Llui_Mngt). This reflective stance is also evident in management's focus on what is required to better support learners put their learning to work. Discussions with members of the research team raised possibilities of increasing the authentic components of their curriculum by for example using learner stories more frequently. Management observed that the more their pedagogical practices are towards Dynamic Generative Knowing, the greater the need for their AEs to release the extent of control.

However, common to all organisations are historical practices that are in tension with desired practices and the expectations of newer recruits to the organisation. One of the AEs observed that those who have been in the organisation for a long time expect certain activities to be conducted and said in a certain way but newer recruits question this. Practices such as following a script, impact on the enacted capability of those who are at their best when trusted and given some freedom to meet the required learning outcomes within a shared set of values and pedagogical practice. However, when an AE is given responsibility for a course, they then have the opportunity to fully exercise their professional judgement.

Other kinds of tensions experienced by ROHEI become evident in their work with enterprises. As with many organisations working with enterprises, ROHEI experience a tension between expectations that one or two days of training will work "a miracle" (Xane, AE) and the reality that training is just one part of a solution. As indicated by Xane, there is potential for the organisation to further build on offerings by following learners back to their work settings and affording additional support as participants put their learning to work.

ROHEI's strong values-based motives and their questioning of taken for granted practices is indicative of the leadership's expansive horizons of possibilities, noted in another study (Chen et al, forthcoming). Continuous strengthening of ongoing partnerships, strong connections across the TAE

sector, and a strong commitment to contributing to the TAE sector contribute to the high standing of ROHEI.

AE activities

We observed day two of a two day, level 5 WSQ course, on relational leadership. In this course there are senior executives and assistant managers, some of whom are managing operational staff and others do not yet have a team they manage but have been identified as potentially taking on managerial roles in the future.

Experiential learning, a core plank of ROHEI's teaching and learning strategies, was at the heart of what we saw over the day we undertook the observation. Xane, one of the two facilitators, explains that this approach is used in order to have learners really feel "so, they may know it, but they may not feel it. So, it's when they feel it right then that's when they yes, that's why we need to change" (Xane_AE). She goes on to explain that she is "trying to get the kind of buy-in through in a very experiential way … doing the kind of roleplays and skills practice to really understand not cognitively understanding, I'm talking about really experiential kind of understanding, what it feels like" (ibid). However, it also became clear that Xane does want learners to understand cognitively. She used considerable cognitive questioning in the afternoon session (see Figure 17), here she explains why. What I'm trying to do is just to get them to internalise it (a core concept visually presented as a quadrant). … And for me to get an evidence of their thinking is through their questions. If they really understood what that quadrant means, are they able to come up with the appropriate questions for that particular quadrant? So, I was searching for evidence of learning in that sense. (Xane_AE)

Xane noted that learners were sharing "things that they were really struggling with." She reflected that she is wary of "sharing for the "sake of it." Her conclusion based on the evidence of learning she sought, "it was heartening in the sense that they managed to go beyond very typical textbook kind of questions and thoughts." Importantly, we observed that learners felt and contributed in ways indicating they felt psychologically safe, necessary for such sharing.

The work of establishing a safe psychological space contiued to be built on the foundations laid on day one. Sebastian (the second faciltiator) began the morning by running an icebreaker relevant to the purpose of the session. He had learners moving around, sharing three things they appreciate about their buddy with a partner they did not talk with much the previous day. Learners were immediately engaged. This was followed by a recap, asking learners to share one thing they remember from the previous day, allowing learners to actively engage and recall, rather than listen to the educator doing this recall. Sebastain prompted on content learners did not cover.

Mid morning learners returned to the training room to find Sebastian dressed in traditional Chinese costume, with a gong in hand. This was their introduction to a game that went through several rounds. The more rounds, the more energy levels began to drop. There are perhaps several reasons for this. One is that the purpose of the game was to get as rich as possible. The purpose of the game did not seem to align with the purpose of developing relational leadership skills, or if it did align there was no connection make between this purpose and relational leadership. This suggests that the game was primary, rather than the purpose of the learning which was returned to at the end of the game when each group was asked to share their heng and suay cards (helpful and unhelpful sayings) and the impact of these experiences in the game as they relate to their work.

Another example of this misalignment happened before lunch when Sebastian was leading a session on words that can build or erode trust by asking learners for examples of brand names that are trusted. This is a case of using far transfer, meanng it is harder for learners to put knowledge about language used to create trust, to work.

Figure 16: Business-Rohei/ Relational Leadership (WSQ) (AM)

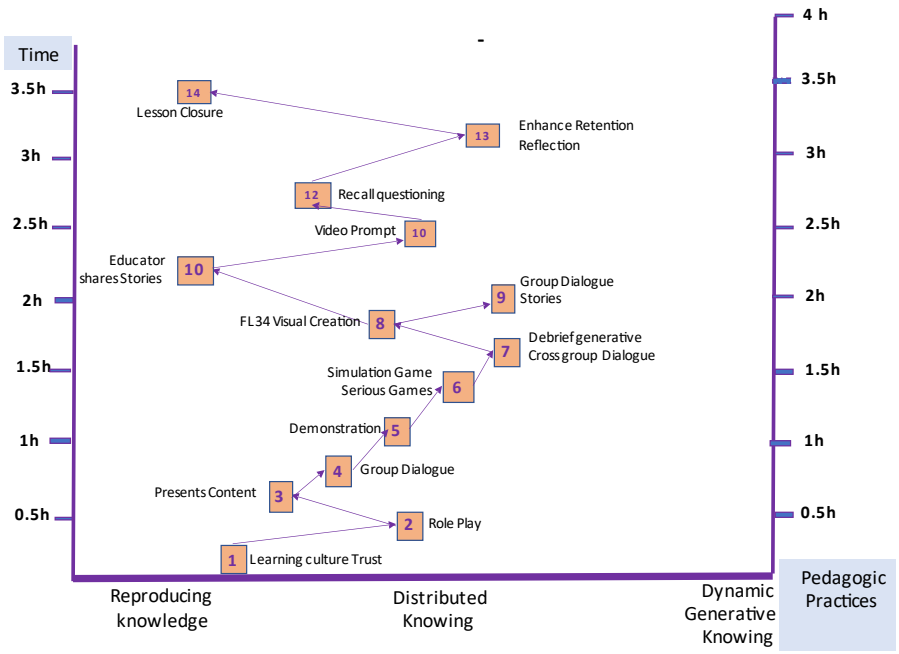
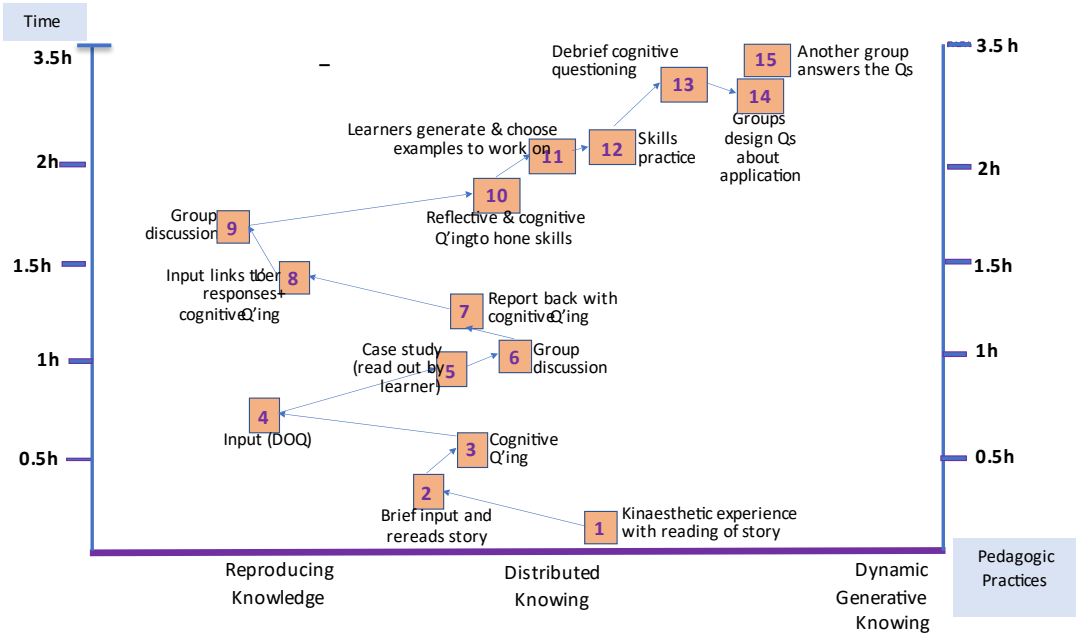


Figure 17: Business-Rohei/Relational Leadership (WSQ) (PM)



However, these small instances did not over-ride the overwhelming evidence that enabling learners to put their learning to work when they return to work is an important focus for these AEs, and for this Training Provider. Teaching and learning strategies included the multiple use of role plays, using them as practice sessions with learners working in small groups and changing roles each practice run; constant reassurance that relational skills do need lots of practice; the use of symbolism to help learners connect with key ideas (e.g. reading a Dr Seuss story); and at the end of the day Zane organising learners to design questions about application, and the group next to them addressing

these questions (see Figure 17: PM session). Additionally Xane was skilled at helping learners connect what had taken place or was said by learners earlier with the core concepts and skills.

Interestingly, the required summative assessment (as this is a WSQ course) had several notably different features compared to what we have previously seen in curriculum documentation and in practice. The differences included:

- the nature of the questions, requiring learners to reflect on their profiles (completed earlier); discussion with a trusted colleague on what they could improve and what their plans were for committing to this improvement. Learners were required to capture this discussion, including their peer's suggestions and feedback in their log books. This formative assessment became the basis for the summative assessment which was open book.

- The assessment was conducted on day one, enabling the AEs to catch up one-on-one with learners whose responses required clarification. Additionally, the assessment was broken into three segments of 10 to 15 minutes each and completed immediately following the relevant section.

The WSQ curriculum was notably different from other WSQ courses we observed, in that it was very experiential; the AEs have the authority to adjust the enacted curriculum according to the flow and needs of learners, and the assessment was a) structured differently and b) required higher order cognitive thinking and cleverly built upon formative assessment.

Use of technology was basic but purposeful. For example the profiling instrument required learners to complete it online, and the AEs used ipads to support their capturing of assessment results, taking photos, and notes they made over the two day course.

Concluding points

- The ethos of ROHEI is strongly driven by shared values within the organisation
- Learners and learning are at the centre of their work
- There is a strong learning culture
- Leadership is expansive and open to different possibilities
- The organisation looks beyond system requirements, using them as tools rather than as defining features of their work
- Tensions are evident between historical practices and the fresh thinking newer recruits bring to the organisation

5.4 Distributed Knowing pedagogical practices: Illumine

Training Provider activities and capability

Illume provides a steady flow of trained health care assistants across a number of different domains, to the health sector. Reasons why their graduates are sought after are not hard to identify from our data, and include:

- a pedagogical stance with a strong practice focus embedded with a commitment to patient care,

- educators who come from industry with a commitment to teaching and learning, bringing with them deep, diverse experiences,

- strong partnerships with industry constantly reinforced through multiple feedback cycles,

- a supportive organizational learning culture,

- leadership who provides space and possibilities for staff and whose thinking about the future goes beyond what is current.

At the centre of Illume's approach to teaching and learning is not content, but the learner and learning for patient-centred care. Teaching and learning focus on practice, supporting learners to be competent practitioners with patient care and safety at the centre. Content is a means to support core values and ensure that learners understand why, learners are able to correctly follow procedures but always with an eye to being able to competently address the unexpected. Their Quality Assurance Manager captures this when sharing how they use scenarios.

> when they come to peer learning and sharing, then it will be a very enriching oh, I didn't see that. I didn't notice that this patient actually very pale. Uh you look at this oh I didn't know that this patient actually today is not speaking like he used to be not, not talking you know. So, they can make them… what do you observe in this scene, then everyone will tell. Then how you respond. What type of pattern you see. Then you come up to a conclusion and then you come up to action and then after that you come to reflection. Whether your action you taken is appropriate or better way of doing it or very well taken to cope this uh issue. So I like uh umm uh teaching in such a way scenario based (Seok Gim_QA)

Illume go beyond the knowledge and abilities laid out in the Skills Frameworks. This includes building learners' resilience, resourcefulness, adaptability as well as practices they see happening in the sector but are not included in the Skills Frameworks. Their Quality Assurance manager, Seok Gim comments:

> You're building a person holistically. This is called holistic assessment. Holistically in a way that that you don't forget the other part because a person if I just a technical and if I don't have the other domain, I might not be able to cope well. …Resilient and resourceful is also very important. How you going to interact with people? Yeah. How you going to face a sick person? Because you're going to be, you know, dealt with all these emotional needs sometimes, yeah. So how you going to overcome this? (Seok Gim_QA)

While we should expect curriculum documentation to differ from the enacted curriculum as educators adapt curriculum to their learners and their contexts, it is worth noting why the considerable difference between curriculum documentation that is very much about reproducing knowledge and Illume's enacted curriculum (See 18 and 19). Our interviewees used terms such as "prescriptive," "restrictive" and "quite fixed" to describe requirements for WSQ curriculum.

> this new SkillsFuture framework is actually quite fixed… it's not that so-called like flexible enough to meet the job role because we are following the standard. … but we do tweak our lesson a bit… … rather than just follow, you know, yeah, strict what is been written. … I actually find that written is just written. Yeah, in order to, you know deliver, you may need to do a bit of adjustment on that. (Gina_AE)

> So for example, if you were to look at a particular WSQ course, it's predominantly skill-based, at least in my framework. So you learn something and then you reproduce exactly the same skill. … So we always value add to what is being taught. (Wei_Mangt)

> So with oral questioning it'll be like a critical thinking, your critical thinking skill of the cognition." (Seok Gim_QA)

Along with the focus being on practice in the sector and the Skills Framework as a tool rather than something to blindly follow, the use of oral questioning as an opportunity for demonstrating critical thinking is refreshingly different from simply capturing learner's reproduction of knowledge. Contributing to this focus is their internal quality assurance processes. Aside from the improved quality of curriculum that comes with having been developed collaboratively, the curriculum documentation goes to Illume's Curriculum Development Review Committee who bring in appropriate subject matter experts; once approved it proceeds to Illume's Academic Board. WSQ courses also go through SSG's Quality Management process. Following the first run of the course feedback is given by the adult educators using a module review form. The course is then amended as required.

Given their expansive use of Skills Frameworks, it is not surprising that Illume's working environment provides opportunities for their educators to adjust the curriculum. An example being Sahil's development of a kinesthetic activity requiring peer learning and deeper levels of cognition captured in the case of Illume's AE Activities. As noted by Shail, "We are given the flexibility and the autonomy" … I try to … have some time to just have some small chats with the rest of the trainers, yeah, and then have this 'how do think it's the best to go about this', yeah" (Sahil_AE). Autonomy is also evident in support Gina received to use her networks to arrange for access to add equipment to their operating theatre simulation laboratory, and in the development of the virtual reality video of the operating theatre that learners found very helpful. Gina and Sahil exercise considerable agency. What contributes to this is the support and space provided, their strong domain knowledge and a commitment to constantly improving their pedagogical expertise.

To deliver on their commitment to develop competent practitioners with patient care as a core value, Illume has strong partnerships and collaborations within the health sector. These arrangements provide clinical placement opportunities for their trainees and employment on completion of the course. But, more than that, Illume have developed a web of feedback loops with their partners:

- educators receive feedback on their learners from these partners,
- educators provide feedback to their learners during their clinical placements and are provided with spaces and time to do so,
- partners receive feedback on behaviours observed by the educators that management may not be aware of,
- educators learn about different practices as they evolve in the workplace, enabling them to keep up-to date and build these into their teaching, and
- educators pick up gaps common across the sector.

An example of a gap is communication skills. For example, in calling a code blue, staff may shout, rather than call loudly and clearly to avoid contributing to panic; and staff may be unaware of the impact of how they talk to patients and other staff. Leadership is aware of the opportunities and work that has been done in this area using AI technology and is delving into how they can develop AI tools to address this gap, as it is time consuming to work with individual students and groups to develop such capabilities.

Leadership has its eye on contributing to a workforce that can "adapt" to "future changes" and develop long term careers in the sector. Illume seek to "widen [learners] thinking, … so they're more prepared" (Seok Gim_QA). Illume's supportive, somewhat expansive working environment translates into continuous=us development opportunities for their staff and design and enactment of learning that is strongly dances around distributed knowing. This is expanded on in the following part of this case study.

AE Activities

In Illume, AE activities include:

- implementing teaching and learning strategies,
- assessing learners,
- contributing to curriculum design, designing new learning activities as part of 'tweaking' the curriculum,
- managing and supporting a diverse range of learners,
- supporting learners in their clinical placements,
- contributing to dialogue in the organisation about how and what technologies can support learning, and
- using learning technologies and technological tools used in clinical settings to teach
- continuously updating their domain knowledge and pedagogical expertise
- supporting associate trainers and any trainers new to the organisation

The diversity and breadth of activities, along with a strong dual identity as a health professional and a 'trainer' contributes to the quality of their teaching and the credibility and standing of the organization within the Health sector. Notably supporting learners requires the use of diverse teaching and learning strategies to teach learners who range in age from 18 to 62, from those who barely completed secondary schooling to those who hold a master's degree. Some learners also have a limited grasp of English and some are experiencing problems in their families or other aspects of their lives. It is this latter group to whom counselling is provided. The approach is to provide support.

> I don't mind whether they are slow learner, they need some time to adapt. … I believe every learner, yeah, can be trained. It's just that you, you have to … help them to, you know, open up … pick up the skill, like I think they have to find where is the gaps, you are actually the key person to help them. (Gina_AE).

Teaching and learning strategies used by the AEs

The design and selection of teaching and learning activities is driven by what matters to these AEs. What matters to them is that their learners are not only able to correctly and safely undertake required tasks, but that their learners understand why, and that they are resilient and resourceful because in health care, situations constantly change.

> health care is because you're dealing with life. You're not just dealing with products or machine that you can actually make mistake. Yeah, the students they have to experience on the so-called of the, the, the life situations. How you're going to handle because patients' condition can change all the time. (Gina_AE)

> for us, uh, resilient and resourceful is also very important. How you going to interact with people? Yeah. How you going to face a sick person? Because you're going to be, you know, dealt with all these emotional needs sometimes, yeah. So how you going to overcome this? (Gina_AE)

> I think the most important personal satisfaction is when the learners are able to apply it and then they come back to you and then they say 'this works, you know'. (Sahil_AE)

Our interviewees have a strong emphasis on praxis, intertwining the why (canonical knowledge) with doing (canonical knowledge and distributed knowing) (see Figures 18 and 19), along with a durable sense of care in growing and nurturing health practitioners entering the sector.

Sahil, for example redesigned a set of power point slides into a kinesthetic activity requiring peers distributed knowing, getting them to link concepts; hence learners think at higher cognitive levels that if just told and being expected to remember. The topic is the health care system and services. He prepared cards with drawings and maps of the different services, a map of Singapore and asked learners to place the cards in their geographic location on the map. This prompted learners to share stories of their use of the different facilities and develop a working knowledge of services and where they are in Singapore. The activity was expanded to include a case study of a patient navigating the different services in the system, again prompting learners to share their own experiences and understand issues patients may face.

As courses are 'skills-based, it is not surprising to find that demonstration is used a lot. Sahil shared how he verbalized what he was doing as he demonstrates. He indicated that this is much easier for learners than listing a whole lot of steps, as they see and understand the whole and can also ask questions. As we observed, demonstration is always followed by multiple opportunities for practice. Other teaching and learning strategies used to develop deep understanding include the use of simulations, followed by debriefing and reflections. The simulations are often videoed, learners reflect as they review the video and along with the educator, provide feedback to each other. In the process learners are making critical judgements on their own and their peer's performance, deepening their understanding to contribute to growing expertise. As Gina and also Sahil note, it is necessary to "make it into a very comfortable environment for them to speak up because some, some, you know when people do mistake huh, people would not like you to point out the mistake" (Gina_AE).

Additional teaching and learning strategies are evidenced in Figures 18 and 19. Figure 18 illustrates a strong dance between distributed knowing and reproducing knowledge, as does 19 but in this observation the debrief (described by the AE but not observed) was heading towards Dynamic Generative Knowing.

Figure 18: Healthcare-Illumine/ Mobility and ambulation (WSQ)

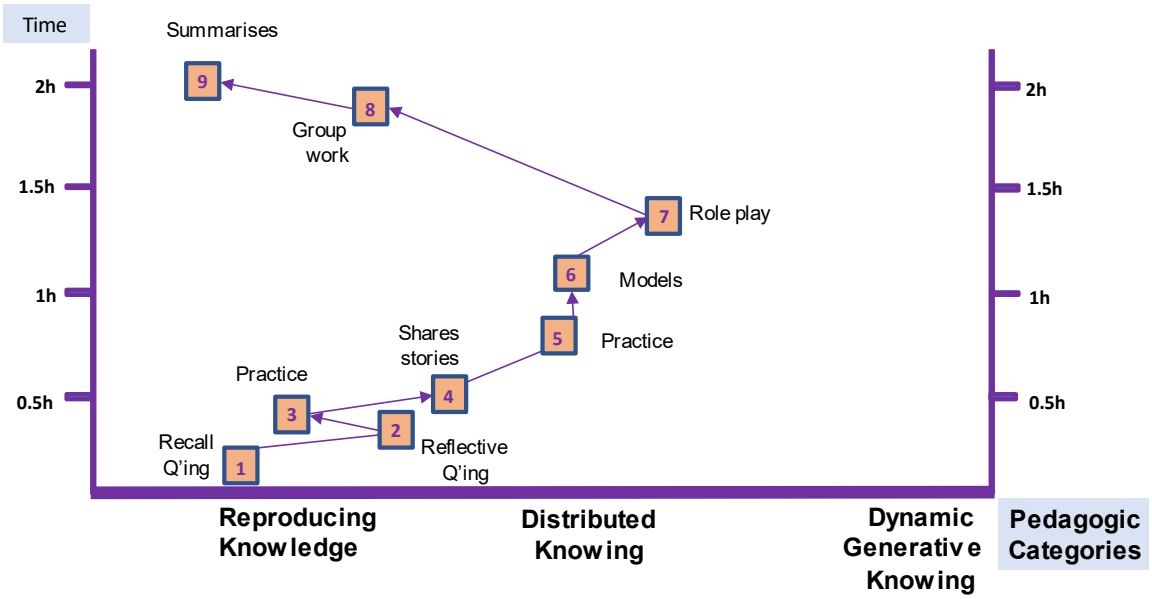
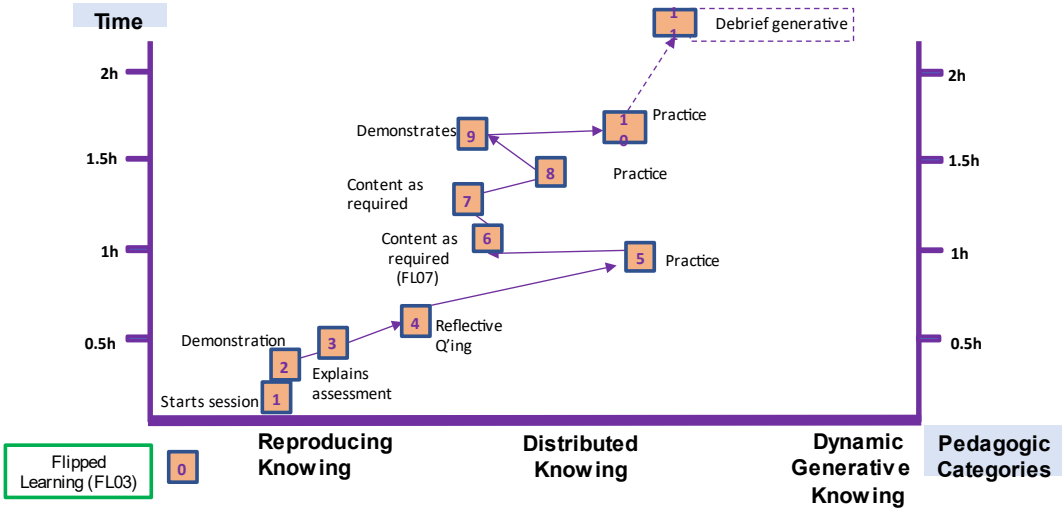


Figure 19: Healthcare-Illumine/ Perioperative practice



This variety of teaching strategies were practiced, despite the written curriculum being largely about reproducing knowledge. Internal quality assurance of curriculum design and the enactment of the curriculum is managed with the understanding that any changes to the curriculum, are encouraged so long as the objectives are met, and everyone is kept "in the loop" (Sahil -AE). Assessment strategies are, however, much more difficult to change. Summative assessment includes the use of logbooks and workplace evaluations from learners' clinical practice; multiple choice knowledge tests, short answer questions and of course observing learners carrying out practical hands on tasks. Formative and diagnostic assessment is woven throughout the enacted curriculum, with opportunities for feedback to learners on how to improve performance, and constant adjustments being made to adjust to learner's pace but ensure the curriculum is covered. The documentation, however, focuses on summative assessment.

Use of technology for learning is high on the agenda at Illume. Beyond moving some learning activities to online learning, Illume have developed a virtual tour of the operating theatre environment.

> Our students really enjoy a lot and they learned a lot along the way after they finished the virtual tour. … They're quite glad that we actually introduced all these to them first, so it's like, eye-opener. You really started to gain their attention and interests. So when you conduct a lesson later on right, it will be much more easier because you can see that there's more engagement. That the students more keen to learn and to pick up the skill. Yeah, because they can actually relate back from what they have seen. (Gina_AE)

Beyond this, the use of AI is being explored to enhance the learning and assessment experience for learners. The purpose is to provide feedback to learners about their communication on tone, voice level and so on – aspects of their practice that are difficult for learners to become aware of and time consuming for AEs to address.

> I think one of the challenges that I find is a lot of students, they tend to just follow. They don't really so-called like have the realisations that the way, the tone, that they speak, you also have to make a difference because this one you need the practice. So sometimes to make students to uh, so-called of realise that there's a gap, it's pretty hard. … for example, you know, uhm, you know like during the resuscitations, you know, like you code blue events, right? So sometimes people may raise their voice. Because they, their intention is good, because they

> want to get things done, yeah, but they didn't realise that you know the behaviour that, come out from them, usually have an impact on other people. (Sahil_AE)

In Illume permanent staff have a deep commitment to their sector and to their learners. They are enabled to use a variety of teaching and learning strategies, take part in learning design and decision-making such as how to use learning technologies to enhance the learning experience and /or to meets gaps they have noticed.

This provider is always seeking to improve their pedagogical practices, explore different delivery modes such as different uses of technology as fit for purpose, all based on learner at the centre and an ethic of care. These values are part of their DNA in developing a workforce that is able to meet unexpected, challenging situations and who are highly competent.

5.5 Reproducing Knowledge: Fabrico

Introduction

Fabrico is a small training provider operating in the manufacturing industry and has a long history of working in partnership with SSG, its agencies and other training providers. Fabrico attracts a diverse range of learners to their broad portfolio of WSQ/non-WSQ short training courses, and internationally recognised academic programmes. In relation to their short training courses, many of these can be delivered within the training centre itself, through synchronous e-learning, in the workplace or through a blended approach.

This case study is based on an analysis of curriculum documentation, interviews with key members of staff and observation of a two-day course designed to enable learners to acquire knowledge and skills in understanding of the key processes of systematic problem solving.

Training provider activities and capabilities

Central to Fabrico's pedagogical stance is the need for authentic learning and assessment. This TP has taken several steps to try and address this need. Firstly, adult educators (AEs) employed by Fabrico are predominantly employed on an associate basis – the rationale being that as current industry practitioners or recently retirees, they bring up-to-date, relevant, and diverse domain experience. At present Fabrico only employs one permeant AE because 'trainers who stay too long become outdated'.

Secondly, internal quality assurance processes include multiple feedback cycles - collecting post-course evaluation data from learners, AEs, and employers with the intention to monitor and improve the overall quality and authenticity of teaching, learning and assessment practices.

Thirdly, Fabrico has developed long-term partnerships that aim to support the customisation of course content and assessment. In conjunction with E2I, Fabrico redesigned an existing curriculum to train retrenched workers and support them in their transition from one industry to another. Engaging AEs in direct collaboration with partners is not unusual for this TP. AEs and management visit employers in the workplace to identify customer needs and customise course content and assessment. When customising in this way, Fabrico substitutes their standard case study assessment with one tailored to the needs of the employer.

It was emphasised to us that customisation of this type is necessary as feedback on the ground is that the 'skills framework is not really relevant to what is practiced in the industry'. With a view there is 'too much focus on technology and not enough on quality' in the Skills framework, we were

informed that customers look towards Fabrico to conduct customised quality training. Management stressed to us that they work hard to sense what customers need and adapt their provision (within reason) to support industry needs – particularly as the content (knowledge and abilities) in the skills framework is 'too specialised' and pitched 'too high' for some learners attending this TP.

> I always tell my customer we can give and take but cannot too much because we need to explain to SSG.. WDA. Because when it comes to that side the audit, we got a problem (Fabrico, Kathleen)

> we see they're at a bit different level, so to us actually to say it uh, for us, we cannot go too high because basically it is too, uh, specialised to the, it's like the, cause equipment wise that we cannot handle for us, we can only do the generic. (Fabrico,Mimi)

In addition, Fabrico taps on its corporate membership to extend its reach and keep abreast of industry developments. In response to recent to a cuts in their WSQ funded provision, this TP continues to offer certain provision in a different arm of the organisation to meet industry needs. Indeed, management informed us they are most proud when the organisation serves industry needs:

> 'Most proud … of course, enjoy work is like if the participant really enjoy because if the feedback is very good that they really learn from there, yeah that's a satisfaction because when we do customized courses or when we launch courses and if let's say that is not what the market want, I will feel very, we feel very disappointed. But if that we can see that the demand is there, we feel very glad, we feel that we really fulfil that we are supporting the industry'. (Fabrico, Mimi).

Fourthly, Fabrico provides some opportunities for the professional development of AEs, including in house training courses and those available through IAL and the awarding body connected to the TP. In line with SSG compliancy requirements and awarding body licencing and contract renewals, all AEs delivering such provision are appropriately qualified. AEs also enjoy a degree of autonomy as they are encouraged to adapt and apply the curriculum according to the needs of the learner and employer. Management reinforced to us the need for AEs to 'enact authentic learning, to be innovate in their teaching and learning strategies and to ensure learning is fun'….moreover….'so long as the assessment criteria is met, AEs can make changes, but these must be recorded and reported by the AE) (Fabrico, Kathleen).

