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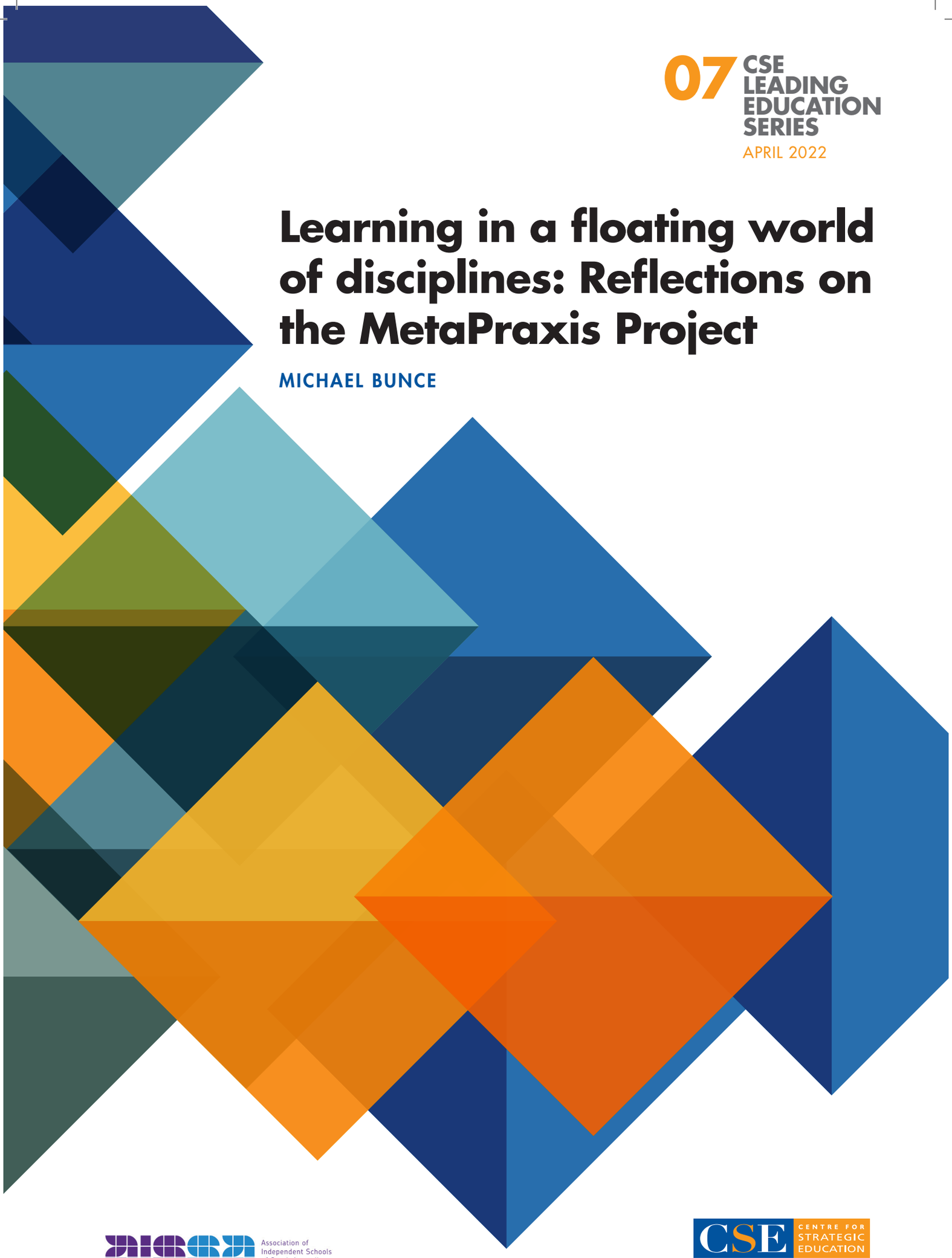
Learning in a floating world of disciplines: Reflections on the MetaPraxis Project

MICHAEL BUNCE



AISSA Association of Independent Schools of South Australia

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Leading educational thinking and practice

Author's acknowledgements

Firstly, I would like to commend schools who have led their MetaPraxis projects courageously, accepting the challenge of this deeply exploratory and experimental work to realise its enabling potential. Your commitment and passion to find a way through, to create new pathways in learning that are authentic to your schools and your students, will have far-reaching impact. It has been a pleasure to be a part of your work.

I would also like to thank Katherine Adnett and Mary Hudson, whose expertise, foresight, and leadership of innovation have enabled, inspired and galvanised MetaPraxis, and without whom this work would not have been possible. Thanks also to Charles Leadbeater, whose inspirational ideas and clarity of vision as a critical friend have been vital. Thank you to colleagues and students at the University of East London, where many of the seeds of this work were germinated.

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Contents

Introduction

The MetaPraxis Project has worked with 12 schools in Adelaide to facilitate the conceptualisation, design and leadership of interdisciplinary learning projects, in which a central focus has been the development of *meta-intelligence*.[1]

The project concept evolved from the author's design of an interdisciplinary Performing Arts degree at the University of East London (UEL) in 2015, which led to the design and development of a project-based interdisciplinary curriculum for the School of Arts and Creative Industries at UEL.

In 2018 this work was shared with post-graduate arts students at the University of Melbourne, and further explored through a two-day interdisciplinary learning workshop in Adelaide, as part of the Association of Independent Schools of South Australia (AISSA) board conference.

Subsequently, Mary Hudson (Director of the Leadership Institute) and Katherine Adnett (then Director of the Centre for Innovation) at AISSA initiated two bold innovation programs – the Student Agency Lab, led by Charles Leadbeater, and the MetaPraxis Project, led by Michael Bunce.

Learning ecosystem

Both projects have co-evolved within a collaborative learning ecosystem of 30 school teams. Charles and Michael have acted as critical friends – advising, challenging, supporting and inspiring practitioners, who, in turn, made connections across projects to collaborate in practice and research.

This paper begins a story of critical partnership: layers of dynamic, agentive and collaborative learning, between MetaPraxis teams and their schools and communities; between teachers, between teachers and students, and between students. It charts a journey of transformation, as schools unpacked the philosophy, practice and products[2] of MetaPraxis. The story is continued by schools through websites, podcasts, a symposium and the continued evolution of their metapraxis.

Each section of this paper is explored more deeply on the MetaPraxis website, which features more detailed school narratives: metapraxisproject.org. Sample school comments from the project are included throughout this paper.

Vision

A vision for learning

In the MetaPraxis Project we have sought to enable learners and teachers by stimulating and enhancing the opportunity for self-directed and collaborative learning, establishing conditions that promote agency and exploring integrative ways of thinking about learning design, practice and impact, for individuals and learning communities.

Inspired by synergies between creativity and learning in creative arts practice, the project celebrates the development, integration and transfer of knowledge, understanding, and cognitive and practical capabilities, which emerge from and transcend the bounds of individual disciplines. In the project we aimed to establish a vision for learning within and between disciplines, not as a model to be replicated per se but, instead, to conceive of vision as an emergent way of seeing, sensing, perceiving and interpreting – to cultivate a metapraxial learning sensibility.

Ways of seeing

The first core text I encountered as an undergraduate was *Ways of Seeing* by John Berger (1972). Predictably, I did not read it for a while, so did not immediately experience its methodical and enlightening deconstruction of representation and perception. Nevertheless, its title seemed to emanate a mantra that has stayed with me ever since – **that there are multiple and diverse ways of seeing**. This resonated further upon first reading the following.

Inspired by synergies between creativity and learning in creative arts practice, the project celebrates the development, integration and transfer of knowledge, understanding, and cognitive and practical capabilities

> *It is seeing which establishes our place in the surrounding world; we explain the world with words, but words can never undo the fact that we are surrounded by it. The relation between what we see and what we know is never settled.*

The mantra was updated subsequently, to *there are multiple and diverse ways of* ***seeing*** *and* ***knowing***, constantly in flux.

Hidden connections

Many years later, at the commencement of a game of *Guess Who?*, in which two participants alternately ask questions about appearance, to deduce which of 24 hidden characters has been chosen by their opponent, I inquired provocatively of my five-year-old challenger: 'What do you see?'

The reply was eye-opening: 'I see the mystery.'

This mystery is not that of the unknown, undefined or uncertain. **This** mystery is alive with vibrant potentiality. It immediately communicates confidence in the tangibility and opportunity of emptiness, of the unseen.

This mystery is what Vaclav Haval spoke of when he declared:

> *Education is the ability to perceive the hidden connections between phenomena.*[3]

Education should, of course, amount to much more than a game of *Guess Who?* – or even *Guess What? Guess How?* or *Guess Why?* – but changing the imperative from *guess* to *perceive, interpret* or *predict* certainly speaks to the potential of its deeper scope, as *mystery* captures the vital, essential spark of learning.

Nurturing the ability to perceive hidden connections as teachers, in ourselves as learners, and collectively as a society, is one of the central tenets of the MetaPraxis philosophy, which seeks to establish a gap, to create an **empty space** where the vibrant potentiality of learning can be realised and thrive; a kind of 'placeholder', a 'frame', a 'hook' or 'lever'; an impetus for future learning, knowledge and capability – each metaphor with its own story of potentiality to tell.

MetaPraxis (re)places the learner at the centre of learning – so that, rather than the learner operating within a landscape of disciplines, the learner **is** the disciplinary landscape, **is** a context existing **within** and across a complex network of intersecting contexts.

This is an ancient space. Plato's *metaxis* is an in-between world, or middle ground between humans and gods, mediated by spirits that 'make the universe an interconnected whole' (Plato, 1994 edition, p 43–44). Augusto Boal characterises *metaxis* as a 'state of belonging completely and simultaneously to two different, autonomous worlds: the image of reality and the reality of the image' (Boal, 1995, p 43).

This is a future space – happening now. Our presents (multiple and diverse) exist in spaces between past and future, between known and unknown, full of potentiality. By their nature they are complex and ambiguous, uncertain and prone to change, perpetually on the cusp of creative chaos and opportunity.

Exploring the vibrant potentiality of learning is a courageous exercise in uncertainty. There are no fixed points. It is instead an oscillation between states: between knowing and doing, theory and practice, analysis and synthesis. This oscillation is characterised by Paolo Freire as a kind of praxis, in which reflection and action operate in 'radical interaction' (Freire, 1970).

What is MetaPraxis?

This is the *praxis* of MetaPraxis: a dialectical process of learning through knowing and doing that acknowledges and celebrates their entanglement. These are not binary objects, like coins, but integral to a continuous process; a 'net of being' defined by arcs of perpetually reconfiguring sensory and cognitive feedback loops. This is the floating world.

