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**Chaos to Capability:
Educating Professionals
for the 21st Century**

Jay Martin Hays

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Chaos to Capability: Educating Professionals for the 21st Century

By Jay Martin Hays



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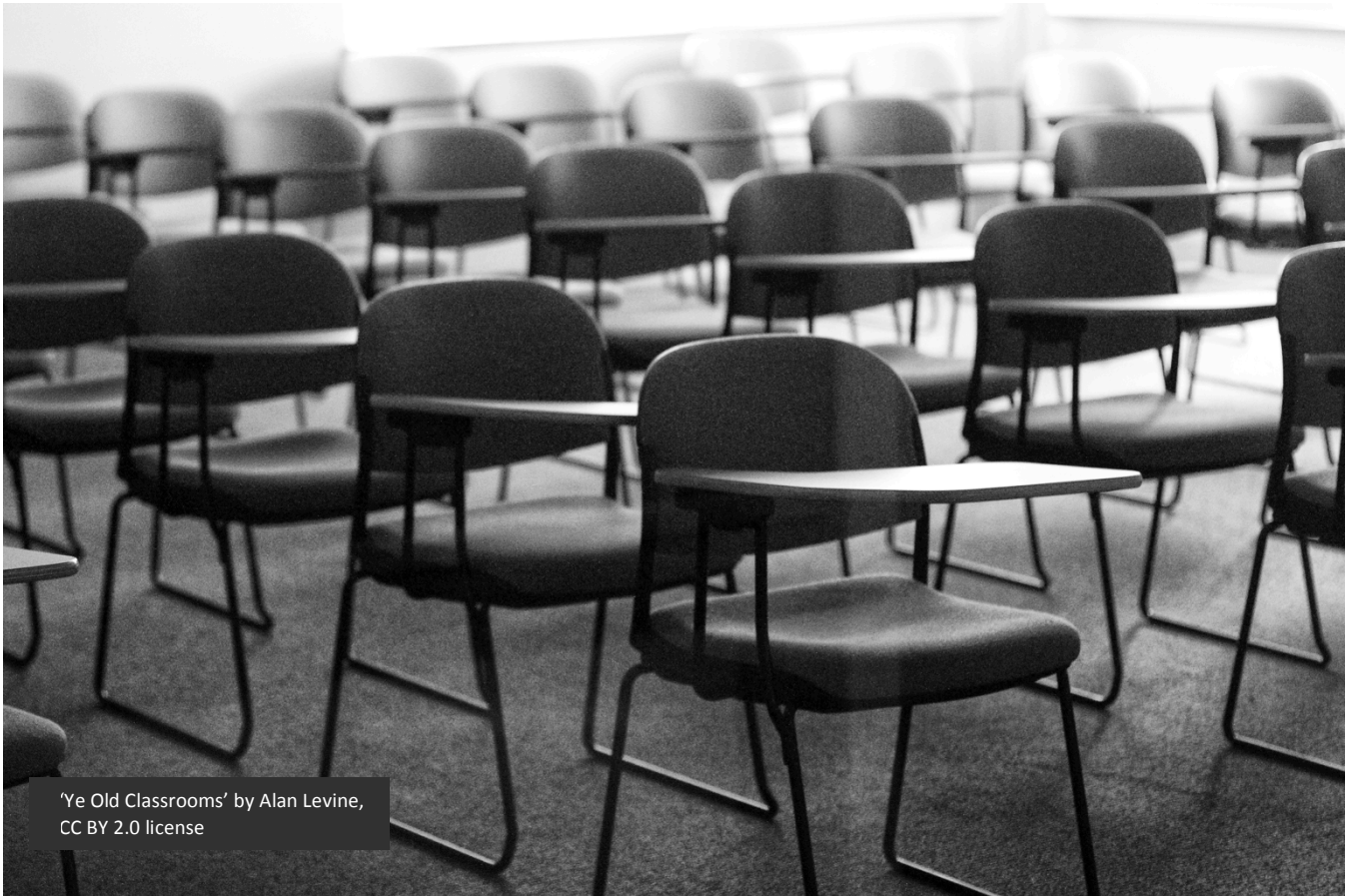
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Chaos to Capability: Educating Professionals for the 21st Century



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ABSTRACT

Built on two decades of research, thought, writing, and teaching, in *Chaos to Capability: Educating Professionals for the 21st Century*, Hays argues that a transformation in higher education teaching and learning is crucial and possible. Convincing evidence indicates that conventional university education inadequately equips graduates for the complexity, contention, and contestability they will confront upon entry into their professional careers and pressing needs locally and globally for initiative and self-direction, creativity, and collaboration. This monograph explores these insufficiencies, presents a core set of capabilities and dispositions required of professionals in the 21st Century—a curriculum for the modern age—and discusses practical issues and implications with respect to implementation. Topics addressed include (1)

educating for uncertainty and unknowability, (2) the vicious-cycle, unanticipated consequences of conventional approaches to education, (3) the requisite paradigm shifts and role transitions in teaching and learning, (4) unlearning, threshold concepts, and transformational learning, and (5) the paradoxical nature of chaos and its contribution to capability-building. Key contributions include models of the learning continuum, with its portrayal of and distinctions between learning backward and learning forward, and the cube, which depicts the intersection of capabilities, dispositions, and discipline-specific knowledge and skill. Hays concludes by claiming that the attributes, meta-abilities, and dispositions catalogued in *Chaos to Capability* comprise a "curriculum for the unknown", the requisite repertoire of professionals and professional practice for the new millennium global world. This curriculum is attained, he suggests, not by greater quantity of content, but of more encompassing, holistic, and authentic design and delivery. Guidance provided on how to do this may help educators develop programmes more in keeping with realities of the 21st Century.

Key Words

Anticipatory, Generative, Innovative Learning; Generic Skills / Graduate Attributes; Citizenship; Holistic Education; Complexity; Practice-Based Education; Creativity; Professional Education; Curriculum Reform; Transformational Learning; Unknowability

Innovative learning is a strategic imperative in a world that is unknown, unpredictable, and continually changing. ...The task for educators is to create conditions for learning that stimulate creativity, autonomy, and critical thought ... that is, teaching for the unknowable.¹

INTRODUCTION

The quoted passage above captures the essence of the slant taken in this monograph on professional education and curriculum reform. The segment contains a number of critical elements that will be explored herein. The first key concept is *innovative learning*.ⁱ What this is and why it is so important will be addressed. The second important element introduced concerns the nature of the complex, interconnected global world of the 21st Century—a very dynamic and often uncertain environment, full of entanglements, contradictions, and competing interests.ⁱⁱ One of my main contentions is that (a) conventional understandings and delivery of university education contrast sharply with the realities of the modern world, organisational life, and practice demands; and, thus, (b) conventional university education inadequately equips graduates for the exigencies they will confront upon entry into their professional careers. This contrast is examined, insufficiencies of conventional education outlined, and recommendations for reform advanced.ⁱⁱⁱ

Though not evident in the quote, the complex, global world of the 21st Century includes the subsets “professional practices” and “practice communities”, those places and spaces professionals ply their craft, and how they do so.² I do not position my discussion within a particular field, discipline, or profession; but, rather, outline general parameters and principles that apply across fields of endeavour and diverse practice communities. I provide a working definition of “professional practices” and “practice communities”, and hope to illuminate their relevance to Higher Education reform and a curriculum for uncertainty.³ In so doing, I reveal something of the vital role professional and practice-based education plays in Higher Education and its agenda to sustainably meet the demands of an evolving society and a world whose magnitude and direction of change are increasingly difficult to anticipate.