While Fabrico has taken steps to offer authentic learning and assessment, interviewees shared details of contextual factors that shape (limit) teaching and learning practices. Leadership acknowledges the importance of generative technology for teaching and learning purposes, but limited resources have restricted investment in technology and up-to-date machinery at the training centre. As we observed, the learning environment could benefit from some enhancement to make it more engaging, dynamic, and conducive to active learning. There is also room to improve the quality of their pedagogical practice - curriculum documentation is outdated and content heavy.

As an NGO, leadership also explained to us the difficulties faced due to recent funding cuts. She also explained difficulties they have in offering attractive and competitive salaries to retain AEs and curriculum developers compared to other larger TPs. Kathleen explained to us how difficult it is to find good curriculum designers at a reasonable cost. She shared with us that curriculum designers are very expensive – earning up to $2,000 to design a two-day course, and up to $15,000 for designing the curriculum for an advance certificate. Although the rationale for mainly employing associate AEs is to ensure relevance and currency of domain knowledge, some concerns about the quality of AEs pedagogical expertise were highlighted by leadership.

> There're some they just say that I help you to develop the content, but I don't, I'm not able to teach…. So, I told them that you help me to develop this course, this training and according to all these standard that what I want. Ok, then the first two pilot run then I let you conduct the training. But because this is under the WSQ you don't have the ACTA certificate, so you must under my supervise. So I need to guide them in. So in a way is that he got the value on the current knowledge and skill and I got the value on the training. (Fabrico, Kathleen)
>
> Ok because our target audience is always changing, the learner is also change even though you have the usually I know some of my trainer they're very well prepared, but certain trainer don't care one you know. They don't care who is their learner, that day they walk in then they check on the learner. There are some trainer really very professional, they will ask for the learner profile before they enter to the classroom. (Fabrico, Kathleen)

As identified through our observations and data analysis, such factors have shaped the culture of the organisation and impact on the enacted activities and capabilities of the AEs.

Educator activities and capabilities

In Fabrico, AE activities typically include:

- Implementing teaching and learning strategies.
- Adapting the curriculum accordingly to learner needs and profiles.
- Assessing learners.
- Visiting employers to customise course content and assessment.
- Updating one's domain knowledge and pedagogical expertise.

We observed day one of a two-day workshop. Though we can expect curriculum documentation to differ from the enacted curriculum, we identified a difference in what we observed from the AE in the enactment of the curriculum compared to the views and beliefs shared with us during the interview. We illustrate this distinction below.

Learners attending the workshop were of a diverse age range, from different ethnic backgrounds and with varying linguistic capabilities. All learners were engineers, from operations to senior management level.

Xavier, began the session by introducing the objectives of the course and invited learners to ask questions at any time. As we soon observed, little time was dedicated to questioning or discussion. Instead, Xavier delivered the session according to a set of power point slides – not deviating much from the slide content or sequence and quickly moving from one topic to the next. The slides were content heavy, loaded with text and non-engaging images. We later observed that the material presented to the learners during the workshop directly mirrored the detailed and perspective learner guide previously issued to learners.

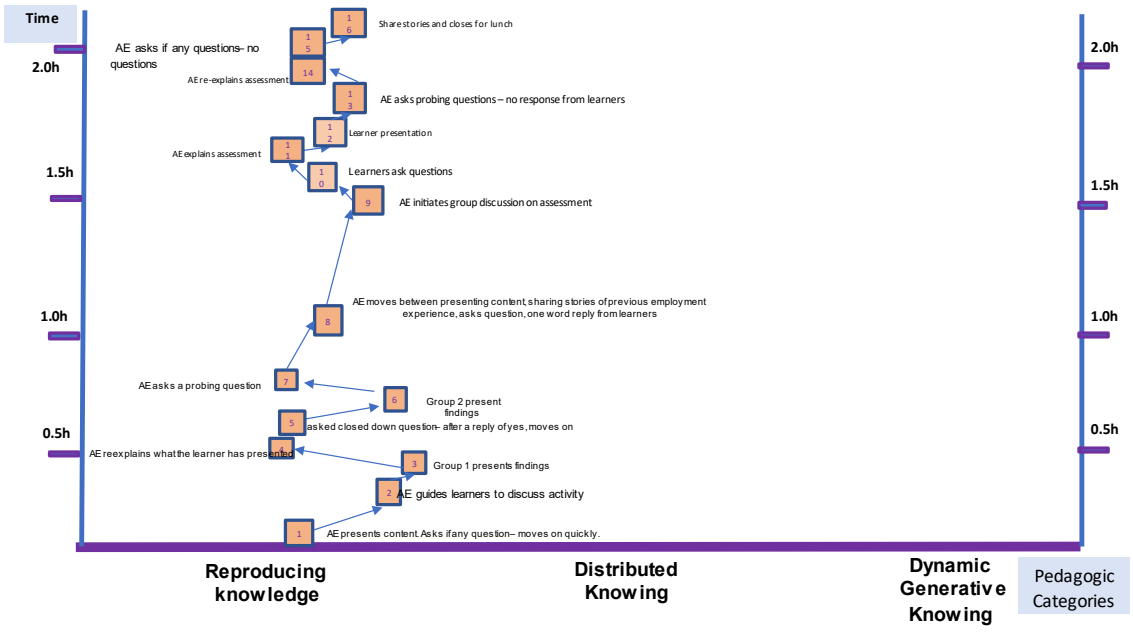
Following a delivery pattern of presentation, activity, report back repeat structure, Xavier soon set learners off on a series of group activity. In groups of 3 or 4, there was some interaction between learners while Xavier circulated the room checking and re-explaining the group activities. After 15 minutes or so, learners were invited to present their findings group by group. Xavier invited questions from other learners but with no immediate response, posed his own questions. The predominantly close-ended nature of these questions enticed little engagement from the learners. Despite efforts to share his own experiences through storytelling, there was little attempt to open a group discussion. The point here is that Xavier did not allow sufficient time to pause and wait for questions. This quick jump from asking questions to moving on to the next topic was repeated throughout the entire

session. Learners did not seem interested in hearing each other's presentations and were distracted by looking at their personal devices.

As Xavier moved through power point slides and similar type of activities, at one point he informed the learners of the slides especially relevant to the case study assessment. He encouraged the learners to adopt a similar approach when preparing their own case study, suggesting the inclusion of images and photos would be useful. Learners engaged in a short discussion and asked questions to verify the assessment requirements.

As depicted in the figure below, the curriculum was mainly enacted in a highly instructive, monolithic way with a focus on canonical knowledge – hence placed at the reproductive knowing end of the spectrum. With a considerable amount of dense content to cover in two days, Xavier did the majority of talking as learners sat as passive recipients, appearing disengaged. Emphasis was on teaching to assessment, with Xavier quickly walking learners through the workshop material without much thinking or interaction from the learner required. The apparent disconnect between Xavier and the learners was most striking when Xavier suggested stopping for a break and as he continued talking – attempting to explain the next topic, learners were already packing up and leaving the classroom. While the enactment of the curriculum falls in reproductive knowing, the assessment requirement leans towards distributed knowing (despite more than two hours of the 16-hour workshop dedicated to a pre-assessment session). As prescribed in the learner guide, part one of the assessment is a case study summative assessment and part two is a written/oral formative assessment. In line with Fabrico's efforts to ensure authentic learning and assessment, Xavier explained to us, a key part of his role is to visit the employer before the workshop begins and customise the case study requirements. When customised in this way, Xavier also visits the employer premises to conduct the assessment. What really matters to Xavier is that the employer buys in to the assessment. He goes as far as to suggest that the direct boss of the learners should be involved in assessing the case studies and provide feedback.

Figure 20: Visual mapping of Fabrico



Having positioned this course towards the reproductive knowing end of the spectrum, there are some contributing factors – beyond the activities and capabilities of the AE to consider when thinking about

why the curriculum is enacted in such a way. Though management spoke of the need for AEs to enact authentic learning, to be innovate and ensure learning is fun - the curriculum documentation itself is dated December 2013. The restrictive nature of the classroom space did not facilitate interactions. The tables were arranged in rows, with seats facing the front of the classroom. The tables and chairs were positioned closely together, making it difficult for learners to move or even turn their chairs around when asked to form small groups. The room had no windows, it was unappealing, dated, and small.

Use of technology was limited to a projector. Internal quality assurance processes seem to focus on ensuring compliance with external QA requirements and obtaining learner feedback to check if they are satisfied with the AE and course delivery. At an organisation level, the 'hope' is that learners feel the learning has been 'fun' – hoping that downstream the learners will return to the TP for more training. Though there is an overall commitment and desire to engage more employers and conduct training on company premises, the reality is that around 80-90% of the training is delivered in the training centres and only 10-20% requested by employers and delivered on their premises. The TPs pedagogical stance for authentic learning and assessment seems to be more of an ambition/desire than a reality.

With these factors in mind, one could argue it is no surprise the curriculum is enacted in the way we observed – and in a way that seems in conflict with the AEs professional identity, beliefs, values, and views he shared with us. Aware of certain constraints, we see evidence of the AE trying to navigate around and beyond these – we also observe a significant contradiction in what we observed in the classroom compared to what was expressed in the interview.

Commenting on the fact the curriculum was developed over 10 years ago, and therefore needs to be updated and revised - Xavier explained to us that he 'doesn't just go by the format handed to him but adds to it while remaining within scope'.

With extensive employment and experience (as a trainer, educator, consultant, coach we were told), Xavier spoke ardently about understanding the profile of adult learners, their motivation, learner agency and celebrating learning achievements.

> …So, we need to find, especially for those learners, what are their passion? End of the day, follow your heart, that's what I tell them, yeah? Right. Fabrico, Xavier2, T50)

> Are there any way whereby individual, we go to another level because we provide a so-called certain… sign up, so-called gain some monetary award If they completed certain thing. I think I would rather use that monetary award into a kind of competition. I won't say competition. Maybe a conference? Learner week ..IAL can conduct this sort of conferences for all the learners who are, are willing to come forward. (Fabrico, Xavier2, T63) Fabrico, Xavier2, T49)

Xavier also commented on the value of shared learning within the adult learning space, the importance of engaging adult learners and customising according to their needs and profile (and that of the company) and importance of technology for future oriented pedagogies.

> 'they are all senior people. Their value add is by sharing their experience, from their experience that relate back to the curriculum or so-called the learning objectives. It makes more sense sometime'. So understanding what the company actually wants, reverse it back based upon the curriculum and reflect back how this is being linked. And then they'll see the application there. (Fabrico, Xavier)

> Learning is not, now today, is not one format, there are many formats, so they allow them to embrace the technology changes… gamification is important. (Fabrico, Xavier, T60).

During the interview, Xavier emphasised the importance of collaborative learning, use of questioning, project-based learning rather than training led learning, encouraging more confident learners to support less confident learners in group work and discussions – however none of which we observed in the enactment of the curriculum.

> I will use those experienced learner to share their exposure background to build up the confidence. Things can be done for the, those learners that do not have those kind of experience or background while those who are new or didn't have the background, we would like them to think about situation that they come across or they have observed. So I will switch into the so-called discovery way of learning for them rather than, than getting them to just to learn from the context of the content from the learning itself (Fabrico, Xavier)

> I stress a lot on the process of learning rather than the content of learning. Because for adult education, I think once they master how to learn, eventual whatever content that come in, their mindsets will very easy to adapt to it and they're able to pick up new skills, yeah. (Fabrico, Xavier)

> It's not just accepting the information, uh, from the educator or the instructor. So I think questioning become important, yeah?

Concluding points

Through our analysis of the curriculum documentation, course observation and interviewee transcript analysis we see several connections, disconnections, tensions, and contradictions. We see:

- Certain views and beliefs expressed by leadership are not reflected in the current pedagogical practices of the organisation.
- A disconnect between what leadership expect / require from their pool of predominantly associate AEs compared to what is practiced on the ground.
- The views, beliefs and perspectives on pedagogical practices shared with us by leadership and AEs are not always aligned with one another.
- The views, beliefs and perspectives on pedagogical practices shared with us by the AE during the interview(s) contrasts with the enactment of the curriculum as we observed. This can in part be attributed to the restrictive environment in which the AE works.
- The governance of the organisation in terms of its approach to the Skills Framework, funding and quality assurance shapes the culture of the organisation and drives pedagogical practices that do not really move beyond reproductive knowing.
- There is room to improve the quality of pedagogical practices and pedagogical knowing in this TP. The curriculum documentation is dated 2013 and the presentation slides were content heavy. This suggests limitations in current quality assurance processes.
- Leadership seems to operate within the constraints of the TAE governance structure, with restrictive evidence of forward looking, taking the organisation to the next level, equipping learners with the skills, capabilities, ambition for the future.

6. What are the current Pedagogical Practices in the TAE sector?

6.1 Introduction

The purpose of this Chapter is to address our first research question, "what are the current pedagogical practices in the TAE sector?".

We use the FOPP Framework (see Chapter 4) to analyse and visualise the observational data along the PP continuum showing a dance (or not) across reproducing knowing (RK), Distributed Knowledge (DK) and Dynamic Generative Knowing (DGK) PP. This analysis is triangulated by interview, survey, and dialogue sessions. Curriculum materials such as the facilitator guides, lesson plans and assessments were cross referenced with the observations made. The course materials allow the researcher to get a holistic view of the learning design of PP.

Our observational data shows that of the 21 observations made across the different sectors, RK PP emerged as the predominant practice, followed DK and DGK PP. This is irrespective of the different modalities of learning. However, we also observed a variety of other PP across the PP continuum. Broadly speaking, the interview and survey data paints a somewhat different picture of educators' perceptions of dialogic approaches centred on DK PP. Hence, not surprisingly, we found a gap between educators' espoused beliefs and their practice.

Across our data, we see strong evidence of more educator-initiated activities compared to learner-initiated activities, indicative of RK PP. Educator as the key driver is evidenced in, for example, use of lectures, use of the IRF (see Chapter 2), controlling the discussion and the energy and momentum in the class. In courses with more learner-initiated activities, the activities were episodic and in short durations of 15-30 minutes. In each 2 hour lesson, we noticed no more than 2-3 learner initiated activities. The most common learner activities observed were question and answer, reflection, reporting back, and generation of insights.

We recognise that our sample size of 21 observations is small, however as the observation data is triangulated by a variety of other data from 319 additional data points (see Figure 3 in Chapter 1), we can have some confidence in the extent to which our findings reflect pedagogical practices across the TAE sector. This Chapter is organised into three sections:

1. Current Pedagogical Practices (Consistent with the FOPP framework we have a separate sub-section on assessment, as it is a focus for our recommendations in Chapter 8)
2. What is Future-oriented and what is not?
3. FOPP and the use of Technology

6.2 Current Pedagogical practices

We use the four elements of the FOPP Framework; epistemological beliefs, who is doing what, assessment, and learning design to identify how RK, DK and DGK are manifested in current PP and

propose how some courses could move towards DGK. As indicated, the analysis of observations is supplemented by 319 data points.

The dance along the PP continuum is an indication of educators (designers and facilitators) using varied teaching and learning activities, creating potential to move towards FOPP (i.e. DGK PP). Depending on how teaching and learning activities are used and executed, they can fall anywhere along the continuum. With this in mind, we categorised the observations shown in Table 3 using three subcategories in addition to our three PP of RK, DK and DGK to better illustrate the dance. The subcategories (R/DK, DK/DGK, R/DGK) were created as we noticed in our data that some courses have activities that dance between two PP, this is particularly evident in DK and DGK PP which have a wider range of activities and thus a dance between the PP is expected. The subcategories allow us to see the dance in a more nuanced way, in relation to time. In Table 3, RK/DK means that the predominant PP is RK, with some instances having potential of moving into DK PP.

The identification of the potential in courses is important when considering change and capability development in the sector. It is more challenging to change predominantly RK PP as it entails changing an educator's/ curriculum designer's and training provider's core belief systems and identity. When DGK was observed, in all instances we saw a strong dance back and forth across the three PPs. We noticed that the dance (or not) we saw in each observation, is usually more strongly centered around one of the three core PP – RK, Dk, DGK. Table 3 shows the distribution of the PP based on the 21 courses observed.

The dance along the PP continuum, as shown in the following two chapters is a necessary attribute of FOPP, hence our claim that FOPP are about belief and intent to move towards FOPP (i.e. DGK).

Table 3: Distribution of Pedagogic Practices

Pedagogic Practices	**Reproducing knowledge**		**Distributed Knowing**		**Dynamic Generative Knowing**
Subcategories	R	R/DK	DK	DK/DGK	DGK
Number of observations (total = 21)	7	6	3	2	3
Courses	F&B-Y/F/FS **F&B-Btice/FH** Manuf-Fabrico **TAE-JAG/A/5** TAE-JAG/A/2 **TAE-UP** Business-Montage	F&B-Y/F/E **F&B-Btice/P** EdTech-TA **Manuf-Techno** TAE-JAG/D/5 **Healthcare-Illumine-M**	F&B-Btice/P **TAE-JAG/D/3** Healthcare–Illumine/A	TAE-Tingpo **Healthcare-USH/C**	Healthcare-USH/CL/F2F **Healthcare-USH/CL/Zoom** Business-Rohei

The spread of PP across 21 courses (7RK, 3DK, 3DGK) in Table 3 indicate that RK is the predominant practice and is observed across four sectors. There were two F&B courses, one manufacturing, three TAE and one business course that practised RK PP. DK is observed in three observations and also in a dance between RK and/or DGK. DGK is rarely practised based on the observation data we have. These various dances labelled as R/DK, DK/DGK are analysed under the three core PP of RK, DK and DGK.PP.

In our survey data, we used questions related to 6POLD and dialogical inquiry to understand current practices, these questions illustrate DK/DGK beliefs and practices. For example, to understand authenticity in 6 POLD, which is one important indicator of DK/DGK practices, educators were asked to rate the frequency in which they practised the following:

1. I get learners/clients to choose a scenario from their own workplace or work experience
2. I provide complex case studies for my learners/clients
3. I get learners/clients to solve an issue or problem that is related to their own workplace or work experience
4. I get learners/clients to work out how they will apply their learning in real-life situations

Over 60% of educators indicated that they 'frequently' or 'always' practice 1, 3 or 4. However, for question 2, only 39% indicated that they provide complex case studies for their learners/clients. In DGK, defining and solving of complex and wicked problems is essential. The survey results suggest that educators believe their current practices are generally authentic and closely linked to workplace scenarios. Similarly, the results for dialogical inquiry were also positive. For dialogical inquiry, the majority (over 50%) of educators reported that they frequently/always use theorising, imagining, reflecting, relating, analysing and procedural strategies in their current practices. This implies that educators are well aware and practising teaching methods associated with dialogical inquiry. Overall, the survey results for 6POLD and dialogic inquiry are indicative of perceived practices that move towards DGK PP in the FOPP continuum. However, later in the Chapter we will show that there is a gap between espoused beliefs and actual PP.

Reproducing knowledge PP

RK in current practices is characterised by the transmission of canonical knowledge by the educator. Learning is often heavily loaded on content, with limited input from learners.

In any given learning space, educators and learners form relationships that are influenced by their perceptions of their roles, the extent to which who holds control, and expectations of learners and of educators. This impacts *who is doing what* in a learning setting. When we examine the courses identified as practising RK, the most common activities were educator led activities like presenting content, explaining assessment, the educator sharing stories, educator-initiated questions and short learner responses. In these activities, it is the educator who is doing most of the work. In our FOPP Framework this aligns with the descriptor found under RK practices, "*who is doing what*". Who is doing what is also mediated by the nature of the space and the arrangement of the furniture. For example, an F&B course (F&B-Y/FS), was conducted in long and narrow classroom with learners seated individually in a long line behind each other. Such arrangements limit discussion and group work and send a silent message to learners that their role is to listen. Interactions in the class were mainly content download with some sporadic direct question and answer.

To illustrate RK courses we refer to the visual mappings in Figures 20, 21 and 22.

Figure 21: TAE- JAG/A/5

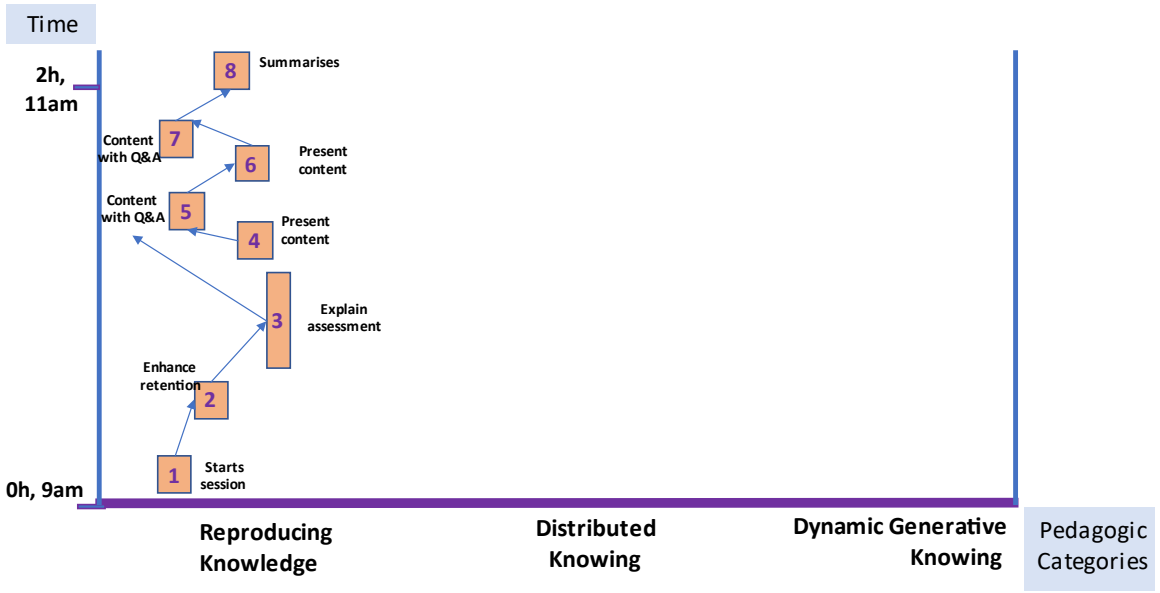
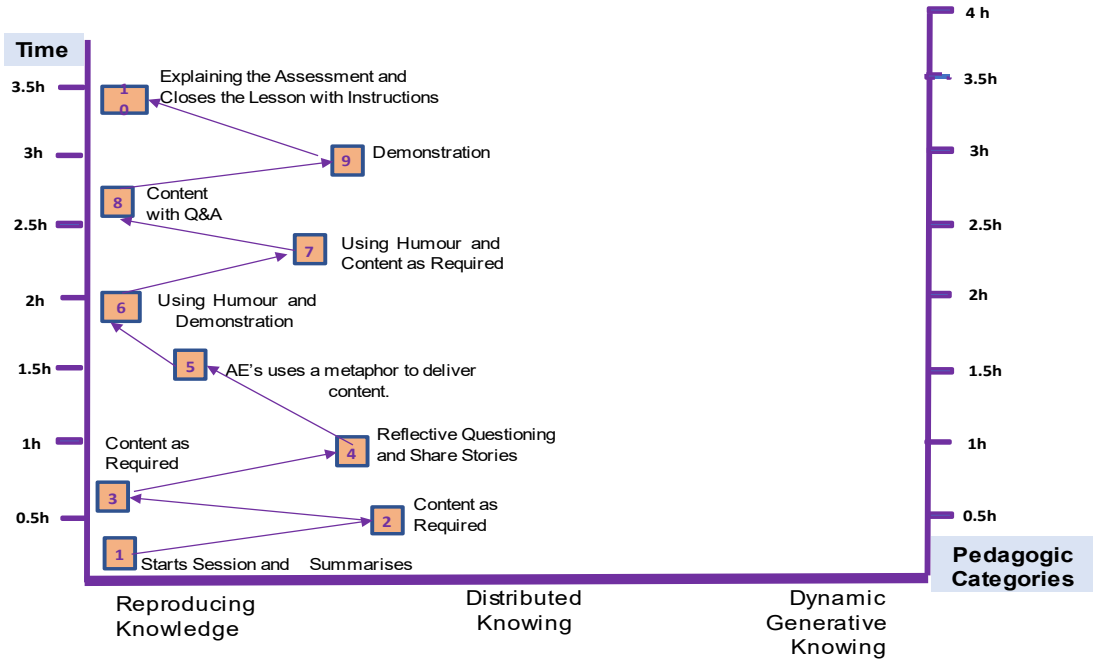


Figure 22: F&B -Y/FS



The three mappings include sessions observed from different sectors of F&B, manufacturing and TAE. The most obvious similarity is the grouping of activities under RK PP end of the FOPP continuum, and a very limited "dance". It is evident that in terms of *who is doing what*, the educator is doing most of the work and learners are positioned as content receivers. Content activities like presenting content (with and without Q&A), content as required, and educator summarising, can be seen across the three mappings. The educator shared their stories delivered as a monologue, a one way sharing or demonstration by the educator.

In all 13 instances of RK and RK/DK PP, the educator commenced the session by launching into a monologue. The beginning of a course typically sets the precedent for what social relationships are valued and practiced by educator and learners. In the case of RK PP we observed that learners'

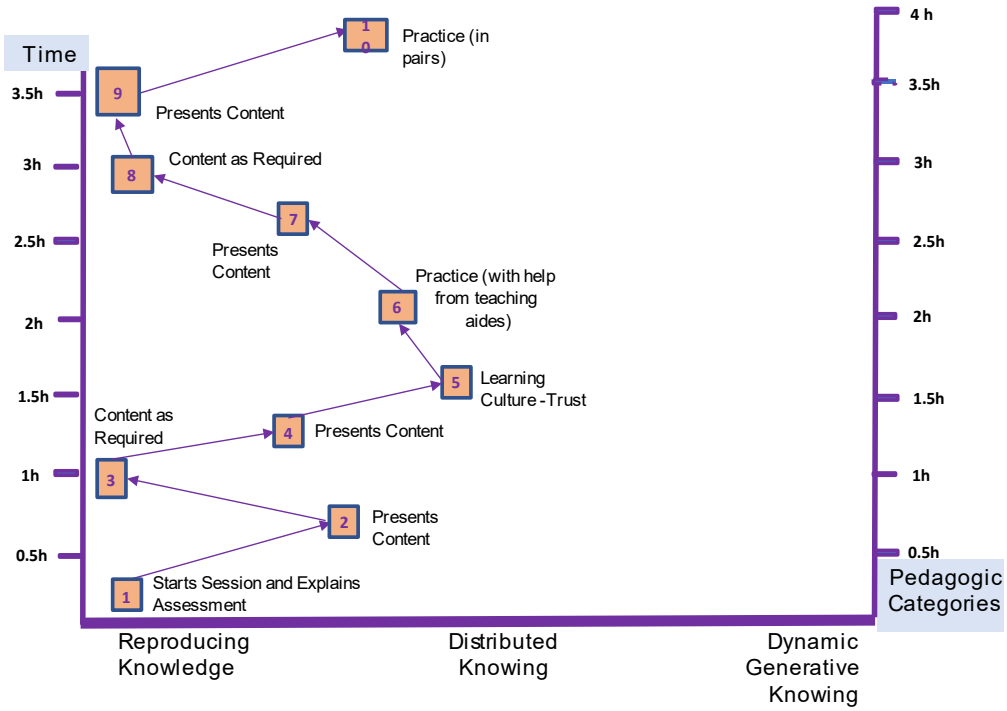
expectation for engagement was closed down. Learners received a clear unspoken message that their role is to listen, and that the educator is the expert, the "sage on the stage". It is the educator doing a significant part of the work of learning, not learners; the educator is the key driver, the initiator, and the content expert.

Questioning techniques used consciously or subconsciously by educators can open or close down dialogue. In RK PP, questions are usually framed to reinforce control, checking that learners can reproduce what the educator has been sharing. For example, in a F&B-Btice course, the educator exerts his power by initiating a question with the expectation of a correct answer. He briefs learners on their tasks for the lesson to prepare three cold plates, one of which involves prawns. Chef asks learners "Why not soak the prawns in wine for a long time?" When a learner responded, the learner was promptly corrected and chef provided the right answer – "the wine will cause the prawns to be overcooked. Wine has the effect of 'cooking' the prawns."

While it could be argued that chef was asking this question to capture learners' attention, or that he was enculturating learners into common practices in the F&B sector through this questioning technique, it begs the question, what do we want our learners to be and to be always becoming? Btice as a training organisation, shared in their interviews some of their innovative and highly creative work they undertake in the art of chefing. There is a tension here between this organisational goal and the questioning technique used that closed down inquiry. There are many possible alternatives, one of which could have been to have learners observe what happens when prawns (and other foods) are soaked "too long" in wine and have learners share and discuss their observations. This short activity could also have introduced learners to the science behind this effect, contributing to a deeper understanding. This expectation of a right answer when the educator initiates a question is a common practice observed in RK PP, orienting learners to guess or to 'spot' the correct answer.

In some predominantly RK PP, we observed the occasional dance into DK PP through a few activities. To illustrate this, we refer to the F&B-Y/E course in Figure 23. The first hour is centered in RK, in the second hour, there were some activities that dance into DK PP.

Figure 23: F&B-Y/E



This course is compulsory for many workers in the Food & Beverage sector. It was designed with a focus on content. The educator adheres closely to the lesson objectives and outcomes and is trapped in RK PP in the first hour. For compliance related courses, we recognise that learners are naturally oriented towards the outcome and may be anxious about passing the assessment as it is directly tied to their work. In this course, the educator reinforces this thinking by explaining the assessment at the start of the class, followed by prescribing rules, expectations and procedural steps. One hour was spent on these matters, closely followed by further input in the form of a monologue by the educator, elaborating on the slides and learner guides. There were no breaks or opportunities for question and answer or any form of clarification and dialogue within the first hour; it was all talk by the educator. In the second hour, there is a short move towards DK PP with learners sharing their job roles and practicing how to use mobile devices to navigate a website. The lesson ended with a pair work activity on filling in a form. These three instances show a change in the interaction patterns and some baby steps taken towards DK PP.

In another F&B course shown in Figure 23, the educator also begins with “present content”, “content as required”, “share stories” and “summarising”. In such cases, the design and facilitation focus on content, showcasing the educators’ (curriculum designer and facilitator) epistemological beliefs that knowledge is static, that learners need to individually acquire the content and that the role of the educator is to impart knowledge that is then acquired by learners. Or, as discussed later, in the Chapter, this could be an example where there is a gap between beliefs and PP that the educator(s) are unaware of. The lesson design is illustrative of monologic RK PP. In the F&B-Y/FS course, the researcher observer made the following notes, indicating that this pattern of activities of imparting knowledge continued.