> *Cognition is not the representation of a pre-given world by a pre-given mind but is rather the enactment of a world and a mind on the basis of a history of the variety of actions that a being in the world performs.*
>
> (Varela et al, 1991, p 9)

Metapraxial learning celebrates the complexity and authenticity of this inter-connected enactment. It is characterised by the individual and collective capacity to perceive, analyse, contextualise and evaluate both observable and hidden connections between phenomena – anticipating, sensing and adapting to their paths of change and transformation, as well as their actual and potential impact.

Within this view, 'meta' refers to a capacity to act with reflexive agency to develop and deepen self and contextual awareness, cognisant of a dynamic balance between self and world, within and across multiple domains (eg, social, cultural, environmental, technological, ontological, existential).

MetaPraxis (re)places the learner at the centre of learning – so that, rather than the learner operating **within** a landscape of disciplines, the learner **is** the disciplinary landscape, **is** a context existing within and across a complex network of intersecting contexts.

The 'empty space' of MetaPraxis is also, therefore, one such context of contexts; a *metaspace*[4] that can conceptually 'placehold' the spaces between disciplines, establishing connections through inquiry, reflexive practice (reflection and

metacognition) and narration of learning, which in combination act as a kind of connective tissue to enable articulation and coherence.

Such meta-spaces can, due to their plurality and diversity, act as natural environments within which to establish and nurture complex capabilities, with significant potential to foster agency and transfer of knowledge, skills and expertise across contexts.

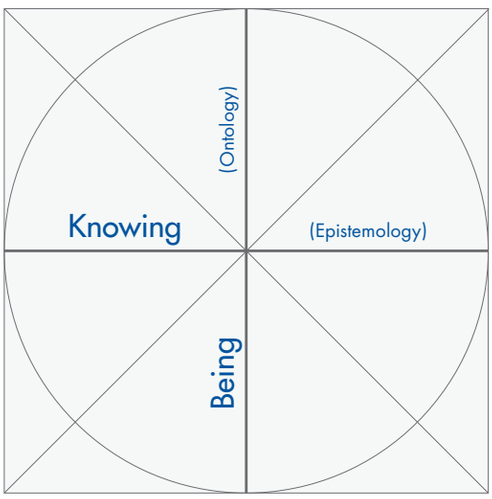
MetaPraxis establishes a profile of self-adaptive learners who can develop awareness on multiple levels – intra-contextual (self), inter-contextual (social), meso-contextual (environmental/systemic) and macro-contextual (systemic/global) levels – correlating with the levels of thriving set out by Hannon and Peterson (2021, p 37).

A third dimension to MetaPraxis is 'axis'

- axis as pivot, enabling leverage and transfer
- axis as agility, adaptability
- axes to define the intersection of knowing and being; of epistemology and ontology.

Also, see Figure 1.

Figure 1. Intersection of Knowing and Being



Why MetaPraxis now?

> *The disconnect between schooling and today's world is obvious. But if that disconnect is a fissure, the relationship between today's education and the needs of the future is a canyon.*
>
> (Hannon and Peterson, 2021, p 24)

Traditionally, education structures and practices have supported the linear development of disciplinary skills and fluency, through which the context for specialisation becomes more focused as expertise develops from generalised approaches. While this may mirror and supply traditional industrial structures (Industry 1.0 to Industry 3.0[5]), the current, emerging and future workplace, society, culture and economy – which are being significantly impacted by conflict, as well as rapid changes in technology, communication and the environment – demand non-linear and interconnected approaches to complex challenges, at local and global scale.

This is the already-evolving Industry 4.0, which Schwab characterised as one in which new technologies

> *… (fuse) the physical, digital and biological worlds, impact all disciplines, economies and industries, and even (challenge) ideas about what it means to be human.*
>
> (Schwab, 2016)

Within this evolving and increasingly complex context for work and learning, the formulation and emergence of 'Education 4.0' (Ravenscroft et al, 2022) will place greater emphasis on transferable and transformative skills and capabilities, alongside disciplinary skills aligned to industries and professions – while recognising, responding to and anticipating changing environments and resources – and the hybrid and adaptive configurations of skills and ways of working that will be required.

A crisis of expertise

The impact of technological development and Artificial Intelligence (AI) places demands upon modern curricula as they respond to the changing conditions that students will encounter. Bialik and Fadel (2019) propose that the relationship between *transfer, expertise* and *content* in education should be **flipped** to enable **transfer**, in place of information-content processing – a role now better suited to 'technology as collaborator' in the classroom, in the workplace and in everyday life. They argue that transfer is necessarily reframed as a feature of learning that is always present, rather than a process that only occurs occasionally (eg, for experts).

While linear educational models sequence the development of expertise before transfer, contemporary and future approaches, such as MetaPraxis, suggest the integrated development of both

Likewise, Luckin (2019) identifies a need to nurture *meta-intelligence*, as education and the wider world adapt to AI, placing particular importance on self-efficacy.

> *An accurate perceived self-efficacy, based on accurate judgements about what we know, is a key ability for learning and will be so to an increasing extent. It will be the most important ability for our future lifelong learning. It is also something that is unavailable to AI.*
>
> (Luckin, 2019, p 131)

Such a reconfiguration of the education economy establishes a demand for holistic approaches to learning that focus on developing complementary *hard* and *soft intelligences* (Ravenscroft et al, 2022) and transversal skills, providing opportunities for transfer across a range of contexts to nurture students **and** teachers as agile agents with strong reflexive, collaborative, adaptive **and** cognitive capability.

> *Education must begin with the solution of the teacher–student contradiction, by reconciling the poles of the contradiction so that both are simultaneously teachers and students.*
>
> (Freire, 1970, p 45)

Does this shift in the locus of control and value in education create an existential crisis for teachers? Is there a crisis of expertise?

> *I think that's a big shift for educators. We were trained to have a linear way of thinking – you have an end goal, you set your goals, and you work towards them. This is a much more divergent and emergent way of thinking, where you don't necessarily know where you're going to end up, and it's very discomforting …*
>
> (Project comment from Cornerstone College)

Content warning

Historically, teaching expertise has been predicated upon models of content-driven delivery, through which disciplinary content is compartmentalised, sequenced, imparted, processed, recalled and assessed, so that students themselves **build** expertise in disciplinary knowledge and skills, incrementally.

At the extreme, a system over-reliant on content echoes Freire's 'banking concept of education, in which the scope of action allowed to the students' – and by implication, mirrored for teachers – 'extends only as far as receiving, filing, and storing deposits. But ... it is the people themselves who are filed away through lack of creativity, transformation and knowledge' (Freire, 1970, p 45).

While linear educational models sequence the development of expertise before transfer, contemporary and future approaches, such as MetaPraxis, suggest the integrated development of both, so that both students and teachers become experts **in** transfer, as content (knowledge, information and skills) is leveraged for different contexts.

In this way, the concept of expertise is updated to include transfer, modelling a holistic view of learning for teachers and students.

> *It's about being more conscious of what learning is for students and about that uncomfortableness, not about setting up an easy pathway for them – we actually need to recognise the discomfort and reassure kids that that's okay.*
>
> (Project comment from Cornerstone College)

The epistemic horizon[6]

A C Grayling (2021) describes 'knowledge-filled ignorance' as the paradoxical state in which humanity finds itself as it surveys the *view from Mount Olympus*.

> How then, as educators, can we create a change in emphasis from a predominantly linear model of disciplinary advancement towards transferable, distributed and interconnected knowledge and skills? How can we establish a concept of expertise that includes both specialisation and transfer?

> *Like climbers on a mountain, the higher we go the further away we see that our ignorance stretches; we see that the frontiers of knowledge themselves lie unmappably beyond the horizon.*

Disciplinary practice characterises and demarcates the features of the *landscapes of the known* and sets courses for advancement into the *landscapes of the unknown*.

Disciplines exist as distinct *containers* of knowledge, skills and inquiry in education, as well as in industry and the workplace. They often operate as *vehicles* of specialised practice and expertise, which can drive significant achievement within each disciplinary field.

Commonly schools are run according to timetables organised by disciplines, which enable this specialised practice. But students may not necessarily make connections between disciplines within this structure.

How then, as educators, can we create a change in emphasis from a predominantly linear model of disciplinary advancement towards transferable, distributed and interconnected knowledge and skills? How can we establish a concept of expertise that includes both specialisation and transfer?

To fundamentally redefine our learning contexts (disciplines, schools, workplaces, etc) perhaps we should move away from spatial metaphors or metaphors of containment, to seek new metaphorical concepts and models; to treat knowledge, skills and learning as *forms to transmogrify* rather than as *territories to be delineated*.

Attempts to soften the *container* metaphor exist in education. For example, the term 'learning area' neutralises the distinctness of subject focus, and is therefore arguably more inclusive, but it is still a spatial metaphor – a metaphor of containment, which might still conceal siloed practice.

> *Before this project, our faculties were in silos and we were quite separated, even geographically. We didn't have a lot of cross-faculty connection. It really enabled us to break down every part of the Year 7 curriculum – all aspects of the seven subjects we connected in the project.*
>
> (Project comment from Trinity College, North)

Old models deal with areas, structures and ownership, containing and stockpiling knowledge-content as territory, as a foundation of power, as commodity, where the *epistemic horizon* is the *frontier* of the known, and the unknown is to be territorialised.

If we are able to shift from *territorial* to *social, ecological* or *sensory* metaphors for knowledge and learning, we might instead characterise disciplines as *ways of being* or as *learning modalities*: ways of sensing, interacting, acting, reflecting, adapting, co-

existing and understanding in the world; ways to perform or enact deeper individual and collective agency in learning and life.

Of course, we exist within disciplines as educational, political, economic, social and cultural categories or structures – and they in turn are embedded within us. However, they should not only be internalised and re-externalised as bounded containers of knowledge, skills and information, but instead as multiplicities of modes of knowing and being – ways of existing in the world.

> *MetaPraxis really helped us to dig down to what was most important for us and how we could use our learning principles to develop a framework for learning.*
>
> *So, it was a real shift away from silo thinking. A real shift towards those dispositions that sit and embed everything, and that was exciting.*
>
> (Project comment from Good Shepherd Lutheran School, Para Vista)

What if we think of individuals and collectives finding lines of flight, perpetually self-mapping their own landscapes of learning, rather than perpetually retracing the territorial lines of the disciplines?

As climbers or pathfinders, perhaps (*metaphorically speaking*) we might learn to *think as mountains*, considering time and space at a planetary scale, rather than only looking for vantage points for discovery.

What if we re-situate the concept of the *epistemic horizon* within each learner – as an impetus or catalyst for learning, inquiry and self-transformation? What if we think of individuals and collectives finding lines of flight, perpetually self-mapping their own landscapes of learning, rather than perpetually retracing the territorial lines of the disciplines?