Third, and given the nature of the world and the imperative for innovative learning, essential attributes of university graduates are identified (creativity, autonomy, and critical thought in the passage above, but including other strategic capabilities as well). Finding resonance with my work in wisdom (in particular, Hays, 2008a), Barnett (2004) ascribed a number of human qualities or dispositions critical to thriving in the unknown: “carefulness, thoughtfulness, humility, criticality, receptiveness, resilience, courage, and stillness” (p. 258).^{iv} Similarly, Dey and

¹ Hays (undated). I take up similar themes in Hays (2013c) and Kim and Hays (2010). Readers might refer to Pickering (2004) for more on the science of unknowability.

² See Amin and Roberts (2007), Beckett (1996), Buysse et al (2003), Ellström (2010), Gonczi (2013), Hays (2009), Kennedy (1987), Lee and Dunston (2011), and Sykes and Dean (2013) for relevant discussions on professional practice and practice communities.

³ Amongst scholars addressing curricula for uncertainty are Barnett (2004), Cherry (2005), Hays (2013c), and Rassekh (2001).

Steyaert (2007), citing Gherardi, note that knowing in the face of mystery requires humility and courage, and permits, if not necessitates, "not knowing". Conditions for cultivating these qualities are characterised and, drawing from both theory and experience, suppositions provided as to how such conditions can be created in university classrooms and other learning spaces.

Cultivating conditions for innovative learning depart dramatically from conventional instructional practices (Hays, 2008b; 2013c) and find theoretical bases in alternative and emerging research paradigms. Too easily appraised as eccentric, inane, risky, or "just downright wrong," these methods that "fly in the face of conventional wisdom" may be just what's needed to set university students on a new creative and constructive trajectory. On this path, individuals are aware of—if not directly challenging—the rules, habits, beliefs, assumptions, standards, norms, acceptabilities, and other conventions that underlie the way we think, solve problems, and make decisions.⁴ They stay one step ahead of all the baggage and other impediments holding us back.

Finally, though perhaps better a starting point on our journey than a destination, the nature of knowledge and its limits, and the importance of not knowing, the unknown, and unknowability are introduced as both topics of and approaches to a university education for the 21st Century.⁵ We look also briefly at unlearning⁶ as a concept, organising principle, and discipline in professional education.

A curriculum for the 21st Century—an unknown and unknowable future arising as we ponder it—requires a dramatic departure from the way we have been educating university students. It is a matter more of process than content, and is intentionally transformational.^v Transformed, perhaps in an ongoing and continually reciprocal way, are teachers, curriculum, students, and society. It is probably the case that such transformation depends largely on giving up conventions and understandings of the past (unlearning), as I have articulated elsewhere.⁷ Such a "giving up" and "letting come" can feel threatening and pose many perceived risks to students, teachers, and others. The tensions, uncertainties, and dilemmas inherent in such situations authentically represent the "real world" and, while uncomfortable, may facilitate transformation. As King (2007) has noted, fear and uncertainty are a necessary first step in the transformation process.⁸

⁴ I explicate the dynamics of these processes in a series of publications: Hays (2008b; 2013a; 2013c; 2014). Further, I stressed these points with respect to leadership and leadership development at a recent workshop I ran (see Hays, 2015), which will be elaborated in a forthcoming journal article (presumably), *Privilege, Proviso, and Paradox: Leadership in—and for—a Changing World*.

⁵ Relevant sources here include Argyris (1991), Barnett (1998 and 2004), Cherry (2005), Dey and Steyaert (2007), Gonczi (2013); Hays (2010; 2013a), Karp (2004), Pickering (2004), Stacey (1992), and Sternberg (1998). See, also, Metcalfe and Game's (2008) marvellous portrayal of dialogue in education and the necessity of *unknowing*.

⁶ Akgun et al (2003; 2007), Becker (2005), Bettis and Prahalad (1995), Cegarra-Navarro and Rodrigo-Moya (2005), de Holan et al (2004), Gharajedaghi (2007), Prahalad and Bettis (1986), Rafferty and Simons (2006), Sinkula (2002), van Woerkom et al (2002), and Yeo (2007).

⁷ See, for example, Hays (2013b) or Hays (in print).

⁸ See Ellström (2010), Gielen et al (2003), or Hays (2008b) for similar propositions.

GROUNDING

Before getting deeply into detail, the following working definitions are provided as context.

Professional A professional is an expert or authority in a field of endeavour that usually requires extended and intense study or formal training, often belonging to an occupation or vocation (a profession) for which credentialing, certification, or registration and continuing professional development are prescribed. Professionals are usually held accountable to professional standards and code of conduct and ethics. As authorities and accomplished practitioners, they often mentor, coach, train, supervise, or otherwise educate novice professionals-to-be.

Though not the same thing and this by no means applies to every professional, a professional may be a master in his or her art or craft. Striving for mastery and profound accomplishment characterise the exceptional professional.

General attributes of professionals and professionalism: (a) continuing dedication to building and renewing one's expertise; (b) supporting others to develop their skills, knowledge, and capacities to contribute; (c) devotion to serving society, including voluntary, pro bono, and discounted contributions; (d) embodying the values and concerns of the profession, and adherence to universal principles of honesty, integrity, fairness, and transparency / inspiring and fulfilling trust; (e) ability and willingness to make informed, reasoned, and unbiased judgements that are in the best interests of clients and society and act accordingly; in other words, to act wisely; (f) acceptance of responsibility, willingness to lead, and loyalty to profession, organisation, and those in positions of leadership.⁹

Professional Practice Professional Practice is essentially the application of a complex and encompassing set of knowledge and skill in a given professional occupation or vocation, including deep and often implicit understandings about the nature of the profession and how it is meant to be practised. All professional practice arenas presume its practitioners embody a generalised "professionalism" as well as expect and sometimes enforce standards related to the specific profession, that is, "standards of practice". A practice (as one of a set of practices) is an established, expected, routine, prescribed, or even habitual procedure or method for delivery or conduct of an aspect of the profession. Practices are sometimes codified and explicit, but often implicit and difficult to describe in practicable detail. Sometimes "professional practice" refers to an educational programme or developmental experience designed to prepare students for professional careers.