“The educator highlighted several examples of cases in the media where food safety measures were comprised and resulted in consumers suffering from severe illness due to contaminated food. She proceeded to explain about the different functions on a microwave and demonstrated how to defrost safely using a microwave. She used the photograph on the slide to highlight how to do this. She displayed photographs of poorly-kept food at some of the kitchens in Singapore and asked them what was the incorrect method in each photograph. (No response from Learners)

She asked learners how food is prepared at the shops the learners worked in (no response). She gave them several scenarios and got them to reflect on this scenario (no response). She also highlighted how important it is to observe the multi-cultural requirements of each culture in Singapore and to ensure that food is not cross contaminated.” (extracted from observation notes for F&B-Y/FS)

The lack of response to questions is indicative of learners having accepted their role as listeners and educator as the one who tells. When interactions did occur, the answers given by learners were short sentences. Questions asked by learners were clarification questions directly related to the content covered during the lesson. This pattern of questioning is typical of the IRF discussed in Chapter 2. For the educator to move away from being the one who always tells, the educator would need to have learners actively engaged with each other, dialoguing about knowledge or problems relevant to them. A possible alternative activity could be where the curriculum designer and facilitator package materials for learners to make sense of and teach other groups the topic they selected. Such approaches have learners actively making sense of the materials and hold them accountable to teach others. In such ways, conversations are opened up, rather than closed down as when the educator gives the answer.

Across all the learners’ feedback collected from the Critical Investigation Questionnaires (CIQ) data, learners were vocal about their concerns on content heavy lesson designs and the use of videos for learning. In general, learners find such transmissive forms of activities as not engaging. *Learners consistently commented that their learning journey was sometimes hampered by an overload of information, their inability to understand technical terms and losing focus during long explanations of*

theoretical concepts, long lectures, wordy slides and video presentations. The learners' perceptions towards the use of technological tools like videos was unexpected (74% of educators used video (survey data)). Learner's feedback suggest that videos are "boring" and not as engaging as educators expect. *Learners also highlighted that they feel isolated and disengaged during self-directed learning parts of a program.* In terms of activities that *learners perceive as engaging and memorable*, learners listed *group discussions, role-play, feedback on work done, sharing of real-life work experiences by the educator, reflection, storytelling, question and answer session and collaborative work*. Learners also *value feedback* and acknowledgement of their participation by educators. When it comes to hands-on practices (when having to learn a skill), learners reported they prefer the educator to demonstrate before the practice. However, as we see in the USH case study in Chapter 5, powerful learning can happen when learners try first and learn from the experience, with demonstration happening a little later, followed by further practice.

The dance of Distributed Knowing PP

DK PP gives time and space to learners to actively engage with content that is common to existing practices and ways of understanding. Notably, teaching and learning activities in DK PP are more varied with a focus on the learning process.

Across our observations, courses that demonstrate DK PP there were often two or three activities that cross into RK or DGK spaces. To illustrate, we refer to Figures 19, 24, 25 where we observe educators using a range of learning and technological resources like quizzes, polls, flipcharts, equipment to scaffold learning. Woven into the learning process were digital resources to increase interactivity and boost peer to peer interactions. Our survey data, informs us that 66% of educator respondents reported using collaborative platforms (google docs) and 55% use online forums, chats and polls in their practices. Our observations of DK PP, showed that educators rely on technology with more collaborative capabilities than in RK PP and are less inclined to rely on the use of static multimedia options like videos. This corroborates with the data obtained from the CIQ survey which indicated that learners view the use of videos without any scaffolding or proper debrief as not engaging. In DK PP, we see a more skilful way of integrating technology with the lesson.

Figure 24: F&B - Btice/P

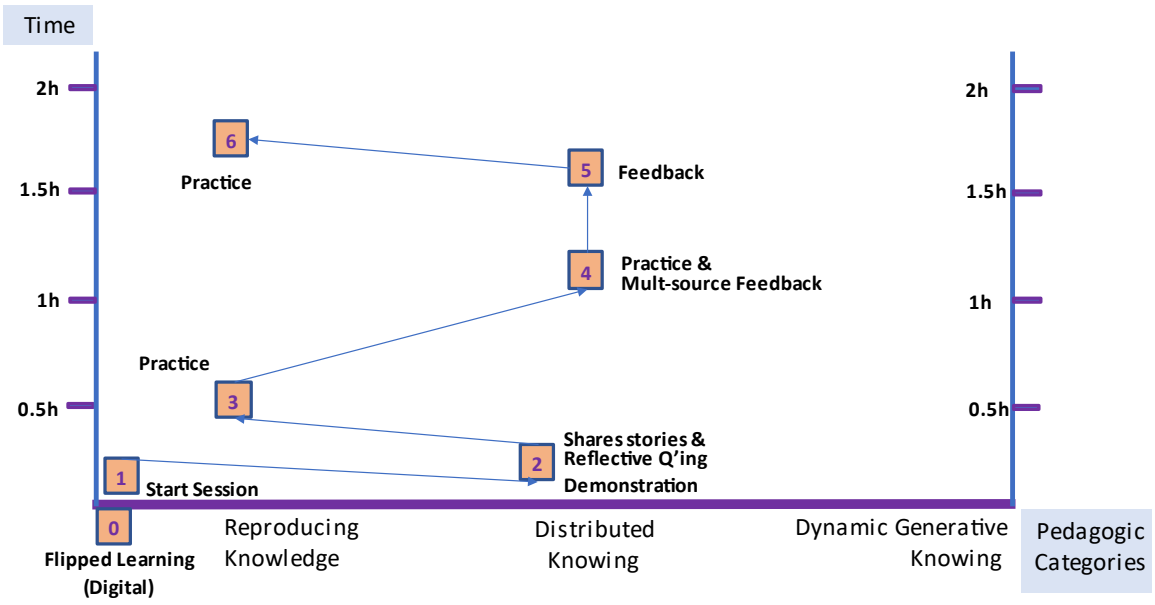
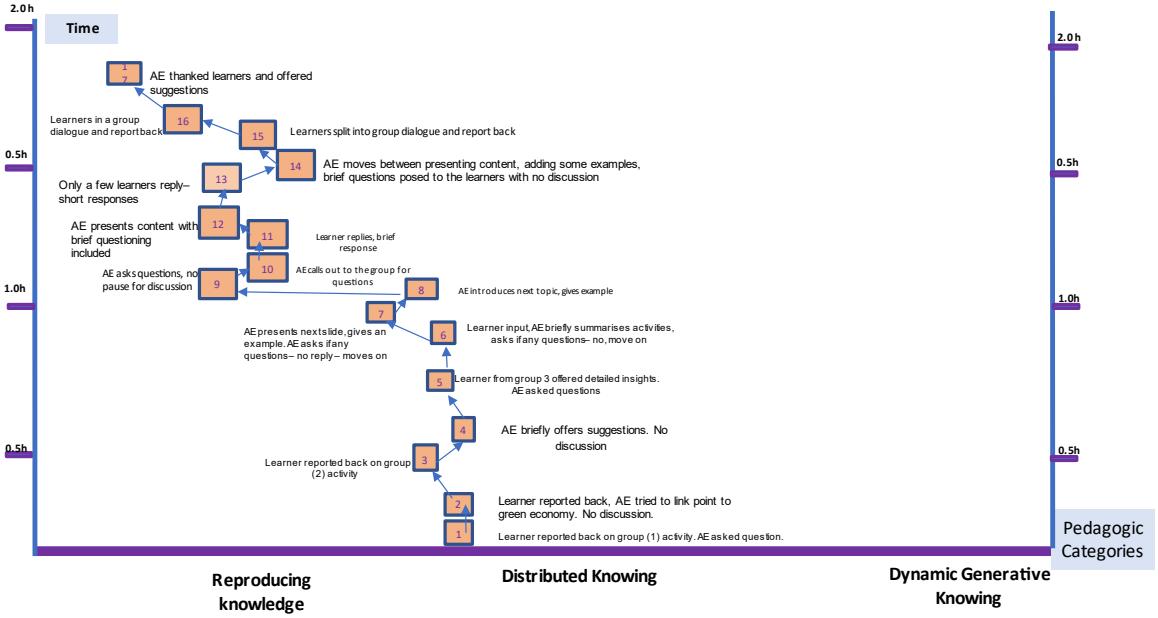


Figure 25: Manufacturing -Techno



Lesson design In DK PP relied on activities that were noticeably less monologic; there was less time spent on, and fewer activities such as present content, educator storytelling, and present assessment. Instead, more interactive activities like questioning, hands on practices, demonstrations, debriefs and feedback were used (See Figures 19,24,25). Selected activities like open dialogue, role play, practice and feedback were used to bring learners together in a common space to make sense of content, ideas, concepts, procedures through social interaction. There is a clear emphasis on the process of learning in DK PP. DK PP work with the belief and understanding that knowledge is distributed over and embodied in people and resources. All of which supports a distributed mode of learning.

In the DK courses illustrated, we observe a dance between RK and DK PP. Some activities like "practice" can be used to reproduce knowledge or to access distributed knowledge and reinforce canonical knowledge. Thus, it is not the activity (ies) that are important, it is the intent and enactment of the activity(ies) that matter in deciding where along the PP continuum, the activity(ies) are positioned. To illustrate this, we examine how "practice" is enacted as a DK PP and RK PP. In Healthcare-Illumine/PP (see Figure 19), "practice" is enacted with DK intentions as it involves learners working actively with one another and the educator. The interactive activities involve hands on practicing and peer questioning. This differs to the enactment of PP in an RK course like F&B-Btice. In F&B-Btice, "practice" is instructional and demonstrated by the educator alone, where learners were given a specific set of procedural instructions on how to prepare a cold dish. After the demonstration, the educator instructed the students to proceed to prepare the dishes and walked around to offer clarification. Figure 5 and 6 illustrate two contrasting ways of enacting "practice". To change from predominantly RK PP towards DK PP or beyond, require an educator to move away from their comfort zone. As Evie, an educator reflected,

> "going up another level where you must be comfortable that you are not a subject matter expert because a lot of instructional designs hide behind being that expert of what they design right, and that will become their limitation because that's where they are in a box" (Healthcare_USH_AE_Evie)

Evie suggests there is potential for educators to exercise agency in relinquishing some power. The metaphor of the box illustrates how epistemological beliefs can restrict dance moves.

In DK PP, we observed a clear shift of work and power from the educator to the learner (see who is doing the work in the FOPP Framework). Unlike RK courses, the educator in DK PP creates a safe space and forms a community of learning with the learners. Knowledge is perceived as socially constructed with the learners, and the learning setting is transformed into a communal space for co-creation and co-learning. To illustrate this, we refer to a F&B course (F&B-Y/FS) where the affordance of space is used as a means to create collaborative learning. The classroom was set in a kitchen environment with no visible chairs for the 9 learners to sit on. This simulated an authentic working environment in a restaurant. We observed that the space prompted the learners to intuitively start working socially as a group instead of working in designated pairs. We observe learners circulating from table to table, interacting and sharing different cooking equipment. Overall, the energy level was high, and learners appeared to be engaged. A similar example of collaborative learning can be observed in a healthcare course (see Figure 19). In this course, the educator successfully created a positive social learning environment by inviting a learner to co-demonstrate a procedure. From the CIQ data, learners' feedback that they prefer educator's to demonstrate procedures before trying it out themselves. The educator in Healthcare-Illumine went a step further and included a learner in the demonstration. The educator co-demonstrated a procedure with a learner as an assistant and asked questions to prompt other learners to notice certain things in the demonstration. In this way, the observing learners were invited to participate socially in the demonstration before proceeding to the practice session. Learners were asked to work in pairs during the practice session but we observed that they also helped out across pairs. We can attribute this to the creation of a safe, supportive environment and giving learners space to exercise agency. Although in the Healthcare-Illumine course, it is still educator led and structured, it differs from RK in that learners are given more power to participate in their own learning and are doing the work. Both the F& B course and healthcare course are positive examples of how learners can work collaboratively and learn as a community.

When facilitating DK PP, educators are also more cognizant about the language and terminologies used during classes as it influences the power dynamics. One educator in healthcare said:

> "what they have done and it's more like a sharing or facilitating, which is something in adult learning, the word facilitate, seems to have that, the profound impact." (Health_Illume_AE_Sahil).

In the business sector, one educator intentionally used specific labels and cues like 'facilitate' instead of 'lecture' to set expectations and define their role to learners. The educator said:

> "I'm not in very fond of the labels like lecturer, instructor, or even trainer. Because I feel that term cues people to be passive, in that 'okay, I'm just here, someone's going to instruct me' for instance or 'I'm here, someone's gonna lecture me'. But, I think if the term is learning facilitator, it will cue people to be like, 'okay, I'm here to learn, someone's going to facilitate my learning and also we can learn from one another' because the facilitator term implies that there's a, you know, learning in a group right. It's not just a one way kind of direction in learning. Yah so I think the labels do erm, do reflect perhaps historical values of education and historical practices, but I feel that the labels can be changed to signal you know, what we expect of students." (Business_Teek_AE_Kim)

In a DK PP (TAE-JAG/D) class observed in the TAE sector, we observe some spontaneous insights and sharing from other learners. In this course, we witnessed the skill of the educator in facilitating dialogue and helping learners draw connections between different sources of information. The educator avoided making judgement statements in the feedback, for example, instead of responding

with a “right” or “wrong” answer, the educator tells the class what she would do instead, enculturing learners into the commonly held practices and understandings. The learners responded positively and followed up by asking questions spontaneously. The educator-learner exchanges were dynamic and collaborative.

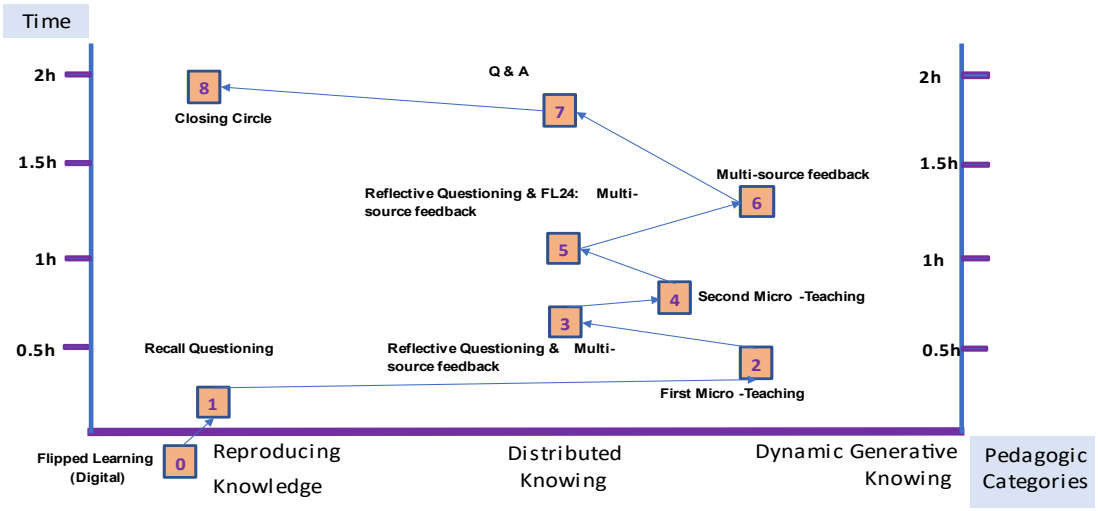
To interact in these ways, learners need to feel safe. The educator in TAE-JAG/D began establishing a psychologically safe space at the start of the class. The energy at the start was high and the educator mingled with the group. Learners were comfortable to share personal and authentic accounts of past experiences, demonstrating vulnerability, trust and agency. It was self-initiated and not in response to any specific question raised by the educator. The dialogue observed in DK PP included a range of questioning techniques aimed at developing metacognitive and reflective capabilities in learners. Some of these techniques correspond to the “talk moves” explained in Chapter 3. In DK classes, the educator may start with an open invite for all learners to respond or ride on one learner’s response to solicit responses from the class. This is contrasted with RK courses where question and answer exchanges are often between one learner and the educator,. The dialogue in a DK PP allows for multi-source feedback to be given and received as comparerd to RK PP, where feedback is usually given only by the educator. Feedback in DK PP included activities such as self-evaluation, and peer reviews as part of the assessment or learning process.

Overall, from our data, we noted that DK PP are distinct from RK PP in terms of the activity types, range, questioning techniques, learning culture and learner agency. DGK PP are often built on DK PP. For example it is necessary to have a safe, trusting psychological space as learners go deeper, and in the process become more vulnerable. In the next section, we explore how DK/DGK PP demonstrate intentions towards DGK PP.

The dance towards Dynamic Generative Knowing

Across our data, there were only rare instances of DGK PP, evident in our observations of and interviews with one healthcare provider (USH) and one business provider (Rohei). In the mapping of our observations of USH and Rohei PP, we see that (see USH in figures 13,14 and Rohei in Figure 16, 17) RK PP are brief, the bulk of the activities dance over DK and DGK PP. In DGK PP, we noted that when educators use monologic activities like “present content”, it is often carefully sandwiched and integrated with highly experiential activities. This is illustrated in Healthcare-USH/Coaching Pilot 1 (see Figure 15), “presenting content” was sandwiched between “generating insights” and a “poll”.

Figure 26: TAE - Tingpo



In Figure 26, we observed that educator led activities like “summarising” are followed closely by microteaching which is a highly learner driven activity. The mix and integration of the different types of activities works together to trigger and sustain learners’ interest and energy in a class. In terms of types of activities, DGK and DK/DGK courses use activities that are a mix of collaborative and generative learning. Activities like group discussions, generating insights, multisource feedback, dialogue and complex role plays are commonly used to enhance learners’ collaborative inquiry skills. These activities are woven through the learning design to create opportunities for learners to make judgements and give feedback to one another in iterative cycles as they build deeper understanding. Evidence of the iterative processes is illustrated in a Healthcare course in chapter 5 (see Figure 15 - Healthcare-USH/Coaching pilot 1) and a TAE course in Figure 26.

In TAE-Tingpo (see Figure 26), microteaching is repeated over 3 arounds and paired with reflective questioning. The flow of the class is given below:

a) Complete the e-learning resource online
b) Design a lesson plan for the micro-teaching
c) Redesign the lesson plan based on feedback from coach
d) Conduct micro-teaching session (of about 10 min) with peers in a role play
e) Receive feedback on the lesson from peers and
(Extracted from observation notes TAE-Tingpo)

The iterative process and the closing of the circle in the last round demonstrates high levels of learner agency, judgement and sensemaking. Mistakes made in the first round could be changed, reworked, and tested in the second and third rounds, indicative of knowledge building. Not only does the lesson design provide access to multiple perspectives, it engages learners in cognitive, kinaesthetic, and emotive experiences. As the cycle repeats, learners continuously generate new insights before converging during the closing circle activity. Learners not only practice their microteaching skills collaboratively, but they also work together to form a community of inquiry characteristic of DGK PP.

Learners’ embodied experience in the Tingpo course has some similarities with the case of Business-Rohei (see Chapter 5) which uses ambient lighting, music, visual stimulation and metaphors to create potential for new and deep understandings. During the role play in TAE-Tingpo, the Coach provided role play cards to the ‘participant’ to add some complexity. This challenges learners to uncover assumptions during the activity. The researcher noted that there were several moments during role playing when some learners felt uncomfortable because of the questions asked and the acting of their peers. They had to improvise on the spot and generate responses creatively. “Discomforting dialogues” was highlighted in Chapter 3 as one key element in dialogic approaches. It is a necessary discomfort to move into the DGK space. The lesson closes with learners reflecting on their performances and feedback given by the Coach on their teaching.

In Business-Rohei (see Figure 16), a thematic board game was used as a key activity in the morning segment. During the game, the game master (the educator) interjected in changes in rules of the game, adding complexity and forcing learners to improvise and re-strategise. This is similar to the role-playing cards used by TAE-Tingpo in the sense that it is an active intervention by the educator to challenge learners cognitively and emotionally. It forces the learners to be more elastic in their thinking and to develop capabilities to solve complex problems. The learning design helps to develop learners that are comfortable with the unexpected and complex challenges in their workspace.

Another strategy we observed in TAE-Tingpo is the use of language to influence the power relationships between the educator and learner. We noticed that the educator is referred to as the Coach, it can be interpreted as someone who is employed to help individuals attain their goals in life. Similar to the term facilitator, as opposed to teacher, or an assessment instead of a test, the term Coach is more personal and narrows the psychological distance between the educator and the

learner. The language we elect to use can contribute to redistributing the power of the educator or reinforce power as being in the hands of the educator.

Apart from power, language can also be used to influence the quality of dialogue. In Healthcare-USH/Coaching in Chapter 5, the educator used a series of talk moves like "how do you think other groups respond to changes in health system?" and "what if" questions to stimulate discussion and sense making as a community. This touches into the DGK space and challenged the learners cognitively and emotionally. In another healthcare course (Healthcare-USH/Collective Leadership), we observed the educator building trust and using a series of teaching and learning strategies to help learners connect the dots and dance between the three PP. The educator used the inputs generated by the learners throughout the day and during the cross group discussions to connect with a shared vision and individualised role of the learner. The role is contextualised and the learners are eased into their own lifelong learning journeys.

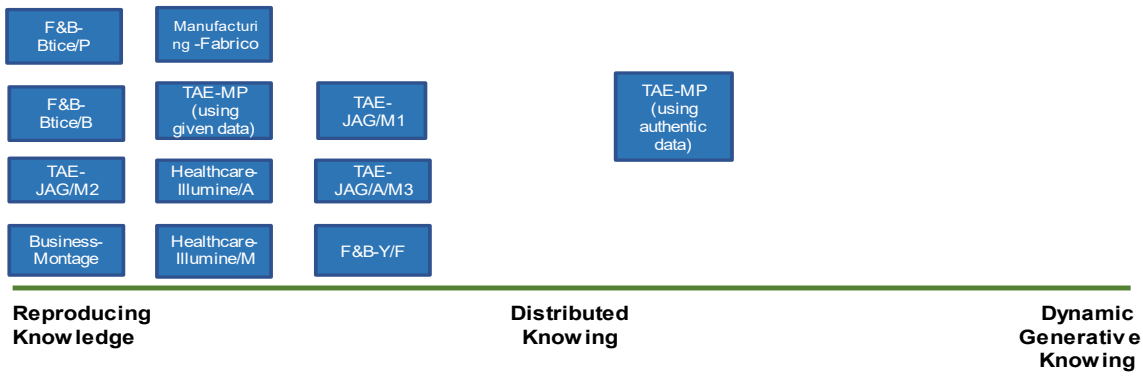
When courses are designed with the intention towards DGK PP, activities are curated strategically and integrated into a learning design that places a strong emphasis on learners. In DGK, it is not about choosing the right type and range of activities alone, it is about using these activities to curate dialogue where learners build knowledge and generate insights integrating theory and practice.

In summary, DGK PP differs from DK and RK PP in terms of the greater variety of the activities used and how they are creatively curated in the learning design. In DGK PP, we see evidence of educators being equipped with a repertoire of questioning techniques that help to empower learners to engage in dialogic inquiry. The educator in a DGK PP is skilful at creating opportunities and spaces for learning such that broader outcomes at the workplace can be met. Learning is about developing lifelong learning capabilities to meet changing circumstances.

Assessment

In terms of assessments, the majority of the courses observed used summative assessment show a narrow range of assessment types spread over RK PP across the five sectors (see Figure 27. Not all the 21 observations in our data set provided assessment materials, some training providers were not comfortable sharing the written documents, they prefer to share about it verbally. There were also cases (TAE-JAG/M1 and TAE-JAG/M3) where assessments were shared but we were not able to observe the classes as our data collection phase did not coincidence with their course schedules. The survey findings similarly show higher prevalence of summative assessment as compared to formative assessment. On average, the educators reported that 58% of their training courses involved summative assessment, as compared to 49% of that that involved formative assessment.

Figure 27: Mapping of Assessments (based on curriculum documents submitted)



Assessments activities are typically short answer questions, multiple choice questions or performance related questions that include a checklist for assessors to tick off as completed or not yet completed. For short answer questions, they are recall questions that have typic al preface statements like “list down”, “define”, “identify” or “state”. These are clear indicators of assessments that require learners to regurgitate content and reproduce knowledge. The relatively high incidence of reproducing knowledge type of assessment questions is also evident in the survey findings. In the survey results, 59% of educators reported using assessments that require learners to recall, and 57% or educators reported using assessments that require learners to analyse, synthesize or evaluate. The latter is contrary to what we observed, with the exception of Rohei where learners were required to reflect. All other WSQ courses observed included RK with a small number also using assessments that did ask learners to analyse, and/or synthesise. The survey does not tell us what types of assessments were considered more important or the time spent.

In terms of autonomy in influencing and adjusting the assessments, from the survey findings, 48% of educators reported that they ‘frequently’ or ‘always’ develop and administer their own assessment and 51% said that they ‘frequently’ or ‘always’ were able adjust the required assessment, as compared to and 74% who said that they ‘frequently’ or ‘always’ administer the required assessment. The nature of DGK requires continual feedback and an iterative process of exchange and evaluation of ideas with others, this means that the educator needs a relatively high level of autonomy adjusting the assessment. The survey results implies that educators have limited power and autonomy in influencing assessments. Most of the educators are administrators of the assessments.

Across the observation data, when we look at assessment design and facilitation in RK PP we noticed that a considerable amount of time was spent on emphasising and explaining, and signposting assessment questions, as already indicated. This pattern is also evident in TAE-JAG/A (Figure 21). It was not unusual to see educators very specifically signposting answers during the lesson. Notably, all of the courses we observed were WSQ courses. Given that funding is subject to learners passing the assessments, and that educators quietly report that some training providers instruct them to not to fail anyone, it is a practice that is detrimental to the quality of courses, outcomes for learners and credibility of such courses.

A gap between beliefs and pedagogical practices

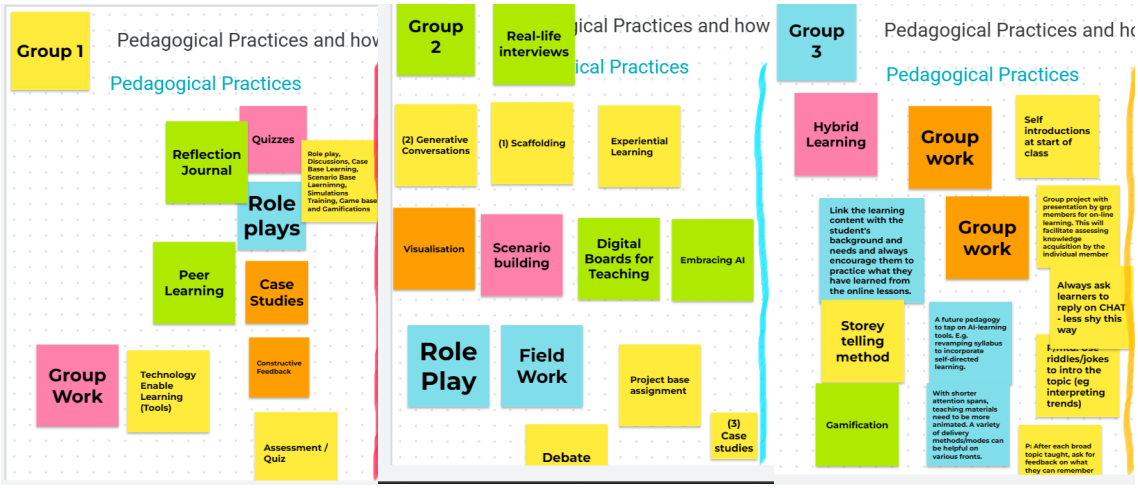
Across all the interview data and dialogue sessions with educators, we noticed that educators used language, terms and claiming that they practice DK and DGK PP. However, our observations highlight a difference between espoused beliefs, claims of PP, and actual practice.

To illustrate the contradiction, we compared the common teaching strategies shared during the interviews. When we coded the teaching strategies mentioned in interviews, what stood out was the emergence of four key teaching strategies: contextualisation, group work, peer learning and reflection. These activities are typically found in DK and DGK PP, Yet, in our observation data, we saw a high occurrence of monologic activities like the presentation of content, explanation of assessment, recall questioning and storytelling by the educator. Dialogic activities like group work, peer learning and reflection was less common. For some educators we suggest there is an inconsistency between what educators claim in interviews and dialogue sessions, and what we observed. It is promising that educators believe they are more towards DK and DGK PP. However, making visible such gaps is important in enabling educators to move towards FOPP. It involves identity work where educators confront the reality of the beliefs and practices. This can serve as a strong motivator for individuals to change their PP.

6.3 What is Future-oriented and what is not?

Educators reported that they consider contextualisation, group work, peer learning, reflection (from interview data) and experiential learning, role play and project-based activities (from dialogue sessions, see Figure 32) are future oriented. However, as previously noted, several times, it is not the activity, but the intent and the way in which the activity is designed and facilitated that determines if it is future-oriented (DGK PP) or not.

Figure 28: Perceived Future-oriented PP (from Jamboard, educator dialogue online)



Educators shared that contextualisation in the workplace is important as it provides authenticity and learner engagement, it helps learners to translate theories into real life workplace practices. Some educators also expressed contextualisation in terms of adapting practice according to learner profile, age group and past experiences. Educators commented that they often put contextualisation into practice through using interactive activities like group work and peer learning. An educator in the TAE sector shared his understanding of peer learning where the facilitator takes a back seat. He said:

> "If it's more experiential learning right, then you were building the experience for them and then you will put in the trigger questions right, to help them to talk more and it becomes more, the learners are supporting each other in their learning rather than the facilitator feeding the knowledge, even though if, if, if it's a more direct approach or more instructive approach yeah' (TAE_JAG_AE_James)"

In this quote the educator is also clearly referring to a shift in power relations between educator and learners – "supporting each other in their learning rather than the facilitator feeding the knowledge". This is a characteristic of future-oriented, that is DGK PP. Additionally, the reference to experiential learning suggests the educator may be referring to embodied experiences for learners.

Reflection was shared as an opportunity for learners to reflect on their previous work experience and unpack their learning. This helps to support learner's sense making, learning moments, metacognition and putting learning to work. " Good reflections" says an educator, enable learners to unpack the learning for themselves. Another educator commented,

> "How you're going to adjust yourself in that, [SI] situations. So that's why we have a lot of simulations based training. So, we will video the whole scene, and then we'll get the student to reflect on like, how it can be done? Yeah, I actually did a few times for one of the emergency

response module. The feedback was very good and the students really enjoy it" (Health_Illumine_AE_Gina)

When used to generate new ideas, and iteratively deepen understanding, reflection contributes to developing future-oriented learners. If reflection is used as a tool for learners to regurgitate what was covered, this is RK PP.

Groupwork was shared as a common strategy that dances towards DK or DGK PP. One educator shared a classroom management strategy he uses to position learners as experts.

> "The way down further the way I would do is that we don't only give them the case study, we tell them for example if there is a stack of case studies and all numbered pages right. We will predefine the groups early on, this group read these pages, this group read these pages, this group read these pages. So, they are supposed to represent, they are supposed to be the content expert for this set of readings, right (TAE_JAG_AE_Teddy).