Create distributed value: Value distributed creativity

In this way, we will prioritise and distribute the use-value of knowledge – how knowledge and skills are applied by individuals and collectives relative to context, as an interpretation and exchange with the present in anticipation of the future, rather than as a commodification of the past.

So, what could this mean for a 'knowledge economy'?

Perhaps we will see a shift in the balance of emphasis from knowledge and skills as a stockpile with exchange value (eg, intellectual property) to recognise knowledge and skills as tools with use-value: knowledge and skills applied through transformative action with impact across multiple domains (eg, social, cultural, environmental, technological, ethical).

> *When we have entrepreneurs and Flinders University come in to see what our kids are doing and just getting blown out of the water by how the students are so articulate. That's when you know that it's got powerful impact.*
>
> (Project comment from St John's Grammar School)

In a world of finite resources and decreasing capacity, new value will lie in *transformation*; through *transfer* and *leverage*; through *repurposing* and *recombination*. Seeking innovation from within the individual and system will be the priority, rather than seeking something that is always *over-the-horizon*: the next *frontier*.

We might therefore develop a concept of *enterprise* that is creative and transformative and not territorialising: literally, 'taking from between' rather than taking from elsewhere.

De-territorialising the curriculum is about changing the way we see; refocusing lenses; reconfiguring modes

of interpretation, structures and concept systems; and reconceptualising the terms by which meaning is created within multiple contexts.

New patterns of reflexive praxis – learning through knowing and doing with deepening awareness of self and context – will seed an economy of transformation, propagated through interconnected learning ecosystems, of the type mapped and extolled by Hannon and Peterson (2021) and Fullan and Quinn (2016), and exemplified by Learning Creates Australia,[7] which will create distributed value with impact and potential across multiple domains.

New patterns of reflexive praxis – learning through knowing and doing with deepening awareness of self and context – will seed an economy of transformation

This is not a case of doing away with disciplines – specialised practice is vital to improvement, innovation and the development and application of specialised knowledge and skills, and this will continue to be recognised and valued.

It is instead a call to reconfigure knowledge, skills and understanding – and the terms by which meaning is created and valued – to establish a dynamic, inclusive and non-linear spectrum of learning practice, from specialism to generalism, enabling coherent movement between convergence and divergence; between granularity and abstraction, at multiple scales.

Metaphors we learn by

The empty frame

4'33'' by John Cage, 1952[8]

The composer John Cage was inspired by the sound of New York traffic heard through his apartment window, which he experienced as *music*. He was attuned to the sonic texture, its oscillations, patterns and interactions, and to the window as a frame (Cage, 1952).

4'33'' is composed using musical conventions laid bare in performance: a score, a duration, instrumentation, performers and an audience. In combination, these parameters *frame* 4 minutes and 33 seconds of apparent emptiness. There are no notes to play, only a convention of actions and performance infrastructure.

The intention is that the audience is drawn in, through this frame of convention, to recognise the ambient sounds it frames as music, as Cage had experienced in New York.

This allegorical composition serves as a metaphor for the empty frame of MetaPraxis.

What are the hidden-in-plain-sight structural features, behaviours or frames that shape our educational realities? What is the nature of learning that happens within and without the frame? Do we recognise both learning that is planned (the notes) and emergent (ambient sounds)?

Locking up an empty school or coming in on a Sunday can also stimulate this kind of reflection.

Self-fulfilling prophecy

> *Metaphors may create realities for us, especially social realities. A metaphor may thus be a guide for future action. Such actions will, of course, fit the metaphor. This will, in turn, reinforce the power of the metaphor to make experience coherent. In this sense metaphors can be self-fulfilling prophecies.*
>
> (Lakoff and Johnson, 1980, p 156)

The way we conceptually or metaphorically frame learning has a direct influence on the lived experience of that learning for all stakeholders.

Learners conceptualise their value within this frame of learning as part of a fabric of relational (interpersonal) and distributed (system) dynamics. This will also correlate with their access to, interpretation of

and contribution to shared meanings and concepts, and their impact in their environment.

Whatever the *system of learning behaviour* or the *behaviour of the learning system*, it will imprint itself. Its pattern can permeate systems, society and culture imprinting values and behaviours.

Are we conscious of what our learning systems imprint? Are we conscious of redundancies that might be propagated?

Arborescence

> *Transversal communications between different lines scramble the genealogical trees.*
>
> (Deleuze and Guittari, 2013, p 7)

Arboreal or tree-like structures follow a hierarchy of trunk, branch and radical, determined by binary splits (like cell division) at each junction (1 becomes 2 becomes 4 becomes 8, etc), and always maintain separate paths through that hierarchy back to the origin, mirrored by their root systems.

They are linear and closed: to move from outer branch to outer branch (transversally) we must defy the system by climbing or jumping across the gaps.

Our systems and theories of knowledge and specialism in education follow this pattern. We begin our journeys in an open pre-disciplinary space, which signals the beginning of a splitting off into separate areas of increasingly specialised knowledge and skills development through primary and secondary school, to university, retracing the history of the development of the disciplines.

For students, these disciplinary pathways exist in parallel and, for the most part, they are left to find the crossing points between these lignified lineages themselves.

Language

The language that we choose to represent and frame learning, and its surrounding systems, is crucial.

We may speak in system metaphors such as *ecosystems, networks, clouds, labs* or *makerspaces*,[9] to describe our learning contexts, but how do these metaphors shape our realities?

Compare the implicit meanings of the word *school* as a noun, and as a verb.

We can use metaphor to transform our perception and our lived experience. We can also create new terminologies to which we attach meaning, particularly for new methodologies, approaches or experiences. Likewise, language may emerge from new practices.

> *MetaPraxis has a lexicon of learning that we've really enjoyed trying to keep up with!*
>
> (Project comment from Walford Anglican School for Girls)

New language and metaphors, as well as wordplay, paradox, contradiction, mixed metaphors and ambiguity, can all update our perception of *reality* or challenge us to see more than one *reality* at a time.

Metaphors for transformation

Metaphorical description can significantly transform how we value what we do. Consider the following in relation to learning: petrify or amplify; ossify or catalyse; territorialise or socialise; commodify or democratise; transmit or transmogrify.

Metaphors can establish models for coherence. For example,

> *Our poster featured a bridge. This bridging idea had been mulled over for ages. What does this look like? With the bridge came the framework that linked the skills.*
>
> (Project comment from St John's Grammar School)

MetaPraxis has been the stepping stone.

(Project comment from Trinity College, North)

Metaphors can also be frameworks for action. MetaPraxis and Agency Lab schools have all worked with the AISSA Mountain model,[10] which inherits not only the metaphor of a mountain, but also a concept system, features and behaviours to guide school projects through a process of non-linear change or innovation, and leadership. The mountain metaphor *placeholds* a theory of action (see Figure 2).

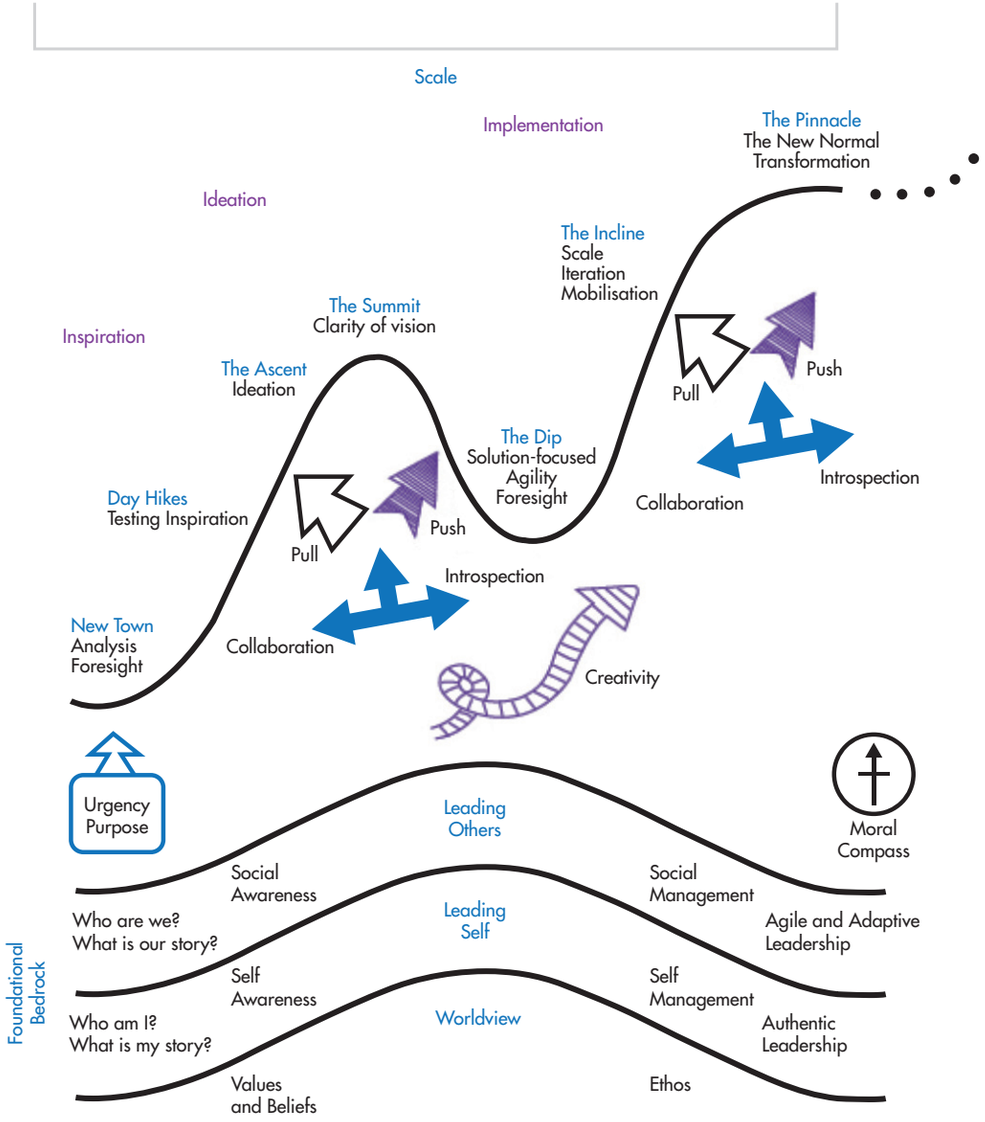
Ecosystems

Ecosystems are non-hierarchical. They are heterarchies: open, inclusive systems.

Rhizomes, or creeping root systems, are also heterarchies; networks with no start or end point; only nodes, stems, roots and shoots. Potatoes, ginger and turmeric are examples of rhizomatic plants. They are self-generating: any part of the rhizome can give rise to a new plant.