Professional Practitioner A professional practitioner is an individual who "practises" a specified profession. He or she will have undergone formal education or training in a particular field of endeavour and, now, is employed in that occupation or vocation, probably, though not necessarily, earning an income as a professional in that field.

Professional Education In this context, professional education refers exclusively to Higher Education programmes designed to prepare students for professional careers, often, though not necessarily, for designated fields such as law, engineering, medicine, and teaching. Such programmes generally represent a partnership or close relationship between the university and professional bodies, so that the education received has currency and relevance in the professional domain and may, in fact, have to meet exacting accreditation requirements.

⁹ See Coles (2002), Elman and Illfelder-Kaye (2005), Epstein and Hundert (2002), and Purkerson Hammer (2000) for relevant and more thoroughgoing treatments of professionals and professionalism.

Professional education implies conferring not only knowledge and skill in designated practice competency areas, but a socialisation process as well that, with time, orients learners into the nature of practice and its often implicit understandings, values, and expectations, and begins to fashion their identities as professionals in the field.

Practice-
Based
Education

Practice-Based Education, as used here, includes Higher Education programmes that link or integrate formal academic studies with experience in workplaces and other learning environments that authentically represent a professional practice domain, that is, where real practitioners in the field ply their craft. Where Professional Education may be learning “about” or “for” a profession, and, thus, can still be theoretical or abstract, PBE is learning in, through, and from relevant experience that is tightly-coupled to the Higher Education curriculum. Practice-Based Education demands learners (a) “practice” what they are learning in formal studies in real environments and (b) draw deep learning from practice, relating experience to more conceptual, theoretical, and philosophical aspects of their studies.

While it may be simpler to conceive of (and, perhaps, more directly apply) Practice-Based Education in fields such as nursing, engineering, or law, PBE may also apply in a more-generalised sense to exposure in actual practice settings not immediately linked to a unit of study. For example, a philosophy student having a workplace learning experience in a business might be asked to identify ethical issues or dilemmas confronted there and link them to her studies. The same could be said of leadership, communication, teamwork, and so on. So, it is not the context per se that is critical, but how richly and authentically it manifests “material” or substance relevant to the university’s desired learning outcomes and attributes and how thoughtfully and deliberately the student makes connections between practice and study.



'Tibet protest, Chinese Embassy London, 7 March 2015' by Chris Beckett, CC BY-NC-ND license

SUBSTANCE

*The more we change, the more we stay the same.*¹⁰

The 21st Century World and its Demands

To proclaim the modern age and 21st Century as vastly different from preceding periods is becoming banal. Tired from overuse and expected, and perhaps overcome by the events of the 21st Century as it unfolds, describing the complexity, chaos, and confusion of "the age of disorder" is losing its impact. It lacks drama, originality, and urge. In repetition, we may forget why so many endeavour to depict the (be)coming age as turbulent, viral, unpredictable, fraught, unsettling, and so on. The reason, as I see it, is less to describe a world most of us already confront on a daily basis than it is to suggest that we remain much as we were, despite the relentless onslaught of change around us. We see things as they were; we seek stability and consistency. We want answers; and, perhaps now more than ever, and dangerously so, we expect answers quickly and may tend to neglect or dismiss deliberation, thoroughgoing investigation, and speculating possible outcomes and impacts.

¹⁰ Chris Kim and I (Hays and Kim, 2012) use this quote attributed to Alphonse Karr in our leadership text. See Footnote 4, p. 13, under the heading "Same as it Never Was".

As the speed, diversity, and complexity of change increase, and we naturally do what we can to contend with it, we are quite likely to be reactionary; at best keeping pace with change, but probably falling further behind, caught in a vicious cycle of unremitting change, reaction with little thought of long-term consequences of our actions, erring, and further reaction.

Reactionary behaviour has at least two potential and inter-related negative consequences: the first is the probable impact of solutions, decisions, and courses of action that are inadequate or counterproductive; and the second is the inability to learn from a more reasoned and methodical approach to addressing the challenge in the first instance, increasing the likelihood of more problematic reactive behaviour. These dynamics are depicted in the diagram at right (Figure 1). Applied to the Higher Education curriculum, university students need to come to appreciate the nature of change, complexity, and consequences, and the need to attend to them in a more encompassing and open-minded way.^{vi}

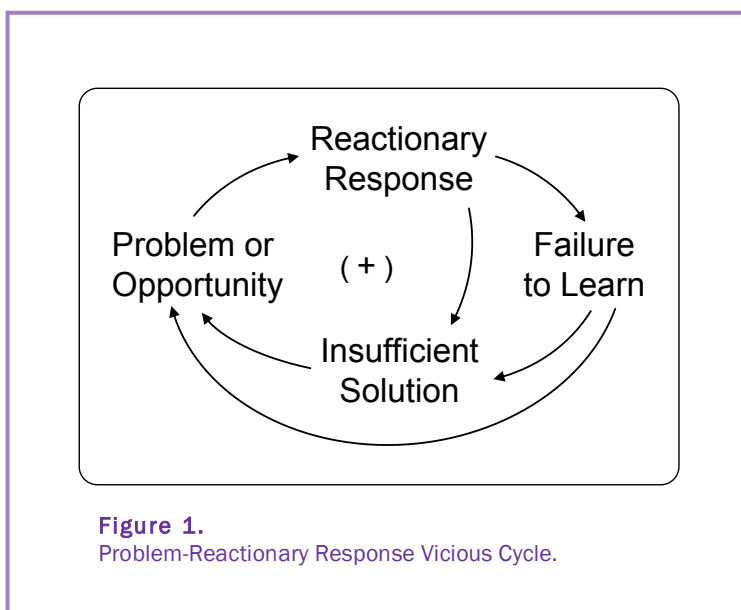


Figure 1.
Problem-Reactionary Response Vicious Cycle.

I don't mean to imply that change, per se, is bad. Many changes are necessary and valuable. Nor can or should we try

to control everything. Control is a feature of the past, a preoccupation if not a myth (Nicolaidis and Yorks, 2008). But we can and should be more prepared for change and we can and should strive to influence the direction of change. That's what forethought and strategic insight are all about. More people need to spend more time thinking about what might happen—possibilities, implications, impacts, consequences; and thinking about how they might prepare themselves and their organisations, communities, and societies for possibilities.^{vii} Thinking "way out there" is not a matter of skill, knowledge, and expertise, but one of imagination, a capacity for seeing what's *not* there, a discipline for knowing when enough is *not* enough, and when not knowing is okay.

The unknown is not a space to be filled immediately with minutiae; just as uncommitted time is not necessarily best filled with busyness.¹¹ These are spaces for possibility, imagining, patient awaiting, and *living into* purposefully, consciously, and compassionately. While fearsome events and personalities will no doubt arise, the future is not to be feared, but prepared for as best we can, given that it is largely unknown and unknowable.¹² How we accomplish that is a continuing challenge for Higher Education and a subject to which we turn shortly.