This management technique creates potential for DGK PP in the way it positions learners, but to ensure it is future-oriented, the educator needs to be skilled in framing questions that challenge learners, assuming the case(s) are authentic, complex and address highly complex problems. However, if learners are teaching peer groups common practices and not generating new understandings or ideas, it is DGK PP. Being future oriented also entails embracing technology to enhance the learning process in an intentional and carefully integrated way. In the next section, we will examine affordances of learning technology and the practices of Edtech companies.

6.4 Role of Technology

When we asked educators, training provider leaders and their quality assurance managers what came to mind when we say "future-oriented pedagogical practice" a vast majority of them included a range of technologies in their response. Perhaps not surprising given the potential affordances technology offers, policy-makers emphasis on the use of technology and the variety of funding schemes available. For these reasons we build on the observations already made in this Chapter on the use of technology to form a more nuanced discussion about current uses of technology and its use in blended learning, in relation to FOPP.

The IAL understanding of blended learning includes any combination of technology enhanced / online learning, classroom and workplace settings. However, our data focuses on the use of technology for learning in blended learning designs, most often seen in the form of flipped learning. These take the form of asynchronous, self-directed learning before coming to class. Our interviews with EdTech providers, educators and training providers, along with dialogue sessions with these stakeholders, provide explanations, and rationale for the ways in which technology is used and also possibilities.

We break down the use of synchronous and asynchronous use of technology for learning as well as consider movement between different learning spaces. This is important as the variety of technologies available and their different affordances cannot be treated as homogenous. The possibility of direct dialogic learner engagement among peers and the adult educator is often weighted towards synchronous learning. In this section we also discuss the types of technology available and how they facilitate the pedagogical practices (RK, DK and DGK).

Stakeholders' perception of the affordances of technology

It was no surprise that a greater prevalence of the use of technology since the pandemic was reported.

In the discourse, we see claims that the use of technology increases self-directed learning, empowering learners to take charge of their own learning, as indicated by Kessie, QA & AE (In-house L&D, MNC).

> *… even for university, some part of the module it's virtual, the other part is face to face. More or less, pretty much things have gone to be hybrid. I would advocate for further technology such as this because it helps in personal development… It's very self-directed in the sense that people take charge of their own learning needs.*

Notably, in the interviews and lessons observed, the nature of the learning as embraced by the interviewees and educators is primarily about reproducing performances for the purpose of carrying out work tasks or to improve work performance. In general, the nature of learning is not questioned in these statements, and this point was also evident in our conversations with educators during the dialogue sessions. However, there were rare moments when interviewees would talk about deep learning. For example, Kona (Curriculum Manager, IHL) mentioned how he would facilitate learner reflection and questioning of assumptions during his training, across workplace, online and facilitated sessions,

> *… remember that incident of what happened, tell me exactly what were you thinking of, what is in mind? So that elicits the thinking process … do you think that it is something applicable in school or something that's not? … teasing out their existing knowledge … I won't tell them … because … after articulating, they realized that oops, … something was wrong with their practice and I will not want to immediately tell them what to do although I know what should be done. I will say what do you think would have done differently?*
>
> *Even with their workplace itself, a lot of really facilitation, probing, guiding rather than telling them what to do because the experiences will come from them … the practice, the experience, the visible thinking itself is very, very important.*

In essence, the use of technology is perceived among some AEs as useful enablers to achieve the learning outcomes, of helping learners learn faster and more effectively, and to perform a task or job downstream. "Faster and more effectively" picks up on a prevalent discourse in the TAE sector, that many have accepted without question What is meant by 'effective' remains a black box; and what the implications of faster, what content for example, is appropriate and what is not, are unexplored in the assumption that faster and effective is what is needed. When such discourses are accepted with little questioning there is a danger that technology is used for the sake of using technology. The following provide examples of both the potential of technology and the need to use it intentionally to augment learning.

The need to more deeply understand what we want technology to enable is evident in the following quote from technology provider, Xg.:

> *… supplementing that with an engagement tool like Oodle where you have a virtual coach and a virtual coaching pathway that you are going down to give a semi-structured but somewhat self-direct way for learners to re-engage with the content, to test themselves, maybe to do assignments in some cases, but really replicate what a good quality coach would do …*

What is not clear what learning means in this statement is learning is it about reproducing knowledge, deep understanding, skills development, or praxis ("the co-occurrence of changing the surroundings and changing one's change" (Lektorsky, 2009, p.83).

Since COVID-19 there is now a sense of a need to do more, incorporate more or change more due to the rapid development of technology as mentioned by Iwe (QA Manager, train-the-lecturer courses):

> *… how COVID has changed things right, and this curriculum was conceived pre-COVID, so we think there are a lot more things that need to be inside like data analytics, engaging students online, etc. which is probably not very, not emphasized in the current curriculum. …… technology is moving so fast, … so yeah, we are thinking of incorporating more, even the lesson plan for online lesson could be vastly different from physical face to face one.*

Iwe's comments signal the tensions on the ground with educators seeing the possibilities but at the same time, grappling with the high rate of change themselves. Often, it is unclear if educators embark on change out of pressure from stakeholders and management or to improve the learning experience.

Having said that, there is awareness of opportunities for learners to engage with materials in a variety of ways (Choy, *et al.*, 2015). We can imagine that it is important to provide variety when there is 'must know' content that needs to become integral to everyday practices. The challenge for the pedagogical designer of learning and the technologist is, how can technology be put to work?

Heri, a technology provider, values and suggests extrinsic rewards in using gamification,

> *… what we have done is we have added gamification… So, incentives, right. So all the learning stages are learning activities, … if I do by a certain time, I can get certain points. And if I can get certain points either as individuals or as a team, I can create leader boards.*

Jan, a technology provider, on the other hand, described how serious games are designed to measure and improve behaviour with data mining,

> *… the game has to be designed in such a way that you can get the data. .. at the end of playing the game .. with three thousand nurses for one game … each playing about six or seven rounds … millions of data points .. (then) we could infer the behavior of the player inside the game, so over time also we are experimenting with different games in order to see how we teach the nurse to react in different situations based on the resources they have.*

Jan's explanation illustrates potential tensions between use of technology for reproducing knowledge ("teaching nurses how to react", like a standard operating procedure (SOP)) and developing nurses' range of strategies and deep understanding to enable them to "react" in a wide range of unexpected events and challenges. Just as the purpose of learning activities and assessment design needs to be well considered, so too does the purpose of using technology need to be deliberate and intentional.

The question becomes in what ways are we pushing the boundaries of the technologies towards future-oriented learning. VR for example, is good for simulating reality as indicated by XinKi, an educator.

> *… it is simulating the actual environment as close as possible. Then in terms of what we can do, the capability of VR, we kind of explored that this is possible.*

However, we also know that it is not the extent to which the technology recreates reality, but what happens in that environment that contributes to learning that can be put to work and for ideas to be improved. Often, having learners work on authentic problems in diverse groups with different perspectives where inquiry and deep understanding is dialogically facilitated, can lead to deep learning and changes in their professional beliefs and values. For example, IAL runs the 9-month DDDLP (Diploma in Design and Development of Learning for Performance) programme for learning designers. Over the course of the training conducted (TAE-JAG/D), learners are required to review their practice in relation to the theoretical constructs being taught across the modules. While learner data was not collected during this round of research, there is anecdotal evidence of the transformation of learner's beliefs occurring by the time they graduate from the course. We are

mindful that learning design needs to be intentional, with the practice being reinforced and habituated, often with the help of technology (e.g. use of e-reflection tools and e-portfolios) over several months of training.

In this regard, the type of learning design that facilitates DK and DGK PP appears to be missing from the discussions about the use of technology in learning. Often, the learning is accepted as being about reproducing knowledge and /or shifts in behaviour which can be measured because tasks are broken down into small bites, as observed in the mappings which will be shown later. How these small bites are seen as a whole and the relations between them is a missing part of the dialogue in the use of learning technologies.

Nevertheless, there were examples from our data of uses of technology that provided opportunities for feedback and for contributing to a professional identity when access to the real environment was not possible, until after being assigned a role.

Daniel, an educator in culinary arts, utilised the learning management system to deliver feedback to his learners' video recording,

> … you do what you have learnt in TN 2 and TN 1 and then you record yourself, your classmates and then [learners] come up with a little 1-minute video, you post it on LMS, and the chef will give you some feedback …

The potential of deep learning through such activities could be greatly increased if for example, learners also gave feedback to each other. Each other's videos become a source for how to improve what they are seeing, requiring learners to make professional judgements, give constructive feedback and in the process deepen understanding.

In the healthcare sector, VR was used to create access to the operating theatre suites and tools. Learners could hover over any piece of equipment to familiarise themselves with it through the explanations provided. The educator we spoke with reported that her learners enjoyed using this, accessing it frequently and that it increased motivation to learn.

However, not all learners embrace the same attitude or possess similar enthusiasm to digital learning. Some educators we interviewed raised specific issues in relation to the use of flipped classroom learning and hybrid delivery. Jan, a technology provider, commented,

> … flipped classroom … frontload … (before class), there will always be somebody who, super lazy, never do homework … busy … with meetings or maybe it slipped their minds … some who are quite conscientious, obviously they will go and do. But … a lot of people will just kind of post (comments) or just skim the surface. So too much … homework upfront (is) also not such a good thing.

Jan, and others who similarly commented, imply the problem is the learners. Perceived relevance of the material and activities online and why, what the motive is for learners to engage with the material was rarely raised in our data. This is important as much of the use of technology was designed such that it required learners to use time outside of working hours to consume these learning resources and competing demands at work or at home may lead learners to forego or skim through the digital learning. This is both a learning design issue and one of considering the affordances of the technology that is being used.

The technology for the use of hybrid delivery is not yet well developed (unless in high capital-intensive spaces). TookLoon, a polytechnic lecturer, highlighted this issue,

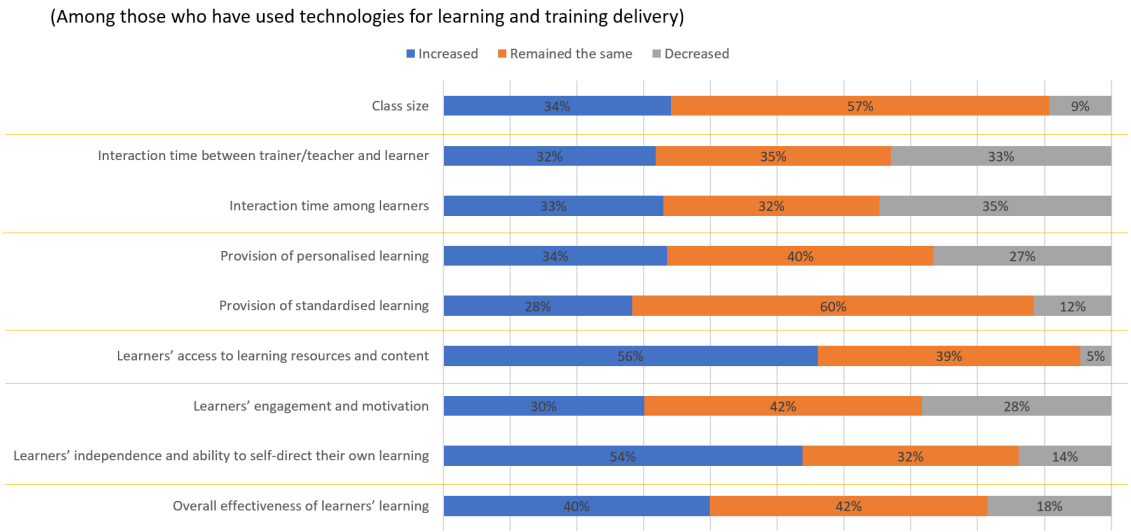
> … one of the key challenges would be maintaining the interaction between those who are online and those who were on site. How do you make that students who were online when they talk,

> when they you know gave their opinion that those who are onsite, they could hear … to maintain … seamless interaction between the two groups who are online and onsite …

The use of hybrid delivery requires access to appropriate technology to ensure everyone can hear and see everyone else and what is being developed and discussed. This observation is further discussed in the next segment.

Our data indicates that there are unexplored assumptions about relations between the use of technology, the design of learning and interactions between the artefacts online and peers, and between asynchronous and synchronous learning. The analysis of findings from the survey of adult educators on their use of technologies for learning over the past 12 months, reveals the use of video conferencing tools (89%) and video recordings of training activities and contents (74%) and audio-visual training aids (72%) as more prevalent compared to interactive tools such as collaboration platforms and online forums (55% to 66%) and technologies that comprise gamification (25%), learning analytics (21%) and immersive learning (7%). The patterns for use might suggest that, currently, educators' use of technologies mostly seek to support the continuation of learning delivery online or hybrid. However, there might still be a gap with full integration of technologies to augment the teaching and learning process and support DK PP.

Figure 28: Impact of Technologies for Learning (Educator Survey Results)



While these findings indicate learning impact through the utilisation of learning technologies, we will need to find out the roles that peer support, learning designs and the underlying pedagogical principles play in effecting engagement, performance and quality of learner experience for asynchronous and synchronous learning. While more research is needed to uncover the specific impact of these parameters, the following two cases provide some insights on how the confluence of peer support, the activities employed by the educators within the modalities (online and in-class) can result in diverse outcomes.

Two cases of Learning Technology and the Dance along the FOPP Continuum

We provide two specific examples, one a blended lesson on PowerBI in a hybrid class and the other a blended lesson on preparing a cold plate from the culinary arts where we earlier discussed the physical fae-to-face session. Both these examples utilised the flipped classroom approach. In addition, we see in the case of the PowerBI course, the use of hybrid delivery further complicates relations among content, peers, educator and the technology. Hybrid delivery, meaning some

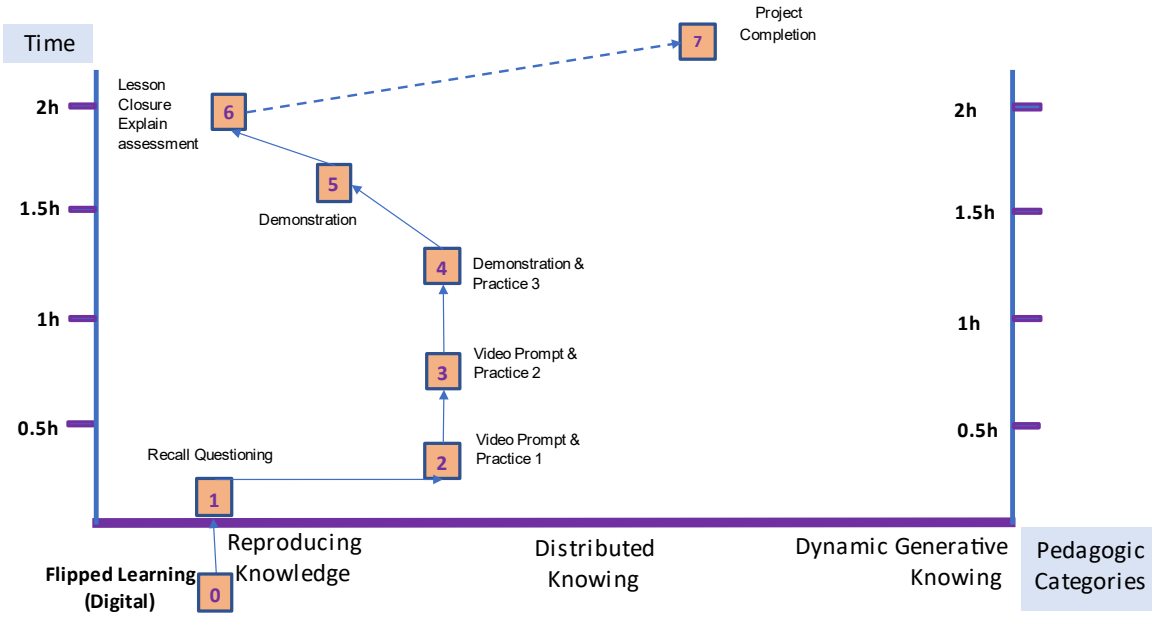
learners were present in class while others had to 'beam-in' online, created additional management issues that the educator needed to juggle with.

a) PowerBI Lesson

Shown in this mapping below is the hybrid lesson on the use of PowerBI, a data visualisation software. Prior to the classroom session, learners engaged in flipped learning online for all 7 weekly sessions with a repertoire of activities, primarily, video-based content, quizzes, discussion forum and reflections.

When in class, the 14 learners along with 11 learners online were observed to be led through a series of coaching segments lasting 10 to 20 minutes each, often beginning with a live demonstration (clicking through and explaining the functions of the various features in the PowerBI software), followed by learners practising on their own and calling for support from the team of three facilitators in class.

Figure 29 : EdTech-MP/PowerBI



We have indicated in the activity map (see Fig. 29), the sequence of the activities categorised into the three pedagogic practices. The *course project* was categorised as a somewhat DGK PP due to the option for the learners to find their own data source, set up their own research questions and then present the data mapping in alignment with their questions. The novelty underpinning their issues and the questions to be resolved supported a slant towards DGK for this capstone project.

One key issue that surfaced during the lesson was that the learners online and in-class could not hear each other. The facilitator had to repeat the question for the other group to hear. This created a challenge as well as a schism between the two groups of learners. Subsequently, one facilitator attended to the needs of the online group while the other two facilitators worked with the in-class learners. The facilitator also stopped repeating the questions after a while due to time required and the hassle involved to repeat the process.

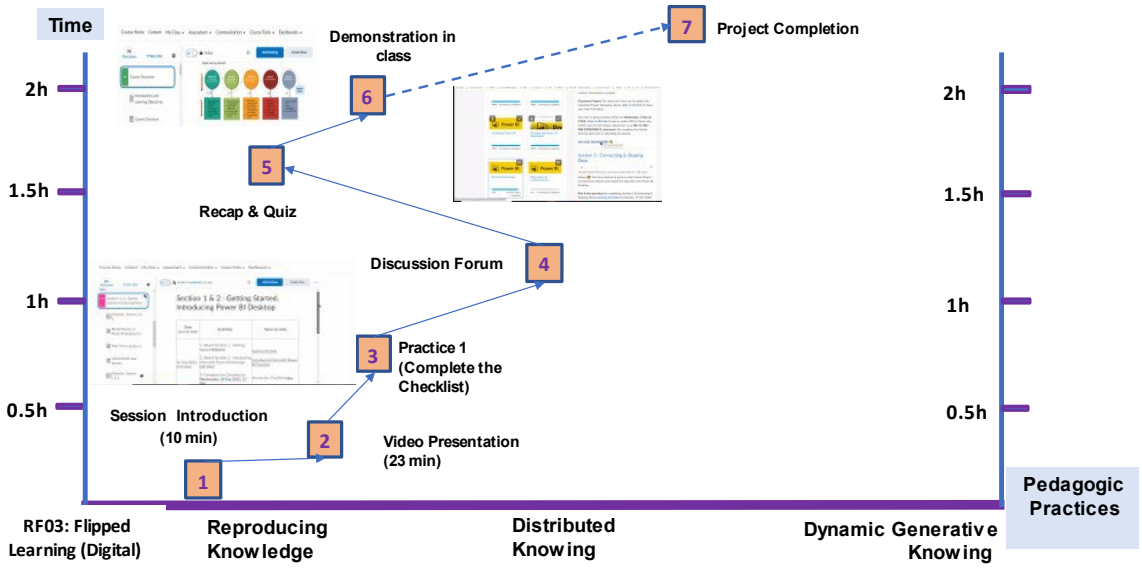
Some key questions generated because of the hybrid arrangement include:

- How much of the peer learning was lost because of this online and on-site division?
- How can hybrid classes be better conducted given that the affordances for online classes are different from onsite classes?
- What are the educator capabilities required to conduct hybrid classes?
- What pedagogical considerations and technological infrastructure are needed to conduct hybrid classes?

These are important questions to ask as more courses move into blended and hybrid modes.

As mentioned earlier, the online learning activities for this course that the learners engaged in before each lesson were parked under RK and DK PP due to the learners undertaking content assimilation from the video courses. Learners' input in the discussion forum was minimal (see Figure 30).

Figure 30 : EdTech-MP/Power BI (Asynchronous online activities)



What is of interest is the way the flipped learning transited to the in-class activities. From the lesson observed, the facilitator skilfully engaged the learners in a recap and quiz activity lasting about 10 minutes at the start of the lesson. She showed what the learners would have undertaken online during the 10 minutes and asked recall questions verbally (an RK activity) for the learners to respond to. It was obvious that some learners did not remember some of the content recapped and that the segment was useful to trigger memories and to lead into the lesson proper. While such recap activities assist recall, the question needs to be asked, why stop at this low cognitive level? Having learners engaged in a higher cognitive challenge would require them to recall plus much more. If learners knew how their flipped learning would be used, and the degree to chich they are accountable to each other, they may be more motivated to undertake flipped learning if it keeps them engaged.

Herein lie two challenges:

1) the design of the flipped learning
2) the design of the transition from online to classroom to achieve a seamless experience for learners.

b) Culinary Arts – Prepare Cold Plates Lesson

This second case study involves the flipped learning approach for trainee chefs on preparing cold plates. The learners engage in 1h online learning (interactive SCORM object on LMS) the day prior to the lab session in the kitchen. This flipped learning approach is repeated throughout their course which typically lasts several months.

The mapping (see Figure 24) showing both online and in-class learning. Online activities begin with RK activities. Most of the online resource was knowledge based and typically covered as part of an in-class morning lecture in the past before the online resource was developed. The online resource lasting about an hour, typically concludes with an MCQ (5-question) quiz online. Learners need to pass with at least 80% (or 4 out of 5) correct answers.

When in the kitchen, the learners engaged in peer learning and feedback with sharing of critical incidents by the chef facilitator. There were questions posed by learners and critical reflection to deepen the learning. Ultimately, the focus was on learner practice and of course, the product outcome which would be the quality of the cold dish, in terms of its appearance and taste.

One key observation for this case study as compared to the first was that the blending of the online course with the in-person practice was not evident or present compared to the first case. There was little reference to the online learning in the Prepare Cold Dish lesson. Such experiences fragment learners' movement (cognitively, emotionally and kinaesthetically) between different learning spaces and further compounds fragmentation between theory and practice.

In this lesson, the learners who were novices to culinary arts were given direct instruction and tight scaffolding which provided them with the structure to reproduce the competencies required for the lesson, as reflected in the mostly RK activities shown in the mapping (see Figure 35). Converting this lesson to utilising a design involving challenges (e.g. to prepare cold plates using specific ingredients or if some ingredients are replaced) presented at the start of the lesson to trigger reflection and creative solutioning for subsequent unpacking of the lesson proper can move the lesson into DK and possibly DGK spaces, if scaffolded by sufficient peer learning, feedback and ideation opportunities. In essence, the theory behind the solutions generated (e.g. Which dish would make a good or poor example?) will be explored and integrated into the practice as the learners need to consider these parameters during the preparation of the dish.

Assumptions and tensions in the use of technology

Currently, there are many limiting assumptions made by designers, educations and EdTech personnel, embedded in much of the technology usage in CET. For example, with blended learning, tech-enabled delivery is often viewed as a means to download content to learners to reduce in-person lesson duration. This usually results in RK pedagogical practices with knowledge recall (via quizzes) as assessment, requiring low level cognitive engagement by learners. As shown in the maps above outlining the asynchronous learning segments, many activities tend to fall within RK pedagogical practices due to the way the technology was designed to be used (e.g. quizzes to check understanding and interactive SCORM objects for content delivery). However, in some designs (e.g. in the TAE-JAG/D courses, interactive objects (e.g. reflection questions relating to educator's professional beliefs are embedded in the online resources on the Canvas LMS) are used to drive deeper reflections and questioning of professional beliefs and assumptions after being presented with scenario-based issues or problems. *The tension we observed in our data between the promise of technology, and learning design that assume learning is recall, is a tension that must be exposed and questioned.*

Yet, the diverse range of digital learning tools and platforms available today has expanded the possibilities and affordances for adult learning. Leveraging tools such as microlearning, VR, AR and AI offers the potential to create more engaging, personalized, and effective learning experiences for learners. However, *this potential is unmet, with severely underwhelming outcomes in the many*

courses. Furthermore, it appears that utilising such potential to contribute to *FOPP requires a much deeper understanding of the relations between learners, the learning technology, pedagogical design and artefacts used*.

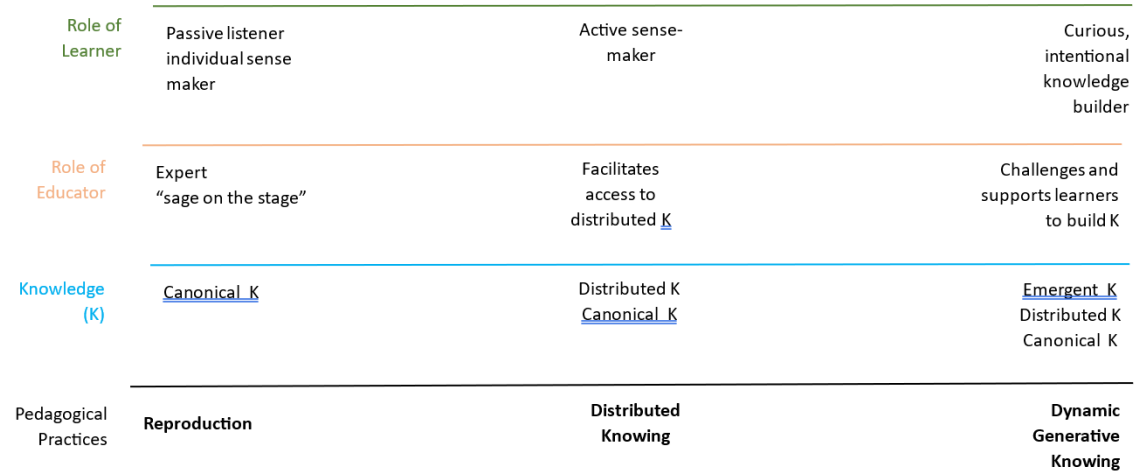
Differentiating digital engagement tools (which are specifically designed to promote active learning and learner involvement e.g. Kahoot) from learning platforms (which provide a comprehensive environment that aggregates learners, engaging them through the use of multiple tools e.g. Canvas learning management system which has discussion forum, quiz functions, learning and content management) to better identify what possibilities different tools afford.

Mapping of Technology Affordances onto FOPP Framework

Returning to a point mentioned in the introduction to this section, we should be cognisant that different types of technologies can be used in various ways. For example, many educators are familiar with collaborative platforms (e.g. Jamboard, Miro board) and we can use these to discuss cases or to generate feedback and opinions from learners, primarily a DK activity. However, an educator can also use these platforms to push out content (e.g. by pasting models, tables) and ask learners to clarify concepts or apply these to the scenarios individually - RK in essence.

Hence, shown below is an attempt by the FOPP team to categorise the technologies based on how they are usually used, in accordance with the three pedagogic practices:

Figure 31: Technologies in accordance to the three PP



Interactive SCORM objects (to push out content) Chatbots for learning single-player VR/AR MOOCs Kahoot, Mentimeter, Quizz	Discussion Jamboard Chatbots for reflections and feedback Miro Board for discussions Multi-player serious games and simulations involving inputs from others Adaptive LMS e.g. Knewton where personalised feedback	When coupled with facilitation toward idea improvement: Knowledge Forum Generative AI Brainstorming tools e.g. Miro, Google Workspace

	and resources are created to move the learners along

To be clear, future-oriented learners need to draw on and discerningly use canonical knowledge; they also need to access knowledge distributed across their communities and the artefacts they work with and are available to them. Hence, these technologies are unlikely to be able to single-handedly support DGK PP but will need to be bundled over a period of engagement to facilitate the growth of a learner into an intentional and serious knowledge builder, across a range of contexts and fields of work.

6.5 Conclusion

In conclusion, our findings across the observations suggest that RK PP is the predominant pedagogical practice. The results from other data points like interviews, dialogue and survey paints a positive outlook in terms of educator belief and intent towards DK/DGK PP in the FOPP continuum. The use of tech-enabled learning is demonstrated across the three pedagogic practices with multiple avenues to support learning outside of traditional learning spaces (i.e. classroom or workplace) and at specific moments which may provide convenience to the learners (especially when learners are sick or unable to attend the course).

From our mappings in the observations across all six sectors (F&B, healthcare, Edtech, business, TAE and manufacturing), the dance towards DGK PP is more evident in learning designs that 1) have a broader range and type of activities 2) questioning techniques that focus on opening up instead of closing down dialogue and 3) activities that are purposefully curated and integrated according to the needs of learners. The key ingredients for success appear to be the four elements of the FOPP Framework - educator epistemological beliefs, who is doing what, design of assessment and learning.

The challenges of changing current pedagogical practices to adapt to the changing landscape and technology usage is multi-faceted. Change is unsettling and for educators, it involves shifting epistemological beliefs, renegotiation of power relationships between educators and learners to create a safe space. The integration of technology in current PP is challenged by baseline issues such as access (lack of mobile devices) and time constraints (for learners to engage in flipped learning) to issues such as educator capability to design tech-enabled DK and DGK PP and learner motivation. More research and experimentation may be needed to ascertain how learning designs and technology can enable DGK PP in the different modalities of learning. For digital learning space and especially with the advent of generative AI and the rise of personalised AI coach or tutor, we need ask ourselves the questions of “What roles will these ‘intelligent’ learning resources play in the near future?”, “How can national workforce developers and designers leverage these resources to drive FOPP at the systemic and course levels?”. That said, we hope that the FOPP framework can provide some answers and a guide to help educators transition into the future of learning and workplace.

7. How the ecosystem mediates pedagogical practices

7.1 Introduction

The purpose of this chapter is to address research question number 2: How does the TAE system mediate pedagogical practices? The case studies presented in Chapter 5 enable us to explore interactions and interrelations between different components within the TAE ecosystem, providing insights into how pedagogical practices are mediated. This approach provides a lens to help us understand the TAE system as a dynamic, interconnected system rather than as a system of isolated policies and practices. We present a nuanced understanding of the factors that mediate pedagogical practices, and the need and motive for change to improve teaching and learning for the future.

To achieve this, we frame our discussion around four distinct yet interrelated components of the ecosystem: policy and purpose, training providers, educators, and learners. We analyse the motive of these key stakeholder groups to understand and make visible what matters to them. Knowing this enables us to holistically unpack the capacity and type of capabilities that need to be improved to help the TAE system move towards future oriented pedagogical practices (FOPP). It reveals to us the many elements within the ecosystem that need to change, that need to come together to make the shift from the dominant use of reproductive knowing towards dynamic generative knowing across the TAE sector.

We recognise change processes are inherently complex and that change takes time - with different types of organisations and educators moving at different paces according to their specific contexts. With a commitment to offering learners high quality learning experiences to equip them for the future, the need and appetite for change is clear in our research data. The interrelated nature of the different elements within the ecosystem means that change processes for creating future-oriented pedagogical practices cannot occur in isolation. It requires a whole system approach with all key stakeholders on board – to take the leap, leave behind historical discourses and strive for wider horizons of possibilities.