Deleuze and Guittari (2013) have postulated that rhizome-like patterns of growth and development can be recognised

Figure 2. Mountain model theory of action



in the dynamics of social interaction and cultural evolution, following principles of connection and heterogeneity.

> *Any point of a rhizome can be connected to anything other, and must be. This is very different from the tree or root, which plots a point, fixes an order.*
>
> (Deleuze and Guittari, 2013, p 11)

we exist in a world of categories and containers, the legacy of a system originally designed for and modelled on routinised production and defined roles in the evolving workplaces of the industrial age.

The rhizome is the metaphorical essence of transversal development and growth; conceptually, the rhizome makes coherent a model of expertise that includes both specialisation and transfer – rhizomes propagate both vertically and horizontally – and systemically it provides a model and set of behaviours for interdependent collaboration: co-evolution across learning ecosystems.

Changing the subject

You would be forgiven for expecting me to launch off on a tangent here, given the title, but as much as I enjoy a lateral diversion, this is not the subject that needs changing.

The subject has become an object

This has happened in at least two ways:

Firstly, our disciplines as *subjects* have become objects: objects of education that are defined, focused, compartmentalised, planned, routinised, assessed – certain, confident and trusted.

These objects contain other objects, such as facts, concepts, skills, methods, topics, lesson plans and teaching schemes, and fit neatly into larger objects of education: classrooms, timetables, schools, sectors, systems, *ad extremum terrae*.

This is perhaps a dramatic characterisation, but it serves to bring focus to the structural bias of our system: we exist in a world of categories and containers, the legacy of a system originally designed for and modelled on routinised production and defined roles in the evolving workplaces of the industrial age.

This is a bias that has been consistently challenged since the latter part of the 20th century, and continues today as education adapts to the changing conditions of an increasingly global workplace, society and culture. Indeed, I have drawn on the work of Freire, whose voice in 1970 still serves to bring clarity to our understanding about how education must adapt and what fundamental purpose it serves.

Secondly, our system thinks objectively and predominantly teaches the same, but thinking *objectively* is a *subjective* act performed by people. If we review the structural scheme of education objects above, we might realise that other significant subjects of the system have become objects: learners.

> *It's all about the students. We need to upskill them for a future where they can pivot, be critical and creative thinkers and problem solve, but, more importantly, know how to develop skills.*
>
> *It's more than the National Curriculum. It's more than the General Capabilities … we really need to think authentically about what those skills are and how they would develop.*
>
> (Project comment from St John's Grammar School)

Personalisation

The concept of personalisation – to bring education's scale of focus to the learner journey – has currency.[11] This cannot only be achieved by adapting the system structure; by reconfiguring the objects of the system – and it will be essential to ensure that learners are participants in the process, rather than objects subjected to change. We must also adapt to less objectifying ways of seeing: shifting from **the** learner journey to **each learner's journey**.

We must *subjectify* the system; to place significantly greater emphasis on the lived experience and perspective of students, teachers and leaders, as we navigate both tangible and intangible structures in complicit partnership; by establishing conditions that enable and recognise unique subjective learning experience and growth. This will be achieved by transforming structures **and** the principles and values by which they are cemented.

> *Agency looks different for every single child – entry and exit points; how they learn; who they are as learners; the voice that they have in that learning – and we can't all expect them to sit in the same place on a continuum and to grow at the same rate.*
>
> *So how do we cater for that? We can't cater for it in the traditional linear model at all. We're just doing a disservice to our amazing kids. So, we've got to be brave and courageous.*
>
> (Project comment from Good Shepherd Lutheran School, Para Vista)

To nurture all students as *lovers of learning* would be an inherently inclusive and personalised approach – full of impetus. This is the manifesto of the *philomaths* – lovers of learning and studying.

The self-actualised learner

If we can begin to prioritise the *learner as the disciplinary domain* (rather than disciplines as domains of learning) we may then recognise the 'irreducible uniqueness' of being and knowing for every individual.

MetaPraxis approaches this through reflexive interdisciplinary learning, championing meta-intelligence and self and contextual awareness, seeking to develop knowledge and skills across a multiplicity of contexts.

Autodidacts and polymaths

Some might see the *autodidact* and the *polymath* as legendary characters in an interdisciplinary play about genius. This may seem to characterise the pinnacle for interdisciplinary or transdisciplinary learning – primarily concerned with learners who can 'teach themselves' or learners who can 'master all trades' – but this perpetuates a divisive and exclusive view of expertise in learning, rather than a view of learning as an inclusive and dynamic spectrum.

We should set some reminders: learning is *pre*-disciplinary by nature, unbounded by external categories and containers. Likewise, from a *post*-disciplinary perspective, learning can become more open and exploratory for all, integrating and transcending the modes, content and contexts of multiple disciplines to potentially derive new personal modes, contexts and content.

Emancipation

As educators we should empower **all** students to grow their capacity to perceive, seek out and create potentiality in everything they do.

We should foster curiosity to seek understanding through inquiry, power through interpretation, confidence through critical thinking and agency through creativity, rather than perpetuating an old 'knowledge-as-power' dynamic, which may propagate fear of the unknown; anxiety about not knowing; and epistemic poverty, through deficit of access to knowledge and the tools of interpretation.

We should nurture the capacity for intrinsic motivation, or impetus, in **all** learners, focusing on the innate individuality of each one.

Philosophers as literal 'lovers of wisdom' are no doubt important to this process, but I would bring greater focus to praxis in learning. To nurture all students as *lovers of learning* would be an inherently inclusive and personalised approach – full of impetus. This is the manifesto of the *philomaths* – lovers of learning and studying.

Teaching praxis

> *In Vygotskian terms, partners create zones of proximal development for each other.*
>
> (John-Steiner, 2000)

Poster display

Towards the end of the first year of the MetaPraxis Project, schools were given the task of creating A2 posters to capture and present the vision, process, progress and potential of their project work to other schools in the project. (See Figure 3 for some of the results.)

The deadline was tight; the brief was multi-layered; the activities were not familiar to all; the skills required were not specified; the aim was identified but objectives were purposefully not set; the product was multi-modal. By all accounts, some consternation was caused.

However, there was also a galvanising quality to the process.

> *The team are really proud of the poster. They're proud of the thinking that went into it, and I think that was a really pivotal moment for them when they really owned the project themselves. In one way, it threw them in the deep end, but they were so empowered already, and they knew they had the same vision, so it was exciting.*
>
> (Project comment from Good Shepherd Lutheran School, Para Vista)

Figure 3. Poster display

In the poster display session, schools collaborated as critical partners, assessing areas of impact in each school poster and adding comments about the nature of that impact using colour-coded post-it notes. This was valuable critical reflection between schools, but again, this process had not been announced in advance.

The terms of the task and the assessment process were both assumed by participants to be implicit to the established learning activity system. They trusted a familiar process.

Following the review by critical partners, the *frame of assessment task* became the focus for discussion. What limitations does this frame impose? What affordances does it provide? To what extent is this an equitable process?

Epistemic Justice and trust

> *Epistemic Justice concerns a person's access to knowledge, education, information, resources, ideas and concepts, and tools of inquiry and interpretation.*
>
> *Where this access is denied, either actively or passively, systemically or interpersonally, overtly or covertly, epistemic injustice occurs, reducing a person's capability.*
>
> (Fricker, 2007)

In this process, teachers (like students) had purposefully been treated as objects, or components of a deterministic system, together with briefs, assessment criteria, skills, tools and learning objectives. The locus of control in relation to the terms of assessment was not with them.

The lack of clear parameters in the task also revealed skills and knowledge gaps, which had to be filled somehow. School teams collaborated to bridge the gaps, by establishing objectives and scaffolding the creation of impactful posters through a process of distributed expertise.

This *empty* space was an intended gap for this learning, which was broadly successful because it was level-appropriate, and with enough tension in the stretch for the *feeling* of adaption to be recognisable. This enabled us to reflect meta-cognitively on the process, through the lenses of established values, principles, equity and trust.

The poster display task simulated conditions of epistemic injustice, to provide a tangible experience for reflection.

Ways of knowing

> *There is a distinctively epistemic type of injustice, in which someone is wronged specifically in their capacity as a knower.*
>
> (Fricker, 2007)

Following the initial phase of poster evaluation, a framework of analysis and reflection – based on Miranda Fricker's model for 'ways of knowing' – was employed to establish further foundational principles around equity in learning.

In mixed school teams, teachers took on the roles of *Teller, Inquirer, Hearer* and *Knower*, in a reflective deconstruction.

The poster task was identified as a kind of narration or testimony, which had potentially established conditions for injustice: … 'a speaker suffers testimonial injustice if prejudice on the hearer's part causes them to give the speaker less credibility than they would otherwise have given.' There was also significant potential for hermeneutical[12] injustice … *stemming from a gap in collective hermeneutical resource – a gap that is, in our shared tools of interpretation* (Fricker, 2007).

In conclusion, the session instilled values and introduced a framework for equitable practice within school projects, establishing terms of interaction or modes of collaboration that could propagate through work between teachers and students in critical partnership.

There was recognition of the need to connect *responsibility* to *purpose* in teaching and learning; to mitigate epistemic injustice for students and teachers through distributed equality (at system level) and relational equality (through interpersonal and social interactions). Schools are contexts at the intersection of both.

The authentic ambiguous

There is a space of ambiguity – between that which we can quantify and that which we cannot; between an uncountable substance and its countable components. We *feel* the friction of this ambiguity in language: we should not say, for example, *many water* or *much marbles* – although there is *Puckish* creative potential in this kind of wordplay.

Quantifying knowledge can make it uniform, categorisable, repeatable – like information – but knowledge is also dynamic, in flux and subject to change and interpretation, like experience.

There can be a tendency to find certainty in the countable – atomising a substance to reduce it to its component parts – but then, atoms have parts, and those parts have parts, and we arrive back where we started: a quantum conundrum in which each new part is a set of wholes.

In combination, parts have effects. We can swim in, drink and float upon the quantum, atomic, molecular, yet uncountable whole that is water. It is an experience with qualities, a floating world of ambiguity. Our experience of the world is in constant flux between dynamic quality and fixed quantity, between particle and wave state, between knowing and seeing, between theory and practice. This ambiguity is complex, but it is authentic.

Quantifying knowledge can make it uniform, categorisable, repeatable – like information – but knowledge is also dynamic, in flux and subject to change and interpretation, like experience.

As educators, we should be wary of a conspiracy of certainty. In the words of philosopher Timothy Morton, *'ambiguity can sometimes be a signal of accuracy'* (2016, p 169).

Exploring the empty space

Leaving a gap for learning, to cultivate entrepreneurs and enterprising students who learn to explore the ambiguous, to *take from between*, is not always straightforward, and careful sensing and adjustment is required to find balance and to enable flow (Csikszentmihalyi, 1997).