¹¹ See Blackman and Henderson's (2005) discussion of the delimiting effects of an action orientation, essentially creating a vicious cycle.

¹² For useful sources on unknowability see Pickering (2004) and Stacey (1992).

Conventional University Education and its Deficiencies

*Conventional higher education fails to produce graduates ready, willing, and able to effectively confront the challenges and complexity of the 21st Century.... Recent graduates have been found ill-equipped in a number of capacities deemed critical on the global stage, including independent thought, ethical behaviour, complex problem-solving and "big picture" thinking, interpersonal skills, teamwork and collaboration, communication skills, and self-direction, amongst other deficiencies. These shortcomings are not the graduates' failings, but those of the education systems that produce them.*¹³

It may be unjust to characterise any university classroom or other learning environment as typical or conventional. Every class and every teacher must be unique, and there are teaching and learning innovations in every institution. That said, and at risk of over-generalising, the typical university classroom or other learning environment can be rather conventional, in some instances outmoded, and even counterproductive (Hays, 2013c) and Sterling (2001) would agree, at least with respect to sustainability.

Higher Education has been criticised for producing graduates who are not work-ready (D'Abate et al, 2009). Curricula have been assessed as irrelevant and archaic, disadvantaging students and failing to meet the needs of the global marketplace (Carson and Fisher, 2006; Cunningham, 1999; Lynch, 1999). Skills, abilities, and orientations found lacking include initiative, leadership, communications, problem-solving, judgement, creativity, global awareness and intercultural competence, and a general inability to transfer or apply what graduates have learned in unique contexts (Hays, 2013c).

There appears to be an increasing gap between the conventional and insular university educational environment in which students learn and the realities of the dynamic, complex world into which they are thrown upon graduation (Burns, 2002; Dumas, 2002). This is sometimes referred to as the theory-practice divide, and Kumar (2006) speaks of "...the *chasm* between theory and practice" (p. 247; *emphasis added*). Brown and Duguid (1999) criticised classroom teaching and training for their separation of learning and working, and advocated "learning-in-working".¹⁴

¹³ Hays (undated). The original source of this extract drew on a range of scholars criticising Higher Education, calling for reform, and recommending specific improvements, including Boyatzis et al (2002), Carson and Fisher (2006), Grauerholz (2001), Havard et al (2005), Lynch (2006), Morrison, Rha, and Helfman (2003), and Ottewill (2003). I continue to explore and elaborate this theme in Hays (in print).

¹⁴ There is a strong and continuing critique of the typical delivery of higher education underlying justification of innovative education strategies put forward in the literature. Indicative examples: Carson and Fisher (2006); Cunningham (1999); D'Abate et al (2009); Hays (2013c); Madsen and Turnbull (2006); Marsick (1998); Schwandt 2005).

In a recent teaching and learning seminar, I shared with faculty colleagues my pronouncement regarding conventional higher education and some of its unintended negative consequences (see Table 1, below; see, also, Table 2 provided in Endnote iii).

Conventional university classrooms and learning environments are rife with archaic and entrenched traditions, practices, and assumptions that together perpetuate the status quo and shape and reward:

- One right answer / one acceptable method.
- Passivity and dependence.
- Elevation of teacher as superior authority.
- Reproduction of espoused knowledge, values, and perspectives; replication of discipline understandings, assumptions, beliefs, and approaches.
- Textbook / instructor-note mentality (problems follow a predictable pattern).
- Belief that knowledge, skill, and perspective are received rather than produced (no ownership).
- What's important from the students' perspective is, What's on the test? (While it's probably—and unfortunately—the case, that what's really important isn't on the test....)
- A focus on “what?” or “know that” rather than how? and why?
- Memorisation of rules, facts, equations, and theories (surface learning) rather than deep understanding and internalisation of principles.¹

Ossification of knowledge rather than an appreciation for its impermanence, insufficiency, contestability, and crucial tie to context.

Table 1.
Unintended and unproductive outcomes of the conventional university classroom.

I explained that this is my interpretation of the literature and is based, in part, on observations and numerous conversations with other academics over the years. While it was clear that no one was ready to admit he or she was guilty of behaviour leading to such outcomes, most were quick to agree that such phenomena exist. They receive students who, for example, merely want to know what's on the test so they know what to cram into their short-term memories. Most have faced an unresponsive, blasé classroom or lecture hall full of students. Many have witnessed students reciting facts but unable to explain what they mean or how they might apply. Almost all generally agree that too few students show appreciable levels of originality, independent thought, or self-directed learning. Overall, a solemn and pessimistic forecast...

And, while readers may disagree with these summations and have optimistic outlooks, to the degree that any of this is true and relevant, then we are in some measure failing students, future employers, and society. Wherever and whenever such characterisations are accurate, we need to reinvent ourselves and our institutions, and help our students to reinvent themselves. This is, again, a case for transformation. As Sterling (2001) emphasises, we cannot change the world for the better as educators until we transform ourselves.

One major strategy for enhancing student learning, making students "work-ready", and equipping them with a broad set of generic "life" skills is Work-Integrated Learning or WIL, sometimes referred to as Cooperative Education or Professional Practice, and is usually considered to include internships and Service Learning. There exists a huge volume of literature on various types of WIL and its implementation, outcomes, assessment, and the like. This impressive corpus notwithstanding, a review colleagues and I conducted in 2010-2011 (see Hays, undated) revealed that WIL programmes are under-theorised, surprisingly poorly understood, and fraught with untenable assumptions and challenges leading to practices that, on the whole, fail to deliver—or are unable to demonstrate—learning that represents an effective synthesis, integration, and leveraging of academic study and practical experience. And, such impressive and exceptional success that is evident appears to be the result of extraordinary and often individual effort that is unsustainable. Programmes and initiatives cannot be sustained when dependent on the efforts and talents of a few.

In their paper on practice learning, Nixon and Murr (2006) explore problems between and solutions for academic and practice learning, including transfer. Drawing on other published research (Margetson; Cunliffe), these scholars identify the "application metaphor" problem in education and its consequences. Teaching students to *apply* theory encourages learners to rely on templates and prescriptive methods, that is, repeat what they have been told or mimic their instructors rather than think for themselves.

We are basically trained, maintain Sice and French (2006), "to look for [given, accepted, quick-fix] solutions (or at least for a predetermined approach) to problems" (p. 858) rather than pursue deep understanding of causality or development of novel, untried solutions. The application metaphor disregards the messy problems (Hays, 2010a; Schön, 1987) of the real world and reinforces the illusion that every problem can be solved using simple procedures. Of considerable relevance to professional education, "...the metaphor of 'application' perpetuates a divide between theory and practice" (Nixon and Murr, 2006; p. 807), as if a template for wicked problems or a recipe for emergent and unpredictable crises could be developed beforehand that would prove viable. This paradox might be resolvable if students were to be "...taught a more organic and holistic strategy for problem-solving inductively" (ibid.).^{viii} The dynamic of the application paradox appears to reproduce rather than resolve the theory-practice division. To the degree that this is true, it suggests that careful thought should be given to the design and delivery of Higher Education learning and teaching programmes to ensure the greatest possible integration of theory and practice.