This chapter draws on the case studies presented in the previous chapter and other cases included in our study scope. As outlined in more detail in the methodology chapter, data sources include evidence from:

- Educator and training provider interviews
- Discussion with the project Reference Group
- Dialogue sessions (with educators, training providers and learners)

The chapter is structured into several key sections, each contributing to our understanding of how the TAE ecosystem mediates pedagogical practices. In the first section, we present evidence supporting a desire for change – a change from a focus on reproducing knowledge toward more dynamic generative knowing. To understand change and support change processes for creating future-oriented pedagogical practices, we explore the impact of current policy on pedagogical practices, capturing insights from our research participants on changes required to move the sector toward FOPPs. As part of this discussion, we highlight key challenges associated with established systems of funding and assessment that mediate the planning, delivery, and evaluation of programmes.

Next, we focus on training providers, shedding light on how various ecosystem factors influence the activities they undertake and mediate their pedagogical practices across the FOPP continuum. We frame this discussion around the dynamic capabilities of TPs[3] , exploring how the resources of leadership, learning culture and partnership for example play a key role in how TPs interpret current components of the TAE ecosystem to expand their horizons of possibilities. We then explore how the activities undertaken by educators are both informed and affected by ecosystem structures and practices. We do this by using vignettes of educators and by drawing upon evidence from our case studies. Central to this discussion is the professional identity of educators - their belief system and orientation towards teaching and learning, together with their professional agency that influences their decision making and judgement. Lastly, we focus on learners as key agents of change. Reflecting on UNESCO's[4] call for a new social contract for education where pedagogical practices centre on learners and their context, we explore their approach to learning and factors that influence the quality of their actual learning experience.

This analysis helps us uncover how ecosystem factors shape horizons of possibilities and mediate pedagogical practices. It provides insights into what needs to change and how the TAE sector can be supported in a shift toward FOPP.

7.2 Appetite for change

From our research data, an appetite for change is clear. This is evident in views expressed by our interviewees and participants attending the Reference Group and dialogue sessions in relation to the ecosystem and its mediation of pedagogical practices. It is also evident in the positive feedback we have received on the FOPP framework, expressing a need and desire to change (transform) some established educational practices as discussed in Chapter 3.

The central message arising from our research is the necessity for the TAE system to elevate its efforts to support our next generation of learners. With a broad gap between current and future delivery models; the TAE system needs to holistically cultivate capacity to develop pedagogical practices oriented towards the future. Two interviewees succinctly captured this in their views about curriculum design:

> 'to be very honest, we are preparing for something which we have never experienced before. it's important to be aware of it and then to, to then start breaking free from our own mental models so that we can better leverage on our capabilities to help the next generation of learners' … because what has worked for us right, what has been impactful for our learning or our generation of learners, may not be so for future learners. And actually frankly because of the way things are moving right, within a year or two … a lot of things will have become obsolete. (EdTech_CD Selena).

With an appetite for change, there is also recognition that change processes and in particular a change in beliefs and practices in TPs and for educators, takes time and needs to be guided carefully. A key message is for change to be systemic, holistic, consultative and to broadly move in tandem but allowing room for different contexts and sites to move at a somewhat different pace. The emphasis needs to be on processes and systems to support the change (as exemplified in the USH case, Chapter 5). From our research data we see evidence of many TPs and educators who in their daily practices continuously engage in different aspects of change and change processes.

[3] Dynamic capabilities are defined as 'the firm's integration and building of internal and external resources to see new opportunities for development, to identify the changes needed, and to implement them' of a firm. See Chen et al, forthcoming.

[4] Unesco (2021)

Encouragingly, there were research participants who emphasised the benefit of engaging staff and external partners to be part of change processes. This is evidenced in TPs creating conditions for a bottom up, collective approach to problem solving and co-design solutioning as demonstrated in the case of Illume, USH and Rohei. At the core of this approach is value in the collective and effective voice of all stakeholders that is heard and trusted.

TPs that create a culture that is open and willing to explore and learn from mistakes are those that cultivate capabilities and mindset towards change. Several TPs shared with us their positive experiences of 'change champions' to support change processes - expressed by one interviewee as 'shifters to shift others', and by another as a 'champion to lead the naysayers'. This suggests resilient organisations with positive and expansive horizons of expectations and possibilities, are those that take risks, champion the way forward, to move, to showcase and move beyond organisational transformation to contribute to the sector. A key question is how can the TAE sector sustainably support TPs to evolve in this way in the future?

- Start with champions and increasingly others follow, impact is being made, culture transformation takes place – organisation becomes accountable. (Business Change Plus):
- To increase the pace of change to increase pace, you need shifters to shift others – look for those who can be your influencers …. help the organisation to see what they don't see, show the naysayers what they think different. Take risks…get everyone involved in the process, get everyone involved in direction creation (Health_ USH)
- Equipping organisations with a mindset, tools for new ways of working – to be 'more agile, being bolder, expressing/exploring wild ideas, collaborating. (Business Change Plus):

Change processes that are holistic and consultative are those that also involve learners as key agents of change, acknowledging the need for learners to engage in processes that impact on their learning and empower their learning. This was made clear to us by learners participating in our dialogue session who themselves express the need and desire for a shift from reproducing knowledge to dynamic generative knowing.

While we see evidence of an appetite for change toward FOPPs, we also see evidence of inertia towards change. From the perspective of TPs, educators, and learners, we see that inertia is closely linked to historical discourses about restrictive assessment practices and enactment of the curriculum (largely related to WSQ provision) that continue to shape and influence ways of thinking about possibilities, beliefs about learning, learners and teaching, and values.

A key observation from our research findings is that an appetite for change does not equate to 'big' system change, but rather an incremental, systematic, and holistic approach to change. Our FOPP framework serves as a reflective tool that can lead the sector through such change. It can be used as a tool to start challenging underlying discourses about teaching, learning, assessment and how learning happens. As our framework is interconnected, inter-related to the broader ecosystem – it has a fundamental role to play in identifying and guiding multiple components of the ecosystem that need to move in tandem to be effective in a systemic shift toward FOPPs.

In the sections that follow we explore how different layers of the ecosystem mediate pedagogical practices and support a shift toward dynamic generative knowing (that is, future-oriented pedagogical practices) and what needs to change to move the sector along this journey. We illustrate this by sharing stories from our research data to make visible the motives of our different stakeholder groups and what matters to them.

7.3 Policy and Purpose

In this section we present evidence - views and experiences from educators on what needs to change to support a shift toward FOPPs - from our research data on how current TAE policy and its role in mediating current pedagogical practices is experienced on the ground.
TAE policies encompass a wide range of initiatives with the primary motives of fostering skills mastery and creating a culture of lifelong learning. As evident from our research data, these policies are experienced on the ground by different stakeholders in various ways, reflecting the different economic, socio-cultural contexts in which they are implemented. Also evident from our research data is the tensions and contradictions that exist in and between policies due to the complex interplay of motives related to ensuring a skilled workforce and continued striving toward an agile knowledge-based economy. These tensions and contradictions are experienced on the ground through various interconnected aspects of established systems and policy, related mostly to the Skills Framework, funding, assessment that mediates the planning, delivery, and evaluation of programmes. The interconnectedness of these aspects complicates decisions related to policy design and implementation. We observed dichotomies within and across these different aspects of policy and governance, with inadvertent, interconnected consequences that shape and influence pedagogical practices.

Starting with the Skills Frameworks, SSG define the Skills Frameworks[5] as an integral component of the Industry Transformation Maps that provides key sector information, occupations/job roles, and the required existing and emerging skills. The Skills Framework is developed with the objectives to build deep skills for a lean workforce, enhance business competitiveness and support employment and employability.

The Skills Frameworks are multi-purposeful and serve as a tool and/or a set of rules. The Framework is used as a tool in that it provides a way of thinking about the design of the curriculum and curriculum content or as a framework to support a set of rules. Training providers and educators use Skills Frameworks in different ways for different purposes, depending on their motive and what matters to them. As we illustrate through the stories of training provides and educators in the sections that follow, several tensions and contradictions exist. This includes the balance between adhering to the Skills Framework and allowing flexibility to adapt curriculum and assessment to accommodate diverse learner profiles; the relevance of the Skills Framework and challenge to keep Skills Frameworks current due to rapid technological advancements and shifts in industry practices – described by some of our interviewees as a disconnect between what learners are taught and what employers require. While for some TPs, the focus is on the depth and quality of the learning experience, the reality for many educators, is that they find themselves instructed or under pressure to teach outdated material, deem learners competent when they are not, instruct learners very specifically on how to pass the assessment. These examples raise ethical tensions and discomfort for educators who seek to maintain their rice bowl.

As a competency-based training model, the Skills Framework typically leads to assessment practices tied to job-related competencies separating knowing from doing. This dominant focus on bundles of skills is perceived to limit human centric holistic learning and development of broader capabilities learners need for the future.

Secondly, SSG's commitment to fostering skills mastery and creating a culture of lifelong learning is indicative of generous funding subsidies for non-WSQ and WSQ provision that are available to employers and learners. Here lies a tension. While perceived on the one hand as a move by Government to 'motivate' participation in education and training by assuring affordability and accessibility – on the other hand, it is perceived to drive a culture of complacency and dependency

[5] SSG | Skills Frameworks (skillsfuture.gov.sg)

on the part of employers and learners. We have heard evidence of learners growing accustomed to highly subsidised courses, and some employers becoming reliant on subsidies to meet their training needs. This reliance on government funding is perceived to have fostered a culture 'no funding, no training', raising questions about how effective and sustainable the current funding model is.

Thirdly, a perceived tightly regulated WSQ model, is considered to inhibit flexibility and innovation across many aspects of teaching and learning. TPs and educators primarily view the regulatory requirements as demanding, bureaucratic, and restrictive in curriculum design, assessment practices and practitioner agency. Moreover, concerns have been raised about the industry relevance of WSQ courses and subsequent gap between the capabilities learners develop and those employers demand from their workforce now and for the future. As WSQ provision is linked to funding on completion, we have heard evidence of WSQ course content being followed verbatim, the dominant discourse being - learning as acquisition, assessment as a test of knowledge acquired, teaching very specifically to assessment. This has generated a narrative about the lack of flexibility and autonomy in teaching practices and subsequent quality of comprehensive learning experiences. We provide evidence to support these claims in the sections that follow.

The presence of tensions within TAE policies regarding funding, Skills Frameworks, curriculum design, and assessment practices has significant implications for the overall quality and comprehensiveness of the learning experience and extent to which the TAE sector can progress towards FOPP.

In relation to SSG funded provision, the main quality assurance tool used by TPs in the TAE sector (as a minimum requirement of SSG's Quality and Outcomes Measurement Initiative) are the post-course learner surveys. The Quality Survey is administered to learners towards the end of the course and gathers feedback relating to satisfaction towards support services, course content, course material, teaching methods, performance of the educator, course duration, value for money, suggestions for improvements, etc. The second survey, called the Outcomes Survey is administered six months after the course has completed. The aim is to measure performance at work as a result of participants' learning[6] . As we will hear through the voices and experiences of our interviewees in the sections that follow, the way in which the post-course learner surveys and other quality assurance measures are being used to enhance the quality of learning vary significant across our TPs in terms of purpose and orientation.

During our research, we had the opportunity to engage in discussions with SSG's Quality Management Division and Manpower Infrastructure and Planning Division. We aimed to delve into their policy motives and perspectives on what matters to them in relation to the quality of learning. In their response they highlighted their central focus on learning outcomes that enable learners to acquire skills and knowledge that are directly relevant and applicable to their work. The implication of a focus on skills and knowledge acquisition as a measure of quality appear to align to a traditional, conventional criteria for educational quality, potentially overlooking a more innovative or comprehensive approach to quality assurance and expansive vision of what a quality learning experience should encompass.

Although WSQ is underpinned by a range of quality assurance processes (from developing knowledge and abilities, to approving Training Providers, providing guidance on course accreditation, funding criteria and awarding WSQ qualifications etc[7]), such processes are largely administrative. The analysis of assessment practices detailed in Chapter 6 reveals that the existing assessment methods endorsed by the current WSQ course accreditation criteria primarily foster reproductive

[6] TPGateway | Administer Courses
[7] See TPGateway | Singapore Workforce Skills Qualifications (WSQ)

approaches. To facilitate a transition towards FOPPs, there is a need to revisit the foundational criteria governing WSQ course accreditation.

SSG outlined to us their plans to re-evaluate the fundamental aspects of what constitutes 'quality training' and look toward the forthcoming TAE2 landscape study to shed light on what constitutes a 'leading training provider'. The implication (or rather assumption) is that the current WSQ quality assurance processes – either in the way they are designed, used or interpreted, do not provide a clear picture of what constitutes quality learning, a quality training provider or define with quality improvement looks like. The forthcoming TAE2 study examines how TPs use their dynamic capabilities to make use of their key resources to seize opportunities, innovate and sustain a competitive advantage and make the most of changing circumstances – key characteristics of leading training providers.

During our discussion with SSG, we also had the opportunity to discuss capability development of educators in the TAE sector. SSG shared with us that as part of the TAE Skills Framework, capability development for educators is primarily centred around the ACLP qualification (Advanced Certificate in Learning and Performance) and through existing communities of practices. We know from our research data that a wide range of opportunities and tools are in place to support the capability development of TPs and educators. We also know from our data and research literature that the ACLP qualification and communities of practice in general to support educators in their professional development and in how they approach and deal with change processes, though valuable, are insufficient on their own.

A further consideration in the context of the current policy agenda in Singapore, is the use of technology in education as an evolving and dynamic component of the ecosystem. Its continued integration and evolution continue to shape pedagogical practices now and for the future. The rapid pace of technological change, automation and generative AI is quickly changing the job market and skills requirements for the future (Brown, 2021). Judging by the pace of change we've witnessed in the past six months alone, the trajectory of skills transformation expected over the coming decade appears almost inscrutable. This movement necessitates a significant shift from static skills to a dynamic set of capabilities that equip learners for future possibilities. It means that the process of predicting future skills is even more challenging and calls for greater and urgent collaboration between policy makers, the TAE sector, industry and learners. This requires a re-envisioning of a 'skills framework' approach to one that is broader and more encompassing in the dimensions it covers. Technology has thus become integral to change process and will continue to impact on how TPs redesign work with potential to broaden and deepen capability development as technology becomes an enabler for work and learning. For this, research participants expressed a growing need for guidance and direction from national level and from IAL on the use and impact of generative AI on teaching and learning.

What is critical from our research data is how and in what ways TPs, educators and learners navigate these policy challenges to expand horizons of possibilities and orientate towards FOPPs. While we see evidence of TPs and educators doing exactly this – by contrast we also see evidence of those who do not demonstrate expansive horizons of possibilities and are reluctant to change and – in part, owing to a lack of incentive and (financial) motive for change as explored in more detail in the sections below.

7.4 Training providers activities

In this section we delve deeper into the intricate interplay of ecosystem factors that mediate activities undertaken by TPs. Drawing on the evidence presented in the case studies in Chapter 5, we explore the different motives of TPs (what matters) in terms of decision-making, power relations and ways of thinking, doing, and relating (Edwards, 2005).

As part of our data collection tools, we asked dedicated questions related to leadership, learning culture, partnerships, learning technologies and quality assurance processes as we wished to identify the contexts that support different pedagogical approaches and gain insights into the views and beliefs of TPs on shifting the TAE system toward DGK. It is through these questions we also gained insights into the dynamic capabilities of the TP and their orientation toward the future, we term as 'horizons of possibilities' (Chen et al, forthcoming). Such insights are critical in the context of change processes for creating future-oriented pedagogical practices – acknowledging that individually, TPs come from a different starting point, have different ways of thinking, different purposes and occupy a different place in the TAE landscape. We recognise also that some TPs will need more support in their shift toward FOPP – again acknowledging that in change processes, different organisations and individuals move at different paces.

When looking at the motives made visible by what matters to training providers, we broadly categorise them into two groups. TPs that typically demonstrate expansive horizons of possibilities and those that seem to have a more transactional view of the world. We fully acknowledge that many TPs may have aspects of both expansive and transactional approaches though the dominant approach tends to be relative to their overall organisational vision, primary priorities as a TP, and dynamic nature (or not) of their capabilities. We see that TPs who exercise dynamic capabilities are those that demonstrate more aspects of expansive horizons of possibilities and exercise boundary crossing capabilities. It is these TPs that tend to be currently engaged in change processes and exercise pedagogical practices that lean more toward DK and DGK. It is in these TPs that we also observed evidence of alignment in the work of change. Through engaging in opportunities for boundary crossing, dynamic capabilities are mobilised to bring about coherence and coordination of activities to the various elements of change and change processes currently taking place across the organisation. TPs demonstrating expansive horizons of possibilities show evidence of their key resources[8] working together synergistically in different ways and in different combinations in their striving for innovation and excellence in teaching and learning now and in the future.

Among the four training provider case studies presented in Chapter 5, Rohei, Illume and USH demonstrate expansive horizons of possibilities more prominently than Fabrico. Roehi's value base is characterised by a strong commitment to experiential learning, professionalism, client focus and continuous improvement of learners, educators, and across the organisation. Quality assurance processes underpin all aspects of organisational and pedagogical practices. For Illume, pedagogical emphasis is on the holistic development of learners, supported by a forward-thinking approach that goes beyond the scope of the current Skills Framework to build a workforce adaptable to change. Illume prioritises patient-centred care and a learner-centred approach, supported by a strong learning culture and relational approach to partnerships. Significant to USH is their strong belief in the collective, and alignment of their tools and structures to support collective change. In contrast, Fabrico appears to have a more transactional view of the world. While Fabrico demonstrates aspects of expansive horizons of possibility in its commitment to customising training content to meet specific industry needs and promote authentic learning, their primary emphasis on aligning training with existing industry standards demonstrates a more transactional approach, where the focus is on immediate skills acquisition, evident in their RK PP, and an inward-facing focus.

We now look across the four case studies presented in Chapter 5 and our wider data set to uncover what really matters to TPs. Knowing this helps us to gain a deeper understanding of how ecosystem factors mediate their pedagogical practices and influences their horizons of possibilities. We begin by looking at TPs who predominantly demonstrate aspects of expansive horizons of possibilities.

[8] Leaderships, learning culture, market intelligence, partnership, pedagogy, technology for business, technology for learning (Chen et. Al, forthcoming)

Training providers with expansive horizons of possibilities

Drawing on our four case studies and other TPs covered under the scope of this study, we provide evidence of TPs who demonstrate aspects of expansive horizons of possibilities. In the boxes below we summarise the main views expressed by our research participants from the three case studies in terms of their motive, made visible by what really matters to them, and how resources such as leadership, learning culture, partnerships and use of technology shape their perspective and orientation toward expansive horizons of possibilities. We intentionally focus on the case studies of USH, Rohei and Illume as they stand out as good practice examples readers can gain valuable insights from.

Box 1: USH (DGK, non-WSQ)

Key words to describe USH: Agile, collectively resilient, collective narrative of shared values.

What stands out about USH? Their strong belief in the collective and alignment of tools and structures to support collective change. Alignment between pedagogy, and leadership, learning culture support the overall goals, mission and vision of the organisation. Strong alignment and the dynamic nature of capabilities across the organisation have been instrumental in driving overall organisational improvement, fostering innovation, with a readiness for change that is future-oriented and holistic.

What matters to USH?

- **Patient-centred care and pedagogy** – is at the core of USH's initiatives to deliver high quality healthcare services and patient care. Their patient centred approach underscores their mission and propels their forward-looking strategies approach to future oriented pedagogical practices.
- **Collective approach** – USH strongly believe in a collective approach to making a difference – no matter how large or small and no matter who you are in the organisation – everyone counts – staff are aligned in this vision and are committed to it. There is a strong emphasis on the importance of collaboration and collective efforts to bring about change, adapt to change and to support continuous improvement. What matters to USH is that they want learners to be contributors of a shared mission and themselves be agents of change.
- **Supportive learning culture** – USH place a strong emphasis on creating, growing, and sustaining a learning culture. Continuous learning is considered essential for organisational improvement and individual growth. A key part of this is pushing boundaries, pushing individuals beyond their comfort zones. This drive is part of the DNA of the organisation, reinforced by belief and trust in the collective. What matters is developing and supporting a learning culture for implementation of change.
- **Alignment of leadership and pedagogy** – the leadership team and educators align their pedagogical approaches with the strategic change they aim to create and support. Leadership with a strong focus on pedagogical leadership plays a crucial role in shaping the organisational and learning culture of the organisation. Alignment between leadership and pedagogy ensures everyone is working collectively towards the same mission and adopting a future-oriented approach.
- **Expansive leadership** - leaders with clear motives and values made visible to staff see their roles as character builders, moulding staff into individuals capable of making sense of change and to be agents of change. Behind this is leaders who lead by example in holding the vision, constantly checking how their own work relates to organisation and individual performance, agility and resilience.
- **Technology as an enabler** – USH leverages technology as a means of enhancing work processes and learning. Automation and digital transformation are integrated into the change

strategy to redesign work, increase productivity, and free up staff for value-added clinical tasks. Blended learning and online platforms are used to improve training and development for example.

- **Relational approach to partnership** - USH actively engages in partnership, both internal and external. With a relational approach, the focus is on partnerships to co-learn, co-develop, co-create new models of care and workforce transformation. USH fosters long-term collaboration and envisions sustained involvement of partners. Such partnerships are seen as critical to their strategic innovative programmes over the next decade.

Box 2: Rohei (DGK, DSQ)

Key words to describe Rohei: Learner-focused, innovative, quality of learning.

What stands out about Rohei? Their focus on experiential learning, commitment to professionalism in all aspects of their work, close client relationships, learner-centred ethos and reflective practices. Their focus on continuous improvement and alignment with client needs demonstrates a strong value-base motive centred around the growth and success of their clients, learners and the organisation itself.

What matters to Rohei?

- **Learner-driven experiential learning -** Rohei is renowned for its experiential approach to teaching and learning. Their approach aims to empower learners to put their 'learning to work' by linking emotion and cognition to ensure learners' development and understanding.
- **Close client relations -** Rohei positions their clients as partners and works hard to maintain strong client relations. Their relational approach to partnerships underlines their strong standing in the TAE sector and reputation of fostering long-term partnerships.
- **Commitment to professionalism -** Rohei emphasises professionalism in all aspects of their work. This is reflected in their supportive and welcoming physical environment and rigorous quality assurance processes (such as dry run practice sessions to ensure the highest quality of education delivery). Rohei's dedication to professionalism and high-quality teaching and learning has earned its position as a recognised name in the TAE sector.
- **Pedagogical innovation and reflective leadership -** Rohei's commitment to experiential learning is coupled with a commitment by leadership to understanding how experiential learning can be more targeted and improved to push pedagogical practices toward DGK. This had led to reflective discussions about taken for granted practices and the possibility of increasing the authentic component of the curriculum by incorporating more learner stories and rebalancing divisions of labour between the educator and learners.

Box 3: Illume (DK, WSQ)

Key words to describe Illume: Innovative, collaborative, strongly linked to their sector.

What stands out about Illume? Pedagogical emphasis is on the holistic development of learners, supported by a forward-thinking approach to improving pedagogical practices. This TP goes beyond the scope of the current Skills Framework to build a workforce adaptable to change.

Illume prioritises patient-centred care and learner-centred approach, supported by a strong learning culture, ethic of care and relational approach to partnerships.

What matters to Illume?

- **Patient-centred care** - is at the core of Illume's pedagogical stance. Their teaching and learning approach emphasise practice and authenticity to produce competent practitioners with a strong commitment to patient care and safety.

- **Preparing learners for unexpected situations** - teaching and learning is centred around practice with the core objective of supporting learners to understand 'why' so they can competently and confidently address unexpected situations. Peer learning, scenario-based learning and oral questioning are used as an opportunity for learners to demonstrate critical thinking, moving beyond mere knowledge reproduction.
- **Flexible curriculum adaptation and holistic assessment** – while working within the parameters of the Skills Framework, Illume goes beyond the minimum knowledge and abilities requirements. Adaptation of the curriculum and a holistic (sustainable) approach to assessment focuses not only on knowledge and abilities but also on building resilience, resourcefulness, and adaptability – acknowledging the emotional and interpersonal aspects of healthcare education and practice.
- **Empowered educators** – highly experienced educators are empowered to exercise autonomy and agency in curriculum design and delivery to meet learner and industry needs. A key focus is on achieving higher-order learning outcomes.
- **Supportive organisational learning culture** – educators experience an expansive working environment with opportunities to continuously improve their teaching and learning strategies aligned with evolving industry practices.
- **Strong partnerships with a focus on collaborative curriculum development** – multiple feedback cycles ensure alignment with industry. Partnerships provide clinical placements for learners. Illume collaboratively develops its curriculum, involving subject matter experts and relevant stakeholders. This process ensures that the curriculum remains up to date and is closely aligned with industry expectations.
- **Strong industry feedback loops**: Illume maintains strong feedback loops with industry partners, creating a dynamic exchange of insights. Educators receive feedback on their learners, provide feedback to learners during clinical placements, and learn about evolving practices in the workplace as well as giving feedback to partners on their observations.
- **Adaptation to technological advances**: Illume is open to incorporating AI technology into teaching, learning and assessment practices. This includes using technology to provide learner feedback and developing simulations. This commitment to adapting to technological advancements aligns with their vision for future-ready healthcare professionals.
- **Forward thinking leadership** – envisioning the current and future needs of healthcare education beyond the current WSQ framework requirements – progressive thinking guides and influences Illume's pedagogical stance. Being forward thinking – leadership is focused on remaining adaptable to changing healthcare demands and developing a workforce that is adaptable to future changes.
- **Focus on long-term careers**: Illume aims to prepare learners for long-term careers in the healthcare sector. They seek to broaden learners' thinking and readiness to adapt to future changes in the field.

From these case studies we observe aspects of the cycle of expansive learning (Engeström, 2001) in action. This is most evident in the dynamic capabilities used in these TPs, especially in how they use and align their key resources with their efforts to bring about change. This can be seen in the TPs use of pedagogies that encourage generative forms of knowledge acquisition and deep understanding; leadership as a driving force for expansiveness, driven by trust and commitment to a collective approach. Common across the three case studies is a culture of learning that encourages and supports expansive learning through its values and behaviours. These TPs are also committed to building sustained relational partnerships, ensuring all stakeholders, including learners are aligned in their vision and commitment toward FOPPs and are themselves recognised as agents of change.

Leadership: a driving force for expansiveness

Leadership plays a pivotal role in determining the expansiveness of TPs. Across the three case studies and other TPs, we see evidence of pedagogical leadership distributed across the

organisation to foster a culture of improvement in learning and to move pedagogical practices forward. For all three case studies, this is achieved by the collective development of the curriculum (implicit in quality assurance requirements), the continued professional development of educators, and leadership, providing space and possibilities through boundary crossing for staff whose thinking about the future goes beyond what is current.

For Illume, pedagogical leadership is firmly rooted in cultivating a highly competent, resilient workforce needed to navigate challenging and unexpected situations now and in the future. Leadership empowers Illume staff to think beyond current standards, demonstrating a commitment to forward-looking progress. Educators pay a pivotal role in nurturing learners' self-assurance and sense of responsibility, encouraging them to become active participants in quality care. This comprehensive approach to leadership not only serves as a driving force for expansiveness but also empowers educators and learners to contribute to improving/creating pedagogical practices for the future.

Rohei is another example where pedagogical leadership is exercised across the organisation and evident in its educational goals and quality expectations. Rohei's educators engage in quality assurance processes, including dry run practice sessions before meeting learners. In the case of Rohei aspects of the cycle of expansive learning is evident in the questioning of existing pedagogical practices undertaken by long-standing educators by new recruits. Making these tensions visible to those involved has led to new solutioning, giving educators with responsibility for their own courses the autonomy and flexibility to exercise professional judgement and innovation as necessary.

Renowned for their pedagogical focus on experiential learning there is also a reflective stance in the organisation to ensure that experiential learning is not over-relied upon and an approach that can be improved. Feedback loops (as also in the case of USH) provide opportunities to air tensions and contradictions on existing practices. For Rohei, taking on board feedback from staff that the authentic component of the curriculum could be enhanced, suggests that leadership in this TP takes a collective approach to change. The voices of the educators are listened to, and by recognition of the value educators bring in terms of their pedagogical expertise and domain knowledge, they play an important role in supporting a pedagogical shift towards DK and DGK - locating this TP on its journey towards expansive horizons of possibilities and future oriented approach.

Leadership is evident when clear educational goals are established, and quality expectations related to pedagogical work is collectively developed and aligned with all other aspects of the organisation. Leadership plays a key role in orienting the TP toward DGK PP.

Learning culture: fostering expansiveness through values and behaviours

From our case studies and wider data set we see strong evidence of TPs embracing transformational leadership practices that cultivate a strong learning culture whereby the values, beliefs, and behaviours across an organisation impact on its capacity for learning and innovation. By this, we see learning culture as being more than a set of engineered conditions and set of attitudes embodied by employees. We see this as learning cultures that are dynamic, emergent, and that interconnect with components of the ecosystem in different ways to mediate pedagogical practices.

Across our cases we observe different ideas of what a culture of learning looks and feels like – with key features of learning culture exercised in different ways, at different times, for different purposes. We see learning cultures built on trust and collaboration - evident in conversations, dialogue that is open and generative, autonomy to act on learning, giving voice to staff and support for the continued professional development of educators. These TPs represent examples of organisations where staff tend to model appropriate values and behaviours, are collegial and mindful of the well-being of one another.

Fiva considers ‘the key” in learning culture “is promoting autonomy, encourage dialogue, learning and innovation” She emphasised the need for a learning culture in the organisation, and that “We don’t work in silos; we don’t cripple people’s autonomy level. Give them the freedom you know, to tell us what they feel, … we don’t shut them out. In fact, we should encourage our people to speak up” (ibid). (EdTech_SQC_QA)

In practical terms, learning cultures that promote autonomy is evident in those TPs and their staff whose horizons of possibilities are beyond the parameters of the Skills Framework and established systems of funding and assessment that mediate the planning, delivery, and evaluation of programmes.

Training Providers with a supportive learning culture provide staff with discretionary space to boundary cross and encourage regular opportunities for learning and knowledge sharing. Discussions about knowledge – knowledge of learning, pedagogy, learner profiles, quality assurance and governance are highly evident and deep in the DNA of some TPs and their staff. Training providers that incorporate such conversations and practices in their daily work, often unknowingly, continually exercise aspects of the cycle of expansive learning. In the case of Rohei and Illume, central to their learning culture is creating an inviting and psychologically safe environment where staff and learners feel at ease to speak up and learn from each other and learn from mistakes. In USH, one interviewee emphasised to us how staff value learning from each other and believe this collective approach enhances the impact of learning in and across the organisation.