> *As a group of educators, we have had to learn to step back. The more structure we tried to put in, the more we tainted that beautiful moment of interest and passion. We had to spend time early on reflecting on our professional journey and our level of comfort with it.*
>
> (Project comment from Annesley Junior School)

The empty space can become a chaotic world of insinuation, implication, inference and second-guessing, resulting in frustration or ambiguity fatigue: *'Just tell me what to learn'*. Its opposite, 'certainty fatigue', can result from content overload, same-old-story, with students numbed through hyperstimulation – a case of too much input, not enough impetus.

How often do educators and students feel caught in a conspiracy of certainty?

Student: 'Tell me what to do …'

Teacher: 'I want you to want me to tell you what to do …'

Student: 'I want you to confirm that what I have done is what you wanted me to do, and that I have done it well …'

Who is responsible for this conspiracy?

Coherence from complexity

Finding a way through is not always about solving the problem of ambiguity, but rather about embracing it.

> *We've got a repository of unsolvable questions – something that Michael talked about at one stage. If it is unsolvable, then what's the purpose of trying to solve it? It takes the emphasis right away from the outcome, back to the process.*
>
> (Project comment from Walford Anglican School for Girls)

Emphasising the *process* of learning more than the product can develop more sustainable, collaborative, equitable and adaptive strategies in learning and life, as students develop a dynamic approach to learning, which is not predicated on fixed content, contexts or capabilities. It places greater significance on the tools of interpretation: critical thinking, critical pedagogy, critical citizenship and acting with reflexive agency to develop awareness of self and context, and the interconnectedness of both.

> *When we remove the pressure and the deadlines, and create an environment that is safe, creative and engaging … what we see is every single student thrive.*
>
> (Project comment from Pedare Christian College)

Metaconcepts and complexity

> *How you describe a tangled situation depends how far back you step before describing. If you step far enough back, you can often see the clue that allows you to untangle things.*
>
> (Hofstadter, 1979, p 692)

Stepping back or stepping beyond a tangled situation, speaks to the concept of authentic ambiguity – that how we understand complexity can depend on the frame and its scope (see Box 1).

Box 1. Metaconcept

OBJECT A IS BLUE, OBJECT B IS GREEN.

THEY ARE DIFFERENT.

THE METACONCEPT 'COLOUR' PROVIDES A WAY TO FIND COHERENCE.

THE OBJECTS ARE DIFFERENT, BUT EQUIVALENT IN TERMS OF THE METACONCEPT, WHICH DESCRIBES AN EQUIVALENT PROPERTY OF EACH.

This is a simplistic example, but *stepping beyond* to find a metaconcept can enable coherence – an untangling of sorts – and can be an effective sense-making process, specifically within complex learning environments, as I develop in later sections of this paper.

Establishing methods to achieve coherence **in** complexity is partly about recognising that coherence can come **from** that complexity.

Learning as a feeling

'Certainty fatigue' and 'ambiguity fatigue' are only two emotional and physiological states that we may experience, and this is not intended as a comprehensive discussion about psycho-social, social-emotional learning, or wellbeing, but **how** learning **feels** is fundamental to its process. It is therefore important to develop strategies to enable cognitive, social and emotional coherence with learners, as they navigate complex interdisciplinary learning environments that challenge familiar teaching and learning patterns.

As educators, we can enable learners to recognise and feel comfortable with the empty space. We can bring awareness to the feeling of adaption by cultivating a metacognitive sensibility; cultivating impetus as a reflex, as an urge to breathe in to fill the empty space; enabling learners to plan for emergence.

What if a school was designed to **feel** more like a painting by Escher? A school as an embodiment of authentic ambiguity; a celebration of the coherence of paradox.

Planning for emergence

The MetaPraxis Project has sought to establish

> *… conditions to cultivate holistic intelligence, by placing emphasis on* ***transfer for*** *rather than* ***knowledge for*** *diverse, complex and changeable contexts. This nurtures learners as collaborative and social agents, who can leverage and allocate skills and resources dynamically, with critical awareness of self, others and context.*
>
> (Ravenscroft et al, 2022)

Planning

This characterisation sees a radical departure from predominantly transmission-based didactic approaches to learning, in which a model is presented, transmitted and reflected, defining the terms of curriculum planning and assessment. Knowledge, skills, selfhood and being have been predicated on a static model, an image of a past reality, rather than the reality of an interpretation of the present, or a prospection of the future made by each individual learner.

Emergence

MetaPraxis is not a static model, it is instead dynamic, in a constant state of becoming, and seeks to recognise this in learners – teachers and students alike. It **is** what it **becomes**, what is practised: a mediation between that which is planned and that which emerges – the quantifiable components and qualifiable effects of learning.

> *We are always looking to pursue new ways of better preparing our students for futures that we can't yet conceive of.*
>
> (Project comment from Walford Anglican School for Girls)

> *It looks like we went through a well-designed process, but that probably wasn't what happened – the project developed as we progressed.*
>
> (Project comment from Cornerstone College)

The MetaPraxis Project has itself become a kind of placeholder for future knowledge, understanding, learning and inquiry, assigned and populated by the ongoing work of schools.

Disciplinary and interdisciplinary curricula and learning activities should be much the same: *plans for emergence enacted by learners.*

Combination lock

As containers, disciplines combine knowledge, skills and understanding, in a fusion that develops through specialisation. Combinations of closely related disciplines have been established in education to exploit links in specialism, modelling practice in the workplace and industry. STEM education, for example, has been established as a context for integrating Science, Technology, Engineering and Maths subjects. STEAM education has incorporated the Arts to broaden the disciplinary group.

Project-based learning methodologies can develop ways of integrating disciplines within tight disciplinary groupings, finding coherence in *natural* affinities to establish coherence in context, developing *multidisciplinary* skillsets in parallel (eg, an archaeological dig as context in a STEM project, or actors, sound and lighting designers, stage managers, scriptwriters and directors collaborating in devising and staging a theatre production).

Arguably, these models continue to emphasise linear progression into existing workplaces, but the inclusion of an increasingly diverse range of disciplines to extend these groupings beyond purely

conventional industrial models, and the projection of non-linear pathways into unpredictable futures, will enable deeper development of *expertise* in and through *transfer*.

Approaches that develop learning strategies to integrate disciplinary and transdisciplinary skills dynamically, and which equip students to thrive in unpredictable and complex environments by emphasising self-directed agentive learning, have yet to be widely and fully established for the long term.

This endeavour has been central to the philosophy and work of the MetaPraxis Project, which sees further opportunity for sustained progression and growth through the creation of new intersections between disciplines at deeper levels of combination.[13]

Process

MetaPraxis is related to the concept of heutagogy, defined by Hase and Kenyon (2000) as a 'form of self-determined learning'. MetaPraxis represents an emergent mode of learning across disciplinary, multidisciplinary, interdisciplinary, transdisciplinary and metadisciplinary contexts of practice (see Table 1).

The philosophy proposes that integrated theory and practice, and the development of meta-intelligences and contextual awareness, can lead to increased levels of agency, self determinism and dynamic fluency, across disciplinary domains and within complex nonlinear learning environments.

Table 1. An emergent mode of learning

Disciplinary	Disciplinary skills are developed within defined areas of practice.
Multidisciplinary	Independent disciplines collaborate on their own terms with limited integration.
Interdisciplinary	Disciplines integrate to create combinations or 'collective' forms of practice.
Transdisciplinary	Integration of disciplinary domains establishes modes and forms that transcend original disciplinary models, to the extent that new 'hybrid' disciplinary models are established.
Metadisciplinary	A reflexive approach to disciplinary practice that acknowledges the development of expertise in the integration, leveraging and transfer of disciplinary skills and knowledge: establishing awareness of transversal and disciplinary skills sets, and knowing when and how to apply them in varied and diverse contexts.

Figure 4. Concepts of disciplinarity relative to transfer and agency

Disciplinary	Multidisciplinary	Interdisciplinary	Transdisciplinary	Metadisciplinary
Explicit	**Transfer** →			**Implicit**
Content-context focused				Process/Mode-focused
Extrinsic		**Agency** →		**Intrinsic**
Structured and predominantly static or sequential relationships between content, contexts and modes of learning	Increasingly self-directed learning, applying skills and knowledge more dynamically relative to content and context			Autonomous, reflexive and dynamic leveraging of skills and knowledge for diverse content and contexts

Disciplinary Integration and Complexity

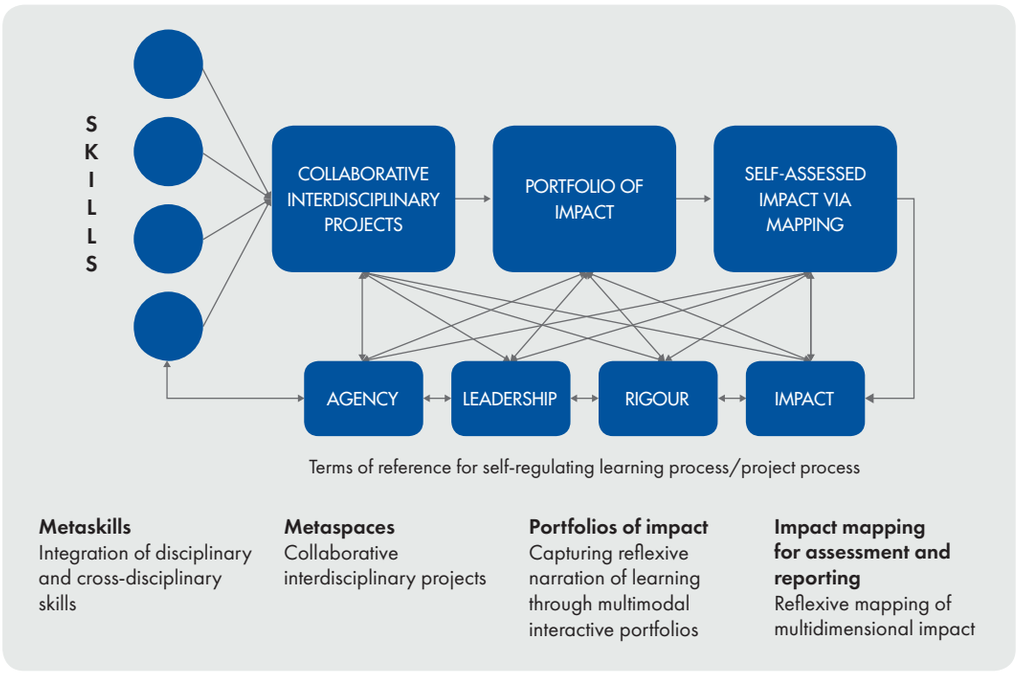
The MetaPraxis framework

The framework comprises four foundational elements, which are

1. integrated disciplinary, transversal and complex capabilities selected by each school
2. a *metaspace*: a collaborative interdisciplinary context within which to integrate, develop and apply capabilities
3. reflexive narration of learning, captured in multimodal portfolios of impact
4. impact mapping: reflexive mapping of learning impact across multiple domains.