Having been in and around WIL-type programmes as both an academic and an industry practitioner for two decades, I think there are two main problems:

1. Practical experience programmes are often perceived, if not delivered, as separate, "add-on" programmes to supplement academic study. They are not well integrated and sometimes are administered by non-academic staff. Despite best intentions, there is a distance between subject matter and learning expertise on the one hand and the

placement or practical experience on the other. This problem is exacerbated where there is minimal academic engagement with students while they are on placement, or when learning expectations are not established between the academic institution and the workplace.

2. It is often assumed that individuals will automatically and sufficiently learn from experience and that they will take away valuable lessons. This is not the case. Experience does not necessarily or directly convert to learning (DeRue et al, 2012; Epstein and Hundert, 2002; Percy, 2005; van Woerkom, 2004). In making her case that reflective practice is crucial to learning from internships, and citing Van Gyn, Doel (2009) concludes:

Students do not necessarily learn from experience, particularly if they do not think about it or do not take responsibility for it. If a placement is only a way to gain experience of industry, and a method of linking technical knowledge with real life application, then it is not being fully recognized (p. 172).

Individuals may learn little, the wrong thing, or something entirely unintended and unexpected from experience. They *may* learn valuable lessons about life, professional practice, and even knowledge and skill highly relevant to their course of study, but this in no way may be taken as given. What students learn and how they learn through practice should be of great concern to academics and workplace educators. Greater learning can and should be facilitated, and the mechanisms for enhanced learning built into the framework governing professional education.

The New Learning Paradigm

*Innovative learning involves balancing the chaos of uncertainty with the old grooves of experience. Knowing how to escape this paradox forms the core competence of innovative entrepreneurship.*¹⁵

Learning is and has always been essential and in many ways defines human behaviour. We clearly learn to avoid certain things (and people) and seek others. We have always learned to do things differently and have sought to find better ways of doing things more safely, efficiently, consistently, sustainably, and aesthetically. We learn from the past and, hopefully, we learn in the present. Innovative, generative learning, or what might be called "forward learning" or "learning forward" is different. While he does not speak of "learning forward", Kemmis's (2005) elucidation of "exploratory action" (pp. 406-407) is clearly related to the process attempted to be explained here and most helpful in understanding it. Exploratory action is "a process of projecting ... into action or practice[:] ...not guided by *present* or *past* knowledge alone; it is also *exploratory* and open to self-correction in light of changes and in the light of what one learns *in* and *through* practice" (*emphases in the original*).

Learning forward or generative learning in some respects is similar to "strategic learning" as detailed by Thomas et al (2001), which, amongst other things, aims to "generate learning in support of future ... initiatives" (p. 331) and, referencing Hirschleifer, a "foreshadowing" (p. 332). Lester (1995), in his article on professional education, includes "creating" as one of his key metacompetencies, which is, he admits, lacking or difficult to achieve in professional education. He defines creating as "the generation of new theory and practice by synthesis or leaps of imagination, and is the active process [requiring] a deep level of thinking and enquiry in which underlying assumptions, values and issues are brought to the surface and resolved, [resulting] in new theories, ideas, proposals and practices" (p. 49). Here, creating is very much a synonym of generative learning.

While we should not always disregard learnings from the past and cannot always easily discard them when we should, learning forward attempts to break with the past, leaving what we *think* we know, need, or can do behind and starting anew. This is an important function of unlearning, as mentioned previously. Learning forward is more akin to Nicolaides and Yorks' (2008) epistemology for learning through life, which they describe as learning "moment by moment" and "ever self-renewing learning". It is prospective as described in Hays (2013b) 'sensing what is yet to come and grasping its implications... and the learning and capability-building needed to prepare self and others to contend with emerging challenges and realise opportunities as they arise'.

Figure 2 depicts a concept of a learning continuum that includes past, present, and future learning. I use the curved continuum to symbolise the Earth and its horizons. It is customarily assumed that we cannot see over or beyond the horizon. But over-the-horizon envisaging,

¹⁵ Gielen, et al (2003; p. 90).

beyond what we more immediately see, characterises forward learning, and is precisely the capacity we need to anticipate and prepare for the problems and opportunities that are not yet palpably manifest... they are coming into being, yet to arise. Claus Otto Scharmer has popularised the notion of "leading from the future as it emerges" in his ideas on self-transcendence and Theory U (see Gunnlaugson et al, 2014; Scharmer, 2001, 2007, 2008; Senge et al, 2007).

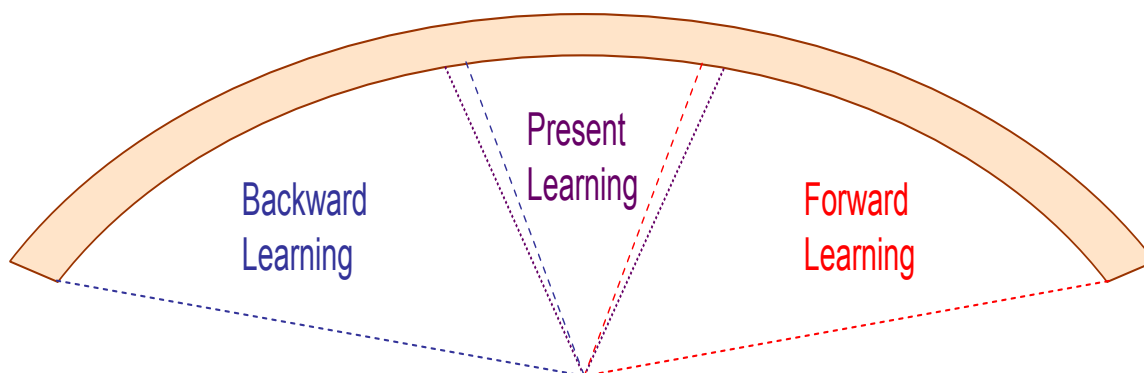


Figure 2.
The Learning Continuum (Horizons).

Learning forward is difficult to explain, not to mention actually do. But, it is possible. It is seen in inventions that revolutionalise what we do and how we do it, and in the way we think, as in a paradigm shift (see my discussion and additional references at Hays, 2010a). It involves redefining and looking for new solutions to old problems as well as seeing emerging problems as entirely new and different than problems dealt with in the past, thus requiring new and different solutions. Such thinking is outward and forward, or "proactive" as described by Cope (2005), rather than reactive or drawing on the past as in learning backward.