Creating space for open dialogue can alleviate tensions and contradictions as they arise. An interviewee from an EdTech provider commented that regular dialogue sessions, involving different stakeholders help ensure quality of teaching and learning, enabling practitioners to be part of collective decision making about pedagogy. Collective dialogue and decision making has proved successful in gaining support from staff in line with company objectives when changes to current practices are afoot. Conversely, in the food and beverage sector, one TP hosts morning line up sessions where employees share ideas about the culture and philosophy or the organisation – providing updates on industry developments, changes to the team, anything specific regarding the needs of learners, planning, budgetary issues – afternoon sessions available to those who miss the morning line up.

Learning cultures are also evident in providing individualised support to staff, fostering intellectual stimulation. We see this in TPs that offer boundary crossing activities. For example, Illume invite external trainers to train staff on latest industry practices. In the food and beverage sector, Btice offer ‘industry immersion’ for their staff as explained to us:

> ‘every faculty who have worked for 3 years in the company, they have to go outside and work in an establishment, food related, it could be a restaurant, a bar or hotel, and you have to work at least 2 weeks there to refresh your skills and abilities, pick up some new skills and come back and then put it inside the curriculum. So, that is another opportunity where you do training and development.’ (F&B_Btice)

In TPs with a strong learning culture, core values about their motives and what matters are deeply embedded into an evolving narrative that defines organisational identity, purpose, direction, commitment, and orientation toward FOPP. It can be argued that TPs with a strong learning culture and that are expansive in their horizons of possibilities are more likely to be those whose pedagogical practices are geared more toward DK and DGK PP.

Partnerships: a catalyst for expansiveness

A key focus of the Skills Future mandate is collaboration with industry partners to "foster a culture of lifelong learning and to collaborate with institutions and training partners to develop high-quality, industry-relevant training" (Bound & Chen 2022, p. 134). Collaborating with partners is about knowing and leveraging on their expertise. Partnerships as a catalyst for expansive horizons on possibilities is beyond utilising their expertise; it entails establishing structures such as creating critical spaces for dialogue, communities of practice that contribute to shared understanding between partners – a key aspect of common knowledge as emphasised by Edwards (2012b).

Pedagogical leadership evident in collaborative practice, and partnerships play a pivotal role in designing future oriented pedagogical practices. As in the case of Illume and Rohei, both TPs have cultivated close partnerships to contextualise learning through the process of co-creation. Illume adopts a sustained, relational approach to partnerships through regular and multiple feedback cycles. Rohei has developed close relations with their business clients who they position as partners to address learning issues and engage in the co-design learning. In the case of USH, partnerships are used to strengthen quality, by 'co-learning, co-developing and co-creating new models of care' at the same time supporting workforce transformation. As a specific example, for USH, 'partnership is partnering with stakeholders who will be part of the change and people we involve doing this together, 'we need high levels of trust so that we can journey with them'.

We see powerful evidence of TPs working hand in hand with industry partners. Examples of boundary crossing partnerships in the learning process include greater industry involvement in projects, creating learning spaces, learner practicums with industry, the use of guest speakers to bring 'the industry to life', feedback loops that enhance learner engagement and collaborative design and delivery. These synergistic relations with multiple types of partners improve access to knowledge and grow knowledge within the organisation. Strong relations with industry partners result in the provider being the go-to TP for the sector, allowing for greater customisation of products and service. This collaborative approach supports boundary-crossing activities and contributes to expanding horizons of possibilities.

We also see evidence of partnering within different divisions within organisations. The key emphasis is on enabling communities to 'grow, to experiment, and to ride on each other's experience and then share, and then learn from each other' as one interviewee from a TP operating in the TAE sector informed us. For some TPs, building strong relationships with their educators is highly reciprocal. Building a culture of appreciation with educators enables growth in capability and capacity within the organisation.

Training providers with a transactional view of the world

In contrast to the previous section, this section considers aspects of TP practices that are of a transactional nature. This is not to imply any given TP lacks expansive approaches, but rather to offer insights into how transactional approaches can restrict potential for FOPPs. There is potential in each situation described below to change tack. Our FOPP framework is a tool that can support TPs and their educators through change processes – to identify gaps and areas for improvement to move pedagogical practices towards DGK. Additionally, IAL's parallel study on dynamic capabilities provides useful insights into how TPs use these key resources in dynamic and powerful ways to adapt to changing circumstances and prepare for change.

A transactional view signifies an approach primarily centred around (though not limited to) the acquisition of knowledge and skills for transactional purposes, such as (quickly) meeting compliance requirements and acquiring immediate certification. This approach is typically characterised by a focus on short-term, task-specific outcomes, often resulting in the transfer of knowledge in a relatively static, reproductive manner, rather than fostering deep understanding, critical thinking, or of putting knowledge to work. We know for a number of the TPs in the scope of our study that many of the

courses they offer are compliance courses, typically delivered over a one-to-two-day period. Time and space required for DGK pedagogical practices are thus limited, but still possible with appropriate changes in design and facilitation. Instead, the choice of pedagogical practices typically adopted is to ensure learners meet specific compliance or industry standards, with limited emphasis, time or resources dedicated to encouraging learner engagement, active participation, and development of future oriented capabilities. Consequently, a transactional approach on the part of a TP, has significant implications in terms of how prepared learners are for the future. The very limitations of these implications correspond with what educators felt learners were missing (and often complained about). Across our research participants, there is common agreement that courses primarily centred around RK fall short of preparing learners for a rapidly changing future.

As can be observed from the case studies presented in Chapter 5, Fabrico spoke to us about customisation of curriculum content and authentic assessment to meet learner and employer needs. This is suggestive of an example of a more expansive horizon of possibilities. In practice, Fabrico operates within a transactional framework, adhering to prescribed standards and within a 'top-down' approach. Leadership primarily serves the purpose of ensuring compliance with established practices related both to SSG and external awarding body requirements. In this TP, and across other TPs we see evidence of leadership constraints, limited learning culture, narrow interpretation of the Skills Framework and funding eligibility criteria. We elaborate on these aspects below, showing how such aspects have restricted TPs moving beyond reproductive knowledge.

Restrictive leadership

Some leaders are restrained in their agency to exercise a shift towards FOPP. This can be due to historical legacies related to organisational structures, policy and practice, and cultural influences. These legacies infiltrate across the organisation and may or may not concur with the belief systems of their educators. From our data set, one TP from our TAE sample closely matches this description. We should add that the data collected from this TP, we name 'JAG 'was taken prior to changes in current leadership. In this TP, prior to changes in leadership, one interviewee expressed to us that leadership perspective on the direction of travel was primarily set 'within a very government mindset'. Due to reliance on SSG funding, it was reported to us that leadership perspective was to 'tow the party line' and remain within the perimeter of SSG requirements. For this TP, at the time of data collection, the type of pedagogical practices used and their vision for the future were guided by the Skills Future mandate.

Other interviewees expressed the view that organisational mindsets that resist change present a significant barrier to effective leadership, limiting the potential for FOPP. As in the case of one interviewee from the EdTech sector, such resistance to change is often based on deep-rooted traditions within the organisation, stifling innovation, growth, and change.

> 'the current establishment is based on hundreds of years of traditional methods, it's very much like the PSLE[9]. It's very hard to eradicate. You can try …to introduce some other approach right to do things right, but it's a very archaic system, so it's, it's not as easy to, to, to move things as fast as probably we need to because whether we want to or not right, this, the next generation of learners are going to learn very differently from us and there's going to be a very big gap between our delivery methods' (EdTech_TRC)

Narrow interpretation of the Skills Framework and funding eligibility

Although we have identified a few examples of TPs innovatively interpreting the Skills Framework, transactional TPs use the Skills Framework as the main tool to inform their pedagogical decision making (as in the case of Fabrico). These TPs are internalising the implied messages about the

[9] The Primary School Leaving Examination

separation of knowledge and performance as embedded in the Skills Framework documentation. This is then translated into their curriculum design and enactment of the curriculum.

A perception emerging from our research findings is that TPs who primarily offer WSQ provision may be associated with having a reputation that has a narrow perspective of what quality teaching and learning practices look like. An interviewee from JAG emphasised the need for their TP to move beyond WSQ provision – expressing the view that the Skills Framework does not strive for high quality, '*because they look at the minimum requirement'.*

Limited learning culture

Where we see restrictive leadership, we also see a correlation with training providers that do not appear to have a strong or supportive learning culture that offer space and time for the development and implementation of pedagogical practices or creating a strong organisational environment. In the case of JAG, we heard evidence of an overall lack of organisational/learning culture. Indicative of this is the absence of conversations and dialogues across the organisation – with a sense that the TP is fragmented, with departments and units working in isolation. Limitations in the then current use of technology for business purposes did little to support an inclusive working environment. Platforms to share information, or developments from different teams across the organisation appeared to be missing in this organisation. However, typical of such organisations, we found evidence of a strong learning culture within one division, and of some individuals dedicating time and resources to provide opportunities for professional development within their team.

In cases, where we see limited evidence of learning culture there are very limited opportunities for staff to come together to engage in any discussions about teaching and learning practices, pedagogical knowing, the organisation's pedagogical stance and vision for the future. Our case study of Fabrico is illustrative of this; furthermore there was, little impetus to change the status quo.

In a range of TPs we identified as taking a transactional approach we heard that some professional development opportunities are more about training than learning. Some training is linked to the requirements of external awarding bodies, and appears more of a 'tick box', compliance than meaningful professional development.

Challenge of partnerships

In terms of partnerships, in TPs with a transactional approach, there is a tendency to maintain the status quo without pushing boundaries. For JAG, at the time of data collection, limited use is made of internal partnerships to drive pedagogical practices. Concerns were raised about teams and departments working in isolation, missing out on valuable opportunities for boundary crossing and contribution toward developing FOPP.

In terms of what limits potential of partnerships, at different levels in the TAE ecosystem, we heard views that collaborating with AEs from other organisations, they can be *"very protective and guarded" (EdTech TA QA Mgt*), thus limiting possibilities.

The challenge of partnerships is also evident in the quality of TP products and services. One interviewee from JAG expressed the view that the feedback process in curriculum design and implementation is not robust enough. We were informed that consultation processes failed to engage with the sector, insufficient is time given to the consultation and pilot phase of new products and there was a lack of expertise in people leading the review of product. Learners observed a lack of constructive alignment – between the delivery of learning outcome and assessment of the learning outcome.

We now move on to activities undertaken by educators and discuss how ecosystem factors mediate their pedagogical practices.

7.5 Educator Activities

This section builds on the four case studies presented in Chapter 5 and the research findings presented in Chapter 6. To enhance our understanding of the nature of activities educators undertake in their teaching and learning practices, we have crafted three educator vignettes that delve into the role, identity, and agency of educators at a deeper level. The vignette of Xavier represents an educator whose pedagogical practices are predominantly oriented towards reproducing knowledge PP. Gina is located around dynamic knowing PP and Zane leans more towards dynamic generative knowing PP.

Xavier, Gina, and Zane are established adult educators, each bringing a distinct set of experiences and teaching and learning strategies to their roles. Xavier, with a long history of training and consultancy for the development of soft skills shared with us his beliefs in customising the curriculum and using pedagogies to cater to the needs of adult learners. For Gina, she combines her extensive clinical experience as a peri-operative nurse, with a strong emphasis on practice and learner engagement. Zane with her diverse training experiences, also places strong emphasis on learner-centred pedagogical practices – embracing experiential learning and innovation as core elements of her epistemological stance.

All three educators combine their extensive industry experience with their teaching practices and are committed to their own continuous professional development. However, our analysis reveals significant variation in how educators, including Xavier, Gina and Zane enact the curriculum, ranging from use of RK PP to DGK PP. But why is this? Such difference can be attributed to a combination of factors, including the complex interplay of individual dispositions, epistemological beliefs, teaching context and circumstances and broader ecosystem influences. This includes, though is not limited to established systems related to funding, assessment, internal and external expectations and accountability, educator autonomy and the needs and diversity of the learner profile.

What matters to Xavier, Gina and Zane relates to their values, priorities and core beliefs about pedagogy, learners' being and becoming. These elements shape their identity as educators. It reflects their purpose and passion for teaching and learning, significantly influencing the quality of their learners' learning experience.

Combining these datasets offer compelling evidence of how ecosystem factors shape the pedagogical practices and identity of educators. Our data reveals distinct differences in how educators treat the challenges and opportunities they encounter, with some educators eagerly embracing challenges and opportunities, demonstrating strong mindsets and a robust sense of identity as educators. In contrast, others find themselves constrained by factors within the ecosystem that is then reflected in their pedagogical beliefs and practices. As discussed in Chapter 6, we observed a discrepancy between the views and beliefs of some educators and their actual practices, revealing a notable dissonance in their practice and beliefs. As in the case of Xavier, his pedagogical practices conflict with his self-perceived role, identity, and views expressed to us during our interviews and observations.

Box 4: Xavier (Fabrico)

Xavier began his career in 1983 as a full-time training officer in a government institution. Between 1989 to 2012, he worked for various organisations either with in-house training units or corporate universities. In recent years, he has held a manufacturing industry position while also teaching in the TAE sector across multiple TPs. As a lifelong learner himself, he is close to completing his Doctorate.

Xavier feels the current focus on skills development, neglects the development of soft skills. He observes learners lacking communication, creative and problem-solving skills and capacity to

interact and negotiate. Xavier believes educators have a key role to play in teaching these skills and insists the curriculum must evolve to integrate soft skills.

Xavier recognises the need to modify the content of the course he teaches at Fabrico – emphasising the need to incorporate soft skills to 'energise' learning. For Xavier, he 'tweaks' the curriculum to suit the characteristics of adult learners – because he believes learning is about the process of learning – not so much about the content of learning. Once mastering how to learn, he believes their 'mindsets' can easily adapt no matter what the learning. Being mindful of cultural differences and sensitives, he believes educators need to understand the importance of inclusivity and diversity. This matters, he says, in a Singaporean context when learners tend not to ask questions. To improve the learning process, experiential learning and questioning are critical – learners learn from asking questions.

He highlights the need to understand learner profile to meet their needs and expectations and learners and their employers. For Xavier, this is more about modifying the lesson to bring the teaching and learning to life to facilitate deep understanding. To this end Xavier, considers it essential that curriculum designers (CDs) and educators both have pedagogical expertise, domain experience and are up to date on market trends. This combination is critical to bring 'learning to life'. It is not acceptable when learning content is not relevant to the learner profiles. CDs and educators should switch roles, so they fully understand learner and employer requirements. Meeting learner expectations is an important consideration in curriculum design – as some learners are of the view they will walk straight into employment after completing a course. This is why it is also important administrators do not sign learners up for courses that they are not suited to.

Xavier highlights the importance of recognising value in learners of a more senior age. To him, their value added is by sharing their experience and others learning from their experience. Another important point in curriculum design is to take account of multiple generations participating in learning.

Xavier feels strongly about authentic learning and assessment. To him, the fact that WSQ is binary competent / not competent, incorporating real life case studies into the training programme relevant to learner and employer needs is important for authenticity. For Xavier, employers who send learners on training should also be involved in assessment, by offering feedback on project-based assessments. Getting someone from the company involved in the assessment makes it feel 'alive, and authentic' Xavier believes.

Xavier makes a distinction between learning process and assessment practices that apply to in-house training and those that apply in 'public training'. For him, the former is project-lead training, and the latter is training-led project. The former claims Xavier, offers more authentic learning experiences. In this distinction Xavier takes on different roles. For in-house training he takes on the role of trainer, coach and sometimes mentor. For 'public training', the focus is more on professional functional job competency. Depending on the extent to which his learners have a lot of experience and can go beyond what is expected, he may switch between facilitation rather than instruction – and where necessary offer coaching to learners that need help. With experienced learners, he takes the learners quickly through the material – interjecting with examples of his own experience to liven up the curriculum.

Xavier raised the issue about curriculum documentation for the course he teaches being outdated …'I think it's almost over 10 years, it needs to be updated and revised because of changes in technology and so on, even though the course are still there they need to interject with all the new skill'. This is why Xavier visits the company prior to conducting training to then adapt the curriculum. Xavier doesn't want to stick to the format of the curriculum documentation provided to him by Fabrico, he wants to add value to the content while remaining within scope.

Xavier is afforded some leeway to adjust the curriculum content, commenting 'at the end of the day it is for the learners'.

Xavier shared ideas about what the future of learning looks like. Learning will no longer be in one format, so educators and learners need to embrace technology. Concerned about learners' lack of digital skills, he believes educators have a role to play in supporting older learners to feel excited about technology for learning.

In supporting the professional development of educators, Xavier emphasises the need for this to be 'forward thinking' because education will change in the coming years. While WSQ provision supports skills development, to Xavier, education is a journey of learning and experience and requires more than a focus on skills. To support learners on their journey, why not invite retirees, some of whom are ex-trainers, ex-educators to voluntarily share their expertise and help learners to learn.

Xavier makes some suggestions related to improving the TAE system itself. He is of the view that training should sit with associations rather than ATOs as ATOs have limited manpower. He believes the TAE sector is an overly occupied market, meaning it is unclear which institutions specialise in what sectors / areas of expertise.

Box 5: GINA (Illume)

Prior to becoming a full-time permanent trainer with Illume, Gina trained and worked as a peri-operative nurse in operating theatres for 11 years. Gina had a long interest in undertaking a role as a trainer. In a hospital setting her training role would likely be around 30 % with 70% clinical duties. When she learnt that there was a full teaching position available with Illume she eagerly took up the opportunity, and instantly settled into her role.

On her first day on the job, she sat in on a class and quickly realised the material was quite outdated. She approached the trainer at morning tea to ask if she could take over the class "*without any presentations*." Instead, she made use of the simulation lab, combining it with sharing her experience to align with the learning outcomes. Very early in her career as a trainer, Gina was focused on the performance and skills mastery of her learners.

She completed the WSQ Advanced Certificate in Training and Assessment (ACTA), (now ACLP). She was very happy to learn how to develop lesson plans and design learning. *"I feel so happy because the moments that when I have successfully conducted a training in a proper and structured way, yeah, I can see the learning outcome!"* After some three years of teaching experience, she wanted to learn more and went through WSQ Diploma in Adult and Continuing Education (DACE). She has also completed short professional development courses, along with others from Illume, such as the 6 Principles of Learning Design workshop.

Gina's strong sense of agency again came to the fore as Illume moved to adopting the then new Skills Framework. She realised there was nothing that aligned to operating theatre work. To address this, she adopted some TSC[10] "*from the engineering side*," as the assistants need to deal with technology. Combining this with Level 3 infection control and adapting it she was able to develop the required TSC for two of her specialised modules. Hot on the heels of this development, COVID arrived, again calling for ingenuity, as they shifted what they could to online and meet the Ministry of Health requirements for any face-to-face sessions. As the courses she teaches are skills-based, face-to-face is necessary, so classes were made smaller, coupled with the use of ZOOM and development of online resources.

[10] Technical Skills and Competency

Gina proudly showed me a virtual tour of the operating theatre that had been developed to address the culture shock learners experience when first entering an operating theatre. It is not easy to imagine what it is like to work in such an environment when it is not seen by the public. Gina shared that this led to improved engagement, motivating learners to learn more. She continues to explore possibilities for the use of technology to support learning and performance. Learners are often not aware, says Gina, of the impact of their communication style and tone of voice with patients and staff. Attending to this for all students is problematic, but it is an opportunity to use technology to make visible to learners what the impact is and what they can do to change their tone and choice of words.

She is strongly committed to developing learner's ability to perform to the required standards. Clinical attachments are an important part of developing these capabilities and to this end, Gina uses her contacts in the industry to support learners and to also keep her ear to the ground for the most up-to-date practices enabling her to constantly update content in the courses she teaches. The simulation lab is important for Gina in developing performance. Using her industry and personal contacts Gina has been able to add equipment to the simulation lab. She is rightfully proud that their graduates are much sought after, and that on gaining employment, retention is high.

Gina believes that learners need time to reflect and digest what they are learning. Their interaction between classroom, the simulation lab. and clinical practice needs to be balanced – it is not just a matter of 'going for training' (i.e. classroom training). Students, she says *"have to experience on the so-called of the, life situations. How you're going to handle because patients' condition can change all the time.*" In her teaching Gina recreates the culture of the operating theatre where there is no room for error. She does this through her tone of voice, the directions she gives, and her expectations in learners knowing the answers to her questions. She wants and needs learners to be *"resilient and resourceful"* as this is important when working with sick people whose conditions constantly change. Her aim is to develop health care workers who are not only competent and masterful but able to self-care. Peer learning is an important means of achieving these outcomes. She is happy to work with the very diverse learners in age, abilities and life experience that pass through the doors of this Training Provider. As a passionate practitioner her caveat is that they are "*keen to learn*" and '*ready to join healthcare."*

Continuous professional development is part of Gina's DNA, encompassing both domain and pedagogical capabilities. She is very open to new pedagogical practices and is constantly considering ways of improving her teaching to ensure learners use higher levels of cognition, have plenty of opportunities to practice - *"in order to practise, this person must think."* To achieve learner outcomes, Gina, along with others will tweak the Skills Framework TSCs such that they more closely represent up-to-date industry practices. For Gina, what is paramount is that learners can confidently meet the fast-changing world of work in the operating theatre.

Box 6: Zane (Rohei)

Zane has had a varied career as a trainer, exposing her to different learners, needs, and pedagogies. She began her career as a trainer in Outward Bound, balancing this with freelance work delivering corporate training programmes. She moved to full time freelance work, including some adjunct teaching in a high school that exposed her to experiential learning. However, as her children became older, she sought and found full time work at Republic Polytechnic teaching teachers, where she was exposed to problem-based learning. Using her Church contacts, she then moved onto a full-time role in a small company and from there to her recent current position with Rohei.

She was attracted to Rohei because,

> *the focus in ROHEI is that we give the students feedback, which is quite unique to a lot of business. … Over here in ROHEI, you'll always see we come from good place, whenever we give each other feedback, is really meant for development of the student. … And the other thing right which we practice is to be a professional first before actually putting into practice.*

Zane describes herself as a planner, so the opportunity to practice and engage in dialogue with other trainers and learning designers appealed to her. As a planner she says she is not naturally spontaneous, however, the environment provided her with the confidence and safety to depart from carefully curated curriculum in response to how she was reading the learners. For example, the session observed by the researchers was originally designed to have one round of practice, but another round was added in order to meet perceived needs and provide more opportunity for practice, observations by learners of their own and peers' practice, and learning from these experiences. She strives to "meet" where the learners are at and "flow with them".

What matters to her is that she feels "the difference that I'm making is the direction of growing is to help people to be the better versions of themselves." Learning and assessment, says Zane involves interpretation and self-reflection, being able to connect with why it (the learning) is important to the learner to motivate change. She constantly seeks to improve her teaching with a focus on engaging learners, as they "benefit from better engagements". Experiential learning is a key plank in her pedagogical toolbox because,

> *I want them to be able to, through experiential learning right, activities … doing the kind of roleplays and skills practice to really understand not cognitively understanding, I'm talking about really experiential kind of understanding, what it feels like right, to sometimes be on the receiving end, when for example when you are so curt.*

Despite her self-declared limited sense of spontaneity, her experience and values mean she always has an eye to innovating her pedagogical practices. She commented that innovation comes with failing and failing forward and the need to be comfortable with failing in this way. It is important to her that she has "the freedom to run" in order to be her best.

Not surprisingly, Zane is constantly seeking opportunities for continuous professional development. Recent activities have included a course on coaching, design thinking, process facilitation. Informally, she observes other trainers, and responds to learner feedback by adjusting her practice and translating the feedback to appropriate groups of learners.

Pedagogical approach – learners being and becoming

What matters to Zane is making a meaningful difference in the growth and development of her learners, helping them 'become better versions of themselves'. She values the impact of her teaching on learners and strives to engage them effectively, believing that better engagement leads to better outcomes. Zane places a strong emphasis on experiential learning, aiming to help learners truly understand and feel what it's like to be in various situations, promoting deep, experiential understanding rather than just cognitive comprehension. She is open to innovation and learning from failure, recognising that true growth often comes from embracing setbacks and moving forward. This is highly evident in her enactment of the curriculum as we observed.

For Xavier, what matters to him as he informed us during our interviews is that learners are equipped with soft skills, such as communication, creativity, and problem-solving skills. He is concerned with helping learners develop a growth mindset, knowing that once they master how to learn, they can

adapt to any learning situation. Xavier strongly emphasised to us the need to adapt and customise the curriculum to ensure the 'learning process' is more effective and relevant to the learner. He spoke of the need for an inclusive and engaging learning environment, and the importance of questioning as a core pedagogical practice – also as a method to encourage peer learning. However, as previously highlighted, there is a dissonance in what Xavier expressed to us during our interviews compared to what we observed in his enactment of the curriculum. We have no doubt Xavier has an appreciation for pedagogical practices that help learners in their journey of 'being and becoming' but he seems conflicted and restricted in his agency to exercise pedagogical practices beyond reproducing knowledge. In the Fabrico case study and Xavier's vignette, we see evidence of Xavier's own teaching philosophy, pedagogical approach and beliefs about learners impeding his use of FOPPs. Xavier makes assumptions about learners' prior knowledge and motive for participating in the course *'they're quite experienced….they have some background so I go quite fast'*. This is evident in how he zips through the curriculum content, asks questions but doesn't pause for learners to respond or interact and in the amount of time dedicated to preparing learners for the assessment component. Xavier's enactment of the curriculum is not helped by the lack of resources/equipment, stale and static learning environment, time constraints, institutional mindset, and accountability pressures he works within, combined with the limited autonomy afforded to him. In an interview with the TP, it was implied certain learners are not able to operate at a higher cognitive level – commenting 'the Skills Framework is 'too advanced' for our learners'. To support a shift toward FOPP, there is a need to address such assumptions and address understandings of learning and how learning takes place.

Across our data we have observed some common factors that contribute to a lack of agency among educators, such as experienced by Xavier. These include little autonomy or discretion to adapt teaching and learning practices, lack of support and professional development, fear of consequences (poor learner feedback score) and/or professional isolation, especially in TPs lacking a culture of learning. Educators employed on an adjunct basis may experience heightened exposure to these challenges and circumstances.

What matters to Gina in terms of learners being and becoming is their development into competent and masterful healthcare professionals. Her pedagogical approach is performance-oriented with a strong focus on practical skills. Choice of pedagogical practices are highly engaging, aimed at developing individuals who are competent, confident, resilient, and resourceful. Gina emphasises the need to adopt a highly adaptable approach driven by the need to ensure her curriculum aligns with industry standards. She places importance on learners experiencing real-life situations, so they are comfortable with unexpected challenges that are a feature of possible futures. This approach is rooted deeply in her DNA whereby very early in her teaching career she recognised the need to replace outdated course materials with a much more hands on approach, including use of the simulation lab, informed by her own valuable industry experience.

Notable from Gina and Zane in their enactment of the curriculum is a focus on experiential learning, geared towards helping their learners develop high order cognitive skills. For Zane, it is more than this, it is about a 'real experiential kind of understanding'. Zane enjoys and creates a learning environment that values, respects, and uses learner feedback to help them acquire a deep, instinctive, gut-level understanding. For both Gina and Zane, their approach to learner being and becoming is about learners acquiring a strong, emotional, sustained connection with learning in their respective field.

The relationship between the educator and the learner, and beliefs about knowledge flow is crucial for the learners' process of being and becoming, enabled in part through the division of labour. A positive and supportive educator-learner relationship can foster an environment of trust, open communication, learning from mistakes and one another. Across our case studies and vignettes we see distinct evidence of the educator being the 'sage on the stage' transmitting knowledge (Xavier) and educators engaging in dialogical pedagogical approaches involving complex interactions from all in a learning setting (Gina and Zane). As noted earlier the use of questioning by Xavier seeks a

correct response, closing opportunities for discussion and limiting interaction amongst learners. We observed similar 'sage on the stage', closed-down questioning and dialogue moments during online zoom lessons. In another specific example, this was not helped by all learners, including the educator (at times) appearing online with camera's switched off. In both cases, learners are recipients of knowledge as they wait to be asked a question, knowing little time or effort is required to share their response – if at all.

Moving on, we see evidence of educators promoting strong learner agency by creating a space for learners and educators to build a community of dialogical inquiry together. In the case of Zane, she recognises the value in learning from failure and comfortably prepares the ground to challenge learners to improve on ideas, consider different perspectives in a safe psychological space – as in the case of Gina. In another example, an educator shared an example of how he openly admits to learners that he is not perfect and makes mistakes. This admission to learners not only leads the learners into a safe space for making mistakes, but it also expresses the division of labour as one that is supportive of a co-creation space. In his words, he expresses it as: *'So, you know, you don't put yourself up there, you put yourself like being there with them'.* This is a powerful way of expressing his identity as an educator as it suggests a balance of power with the learners and a safe space for learners and educator. Being and becoming can be supported though co-creating the learning space, knowledge and highly skilled questions and challenging of learners.

Relationships between and across practitioners

As important is the relationship between educators and learners, is the role, and inter-**relationships between educators, CDs and quality assurance professionals**. These relationships **are meaningful in how they shape identity, agency, autonomy and the overall effectiveness and quality of teaching and learning.** Across our data we see significant evidence of why these relationships matter – although educators typically take on multiple roles (facilitator, assessor, curriculum designer, learning consultant, curriculum lead, those that occupy managerial, quality assurance roles), it is also not uncommon for them to have separate roles (Chen et al, forthcoming).

Xavier emphasises the importance of a close relationship between educators and CDs because he believes in aligning the curriculum with the needs and expectations of employers. He advocates an interconnected approach by suggesting educators and CDs '*should switch roles to fully understand learner and employer needs.'* Gina leverages her industry contacts to support learners and stay informed about most current practices – ensuring her learners receive up-to-date, relevant information. In other cases, we see evidence of educators, CDs and quality assurance practitioners being part of collaborative networks, encompassing multiple stakeholders working together on curriculum design, including employers and learners. One educator spoke about the current and future necessity of TPs being part of '*networks of knowledge partners'* who come together to co-create content, connect learners, producers, educators together.

> *So there'll still be a role around curation, around maintaining the network in a way. But I think so it's evolving, it's a role towards network orchestration, maybe as part of that, then you continue to push products and services but you orchestrate various players to help you do that. … if you're not connected in the way that I've described, you will lose relevance compared to the rest of the world. You will lose relevance on your own. Working on your own is just going to isolate you, so the only way to do it is to have an ecosystem approach (Business Change Plus_AE).*

This educator expressed the importance of understanding the perspective of other stakeholders, he describes as an '*interest model in the ecosystem'*. To him, ensuring alignment between those involved in curriculum design and implementation with institutional goals and vision and "broader national objectives like smart nation" can lead to far reaching improvement in learning design. IAL recognises this as boundary crossing capabilities.

We heard evidence of CDs emphasising the importance of stakeholders collaborating in a more open

and integrated manner to combine expertise and reach a shared vision of learning design. To improve the learning process and improve the learner experience. '*we work together to improve on the material'* (EdTech_TRC_CD). For another CD, '*partnering with different divisions within the organisations enables a community to grow, to experiment, and to ride on each other's experience and then share, and then learn from each other'* (TAE_TingPo_CD).