And see Figure 5.

Figure 5. The framework



MetaPraxis is equipped with the following six design levers, suggested by Ravenscoft et al (2022):

1. Problem-based learning in realworld settings
2. Working independently and in teams
3. Teacher as expert, inspirer and facilitator
4. Ongoing assessment of process and outputs – combining traditional methods, microcredentials and critical reflection
5. Developing digital skills in action
6. Developing psychosocial dimensions and mindfulness.

Schools have researched, designed and delivered collaborative interdisciplinary projects that build capacity in learners, teachers and the learning organisation itself, responding to the design principles set out by the OECD Education 2030 Position Paper (2018).[14] A fuller description of the process involved, and the work of schools, is featured on the MetaPraxis website[15] and in podcasts hosted by The Learning Future.[16]

Metaskills

> *What are the transferable skills that we can develop in our students that are going to help them beyond school?*
>
> (Project comment from Cornerstone College)

Metaskills or metadisciplinary skills are reflexive learning processes; modes of knowing, doing and being. They are the 'dynamic capabilities' described by Leadbeater (2022), which emerge from and enable agentive learning.

> *We wanted to identify the meta-disciplinary skills that children were developing within our entrepreneurial program. To put some rigour and a framework around that to help us make the development of skills visible to our learners and their families.*
>
> (Project comment from Annesley Junior School)

Metaskills are pivotal to metapraxial learning. They are skills valuable to individuals working collaboratively and creatively across disciplines in social learning environments. They combine the application of disciplinary knowledge and skills, epistemic knowledge and understanding, and transversal capabilities, with a reflexive and adaptive capacity to pose and solve problems in complex and unpredictable contexts.

Transversal capabilities span disciplines, due to their relevance in multiple contexts. They have variously been referred to as 21st-Century Skills or General Capabilities in the Australian Curriculum,[17] and include collaboration, communication, critical-thinking and creativity (NEA, 2016), cognitive and metacognitive skills, social and emotional skills, practical and physical skills (OECD, 2018), and digital literacy and creative fluency.

> *The Capabilities and 21st-Century Skills are very much at the forefront of current educational thinking. It's part of what employers are talking about in terms of the skills that they want people to have when they leave school, or when they come out of university.*
>
> (Project comment from Cornerstone College)

Ravenscroft et al (2022) characterise *'cognitive* (cognitive and knowledge/data-based) and *holistic* (emotional, ethical, agentive and cognitive) intelligences' for the purpose of learning design, suggesting that practitioners should seek to harmonise these to develop greater resilience to the changing contexts of learning and work, including the encroachment of AI.

Metapraxial learning coheres with the following four meta-intelligences, outlined by Luckin (2018).

- Metacognition: our knowledge and control of our own cognitive processes
- Metaemotion: our awareness of how we feel and how this affects what we know and how we learn

- Metacontextual awareness: our physical and mental awareness of the world
- Perceived self-efficacy.

Student and teacher agency and self-efficacy, and the development of expertise in transfer, are central to teaching, learning and development in MetaPraxis.

Metaspaces

Metaspaces are dynamic spaces for social and experiential learning. They may be literal, concrete, conceptual, metaphorical, abstract, distributed or virtual, or a configuration of several that may evolve over time. *Metaspaces* are **Aware, Inclusive, Equitable, Creative, Collaborative, Reflexive,** and **Adaptive.**

Reflexive interdisciplinary learning environments celebrate the integration of theory and practice across disciplines and can model the effective management of complexity and plurality to develop and nurture reflective coherence-makers, in both predictable and unpredictable contexts.

Within *metaspaces*, modes, models and cultures of collaboration are established, scaffolded and enculturated:

Modes of collaboration define the dynamics of interaction and collaboration between members of a project, or how a project relates to external collaborators and contexts.

Models of collaboration emerge from interdisciplinary practice or are inherited from fields of existing professional, industrial or disciplinary practice.

Cultures of collaboration emanate from the principles and values that define each project. They emerge from models and modes of collaboration established by project teams or inherited from professional, industrial or disciplinary contexts defined by a project.

Pembroke School's MetaPraxis journey charts the evolution of their metaspace, from physical structure to conceptual interdisciplinary space, to students initiating change in the culture of collaboration, and a structural shift in time-and-place arrangements to distribute expertise and learning more deeply.

> *A new building that we had built on campus, which has levels for art and science and tech (hosted our first multidisciplinary project). Through this now we've got art, music, drama, science and languages all working together on a project, but you wouldn't recognise it as being a project of specific subjects.*
>
> *We have students who have presented to school leadership their ideas about how to change the world. Some of their ideas have now gone beyond the metaspace, to students stepping up and demanding to be heard.*
>
> *And now we've been given a space in the timetable to run MetaPraxis for all Year 7 students.*
>
> (Project comment from Pembroke School)

Pedare Christian College established 'Spark' as an initial program that inspired numerous subsequent opportunities

> *… for students to take risks, be uncomfortable and challenged in a new learning environment that extends their thinking as critical and divergent thinkers and to develop new skills.*
>
> (Project comment from Pedare Christian College)

Portfolios of impact

MetaPraxis teams have narrated their project practice, leading to a range of artefacts. The culmination of this work will be showcased online in a repository of interactive multimodal portfolios[18] as a form of digital storytelling.

Digital storytelling,[19] as a process of narrating learning and creative development, models reflexive practice for individuals, project teams and schools, simultaneously reflecting learning and development back to the storyteller and showcasing the learning story to a wider network.

Multimodality

Learning, as a multidimensional experience, often results in numerous products or artefacts. In self-directed interdisciplinary project work, the quantity and diversity of products and approaches can increase, resulting in a multidimensional distribution of artefacts. These can be integrated in multimodal portfolios – a kind of *assemblage*[20] or network of artefacts, connected through student narration of their learning.

Within the project, the narration of learning is explored at the following levels.

- School teams narrate the vision, process and progress, outcomes and impact of their projects through multimodal portfolios.
- School teams model and establish opportunities for students to narrate their learning impact through multimodal portfolios.
- This paper and the MetaPraxis website narrate the vision, process, progress, outcomes and impact of the overall MetaPraxis Project.

Multimodal portfolios provide distributed artefacts of learning that are connected through student narration of learning and recognition of the resulting impact. Artefacts may be components, products or effects of a learning process.

The process of narration in the development of interactive portfolios also distributes planned and emergent artefacts through an interactive nonlinear environment, within which the reader can become another agent of narration by following a unique path of discovery.

Impact as a model for recognition of learning

Impact-oriented recognition of learning is an open, nonhierarchical and inclusive process, through which students reflect upon the quantifiable components and qualitative effects of their learning, across multiple domains: social, creative, emotional, technological, physiological, environmental, psychological, cultural, etc.

Multimodal portfolios provide distributed artefacts of learning that are connected through student narration of learning and recognition of the resulting impact. Artefacts may be components, products or effects of a learning process.

Impact mapping

School teams and students connect their portfolios of evidence to impact maps, which map the impact and opportunity of the learning process and change in capability for themselves and others, considering multiple domains (eg, academic, social, emotional, environmental, technological, ethical, etc).

Frameworks that consider students' contexts, cultures and communities, and which support them to narrate their learning journey, are important to schools.

> *That's been a big emergence for our project; having the students tell the story about themselves, their learning and their progression.*
>
> (Project comment from Trinity College, North)

Considering and recognising the potential and emergent impact of learning for students, teachers, leaders, schools and wider education systems, places emphasis on a dynamic and responsive process that is by its nature aware and adaptive. It is never only the reflection of a pregiven model, at any level of the system.

For further details about the methodologies developed and applied in MetaPraxis, see New Patterns for Learning: metapraxisproject.org/process.html.

Synthesis

In February 2020 a model to map metapraxial learning processes was introduced.

This map integrates and compares levels of *agency, knowledge exchange* and *transfer*, to establish a profile of both planned and emergent learning impact and growth at multiple levels: eg, for a school, curriculum, project, lesson, teacher, learner, discipline or capability.

Agency

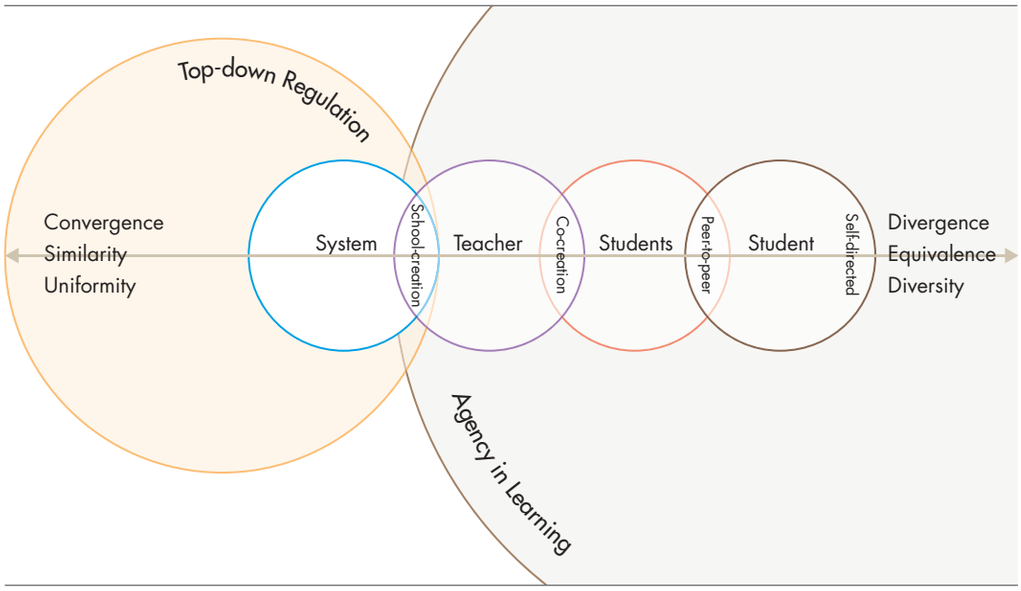
Agency is about being and becoming. It is an emergent property of our experience in the world and a determining factor in the quality of that experience. What or who actively or passively controls the scope and depth of that determination, or how the environment or context may enable or constrain agency for individuals and collectives, can be described by the *locus of control*.

Charles Leadbeater's work with the ALab schools established *Ten lessons for placing agency at the heart of school* (Leadbeater, 2022), and this conceptual framework and practice within the ALab project also resonates in the work of MetaPraxis schools,[21] for which Agency has correlated with concepts of equity in learning and mitigating epistemic injustices.