Chan and Anderson (1994) contrast "maintenance learning" and "innovative learning." The former, they explain, is "the acquisition of approaches, methods and rules for dealing with known and recurring situations" (p. 30), while the latter, needed especially in "times of turbulence, change or discontinuity ... can bring change, renewal, restructuring and problem reformulation" (ibid.). More recently, Hong and Kuo (1999) defined three *types* of learning: maintenance, adaptive, and creative, with their creative type of most relevance to this present discussion. Treffinger et al (1982) provided three *levels* of creative learning: divergent functions (openness and *possibilities*); complex thinking and feeling; and involvement in real challenges. Divergence is similar to lateral or out-of-box thinking, and ostensibly comes from the capacity for complex thinking and feeling and the capability to tap into them. Complex thinking and feeling entail 'transformations of products and processes, analogies and metaphors, methodological or inquiry skills, dealing with complex feelings and tensions, imagery, and the development of psychological freedom and safety' (p. 13), which are, then, applied to real problems and challenges.



Creative learning is characterised variously in the literature, but there is some agreement that it is important in solving complex, novel problems (Craft et al, 2007; Ferrari et al, 2009; and Treffinger et al, 1982). One aspect of creative learning that is important is that it is *constructive*. The learner sees possibilities, makes connections where others do not, and assembles disparate ideas and elements in new and different ways. Treffinger et al (1982) explain the creative learning process:

[B]ecoming sensitive to or aware of problems, deficiencies, gaps in knowledge, missing elements, disharmonies, and so on; bringing together available information; defining the difficulty or identifying the missing element; searching for solutions, making hypotheses, and modifying and retesting them; perfecting them; and finally communicating the results (p. 13).

Not emphasised but important in Treffinger et al's (1982) definition is the learner's sensitivity to what's missing and capability to entertain what might address it. Here, Österberg's (2004) exposition on knowledge and generative learning is helpful. He concludes that creativity is the ultimate intelligence—that which helps us solve problems when we possess no obvious relevant knowledge. The professional environment into which students graduate poses many challenges for which conventional training is insufficient. Professionals need more than discipline-specific knowledge and skill. They need the ability, sense of purpose, and discipline to risk "not knowing" and creatively learn.

While inadequate in understanding it fully, a resource by Paavola et al (2002) illuminates innovative learning. They maintain that innovative learning can best be understood through

a knowledge-creation or knowledge advancement metaphor. The knowledge-creation metaphor of learning means that learning is seen as analogous to processes of inquiry, especially to innovative processes of inquiry where something new is created and the initial knowledge is either substantially enriched or significantly transformed during the process (p. 24; emphases in the original).

Fenwick (2004) presents a lucid explanation of innovative learning, a process she suggests is "practice based and participative" and dealing with knowledge that is "always dynamic and provisional" (p. 231). Citing Engestrom, Weick and Westley, and Crossan et al, Fenwick (2004; p. 232) employs a language for innovative learning that is provocative and liberating: "learning what is not there", extending "learning into a realm where there is not yet language to describe the ideas being generated", and with individuals trusting "their thinking in this realm sufficiently to follow their intuition in the unknown".

Some scholars distinguish adaptive learning and generative learning, with the former being incremental and the result of environmental stimulus, and the latter being more fundamental, leading to a new way of seeing the world (see Baker and Sinkula, 1999). At the minimum, adaptive learning is continual and leads to adaptations in the way we think, approach problems, and make decisions (Ellström, 2010; Sun et al, undated). For this reason, I use the term *generative* to describe learning that is intentional and exploratory and that leads to new knowledge, capabilities, and products.¹⁶ It is initiated out of a general desire to learn or appreciation of learning for its own sake, a seeking of what might or could be interesting or useful, as opposed to instrumental learning directed to solve an immediate problem or achieve an existing task. A truly generative learner might purposefully invent problems or situations (hypotheticals¹⁷) merely to explore possibilities, exercise problem-solving capabilities, and develop expansive mind [capacity].

Such learning seeks to anticipate problems and opportunities before they arise, imagining and intuiting possibilities and preparing for them or, better, making them happen. While embedded in his discussion of judgement in "hot action", that is, a reflective, in-the-moment reasoning in the midst of critical circumstances, Beckett (1996) alludes to the anticipatory quality of professionals engaged in practice. In his view (I interpret), mastery and wisdom come from and are demonstrated in practice, but demand also knowing and doing what is right to do given the circumstances, not just technically or intellectually, but morally and ethically.^{ix} Crossan et al (1999) have outlined the anticipatory process helpfully as part of their organisational learning framework. "Intuition", they explain, "is the beginning of new learning" (p. 527), at least for entrepreneurs. A largely subconscious and preverbal process, the "outcome of individual intuition is an inexplicable sense of the possible, of what might be done" (*ibid.*).

¹⁶ Bergmann-Lichtenstein's (2000) article on generative knowledge and self-organized learning provides a useful complement.

¹⁷ See Thomas et al (2001).

This is all to say that we can learn only so much from the problems of the past and what we have learned from our attempts to solve them, whether succeeding or failing. The same can be said for theory and knowledge, as current and credible as they might be. Paradoxically, what we learn and come to know both enable and disable further learning. The more we know, the larger our mental frameworks, thus the more we can accommodate and build upon new information. But that has limitations. From the moment something is learned, or "known", we rule in and rule out certain possibilities (see Argyris, 1991).¹⁸ Some things fit, and some don't.

We would do well to endeavour to entertain that from the moment knowledge is realised it is decaying, evolving, or applicable only in given contexts, rather than fixed and universal. Possibility thinking rules nothing in or out. Frivolous? Impractical? Absurd? Absolutely! Therein lies its potential.

The future is yet to arrive, and as it does it will inevitably pose problems of a scale, rapidity, and complexity hitherto unknown. Always a potential danger, looking at problems and situations with eyes preconditioned by past experience leads us to see things that are not there and fail to see things that are. We need a new way of thinking and learning... a way to see things as they are; paradoxically, a discipline for seeing every situation with fresh eyes.¹⁹

If, as Grint (2007) maintains (citing Wilkinson), "the ability to live with paradox and uncertainty is a prerequisite for leadership" (p. 240), then the way we educate and develop tomorrow's leaders, scientists, and other professionals must incorporate aspects of ambiguity, uncertainty, tension, and contradiction; adopting strategies that are, as I have described elsewhere, *wicked* (Hays, 2013c). They could be perceived as tenuous, precarious, chaotic and confusing; no doubt, unconventional, and, possibly, avant-garde, producing a range of responses from scepticism and derision, through frustration, anger, and resentment, through incredulity, joy, and thrill, to awakening, embrace, and transformation. These are phenomenal mental and physical states, each a defining moment worthy of celebration. Reading of them may invoke disbelief, anxiety, or hope, depending on the person. Transformation can be, and often is, this powerful.²⁰

A curriculum for the 21st Century attempts to prepare graduates for an unknown world by equipping them not so much with predetermined knowledge and skill, but with resilience, receptiveness, and change-readiness (Barnett, 2004; Lee and Dunston, 2011; Lombardo and Eichinger, 2000). Lifelong²¹ and self-directed learning²² are necessary and valuable, but what we seek implies even more. Meta-cognition²³, meta-learning (Boström and Lassen, 2006) and metacompetence (Lester, 1995) come close. Our requisite capacity is more than these, however. It is an openness, a readiness,^x an emptiness, a patient and trusting awaiting—fundamentally, a

¹⁸ If not obvious, "certain possibilities" is an oxymoron. I have found oxymorons, paradoxes, and contradictions helpful in getting people to readjust their thinking. Metaphors are also particularly useful in this regard.