Open lines of communication based on trust and feedback between those involved in the process of learning design is what matters to many practitioners we spoke to.

> *'we see a lot more collaboration across [several TPs], so that is something that is important…we also want to break down silos so that later on…leaders have networks across different [TPs], they see themselves as friends rather than enemies, that's the least you want. Trust needs some time to build so I think we want them to build this trust early, develop friendships across the [TPs] when they are still very young and green and then let them progress together ….. We can be different and unique in our own ways but underlying there should be one [TP] culture and we are not fighting against each other, we are fighting against the world. We don't see as fighting, but let's put our resources together more meaningfully to develop courses not to cannibalise each other but to really pitch out to the whole world, look at the global community instead.- (TAE_KP_QA)*

Kona who holds a dual role of educator and CD shared with us the importance of engaging educators in learning design.

> *'at our department level, which is my department learning academy level, where we engage our teaching and learning committee chairs in the schools. We engage our associates, we engage our academic mentors, all these things are also shared with them together with the rationalisation of certain projects…. There is always this ground up, bottom down approach of doing that' (TAE_UP_AE_Kona)*

What really matters to Kona in her role as a '*syllabus writer*' is collaboration with industry. Without clarity of industry requirements, Kona shared with us, firstly she has *'little contextual understanding of the design'*, secondly she is '*unable to contextualise for learners'* and thirdly, she is '*unable to contribute to the industry'* as a whole.

Though we have heard compelling evidence of key stakeholders working together in the process of learning design, at the same time we have observed some tensions and contradictions that exist within these relationships:

> *'So for organisations right, it depends a lot on the organisation we work with. Let's say for [NAME OF ORGANISATION] right, the trainers are very forthcoming and very open. So, so we had the training, the trainers' session with them and so they provided very good feedback on the design and how we can improve on the courseware together. So I thought that was a very good experience because … we can improve the interaction between the AEs and the learners and they came in, the trainers came in with their expertise and say that you know. Yeah, this question could be changed in this way. This experience can be changed in this way and together we work together to improve on the material. So that's a good one. But some organisation that I worked with, the trainers were very competitive and very guarded. And the AEs, you know, yeah so it was very difficult. It was very challenging trying to come up with a good design for the organisation because the AEs will not, were more critical. And were more protective of their work and they don't want to give very good advice, yeah, to how to improve the course …*

Our L&D landscape right is, is really progressive and very supportive, yeah, of the curriculum development work. What is most frustrating would be the AEs right on the trainers guarding their turf, making this very competitive and when you have AEs whose, whose agenda is not to benefit the learning of the, of the learners or to help the organisation in building their courseware, but their own needs and their own profits going into the programme right, it is really, really tough working with them..' (EdTech_TRC_CD)

One of the key messages relating to curriculum design is the need to ensure learner engagement. These views were expressed by educators who are involved in both curriculum design, teaching and quality assurance. Those experienced in these different areas insist on the need for learner engagement as a type of quality indicator in curriculum design. This view is captured in the following quotes.

> *… it's no longer about us as an educator or curriculum developer to catch what is the product, but rather, it is more of the skills or the thinking behind it…we have to move beyond that already, beyond the product that we're offering … we have to move towards (EdTech_TRC_Selena)*
>
> *"If there is no punishment and there's no incentive for the curriculum maker, then why should I waste time to think of engagement tools because engagement tools need time to think about to being creative, correct or not? If I'm a curriculum designer, I'm paid to do a curriculum and there is no incentive whether the people are engaged or not, then I don't care, I just put down all my points, I just take my textbook, I just copy and paste, that's it, done, finished. Deliver, KPI met. All the curriculum, all the subject is being covered, then okay lah, settle." So what is the, what is my incentive?" Similarly with trainers. So, I think that at the end of the day, if the organisation that sponsored the whole thing, they feel that learning, engagement and internalizing is an important aspect of the whole training or is just delivering the whole KPIs is more important. You get what I mean, right?" (Dynamic_CD_Brenda)*

In the examples provided, we observe some tensions and contradictions in the views and experiences shared by educators, CDs and practitioners involved in quality assurance. However, such interactions expose practitioners to new ideas, methods and best practices. This type of engagement and boundary crossing is an important element of professional development, contributing to an educators' growth, identity and degree of autonomy and in their teaching and learning strategies.

Continuous professional development

Xavier, Gina, and Zane are committed to their own professional development. Xavier is currently undertaking a Doctorate and shared with us, *'I see every moment with learners as a learning opportunity'.* Gina and Zane engage in a range of formal and informal professional development opportunities. Zane, like many educators we interviewed, actively seek opportunities to observe other educators, or to be observed. Critical for Gina is to continuously improve her teaching methods to ensure learners reach higher levels of cognitive thinking and mastery.

For many educators, views and beliefs about their capability development is an integral component of quality assurance. This mindset is critical in change processes and essential in moving toward FOPP. What matters is that educators themselves recognise value in their own professional development in preparing themselves and learners for a dynamic future. One educator shared with us…

I think there is a need to really change. … So, I think it has to start with the adult educator. … I think there need to be some sort of upskilling. … You see, the AE themselves, the community of AE themselves, must be willing to say, I need to learn some more things. I need to equip myself further to be a professional adult educator, to be able to respond to changes. … So, it starts with us. Starts with us (TAE_JAG_ AE)

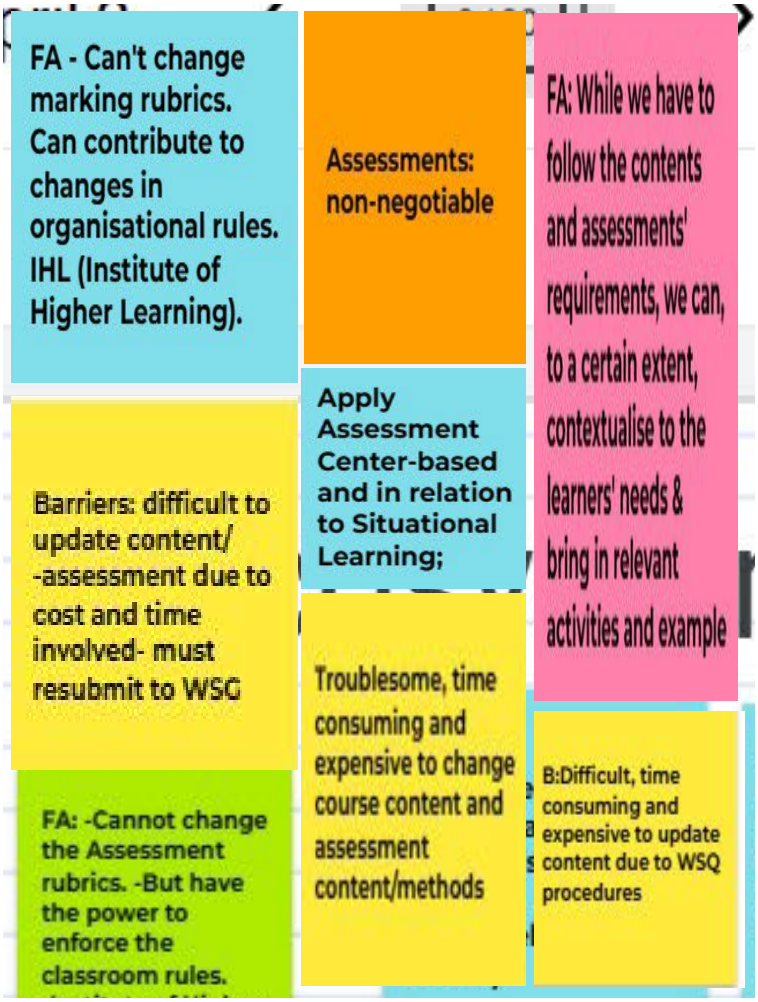
However, we have found that not all educators prioritise professional development to the same extent. Inevitably various factors influence their level of engagement such as time constraints, access to resources, institutional support, or personal motivation. We also heard some evidence of educators becoming complacent or viewing participation in professional development as a break from their usual responsibilities. In one TP, we were informed of educators complaining about differences in the duration of professional development courses – with some educators 'getting out of work' to attend three-day courses, while others only attending a one-day course. The intended purpose and benefit of a specific course seems to take a backseat to 'getting a free buffet lunch' we were told. These views were expressed by practitioners in a TP observed as one lacking a culture of learning. A strong sense of professional development to support capability development and identity building needs to come from both the top and be integral to the identity of an educator.

The mediation of assessment practices

From our case studies and vignettes we observe different epistemological stances in relation to assessment. This ranges from assessment being about testing acquired knowledge and assessment about judgements from multiple sources of holistic performance. In the course offered by Fabrico, of the two-day programme, 2 hours are dedicated to 'review and prepare assessment information' and a further 2 hours are dedicated to 'pre-assessment 1'. With this amount of time and level of detail dedicated to the assessment provided in the learner guide, it makes it virtually impossible for a learner to fail the assessment requirement. Across our data set, this is by no means an isolated example. We observed many classes with educators providing learners with that they need to know to pass the assessment and do the work of learning for them. Turning to Zane, for her, learning and assessment involves helping learners reflect and connect with the importance of what they are learning, motivating them to change. She uses experiential learning activities and self-reflection to facilitate deep understanding. For Gina, practical experiences are a significant and ongoing part of the assessment process, helping learners become competent and resilient healthcare professionals.

Common narratives expressed by educators during interviews and during our dialogue sessions are captured in the screen shot below:

Figure 32: Educators' narratives about assessment



As the figure indicates, there are mixed views on the extent to which the curriculum and assessment practices can be adjusted, with the dominant discourse being there is no space for educators to change assessment. For many educators' we heard that compliance with the quality assurance requirements of WSQ courses means that the assessment is perceived as 'untouchable', 'non-negotiable', 'cumbersome', 'restrictive'. We heard that a change to assessment practices, requires resubmitting curriculum documentation to SSG, which is perceived as a long, laborious, and expensive process.

As indicated in the slide above and based on our research findings, by and large, we see assessment requiring learners to only reproduce knowledge or understand knowledge, and not about applying, or putting what learners have learnt to work. We therefore need to understand capability in the sector and capability to design assessment activities that judge performance as opposed to testing knowledge. For one educator, he said that when learners know that there is an assessment component, they are automatically oriented to the outcome which is "*what is going to be assessed*." This works in counter to the emphasis on the process of learning. (AE_JAG_AE). An educator attending the educator dialogue session, expressed a similar view:

> *'But I find the problem with assessments, is that because we use rubrics, and, so this is very… stick-in-the-mud, to put it more bluntly. You can get into quite a bit of trouble because depending on how creative the lecturer takes the content, the students will come back and complain and say that we failed the assessment because the lecturer didn't cover it. The lecturer's covering it because it- covered it different way, but it is not a, a multiple-choice answer. And that's one of the problems that we always get.*

Conversely, several educators, like in the case of Gina and Zane shared with us how they proactively work around WSQ requirements related to assessment and curriculum. *While we have to follow the contents and assessments' requirements, we can, to a certain extent, contextualise to the learners' needs and bring in relevant activities and example.'* As we discuss in more detail below, this supports our survey findings that where there is space for agency – educators generally exercise it. This applies to educators delivering both WSQ and non-WSQ provision, whereby 77% of educators have the freedom to adjust the learning activities in relation to WSQ provision compared to 78% delivering non-WSQ provision. In relation to assessment, educators delivering non-WSQ provision exercise greater agency when it comes to adjusting the requirement curriculum compared to those delivering WSQ provision 54% compared to 50% respectively). As discussed in the chapter on current pedagogical practices, we have also observed a variety of assessment methods based on authentic real-word context and tasks – a key focus is the use of authentic assessment to support learners applying learning in practical situations and demonstrate deep understanding. Gina's emphasis on performance and practice translates into formative, holistic and continuous approach to assessment. For her, assessment is not just an endpoint, but rather a sustained and integrated component of the learner's journey as they support each other, build on each other's understanding, helping them build their own evaluative capacity and understandings of quality. This sustained approach means that Gina's learners are constantly challenged and motivated to improve.

Indeed, several educators emphasised to us the need to be clear about how assessment is used, for what purpose and how it contributes to the notion of lifelong learning. Recognising that WSQ is predominantly based on summative assessment, many educators emphasised the importance of formative assessment. However, there is a well-versed narrative across the sector that formative assessment is somewhat limited – particularly in relation to courses of a short duration. This has been highlighted by many educators as a challenge and conflicts with their epistemological beliefs about assessment practices. One educator suggested 'including cumulative assessments so that multiple smaller projects can be assessed over the course instead of having a final summative assessment'.

Another educator emphasised to us that even the choice of language used in relation to assessment is critically important. Rather than assessment being positioned as a 'test' (perceived as a loaded term), educators should use language that positions assessment as facilitating the learning process.

Learners participating in the learner dialogue session highlighted the need for clarity on assessment purposes and use of a variety of assessment activities to ensure assessment is more meaningful.

> 'the assessment has to catch up with, you know, the varied ways they are allowed to explore. And correct me if I'm wrong, [NAME OF OTHER PARTICIPANT], you sound unhappy and frustrated. …..,. The worst thing that can happen is people just can't be bothered anymore. You know, you ask me to do this, I will just do—I don't even want to question it, I don't even want to make any comments because it does not matter. So, I hope things will matter, at least where her learning institution is, right?.. So, it really does make me question, if you are trying so hard to make changes, but at the end of the day, even as facilitators, you are telling me that this is what it is, then it kind of makes me wonder, what's the point of putting in so much effort, occasionally, yeah.(L1)

> 'But then when it comes down to things like your written assignment, it becomes very rigid, in a sense where you must follow a very, very structured order and it is to the point where they specifically want something in the paper, which makes it like—it's like a photocopy of everybody's assignment. Yeah. So like, in terms of that, I feel like that one is a bit inconsistent. …. And then also with the methodology of the assessment, I feel like it's also a bit rigid because, you know, for example like DDDLP, we have many different methodologies; not only just written. We have many different tools, designing tools also, where, you know, we can play around with. But at the end of the day, again, we are back to writing reports' (L2).

While we have seen evidence of a variety of assessment methods being used, beyond the standard activities typically associated with assessment practise in WSQ courses such as multiple choice, short answer questions, from the learner quotes above, it sends a message that for learners, the system renders them powerless. Learners highlight their frustration with what they perceive to be rigid and inconsistent assessment practices. In the second quote, the use of written assignments as a highly structured uniform method implies a sense of disempowerment for this learner. This perceived sense of powerlessness can erode learner motivation and engagement, leaving them feeling that their efforts may not matter within the system. There is a need therefore to address issues related to assessment design and educator capabilities to embrace assessment practices that are more learner focused, empowering, and motivating.

Mediation of the use of technology to enhance learning

As evident in our case studies, technology is used to provide learners with access to a wealth of information, offers flexibility in terms of online synchronous and asynchronous learning, and opportunities for interactivity, high engagement, and accessibility in the learning process. For Gina, the use of technology plays a pivotal role in enhancing the learning experience. She has developed a virtual tour of the operating theatre to address the cultural shock often experienced by learners entering such an environment for the first time. Her intent is on increasing engagement and motivation for learners to learn more. She would like to use technology to make learners aware of the impact of their communication style and tone on patients and staff. Xavier acknowledges the importance of technology in education and training and believes educators should support learners – particularly older individuals - to embrace digital tools for learning. However, the use of technology available to Xavier in Fabrico for teaching and learning purposes as we observed was limited to PowerPoint presentation. More advanced technologies such as generative AI, VR appear limited in the learning environment and pedagogical practices, perhaps in part because of their expense. This example underscores issues related to technology inequality as some educators and learners may lack access to such tools. In the case of Fabrico, this is due to resource limitations and financial constraints – and arguably indicative of a lack of leadership vision.

With an increase in the use of generative AI in education, social forms of learning and high demand for (constant) connectivity, educators expressed to us mixed views and beliefs about what their roles might look in the future. On the one hand, there is a group of educators who are fearful of generative AI, expressing wide ranging concerns that '*AI is replacing genuine knowledge'* and will therefore has a significant impact on their identity as an educator, their agency, and capabilities they need to deal with AI in the future. On the other hand, there is another group of educators who are acceptant of the need to embrace generative AI. They see AI as complementing knowledge, serving as a powerful tool in teaching and learning strategies in ways that support DK and DGK PP – as one interviewee shared with us:

> *So my role suddenly in terms of just giving trivial knowledge, that would disappear completely because ChatGPT would take over. We don't need anymore.*
> *]*
> *So then the question is what's the role of the teacher and what's the role of the facilitator etc. if such tools exist? Now they will be in everyone's pocket because it's not anymore gimmicky. It's impressive, really. That's an example Metaverse. Metaverse more and more in certain industries, you're in a virtual environment and you're able to get experiential training, to meet with others, so you design. Blockchain as I mentioned, you could do a more distributed type of knowledge. Ask a question and you get answer from eminent, curated, validated knowledge partner. Technology obviously, tech enabled, you asked the question around the future of education, I think it's no brainer. It will have to redefine the role of education institutions, the role of teachers or facilitators because technology is really, really going to change a lot. (Business ChangePlus_AE)*

Several educators explored issues around divisions of labour in terms of the relationship between educators and learners in the future '*when as AEs, we are increasingly competing with social forms of learning'*. Rather than coming from a mindset of competing with AI, some educators were of the view that their role as an educator is even more important as advances in technology continue to accelerate. This is because of the very need to ensure learners develop high-order cognitive skills, deep understanding and critical thinking abilities. One educator explained to us:

- *"there is now the need for us to facilitate and train students, learners, with the skill set to learn and judge and synthesise, which is the HOTs, the higher order thinking skills." (TAE_UP_Interview_AE).*

A key message related to these findings is the need for collaboration among key stakeholders in the use of AI in curriculum and assessment design. Clear guidelines, monitoring, and evaluation on the long-term effects of AI in education on cognitive development and career opportunities are required. IAL has a key role to play in this respect.

- *Yeah. I think so. I think our whole government, SSG, you know. Uh not only in TAE sector, all over, they are all pushing, um, pushing for technology-based learning. The moment [my TP] were moving into tech, tech-based kind of learning, they gave us lots of workshops, you know. There was even someone who conducted a Google Classroom, Google Drive, Google Classroom session. Found it very useful so now I'm using Google Classroom. So, they gave us a lot of help in that way. And we, those, we, we really learnt. So, I, when it came to the AEs right, uh, they really helped us a lot. When it comes to learners, I think they, they put a lot of how-to guides inside Canvas. And videos. (TAE_JAG_AE)*

Use and interpretation of the Skills Framework

Across our data sets, we see variation in how the Skills Framework is used and interpreted by educators either as a tool to support expansive learning or blindly followed. Gina, supported by the organisation she works for (Illume) adapted the Skills Framework knowledge and abilities requirements such that they more closely represent up-to-date industry practices - a clear indication of her dedication to preparing learners for the fast-changing world of work in the operating theatre. For Xavier, while he emphasised the importance of customising the curriculum to meet learner and employer needs, he has limited autonomy, agency and a large gap between espoused beliefs and practice. Our educator vignettes illustrate the interconnections between educator disposition and beliefs and the contexts they work within.

A key observation is that while many educators complained to us about limitations of the Skills Framework, some, like Gina have a better understanding than others in terms of how and in what way adjustments can be made to the curriculum and learning activities to support more expansive learning experiences.

Several educators mentioned to us that though they recognise the importance and value of adjusting the curriculum to meet learner needs, in practice, they are often prevented from doing so because of what they are told to do – operating within the culture and constraints of the training provider. For many, they believe it is not possible to deviate from the Skills Framework and WSQ practices, not helped by discourses within their organisation and across the TAE sector that reinforce certain viewpoints – such as not being able change the curriculum or that the assessment component is 'untouchable'. We also heard evidence of educators not deviating too much from the curriculum as they 'must' appease learners, 'keep them happy', particularly so for freelancers. This was discussed in the context of making sure they received good feedback from the learner post evaluation feedback forms, so they remain 'employable'. The conflicts discussed here highlight a degree of disempowerment experienced by educators due to factors largely beyond their control.

Despite evident tensions and contractions in how the Skills Framework is used and interpreted, overall, we observe that where there is a space for agency to adjust the curriculum. There are educators who seek to exercise agency, however, to achieve a shift toward DGK. Our findings reveal that those who position themselves towards FOPP tend to have greater agency and autonomy. These educators tend to belong to organisations that have a strong culture of learning, encourage open discussions between colleagues working in quality assurance, CDs and so on. Those with less agency and autonomy seem to be those set in the mindset of not being able to change the curriculum, not being able to 'tweak and fly'. The interaction between educator beliefs, disposition, agency and their context is striking. TPs that reject common discourses in the sector, see requirements such as Skills Frameworks as a tool, have expansive horizons of possibilities, create spaces for educators to innovate and grow.

7.6 Learners

We begin this final section with a reminder of how we, the authors position FOPPs and what it means for learners. For us, FOPPs '*enable learners to flourish in and contribute to just societies, to be empowered to act individually and collectively to improve their own lives and those of others in emerging, as yet unknown circumstances'.* Moreover, for us FOPPs promote '*the spirit of learning, curiosity, an ability to critically question, and embody growth that enables future flourishing for individuals and collectives'.*

Across our case studies, especially in the case of Illume, USH, and Rohei, there is a strong learner focus with learners feeling highly engaged and motivated. This reflects how Gina and Zane shape the learning process to instil a sense of curiosity, a passion for learning and need to critically question the unknown. Many educators we spoke to share the same intent, the same passion as dedicated, committed lifelong educators. In another example, Brenda from Dynamic shared with us that for her, the 'end goal' is to ensure deep learning takes place – this means learners who are engaged exercise inquiry, curiosity, and experience deep learning.

While we see evidence of a strong learner engagement, we heard numerous complaints from our interviewees and dialogue session attendees about learners not being engaged. Common complaints were about lack of motivation, learners not listening, behavioural issues (complaints about disrespectful students), lack of a learner mindset.

- *So, no matter how much these learners know in terms of the knowledge, and how much we equip them with the skills, but the mindset needs to be tweaked as well because no point if I'm not positive, I'm not optimistic. No matter how much skills and knowledge I've equipped to them, shared with them, they are not really motivated to do their job.*

Several reasons for perceived lack of learner engagement are evident in our data.

Courses that are designed and delivered in a way that cover a significant amount of material using reproducing knowledge PP showed low levels of learner engagement. For example, when PPT is the predominant tool, and there is little effort on the part of the educator to keep learners engaged. Reasons for lack of engagement are also linked to the fact that many learners are enrolled in courses by their employers (or by themselves) for the sake of participating in training, or because it is a requirement of the work they do. . In an age where sensory learning, social forms of learning are becoming more prevalent, we have observed learners in classroom and online environments, flip between multiple devices, use alternative communication platforms different to those set by the educator (e.g. not using Teams but setting up separate WhatsApp meetings instead).

Learners also experience personal and professional issues that impact on their levels of engagement. For online learning, we have observed learners joining online sessions from the workplace and being pulled off the session to attend to urgent calls, or meetings. When joining from the workplace, learners typically do not switch their cameras on due to data protection and

confidentiality which arguably limits their level of potential engagement. While we have observed learners competent in using different devices and learning platforms, we also heard several concerns about the state of readiness and capabilities of learners, deemed as not being multi-media, IT savvy. We also observed levels of learner disengagement when the diversity of the learner profile particularly in terms of literacy levels have not been addressed or met. For example, in the Fabrico case study, we witnessed learners instructed to form small groups, where learners (and the educator at times) spoke in Mandarin when other learners of the group were non-Mandarin speakers. With many adult learners juggling full time positions and engaging in learning simultaneously, concerns were raised about their wellbeing. Stressful employment situations and extended working hours have resulted in some learners experiencing 'burn out' one educator informed us.

During our dialogue session with learners, we gained deeper insights into learner agency, motivations, and mindsets. We asked learners what they expect when attending a teaching and learning session and what they experience in practice.

As a minimum, learners expect engaging discussions, relevant content, rapport building and activities that require learners to move around, experiment, role play, work through challenges. For online sessions, learners expect use of interactive tools to aid collaboration, and welcome access to asynchronous and synchronous learning opportunities. It was insightful to learn of their actual experiences. Encouragingly we heard of learners enjoying a safe learning environment, an emphasis on collaborating, and different discussion techniques. For some participating in the dialogue session highlighted the importance of safe learning environment as a condition for FOPPs. Not so promising, a key concern raised by learners is the level of anxiety learners experience due to educators (and their TPs) 'putting pressure on them' to pass the assessment. Rigid regulatory requirements were another key concern raised by learners.

It was striking to observe how much learners themselves want to engage in FOPPs. This includes time and opportunity for reflection (encouraging silence), share learning experiences, collaborating with peers, engaging in role playing, experimentation, real life scenarios and to '*discuss/debate unknown future challenges where learners share the trade off openly when trying to solve problems'* as one learner asserted to us.

- Learner A: I think encouraging silence is a great opportunity to not only encourage reflecting, but also to really just kind of validate everybody's inputs …It's also built on the theory by Brookfield, where he encourages silence because, you know, it really gets you to think, for example, the whole lesson, what have you learnt? What is it that you don't like? What is it that you like? So, it's a very deep reflective practice. …
- Learner B: 'I think the key thing is understanding what you learn. Because once you understood what you learn, then you can confidently apply that. It's just when you sort of like, don't understand what you learn, then application may become a problem.'
- Learner C: 'I think we no longer can solve problems, alright, on our own. So, we kind of like, need everybody on board, and the better we understand each other, the better it is to solve the problem.'
- Learner A: Instead of an entire learning session taken up with a 'lecture', give learners time to ask questions, interact with other learners, 'other participants' views are equally important in learning.'

Two learners expressed views about the importance of learning communities. For one learner this means '*building a learning community so we can learn from different industries'*, for another, having a 'common site/blog where we can help each other as part of a community of practice' – considered particularly important for elder learners.

From our data sets, we heard common and wide-ranging views about the type of capabilities learners are missing and require to be future ready, as summarised in the following bullet points:

- Critical thinking (students increasingly copy pasting answers, using ChatGPT – do not know how to research or reference correctly).
- Analytical skills
- Thinking out of the box
- Problem solving skills especially when there may not be readily available.
- Inquiry skills (asking questions)
- To leverage AI-enabled learning (learners need the ability to ask questions that can lead to deeper levels of learning. They need to be able to discern as well).
- Curiosity in how things work.

> I guess I will say curiosity, probably curiosity. Ok, I find that a lot of learners, they will just accept whatever the facilitator tell them. So, they will not ask why, why is that so. They will not get to the root cause of it. So, I guess curiosity is something which if they want to survive in this world, ok, they need to be curious. They need to keep ask—they need to know why something is happening, you know [Educator from dialogue session).
>
> I think the mindset would be curiosity opener to uncertainty and comfort with ambiguity. (Business_Teek_AE_Kim)

Across our data set, we heard concerns about learners being 'pampered' and the need for them to take greater ownership of their own learning, including being aware of the skills and knowledge to be current in their professions.

> One is knowing what skills are needed to be current in their professions, because we can't assume that they know. Yeah, some they are oblivious, they are not aware how to upgrade themselves. (Extracted from Educator Dialogue session)

During a dialogue session, participants stressed that a greater understanding of the learner profile is ever more pertinent given changing demographics and an aging population in Singapore. Participants assert a greater understanding of generational differences is necessary to inform the design and delivery of future-oriented and learner-focused curriculum and pedagogical practices.

One interviewee commented that SSG needs to have a better understanding about the extent to which current WSQ provision meets various learner profiles and that outreach strategies are needed to reach a wider range of learners and meet their different needs.

> – *the next generation of learners are going to learn very differently from us and there's going to be a very big gap between our delivery methods. And practically actually we can see it now. I feel that part of the reasons is that it's very hard to engage some of the learners right? Attending courses, you know, people say that people are, they come with very bored faces, very tired. They don't like attending courses. I feel it's because maybe our, our instructional methods, our delivery methods is not meeting to the needs of the current group of learners coming into to our training room. These learners out there right after the training they will go into their Tiktoks, they will go into their whatever, where it's like, you know, every one minute it's a change of information. There is a change of a style of presentation, whereas in our classroom, they sit for a good 15 minutes, currently we say 15 minutes right of listening to the facilitator. I don't think this mode of delivery is going to change anytime soon within the, the L&D sector. (EdTech_TRC)*

Based on the discussion above, there are tensions between what learners expect, what learners experience, why current practices are the way they are, and what adult educators expect from their learners now and in the future. This is more complex than to lay blame on learners and educators. It requires a broader understanding of the issues that mediate such behaviour and practices.

7.7 Conclusion

This chapter has explored the intricate interplay of ecosystem factors that mediate pedagogical practices, shedding light on the complex interactions between key stakeholders occupying the sector in terms of their motives and what matters to them. Exploring these interactions has exposed subsequent tensions and contradictions between policy and practice. Through our research we have observed excellent practice in teaching and learning, led by dedicated educators and practitioners whose passion for teaching and their commitment to learners is unwavering. We have also encountered weaknesses in the system, where it is evident that change is required to foster a generative space for capacity and capability building for FOPP.

Drawing on the concept of dynamic capabilities, we have explored how TPs utilise their key resources to develop and implement FOPP. While we can expect every organisation to have these key resources, we can observe variations in how TPs use and combine their resources at different times and for different purposes. We observe that TPs who have a strong learning culture, enjoy diverse partnerships, and are led by transformative, pedagogical leadership are those that orient themselves towards DGK. We have seen in the case of Rohei how this TP uses several resources together in ways that allows them to move towards FOPP.

To move toward FOPPs, we argue that key players within the ecosystem need to connect in a dynamic way to establish robust processes, including monitoring and evaluation arrangements to support improvements in pedagogical practices and shift towards DGK. This need not be in the form of prescriptive requirements, but in the form of a supportive, guiding framework, such as our FOPP to bring about incremental, sustained change. A key finding from our research is the need to challenge prevailing (often inaccurate) discourses in the sector concerning assessment and curriculum design. In relation to assessment, we propose a re-education of assessment – representing a shift away from assessment that only requires learner to reproduce knowledge, to assessment that leads to dynamic generative knowing.

Significantly, our research highlights the need for capability development across the sector to support the design, implementation, and sustainability of FOPPs. This extends to policy makers and those operating at TP and educator levels. Key findings indicate the need for leadership development, greater appreciation of a culture of learning, greater awareness of the use of dynamic capabilities to support TPs in their shift towards FOPP. Indeed, our FOPP framework can be used to determine capabilities gaps and those that need to be developed to improve teaching and learning practices and improve learning experiences for learners.

A follow up to this study will be implemented through the Adult Learning Collaboratory (ALC). It will be through this next phase where participants in the ALC, will develop a range of tools to support the implementation of the FOPP framework. This requires policy support and collaboration within and across the sector to address issues related to historical discourses, expectations and understandings around assessment and curriculum design and enactment.