For MetaPraxis, the *locus of control* is a fundamental factor in developing *personalised* approaches in learning.

The degree of agency in learning is often about who is directing the learning process (see Figure 6) – whether it is the system, school or teacher in a model characterised by top-down regulation; or whether students are co-creating with the teacher or co-creating peer to peer; and to what extent students are enabled to self-direct their learning.

Figure 6. Agency in learning



Increasing levels of agency in learning can be identified, from a model based on convergence, similarity and uniformity, to one that recognises divergence and equivalence instead of similarity, and diversity instead of uniformity.

In a distributed ecosystemic model of learning (ie, in collaborative learning environments), *loci of control* describe the multiple causal forces that influence the dynamics of interdependency.

The agency spectrum

Levels of learner agency range from *extrinsic*, where the learner is not in control of the learning process, to *intrinsic* (see Figure 7), where the learner is fully in control. This axis also correlates with levels of awareness and consciousness, either of self, others or context, and the source of motivation: stimulus or impetus.

Knowledge exchange

Knowledge exchange concerns the source and exchange of information, knowledge, understanding and skills, from that which is explicitly taught through transmission-based models of teaching and learning, to that which is implicitly derived through student-led approaches to learning.

The knowledge exchange spectrum

Knowledge exchange (see Figure 8) is concerned with how the parameters of praxis (knowing and doing) are defined and controlled and how the contexts for knowledge understanding and skills are defined, whether by a discipline, school culture, learning environment, social dynamics, or experience of the learner, for example.

Figure 7. Agency, from extrinsic to intrinsic

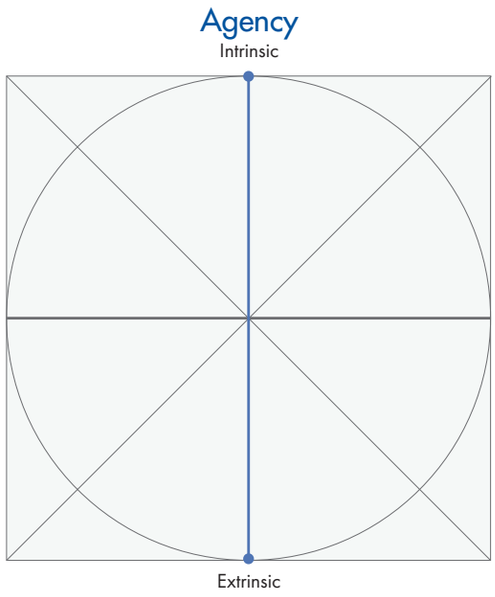
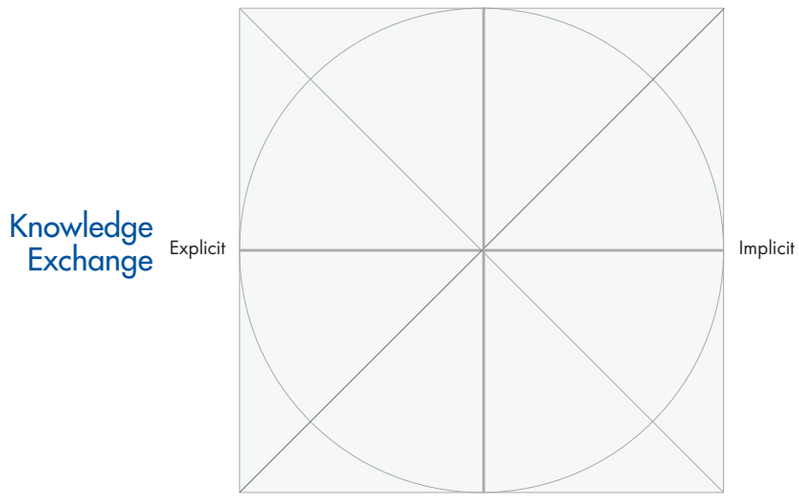


Figure 8. Knowledge exchange, from explicit to implicit



In essence, it evaluates the relationship between the content, contexts and modes of learning and inquiry, and the teaching and learning processes that may define them. Closely defined static relationships indicate subject-led or discipline-led teaching and learning, whereas loosely defined and dynamic relationships indicate interdisciplinary and transdisciplinary teaching and learning approaches.

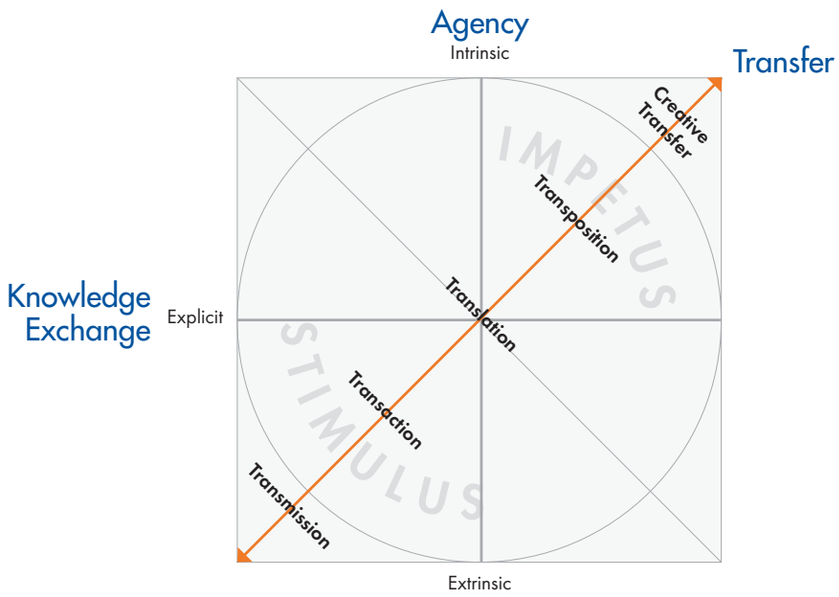
Importantly, there exists a diverse range of forces influencing the learning process, determining the extent to which students are able and enabled to research, to inquire, to experiment and explore, and to originate new knowledge, understanding and skills.

The transfer spectrum

In this context, *transfer* is a synonym for *exchange* (see Figure 9). In a didactic model, the transfer is from teacher to student (transmission), whereas in an exploratory, creative or entrepreneurial approach, creative transfer is enacted by the students, as they apply knowledge and skills in new contexts and in original ways.

Figure 9 illustrates a spectrum of transfer charting increasingly independent and transformative action in learning, from transmission to creative transfer.

Figure 9. The transfer spectrum



Impact mapping

The mapping model and method

Impact mapping is designed to recognise the dynamic complexity of learning and its artefacts. It has been applied in different ways by MetaPraxis schools, and also by some schools in the Student Agency Lab.[22]

For some, mapping has been a way of unpacking the components and effects of complex capabilities, such as critical thinking, or mapping taxonomies or models of learning progression, or skills acquisition. For others, it has been a reflective process of planning for emergence in learning and teaching. Schools have also begun to establish self-directed mapping by students as an alternative to traditional assessment methods.

Impact mapping recognises a learning ecology that values and promotes inclusive, non-linear, distributed modes of transaction and interaction, and which can reflect the inherently organic and rhizomatic nature of learning, in highly personalised ways.

The quadrants (see Figure 10)

Q1 is characterised by low levels of learner agency or control and explicit teaching, which results in capability developed through a structured instructional process, with an emphasis on content-driven learning. As levels of agency increase, within an explicit model of teaching, capabilities may be developed through a self-managed or facilitated semi-structured process, with continued emphasis on defined content and contexts in learning (**Q2**).

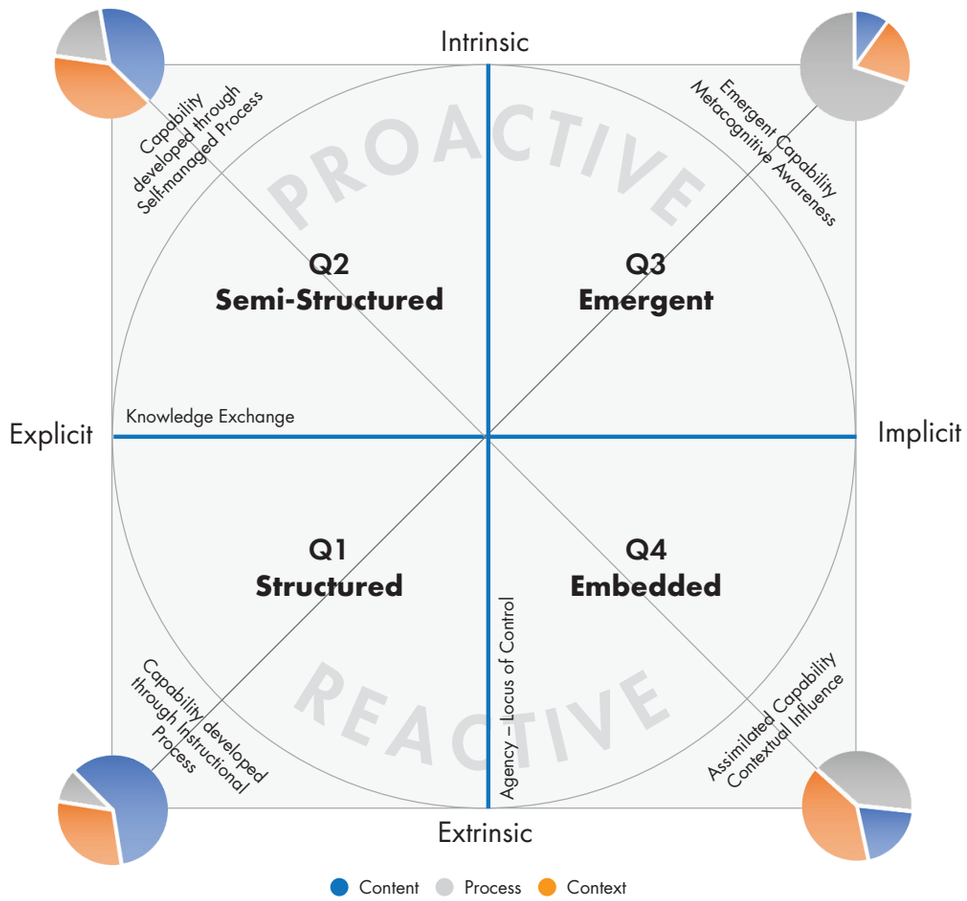
In **Q3**, where agency levels are high and knowledge exchange/creation is implicit to the learner, capability is emergent through exploration and experimentation, featuring high levels of reflection and meta-cognition.

In **Q4**, where there are lower levels of self-awareness, and where knowledge, understanding and skills are implicit to the learner, capability may be assimilated from a learner's embedded contexts, such as current and previous learning experience; the contextual dimensions of a school; wider social, cultural, ethical, religious or economic contexts; and their associated value systems.