¹⁹ See Cherry's (2005) article on preparing for practice in the age of complexity.

²⁰ See Hays (2008b).

²¹ Brown (2002), Dumas (2002), Hyslop-Margison and Nadeem (2007), Marsick (1998), Nicolaidis and Yorks (2008), Schwandt (2005).

²² Kessels and Poell (2004), Kuiper and Pesut (2004), Loo and Thorpe (2002), Merriam (2001), Merriam and Caffarella (1999).

²³ De Rue et al (2012), Hays (2013a), Kuiper and Pesut (2004), Kuyper et al (2000), Pesut (1990).

state of continual becoming.^{xi} It is an imagining of the not yet witnessed or realised. It is the new science—art: the canvas waiting to be painted; the score anxious to be written; the page ready to be filled. Getting people to *feel* creative or even that they have permission to be creative is another matter. But recent research is promising ‘Creativity is conceptualised as a *skill* for all. It is an ability that everyone can develop and it can therefore be fostered or, likewise, inhibited’ (Ferrari et al, 2009; p. iii; emphasis in the original).

They explain:

Creative learning is any ... learning which involves understanding and new awareness, which allows the learner to go beyond notional acquisition, and focuses on thinking skills. It is based on learner empowerment and centeredness. The creative experience is seen as opposite to the reproductive experience. Innovation is the application of such a process or product in order to benefit a domain or field.... Therefore, innovative teaching is the process leading to creative learning, the implementation of new methods, tools and contents which could benefit learners and their creative potential (p. iii).

The new learning paradigm, then, is less about providing a specified set of knowledge—filling the mind—than it is about opening the mind. The task for students becomes less one of retaining and reproducing and more of producing. The productive mind explores, discovers, synthesises, converts, and creates.²⁴ The productive mind is not told definitively what to produce, but given licence within broad parameters to produce work that is original. This involves constructing new knowledge, tools, artefacts, or methods or innovative ways of employing them.

The task for teachers is to create and sustain conditions favourable to this process. The challenge for both students and teachers is that the new paradigm may be more work (or seem that way initially), and there is risk in the process for both. Daring to go where no one has gone before ensures that neither the journey nor the destination can ever be predicted at the outset. Yet, this is precisely the conditions for which we are trying to prepare university graduates. Nicolaides and Yorks (2008) write,

in contemporary society the cutting-edge challenge is in fostering competencies and capacity for dealing with ambiguity and emergent change. ...the illusion of predictability is being unmasked (p. 58).

We are after a malleable and adventurous mind, and the skills, discipline, and courage of those who seek and discover. Perceived effort and risk of the new learning paradigm can be offset. From my experience, the process can be fun, fulfilling, powerful, and transformative, and lead to unexpected insights, practical discoveries, and unforgettable experiences.

²⁴ Engestrom's (2001) formulation of expansive learning at work is helpful in understanding this process.



'NASA Jet Propulsion Lab...' by Director of JPL
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A Platform for Reform

Learning for an unknown future has to be a learning understood neither in terms of knowledge [n]or skills but of human qualities and dispositions (p. 247). ...Neither knowledge nor skills, even high level knowledge and advanced technical skills, are sufficient to enable one to prosper in the contemporary world (p. 253).²⁵

A reframing or reform of Higher Education is called for, given the nature of the world into which university students will enter upon graduation. Conventional Higher Education is necessary but insufficient in preparing graduates to effectively meet the demands of the interconnected, global world of the 21st Century—a world that is largely unknowable, as Barnett (2004) has so cogently explained. A world that requires entirely different capabilities and orientations than those typically engendered in university study. Integration of professional education into Higher Education provides the means for redressing this insufficiency.

A curriculum that adequately equips learners to meet the demands of a complex, wicked world must, itself, be wicked. It will be thorny, risky, ambivalent, paradoxical, contradictory, chaotic, unpredictable, and full of tensions, competing demands, and dilemmas. It will feel out of control. It will require true collaboration and teamwork, rather than individual effort, knowledge, and

²⁵ Barnett (2004).

skill, which will always and forever be deficient. Such collective effort requires both courageous leadership *and* followership (Hays and Kim, 2012; Kim and Hays, 2010a). It will demand of learners (and teachers) creative, novel, and defensible solutions, decisions, and actions in the midst of a milieu that offers few cues as to what might or should be done, no formulas or standard methods to follow, and no authority to turn to for answers and directions. Right action may ultimately depend on taking a stand, or electing *not* to act in the face of pressure to do so. Such a curriculum will appear unreasonable and perhaps unfathomable.

Such a curriculum is largely undefinable, making it at least initially disconcerting to many students and teachers, and those who resource and authorise curricula. Disconcert lies at the heart of a productive curriculum that transforms lives and leads to generative learning (Antonacopoulou and Sheaffer, 2014). Disconcert (*n.*) is perhaps one side of a dynamic process that produces transformation and generative learning. The normal rules and conventions do not apply.

Another side to this involves creating a safe environment where learners are permitted—encouraged—to play, have fun, express parts of themselves seldom allowed freedom in academic settings, and seek new and alternative ways of doing, being, and becoming. I have witnessed the results of this across a variety of university courses and industry seminars and workshops. Words such as joy, immersion, flow, excitement, thrill, passion, hope, camaraderie, amazement, and incredulity convey sentiments arising from transcending conventional restrictions (along with, at times, it must be said, frustration, pathos, empathy, tenderness, and love). These conditions honour the individual, celebrate the collective, and allow and call forth creativity and innovation.

Why permit, much less architect, such circumstances? These crisis, volatile, and "highly-irregular" conditions are characteristic of problems often posed in the real world, defining features of professional life, professional practices, and the practice communities where they are called for and critiqued.²⁶ As Engestrom (2001) has written:

People and organizations are all the time learning something that is not stable, not even defined or understood ahead of time. In important transformations of our personal lives and organizational practices, we must learn new forms of activity which are not yet there. They are literally learned as they are being created. There is no competent teacher. Standard learning theories have little to offer if one wants to understand these processes (pp. 137-138).