By building on the strengths of the TAE sector, we look forward to a future where learners, practitioners and employers benefit from FOPP. This journey toward more dynamic generative knowing is well within our reach. Embracing an open, honest, and transparent approach to addressing established practices within the ecosystem is the key to advancing the sector toward FOPP. The future of the CET sector holds great promise in our collective efforts to nurture the minds,

talents and aspirations of our learners and those involved in designing and delivering their learning experiences.

8. Recommendations/Conclusions

8.1 Introduction

Although our data indicates that RK PP are predominant in the sector, reflective of international PP, we also observed and heard that there are educators and training providers using PP that either are, or show, considerable promise for being future-oriented. Accompanied by a strong message across all stakeholders that they not only see a need for change but are hungry for it, suggests there is a strong basis to move forward in implementing and supporting future-oriented pedagogical practices.

Box 8.1: Holistic change towards FOPP

A key observation from our research findings is that an appetite for change does not equate to 'big' system change, but rather an incremental, systematic, and holistic approach to change. Our FOPP framework serves as a reflective tool that can lead the sector through such change. It can be used as a tool to start challenging underlying discourses about teaching, learning, assessment and how learning happens. As our framework is interconnected, inter-related to the broader ecosystem – it has a fundamental role to play in identifying and guiding multiple components of the ecosystem that need to move in tandem to be effective in a systemic shift toward FOPPs.

Notably, we found that training providers and national policy strongly mediate educator's pedagogical practices, and the pedagogies valued in different training providers. This highlights the point made in Chapter 7 and recaptured in Box 8.1 that change towards FOPP needs to be holistic and ecosystem wide.

Importantly, the hunger for change was also expressed by learners. They minimally expect engaging discussions, relevant content, rapport building and activities that require them to move around, experiment, role play, work through challenges. For online sessions, learners expect use of interactive tools to aid collaboration, and welcome access to asynchronous and synchronous learning opportunities. These learner expectations align with DK PP and potentially DGK PP. As educators and training providers pointed out, not all learners are ready for DGK, but more likely it is the younger cohorts who would take more readily to future oriented pedagogical practices. As we have found in previous studies (see Bound et al, 2019) this simply means that learners not ready require greater scaffolding to build the confidence and capabilities required of them when DGK PP are used by educators.

Before proceeding to unpack how we move towards FOPP and who would be involved in doing what, it is necessary to have in front of us the major findings of this study in greater detail that this broad brush statement.

8.2 Summary of major findings

As we move from left to right along the pedagogical practices continuum, we see as we would expect, a greater variety of and creativity in the design and facilitation of teaching and learning activities. This is important to keep in mind when considering capability development not just for educators but for training providers, IHLs and policy personnel. All these actors mediate the degree of autonomy curriculum designers and educators perceive they have in creating and facilitating teaching and learning activities.

Another important mediator of design and facilitation is assessment. The assessment activities in the WSQ curriculum documents we analysed were almost all summative and about reproducing knowledge. Not only is there a danger that leads to misalignment in the design of learning when more

future-oriented pedagogical practices are used, but it sends a clear message to learners and educators. What is 'measured', 'tested' is what is valued; the message being that learning equals recall or low-level understanding. Discourses such as 'testing' knowledge and abilities (as outlined in SkillsFrameworks) reinforce learning equalling recall / low levels of understanding (what some call shallow learning). For learners and educators in these instances, the assessment becomes the focus, not the learning. We need to not only *use* different language (e.g. judging performance using multiple sources), but actors in the TAE ecosystem require deep pedagogical understanding about learning and assessment and how and why they are entwined (see Bound et al, 2016).

We also observed a gap, greater for some than others, between actors' epistemological beliefs and their pedagogical practices. This is not unusual and is often not visible to individual practitioners or the organisations they work with. However, it is necessary to make this gap visible to TAE actors precisely because it *is* usually invisible. Individuals and systems cannot move forward if they do not 'see' the issues and problems that are indicative of a need for change. Addressing the gap is not a factor that lies solely in the power of individuals. Systemic practices (e.g. funding regimes, quality assurance requirements at all levels in the TAE ecosystem), unquestioned practices and common discourses (e.g. we have to teach learners step by step before they can be ready for more complex problems), contribute to the gap between espoused beliefs and actual practice.

The use of technology is similarly held back by the need for greater pedagogical knowing when using technology and designing and facilitating seamless learning experiences between different learning spaces. Flipped learning design and hybrid learning spaces (learners online and others in class at the same time) were noted as being problematic. In the digital learning space, educational technology designers hold beliefs about learning that often reflect the possibilities of the technology, supporting the reproduction of knowledge. As our data showed, there are educators who use technology to support DK PP, and we heard that some are interested to design technology that better supports future-oriented pedagogical practices (DGK PP).

Inertia for change linked to historical discourses such as:

- not being able to change curriculum, and assessment,
- about learners needing to be taught step by step before being introduced to complex problems and issues,
- the starting point cognitively is recall and understanding (Bloom's taxonomy),
- historically taught concepts in ALCP (such as Gagne's nine steps of lesson planning (which support RK PP with some possibility to move towards DK PP), Kolb's experiential learning, etc.) constitute the possibilities (as in limits) for pedagogical knowing.

These latter are often trotted out verbally and in some case in curriculum design documents without an appreciation that there are other theories. Perhaps because these educators have not been challenged to put together their own understandings and enactments of PPs as they would if they experienced DGL PP.

To exercise agency in trying out different pedagogical practices, educators also need strong beliefs about teaching, learning and learners that is embedded in deep pedagogical knowing. We found that educators who position themselves towards FOPP are those who tend to have greater agency and autonomy. These educators tend to belong to training providers that have a strong culture of learning, encourage open discussions between colleagues working in quality assurance, curriculum design, and so on. Those with less agency and autonomy seem to be those who believe, for example it is not possible to change the curriculum and appear not have limited agency to 'tweak and fly' while they are teaching or designing learning.

Ecosystem mediators of pedagogical practices

Training providers that take a transactional approach to their business and work, impact negatively on how prepared their learners are for the future. Our data shows that these providers (private for-profit training providers and public IHLs) tend to be 'stuck' in pedagogical practices that support reproducing knowledge. As mentioned in Chapter 1, such practices alone, do not support future-oriented pedagogical practices and thus do not support the development of future-oriented learners.

To exercise FOPP, educators need autonomy, discretion, and support. For freelancers the problem is a double fold one, as if they do not 'give' learners what they expect, they receive poor feedback from learners, impacting on continuing work. Additionally, the training provider plays a role in enabling collaboration or not between educators, curriculum designers and others involved in learning and assessment design. We showed in Chapter 7 how training providers with strong pedagogical leadership contribute to constant interaction between learning designers and educators (facilitators of learning) that contribute to DK and/or DGK PP. In some instances, the partnership work was undertaken at all levels in the organisation. These organisations had core full-time educators and curriculum designers. Without knowledgeable pedagogical leadership being exercised across the training provider, interaction between designers and educators is often missing. This is also mediated negatively, when training providers rely on freelancers.

What also supports the work of training providers, and their educators is what one interviewee called "*networks of knowledge partners."* This quality assurance manager reported seeing more collaboration across training providers, important in breaking down silos, building trust to co-create content, connect learners and educators. She reported a shift towards recognising that collaboration means each training provider has their unique offerings and approaches, as opposed to fiercely protecting their perceived turf. This collaborative spirit and activity enable meaningful development of products. However, collaborative spirit is very uneven across the sector, as noted by other interviewees.

Partnerships and collaboration are also necessary to make the most of rapidly changing affordances offered by technology or face the risk of being left behind. We found that use of technology for learning support the reproduction of knowledge. The rapid changes in technology, in the nature pf work and markets is changing the work of educators and providers. As one educator commented, educators need to facilitate learners' ability to "learn and judge and synthesise, which is the HOTs, the higher order thinking skills". To be future oriented we argue that more than the ability to be constantly learning, to judge performance and synthesise, it is necessary for learners to be able to collectively build knowledge, to supportively critique, to develop strong collaborative capabilities and build relational expertise important in boundary crossing, learn how to comfortable with being uncomfortable (i.e. not knowing the answers, but having to work it out (collectively and individually)).

Using technology to support and enhance learning requires deep pedagogical expertise as well as a knowledge of the capabilities of different technologies and platforms. Strong, diverse partnerships / collaborations are essential in this work. Be it in relation to the use of technology or for other purposes, partnerships / collaboration and particularly active boundary crossing not only provide access to diverse resources, ideas, and perspectives, but create possibilities for new practices and innovations. Involvement in such activity strongly contributes to the professional identity of practitioners involved and to their ongoing learning.

The approach of a training provider, be it transactional or one of expansive horizons of possibilities supported by dynamic capabilities is what drives decisions, learning culture, the cultivation and use of partnerships and pedagogical practices in the organisation. The message from our findings is that training providers with *expansive horizons of possibilities* are those who exercise the dance across

pedagogical practices with an emphasis on DK to DGK PP, that is *future-oriented pedagogical practices*.

it is not only training providers that mediate pedagogical practices and educator agency; it is also national policy. SSG policy around assessment and curriculum is shrouded in historical discourses such as assessment is perceived as 'untouchable', 'non-negotiable', 'cumbersome', 'restrictive'. Interviewees reported that changing assessment, requires resubmitting curriculum documentation to SSG, which is perceived as a long, laborious, and expensive. Another oft heard discourse is that curriculum cannot be changed. This was often a justification provided by training providers working with curriculum that had not been changed for between 5 to 10 years or more. Despite not being accurate, these discourses are held very strongly in the sector, and offer opportunities for training providers, curriculum designers and educators not to keep up to date either in their domain knowledge or their pedagogical practices. These commonly held understandings suggest a need for closer connections between SSG and actors in the TAE sector that provides a regular space and opportunity for voices of the sector to be heard and an opportunity for SSG to exercise distributed leadership of the sector.

Layered on top of such discourses are funding policy that stipulate that training providers are funded based on the number of learners who are deemed competent. This has led to assessment practices where training providers instruct their educators to ensure everyone is deemed competent. Educators who do not comply feel their rice bowl is at stake. This raises ethical issues about the practices of both training providers and educators and puts at risk the credibility of courses and the WSQ system. There is a tension between the funding regulations and actions of training providers, with educators being caught in the middle.

To complete the summary of findings we highlight that the FOPP Framework, across all stakeholder groups (educators, training providers, EdTech personnel, policy personnel and learners), received overwhelming support.

The FOPP Framework serves multiple purposes:

- As a reflective tool for:
    - educators to make visible their current practices and beliefs (about learning, teaching, learners) and have the language to think, plan and implement a wider dance across the PP and aim towards increasing their DGK PP
    - educators and or curriculum designers working informally or formally together to give and receive feedback on their PP and beliefs
    - curriculum designers to analyse their curriculum design and its alignment to their beliefs
    - training providers to map their curriculum and pedagogic practices to align with their strategic intent and directions
    - training providers to support their educators (full-time and adjunct) professional development and gain alignment between desired pedagogical practices and values and beliefs of the organisation
- As the basis for:
    - SSG QMD to co-create with representatives from the sector, a quality assurance framework guide. To avoid replacing one set of rules with another, prescriptive

requirements should be limited

- Training providers to develop their own quality assurance framework (aligned to SSG for funded products)

- For IAL to integrate into and across all its core programmes, and to plan how to support the TAE sector in taking up and putting future oriented pedagogical practices in place as a norm. Achieving the latter would position Singapore as a world leader in adult education. The IAL Adult Learning Collaboratory will be a key player in this work.

- As a boundary object to support boundary crossing work within and across the TAE sector

These uses of the FOPP Framework point to recommendations. However, there is work to be done to achieve future oriented pedagogical practices that go beyond what is intimated in the list on how the FOPP Framework can be put to work. The change work required to implement FOPP is the focus of the following section, which begins with mapping out the TAE ecosystem actors and ideal relations. This is followed by a section that discusses capabilities required to implement the FOPP and wrapped up with recommendations.

8.3 The TAE Ecosystem

In Chapter 8 we made the point that:

> **key players within the ecosystem need to connect in a dynamic way to establish robust processes, including monitoring and evaluation arrangements to support improvements in pedagogical practices and shift towards DGK. This need not be in the form of prescriptive requirements, but in the form of a supportive, guiding framework, such as our FOPP to bring about incremental, sustained change**.

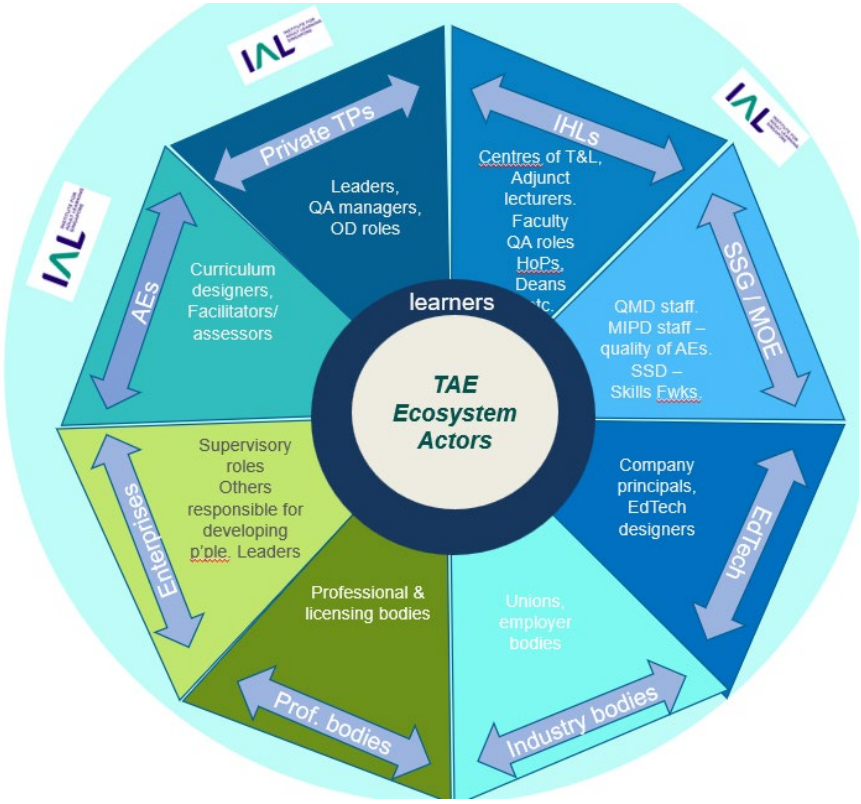
"We need ecosystems that are driven by principles" (values) in which the different stakeholders contribute to workforce development (James, Digital Futures of Work Conference, 1st Nov. 2023). Professor David James s added, as did others at this Conference, that we must move beyond thinking about people as an accumulation of skills to a capabilities/growth model that is human centric. Future oriented pedagogical practices embody the principles of human centric and growth and capabilities to enable learners to thrive in dynamically changing circumstances. The TAE ecosystem is THE ecosystem dedicated to this work – albeit that there needs to be cross government and industry sector agency to put these approaches to work. A shared narrative that represents what matters to all, that is genuinely taken up by the range of stakeholders in the TAE ecosystem would be an important initial step.

Change can happen at all levels and layers in an ecosystem, bottom up and top down. As in a natural ecosystem, change impacts on other organisations, individual practitioners, and relations in the system. Understanding not just who the actors (organisations and individuals) in the TAE ecosystem are, but the relations between them is necessary in considering possibilities for change processes and establishing priorities in implementing future oriented pedagogical practices. Figure 33 identifies the range of roles and types of organisations in the sector that interact in various ways and means. We note this is not a complete list. For particular purposes and at different points in time, different actors will enter the ecosystem.

Sub ecosystems will always be in play and emerge and fade. Relations for example, between an enterprise or value chain, a TP and an EdTech provider or various multiples and combinations of

these constitute a sub-ecosystem. Activity in such sub-ecosystems, can be for the purposes of reproducing the status quo and traditional, monological PP, OR, if informed by the underpinning beliefs and principles embedded in the FOPP can be used to deepen pedagogical capability in the sector, develop resources, innovative technologies and/or use of learning technologies and teaching and learning strategies. Our findings, supported by Chen et al (forthcoming), suggest that organisations with an expansive horizon of possibilities and who engage in boundary crossing activities, are not only more likely to use FOPP, but they also make contributions to their industry sector and/or to the TAE sector. Thus, developing expansive horizons of possibilities and boundary crossing capabilities amongst organisational players in the sector would seem to be important in efforts to shift the sector towards FOPP. As reported by Ho (2023) on the Forward Singapore Report, "The success of any firm or individual rides on a wider ecosystem to which everyone contributes." Our findings also found there are individuals and organisations that continue to hold their ideas and products close, not recognising that each organisation and practitioner brings their own stamp to the use of a product or PP. it is important to break down such siloed thinking embedded in traditional ideas about competition and market value in work where people's lives and careers can be deeply affected.

Figure 33: TAE ecosystem Actors



The Adult Learning Collaboratory (ALC) will take up some of this work in what the researchers have dubbed as the second stage of the FOPP project. The ways in which the ALC will work will naturally build boundary crossing capabilities and expansive horizons of possibilities, as they work with the range of stakeholders in the TAE ecosystem. In the process, the work of ALC will contribute to capability development and create tools and resources to support the implementation of the FOPP. However, the ALC is but one potential driver of change. Under specific recommendations we identify examples of how different actors need to be involved in addressing different tensions and contradictions and limiting practices int eh sector, in order to build on the existing strengths of the sector.

Having highlighted the players and the potential of enhancing relations between different stakeholders in contributing to putting FOPP to work, we can continue to narrow the focus of change efforts, starting with an indication of the capabilities required, followed by more specific recommendations.

8.4 Capability Development

We have highlighted the need for improved interaction, collaboration and boundary crossing work in the TAE ecosystem. We have also highlighted the need for educators and those who touch the work of educators, to deepen their pedagogical knowing and practices. As training providers are an important mediator of pedagogical practices, we advocate that many more training providers develop dynamic capabilities that support expansive horizons of possibilities.

Tables 33 and 34 are an initial attempt at capturing an indicative set of capabilities that different roles in the TAE ecosystem (See Figure 33) would likely need in implementing FOPP. In different contexts and at different points in time those involved will build on their resources and expertise within their sub ecosystems in moving towards implementing FOPP.

The two tables need to be considered merely as a possible starting point and are by no means definitive. Rather, their purpose is beginning a dialogue about capability development and how it is best undertaken, designed, and delivered for different groups, individuals and used in different contexts. In designing capability development, it is useful to recall the discussion about needing a variety of models of Professional Development, or what Stack & Bound (2012) call professional learning metaphors, as discussed in Chapter 3 (see Figure 34).

Figure 34: Professional learning metaphors

Source: Stack & Bound (2012, p.10)

When developing capabilities, it is important that the means aligns with the end desired outcomes. In planning for capability development related to FOPP, capabilities are what matter. Moving away from designing learning as bundles of skills, capabilities (encompass the whole person, qualities, ethics, values, their context, disposition) are an important part of the toolbox of change. Desired outcomes of capability development might include:

- Educators who exercise deep pedagogical knowing and judgement as they dance across the PP continuum, be they learning designers or facilitators

- Educators and learning designers who exercise professional agency in developing learners who are future-oriented

- Training providers with expansive horizons of capabilities who contribute back to the sector

Table 35: Capabilities for educator roles & roles in training providers and IHLs

Capabilities	CDs	Facilitators/assessor	TP leaders	TP QA manager	TP OD	IHL Centre of T&L	IHL Faculty	IHL Adjunct	IHL QA	IHL HOPs, Deans	IHL Supervisor
FOPP	✓	✓									
SoL	✓	✓									
Designing learning	✓	✓									
Facilitation tools	✓	✓									
Assessment tools	✓	✓									
AE identity work	✓	✓									
BC expertise	✓	✓	✓				✓	✓			✓
7 resources for DC			✓	✓	✓	✓				✓	✓
B Broker/spanner expertise			✓	✓	✓	✓			✓	✓	
Expansive horizons			✓	✓	✓	✓			✓	✓	
FOPP to develop & support learning culture	✓	✓	✓	✓	✓				✓	✓	✓
FOPP for pedagogical l'ship			✓	✓		✓			✓	✓	✓
Identity work as a leader*			✓	✓	✓						

SoL=Science of learning
BC-boundary crossing

Table 36: Capabilities for roles in enterprises, EdTech companies and policy personnel

Capabilities	Enterprise supervisor	Enterprise others – L'ing	Enterprise Leaders	EdTech Principals	EdTech Designers	SSG leaders	SSG QMD staff	SSG MIPD – quality AE staff	SSD – Skills F'wk
FOPP				✓	✓			✓	✓
SoL					✓				
Designing learning									
Facilitation tools	✓	✓	✓	✓	✓				
Assessment tools				✓	✓				
AE identity work									
BC expertise	✓								
7 resources for DC									
B Broker/spanner expertise			✓	✓	✓	✓	✓	✓	✓
Expansive horizons			✓	✓		✓	✓	✓	✓
FOPP to develop & support learning culture	✓	✓	✓	✓	✓	✓			
FOPP for pedagogical l'ship	✓		✓	✓		✓	✓		
Identity work as a leader*									

- Sub-ecosystems that through boundary-crossing expertise, deepen understanding of actors within their ecosystem and what matters to them, enabling actors to take back expanded understandings and ideas to their own practices and implement new practices throughout the sub-ecosystem

- A TAE ecosystem that continues to evolve future oriented pedagogical practices that enable learners to thrive

- Worker-learners able to meet and address unexpected, complex problems (be they work related, navigating labour markets and careers or as a citizen) and potentially thrive in such circumstances.

Change processes need to have value driven narratives that speak emotionally and cognitively to all involved. Collective development of such narratives followed by more focussed efforts to identify and agree on outcomes, need to keep in mind the big picture of enabling learners to thrive in changing circumstances. The example outcomes such as the above speak to this big picture.

Having laid out some broad principles, we now turn to specific recommendations.

8.5 Recommendations

Our recommendations will start with more focussed areas for development and broaden to wider, recommendations for change. Each recommendation is preceded by a short explanation of the context of the need for change.

We begin with an overall recommendation in line with the overwhelming support we received for the FOPP Framework:

RECOMMENDATION:

1. That the FOPP framework be adopted by SSG / MOE, supported and resourced.

Assessment

Assessment is one of the four elements of the FOPP Framework. Rather than collapse it into learning design (where it truly sits), we separated it as assessment often drives learning and design, and is thus a lever for changing PP. Our data showed that it is common in the TAE sector to see assessments that are reflective of reproducing knowledge, even in WSQ programs that dance towards DGK. Our data also shows that learners and educators want to see change in relation to assessment. The heavy focus on summative assessment in WSQ programs limits potential for developing FOPP and future oriented learners. The non WSQ program we observed relied on formative assessment and to some extent sustainable assessment to improve performance ad strengthen capability.

RECOMMENDATIONS:

1. That in its work on the FOPP project the IAL ALC bring together stakeholders from across the TAE ecosystem to determine how to sustainably change assessment practices, discourses around assessment and SSG requirements (as they are perceived and/or as practiced) such that assessment supports FOPP.

2. That IAL's LPDD revisit their design and teaching of assessment in their core programmes, working hand in hand with QMD to ensure that these changes can be implemented and taken up throughout the ecosystem where SSG funding is accessed.

Additionally, that Continuing Professional Development on assessment design and facilitation in the form of learning as dialogical inquiry (FOPP), growth and praxis (see Figure 8.2) be offered to broaden understanding of assessment for, as and of learning and sustainable assessment in addition to developing capabilities of educators to design and facilitate creative future oriented assessments.

NOTE: the above recommendations could be integrated.

Capability Development in the TAE ecosystem

Tables 35 and 36 identify potential areas of capability development for a range of roles in the TAE ecosystem. The need for capability development to improve the quality of teaching and learning, develop future-oriented learners and practitioners and organisations that can support future oriented pedagogical practices has been laid in Chapters 6 and 7.

RECOMMENDATIONS:

1. <u>Capability development for curriculum designers and educators</u>

As the organisation responsible for capability development in the TAE sector and its ecosystem, IAL through the ALC and LPDD programmes and offerings, work with the sector to identify the ways in which capability development for educators and curriculum designers can most usefully and sustainably be designed, delivered and supported.

2. <u>Capability development for training providers</u>

That IAL develop training provider's expansive horizons of possibilities, boundary crossing capabilities and enhancing the ways in which these providers use the 7 resources of leadership, pedagogy, learning culture, partnerships, market intelligence, technology for business and for learning.

As with the recommendations for assessment this could be implemented strategically through the ALC FOPP project and through IAL's offerings and services. An integrated approach is required to address the need for training providers to take a greater role in supporting professional development of their educators, be they fulltime permanent employees or freelance.

3. Capability development for FOPP in enterprises and for EdTech providers

That IAL build FOPP into its offerings for these TAE sector stakeholders. A key plank of the way in which this is achieved should include creating opportunities and enhancing potential for boundary crossing to solve complex problems that matter to these stakeholders and contribute to building TAE ecosystem relations.

4. Capability development for SSG

That IAL and SSG work hand in hand to advance the implementation of FOPP. This will necessarily mean capability development of officers and adjuncts in the employ of SSG where their work mediates pedagogical practices. This particularly important for QMD - those who approve curriculum -, for SSD staff in their work in developing and updating SkillsFrameworks and for MIPD in its identification of what constitutes quality educators.

Making quality of learning a focus: Skills Frameworks and room for flexibility

The Cartesian separation of knowledge and doing embedded into the very structure of Skills Frameworks will continue to hold back FOPP until this separation is removed. Furthermore, there is considerable concern in the sector that the Frameworks do not represent current practices, let alone enable future-oriented capabilities.

RECOMMENDATION

That as Frameworks are revised this opportunity be taken to rethink the nature of the Frameworks, by engaging local and international expertise (e.g. those engaged in the Digital Futures of Work Project and the FOPP project). This opportunity should be positioned as placing Singapore at the head of the world stage to use a capabilities approach rather than position people and their careers as bundles of skills.

That quality assurance processes related to approval and thus funding of curriculum provide for 'white space' (as recommended in the joint IAL-QMD 6 principles of learning design project) and focus on the quality of learning.

That players across the sector work together to develop a shared set of flexible guidelines for evaluating the quality of learning design and the quality of teaching. It is important that such guidelines be dynamic and do not merely become another set of rules that restrict innovative practices.

Historical discourses

We found considerable misunderstandings of current policy. These misunderstandings are historical legacies that are deeply rooted in the TAE ecosystem and limit the potential for FOPP.

RECOMMENDATION

That SSG work *with* providers to dispel misunderstandings and use the opportunity to create a means for providers and educators to voice their suggestions and work with SSG.

Funding

Not surprisingly funding is another strong mediator that can make or break the potential for and sustainability of FOPP. Assessment is a classic example (See Chapter 7) where funding for WSQ of the number of participants who are deemed competent has led to work arounds and poor practices.

The culture in enterprises of 'no funding, no training' enhances a training culture and a dependence, something SSG has long been concerned about.

RECOMMENDATION

That SSG work *with* providers and educators to determine how these issues can best be addressed to develop a focus on *learning* that is future-oriented.

Building and strengthening relations between ecosystem actors

Relationships between educators, curriculum designers and quality assurance professionals shape identity, agency, autonomy and the overall effectiveness and quality of teaching and learning. While there was some evidence of these stakeholders working closely together, too often there is very limited or no interaction between them. However, it is not only the relations between educators, curriculum designers and quality assurance professionals that is problematic, but between all those who are involved in some way in the design and facilitation and delivery of teaching and learning.

To address this holistically and sustainably requires such interactions to become a norm. But issues of the division of labour, status, power, pay and expertise contribute to the problem. While curriculum designers continue to say this is poorly paid work, and training providers structure the design work by outsourcing or allocating it to individuals who are not required to interact, this problem will remain unaddressed. The issue of pay and how this work is carried out is complex to address, as there is no central body to address what is in part an industrial relations issue.

RECOMMENDATION

That SSG coordinate the relevant government agencies, training providers and educators to work through this issue in ways that will enhance the quality of teaching and learning and support FOPP.

Capturing learners' voices

Current evaluation tools at the end of a course and follow up (e.g. TRAQOM) surveys, are limited in their capture of data that is helpful to improving the quality of teaching and learning and how learners believe learning design and facilitation could be improved.

RECOMMENDATION

That these surveys be redesigned using expertise that enables such capture. Further that learning analytics capability be built throughout the sector.

Building future oriented PP in the use of technologies for learning

Our data has shown that technology is often used to support RK PP. This is both a capability development issue in pedagogical uses of technology and in the design of technology itself. The first issue can be addressed as part of capability development. The latter needs work with technological designers and highlights the need to build relations between different actors in the sector.

Both these matters have been addressed in a) the capabilities recommendations and in b) building and strengthening relation between actors in the ecosystem. However, because advances in technology are rapid, a special focus of attention is required.

RECOMMENDATION

That IAL build on and strengthen its work across its Divisions to knit together FOPP and pedagogical technological expertise and build relations between relevant actors, keeping in mind an ecosystem perspective.

That SSG contribute to building relations between relevant actors in the TAE ecosystem, and beyond. Aspects of such work could be realised through the ALC.

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10. Appendix

Appendix 1: Data analysis

The analyses of the interviews, dialogue sessions, and observations were conducted by applying Braun and Clarke's (2006) six phases of thematic analysis using NVivo 12 qualitative analyses software. Interviews were audio recorded, transcribed, and imported into NVivo12. Before analysis, pseudonyms were given to every participant and training provider organisation to ensure anonymity for ethical and confidentiality reasons.

The themes for the pedagogical practices used and mediating factors identified were established after an initial familiarisation process with the interviews, and dialogue session transcripts, observations notes, where patterned and significant responses were highlighted and noted down. The initial themes in the analysis process were defined as the most basic forms of data categorisation (Braun & Clark, 2006) and extracted from the transcribed interview and dialogue

sessions data based on their relevance and significance to the research questions as presented earlier in the introduction. These codes of themes were then collated and analysed to identify differences and commonalities between them. From this, through a reduction process, significant and relevant themes representative of the codes and data sets were established. A theme in the analyses process is referred to as a collection of 'patterned responses', that captures something significant, relevant and central in relation to the research questions (Braun & Clarke, 2006, p. 19).

A quantitative analysis of the survey results was conducted using the long established data analysis software, SPSS. Once the different types of data were analysed separately, the research team looked across the analysis and findings from each data set to identify significant patterns, commonalities, differences, and outliers. The research team compared and contrasted the different data sets over multiple rounds of discussion, checking back through the data, identifying additional analysis required while developing and revising the FOPP framework. The comprehensive data analysis process in relation to the types of pedagogical practices and the factors mediating their use were central in contributing to the conceptualisation of the FOPP framework, which will be discussed in Chapter 4.