Impact mapping recognises that no single quadrant is paramount. The profile of *metapraxial* learning at all levels is non-hierarchical, based on a balance of emphasis relative to context and the individual over time. Learners and teachers may oscillate between static and dynamic or convergent and divergent processes, through stimulus or impetus, resulting in learning impact that is equivalent to that of their co-emergent collaborators.

For more detailed explanation and examples of the use of impact mapping in schools: metapraxisproject.org/impact.html

Figure 10. The quadrants



A learning ecology

For a logic of future co-existence[23]

The MetaPraxis and Agency projects have operated in critical partnership within a learning ecosystem.

For MetaPraxis, the logic for this model of co-existence is that expertise, learning, value and impact are simultaneously distributed and interconnected across multiple domains,[24] promoting evolutionary and revolutionary behaviours of symbiosis, adaption and metamorphosis (Margulis, 1998, p 33).

This nonhierarchical, relational learning ecology features the following coordinating aspects.

- Learning ecosystems that propagate epistemic equity
- Person-centred learning – celebrating the primacy of agency
- Transfer – knowledge and skills exchange through collaborative social collectives
- Diverse and distributed partnerships – across multiple domains
- Social enterprise – creating and distributing value across multiple domains; and
- Learning impact – recognising the actual and potential impact in learning for individuals and collectives.

We should embrace a new ecological dream for learning – one of interconnectedness and interdependency. From Descartes' Cartesian declaration (1637) of 'I think, therefore I am', to Kumar's 'declaration of dependence' – 'you are, therefore I am' (Kumar, 2002, p 175–183).

Afterword

By Charles Leadbeater and Michael Bunce

The work of both the Agency Lab and the MetaPraxis Project has stimulated a process of transformation in schools, who, with impetus, have sought new patterns for learning in a changing world of learning and work.

The vibrant potentiality in learning described in MetaPraxis, and concepts of agency central to the work of ALab, are equivalent calls to action, to seek possibility with purpose and responsibility.

The vibrant potentiality in learning described in MetaPraxis, and concepts of agency central to the work of ALab, are equivalent calls to action, to seek possibility with purpose and responsibility.

Both projects have sought to reimagine the nature and experience of being and knowing in learning for schools and their communities, facilitating the reconceptualisation, design and leadership of pragmatic approaches to enacting change, modelling agency and interdisciplinary learning through the process. Schools have created authentic and impactful ways to embed dynamic and agentive learning across disciplines for the long term.

The synergies between projects and the convergence of their paths of transformation have led to some emergent questions: How can schools and systems adapt to new patterns for learning? What are the implications of personalised approaches? What is the effect for student and teacher wellbeing?

How can we recognise the multidimensional nature of student-directed interdisciplinary learning and its impact?

At the time of writing, we anticipate that on 2 May 2022 the Learning Impact Symposium will see the culmination and celebration of the work of schools involved in both the ALab and MetaPraxis projects. It will also launch a new project. The Learning Impact Project will research the intersections and interrelations between agency, transfer and wellbeing, to derive new models of recognition of holistic learning.

The hope is that what may at first seem like idealism with meagre means, is fast becoming pragmatism with vision.

Appendices

School Teams

Annesley Junior School
Luke Ritchie – Principal
Dylan Colsey
Jo Rossiter
David Taylor
Rosie Gardiner

Cornerstone College
Craig Fielke – Principal
Caleb Blesing
Ashleigh Butler-Bowdon
Rhett Fielke
Caleb Salagaras
Julie Sampson
Joel Turnbull

Good Shepherd Lutheran School, Para Vista
David Wilksch – Principal
Bec Ingham
Genevieve Hart
Bethany Kluge
Karen Schoff
Sarah Shaw
Leah Smith
Patricia Stewart
Ashleigh Willoughby

Pedare Christian College
James Tamblyn – Principal
Lauren Brooks
Hayley Mayer
Andrew Whiteman
Emil Zankov

Pembroke School
Luke Thomson – Principal
Mathew Atherton
Graham Duffy
Julianne English
Michael Ferrier
Andrea Feldhoff
Howard MacPherson
Andrea Shultz

St John's Grammar School
Richard Anderson – Principal
Catherine Emmerson
Michael Fowler
Joyanne Gardner
Jacinta Kyratzoulis-Foulds
Nick Raimondo

Trinity College, Blakeview
Karen McMahon – Principal
Damian Baynes
Allyce Cole
Rebecca Garrett
Heather Lockett
Bec Mason
Anda Mundy
Simon Ostrowski
Cathy Sulser

Trinity College, Gawler River
Rick Jarman – Principal
Samantha Andonis
Natalie Bent
Anthony Cini
Lauren Schwarze
Matthew Skeen

Trinity College, North
David Kolpak – Principal
Melanie Krueger
Richelle Pearce
Jessica Simons
Ian Ward

Walford Anglican School for Girls
Rebecca Clarke – Principal
Sam Bartram
Maria Caruso
Mayra Franco

School narratives

The scope of MetaPraxis within each school project ranges from whole-school projects to transform learning culture, to whole-year-level learning innovation initiatives, and also to the creation of individual *projects or subjects*.

The impact aim of MetaPraxis sought to catalyse and facilitate *learning organisations that learn reflexively*, which embrace the perpetual motion of change and innovation implicit in learning through all levels of each organisation and across a network of school collaborators.

Here we provide links to each school's online portfolios of practice and narration, and also links to four podcast episodes that narrate their MetaPraxis journeys:

Online portfolios	
MetaPraxis website	metapraxisproject.org
Annesley Junior School	metapraxisproject.org/annesley
Cornerstone College	metapraxisproject.org/cornerstone
Good Shepherd Lutheran School, Para Vista	metapraxisproject.org/gspv
Pedare Christian College	metapraxisproject.org/pedare
Pembroke School	metapraxisproject.org/pembroke
St John's Grammar School	metapraxisproject.org/stjohns
Trinity College, Gawler River	metapraxisproject.org/trinitygawler
Trinity College, North	metapraxisproject.org/trinitynorth
Trinity College, Blakeview	metapraxisproject.org/trinityblakeview
Walford Anglican School for Girls	metapraxisproject.org/walford

Podcasts
thelearningfuture.com/the-learning-future-podcast/meta-1
thelearningfuture.com/the-learning-future-podcast/meta-2
thelearningfuture.com/the-learning-future-podcast/meta-3
thelearningfuture.com/the-learning-future-podcast/meta-4

Endnotes

1. Defined by Luckin (2018) as comprising skills in Metaknowing (knowing about knowledge); Metacognition (knowing about cognition); Metasubjective skills (emotional and self-regulatory skills); Metacontextual skills (knowing about our relationship to context); and self efficacy (how we perceive our capacity in terms of knowledge and understanding, emotion and motivation, and context).
2. See also Lesson 3: Philosophy product practice (in Leadbeater, 2022).
3. See 21learn.org/timeline/2007-2008/a-list-of-useful-quotations/
4. I define a metaspace as a reflexive interdisciplinary learning environment or activity system that is physical, virtual, distributed or conceptual, or a combination of these.
5. For further details, see Schwab, 2016, p 6.
6. Epistemology is the branch of philosophy concerned with knowledge. Epistemologists study the nature, origin, scope of knowledge, epistemic justification, the rationality of belief, and various related issues. Wikipedia.
7. 'Learning Creates Australia is a growing alliance of people and organisations who are committed to lifting Australia through a new era of learning'. learningcreates.org.au
8. youtube.com/watch?v=JTEFKFiXSx4
9. Makerspaces, sometimes also referred to as hackerspaces, hackspaces or fablabs, are creative, DIY spaces where people can gather to create, invent and learn. Wikipedia.
10. The Mountain, designed by Katherine Adnett and Mary Hudson at AISSA: ais.sa.edu.au/aissa-model-leadership-foundational-bedrock/
11. Examples of organisations and initiatives seeking personalised approaches include Learning Creates Australia; Rethinking Assessment; Big Education; XP Schools, Doncaster; Learnlife, Barcelona.
12. Hermeneutics is the theory and methodology of interpretation ... Hermeneutics is more than interpretative principles or methods used when immediate comprehension fails and includes the art of understanding and communication. Wikipedia
13. Another recent example is the London Interdisciplinary School: lis.ac.uk.
14. oecd.org/education/2030/E2030%20Position%20Paper%20(05.04.2018).pdf
15. metapraxisproject.org/
16. thelearningfuture.com/the-learning-future-podcast-about
17. australiancurriculum.edu.au/f-10-curriculum/general-capabilities/
18. MetaPraxis Project website: metapraxisproject.org
19. Interactive and Open Documentary formats are authoring approaches to digital portfolios (eg, MIT Open Documentary Lab: https://docubase.mit.edu/).
20. See, for example, Deleuze and Guattari (2013) and De Landa (2016).
21. Exemplified in this paper and on the MetaPraxis website: metapraxisproject.org
22. Presentation for (RE)LEARN Learning Innovation Festival (12/11/2020). youtu.be/cujshGl1fWM
23. This subtitle is borrowed from Timothy Morton, *Dark Ecology: For a Logic of Future Coexistence*, which considers an ecology consisting of both human and nonhuman entities.
24. For example, social, creative, emotional, technological, physiological, environmental, psychological, cultural, etc.

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Additional reading

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MICHAEL BUNCE

About the author

Michael Bunce is an educator and interdisciplinary artist whose work is located at the intersection of learning design and innovation, interdisciplinary arts practice and learning, and technological innovation.

Michael currently leads the Masters in Global Learning Futures and the Masters in Sound and Music at the University of East London, as well as the Impact Mapping Research Project. Since 2019, he has also led the MetaPraxis Project with AISSA in Adelaide and acted as a critical friend to Charles Leadbeater's Agency Lab. Michael and Charles will be co-leading the Learning Impact Project (learningimpact.org) in Adelaide between 2022 and 24.

Michael has taught, presented and performed for universities and arts organisations in the UK and Europe, North and South America, and Australia, as well as working as a Music Director for the National Youth Theatre, as Creative Designer and Project Lead for the National Trust, as Senior Tutor for the Drake Music Project, and as an independent composer, music producer, and interdisciplinary artist.

About the paper

The MetaPraxis Project has involved 12 schools in Adelaide, South Australia, working to facilitate the conceptualisation, design and leadership of interdisciplinary learning projects, in which a central focus has been the development of meta-intelligence. Here, the author presents a story of critical partnership: layers of dynamic, agentive and collaborative learning, between MetaPraxis teams and their schools and communities; between teachers, between teachers and students, and between students. Including comment from participants, he charts a journey of transformation, as schools unpacked the philosophy, practice and products of MetaPraxis. The story is being continued by schools through websites, podcasts, a symposium and further evolution of their metapraxis.

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