There is no textbook for life; no recipe for success in professional practice. There are, however, qualities, dispositions, and meta-abilities that individuals can develop that will increase the likelihood that they will attain and sustain greater effectiveness and fulfilment in professional practice than might otherwise be the case.²⁷ Cheetham and Chivers (1996) framed certain

²⁶ See any of the following cited elsewhere herein: Antonacopoulou and Sheaffer (2014), Beckett (1996), Gielen et al (2003), Kennedy (1987), or Lee and Dunston (2011).

²⁷ Barnett (2005); Buckley and Monks (2004); Cheong and Tsui (2010); Lombardo and Eichinger (2000); Meldrum and Atkinson (1998).

overarching capabilities as meta-competencies, abilities (if not orientations) that enable development and appropriate application of other skills and abilities. These include creativity, mental agility, problem-solving, and self-development.

Lester (1995) frames metacompetence as "the ability to ask the right questions, construct problems from problematic situations, and develop the means to resolve them" (p. 48), a process of self-directed learning and construction. Shelton and Darling (2003) enumerated "quantum skills" that improve capacities to learn: seeing intentionally, thinking paradoxically, feeling vitally and deeply, knowing intuitively, acting responsibly, trusting life's process, and being in relationships (see pp. 354-358).

In their article on professional competence, Epstein and Hundert (2002) enumerate seven dimensions: cognitive, technical, integrative, context, relationship, affective / moral, and habits of mind. Some of the specific capabilities they identify of more relevance here are: observation of one's own thinking, emotions, and techniques; attentiveness, critical curiosity, recognition of one's own biases, tolerance of ambiguity and anxiety, managing uncertainty, judgement and reasoning, self-directed learning, recognising gaps in knowledge, and generating questions. I have come to include mindfulness (Epstein, 1999) as a meta-capacity; see Hays (2013a) for elucidation and further references.

We have, thus far, characterised the environment into which university graduates enter and emphasised the inadequacy of conventional education with respect to equipping graduates for that world. We have also discussed the nature of education reform that might better prepare university graduates for their future professional roles. It is to the topic of professional roles and practice to which we now turn. What does it mean to be a professional practitioner and what is required of a professional practice that remains viable in the face of ever-shifting demands?

Of Swells and Swamps: Sharks, Crocs, Murkiness, and Madness^{xii}

Life in professional practice and practice communities can be anything but straightforward, as the following vignette attempts to convey.

Three hours into my workday, and third cup of coffee. Sometimes I envy my colleagues who still smoke. The pleasure and pause of that insane attempt to order the day.... I stare out the window, and see a couple of them huddled in front of the entrance below. They're laughing. I wonder what the joke is, and feel my ire rising. I turn back to my desk, mountains of paperwork stacked neatly, prioritised and tabbed. My computer screens leer at me, taunting.

I sigh, and seat myself.

Somewhat resentful and frustrated, I stare at one of the screens and feel myself drifting, the familiar fog surrounding me. What am I doing here? Am I doing anything worthwhile? I got this job to help people, to make a difference in my community. I know I am here for that. The crowd in the waiting room outside my door serves as a constant reminder.

But I'm only one person, and I can be split only so many ways. As the volume of people needing my services mounts, I feel increasingly torn in many directions by competing demands on my attention; fractured. Maybe I should permit my multiple personalities to emerge? I hate myself and my insensitive, indulgent thought...

Back to reality, do I use my lunch break today to return calls, answer e-mails, squeeze in a meeting with a junior staff member needing advice, or write that After Action Report my boss is expecting? And, which tasks can I push off till this evening? Oh, I forgot. I've got that Chamber of Commerce thing tonight. Give it a miss and hit the gym instead? Or have a nice quiet evening at home? Get serious. It's expected that I be there. "Your civic duty", my boss reminds me. Maybe I can finagle another paid speaking engagement. That could keep us solvent for a couple more days.

Yes. The ugly truth. We're in worse shape than anticipated. And, what to do about it? Do I share the news at the staff meeting this afternoon (to be held after office hours yet again) that our budget has been cut? Not sure.

And, do I let someone go or do we increase the case load to offset costs? Do I pose this as a problem for the staff to solve? They might grow through the process and appreciate being consulted. If I don't, I'm in trouble. But, I know that sometimes they just want me to make the call. It's a vicious cycle! Trying to insulate them, I do all the work and take all the heat.

I think I'll just do it myself. But I wonder what the lesson is for them, in turn, working with their clients? Who's got the power? What about responsibility and ownership? What's more important? Building skills or just getting on with the job? I'd better decide soon. I don't have much time between now and our meeting later. Maybe it'll come to me...

Okay. Really this time. Back to reality! How many people can I see in the next two hours? If I race through the consults, I can probably see twice the norm.

Vignette 1.

A day-in-the-life of a professional practitioner.

While every professional and practice is different, readers may be able to relate to some aspects of this glimpse into "a day-in-the-life-of" a professional practitioner. The vignette reveals something of the competing demands, complication, and dilemmas posed in practice. Clearly, this practitioner is burdened by workload and may understandably be seduced into taking

shortcuts in client service or making rash operational decisions, taking the easy, if less productive route to staff development as an example. We do not know the extent to which this practitioner is caught in the *work harder* vicious cycle, but we can predict that half measures might ultimately result in more work, as explained earlier with respect to the problem-reaction vicious cycle (Figure 1).

Another problem confronting this practitioner is that she appears to be toughing it out alone. As related, "I'm only one person, and I can be split only so many ways." She seems willing, if somewhat reluctantly or resentfully, to take on the lion's share of responsibility and to drive herself mercilessly at levels that are not sustainable. One wonders if this individual avails herself fully of her practice community. This unwillingness or inability to delegate, otherwise share responsibility, and ask for help is, itself, part of an insidious vicious cycle. Disenfranchised, staff fail to develop the skills and attitudes essential to contributing at higher levels of sophistication, thus cannot (or are likely to choose not to) engage in practice functions in ways that would relieve the manager's workload and sense of isolation. Instead, dependence on her increases, as do her workload and stress.

It seems obvious that our hapless practitioner needs a perspective adjustment. We wish she could step out of the morass of busyness and get a bird's eye view of herself and her practice conditions. But how many of us regularly do this? It is far too easy to become engrossed in the day-to-day trials and tribulations of practice to see it for what it is... and that we are complicit in creating its unwholesome, unproductive circumstances.

The practice environment requires many capabilities of professionals. Here, we identified a not-atypical wicked problem and vicious cycle, a version of the Working Harder Syndrome: too busy to stop and implement a more effective work strategy and too immersed in the milieu and integral to the problem to see the need *and possibility* to do so.

Beginning to address this vicious cycle is contingent on detachment, equanimity, and objectivity, the ability (and will) to "get over yourself" (Hays, 2013b).²⁸ Seeing the bigger picture with some measure of objectivity requires that we diminish the influence of impediments that obscure our vision, limit our thinking, and undermine needed action. Such impediments include biases, beliefs, and assumptions that comprise our mental models (Chermack, 2003; Larrivee, 2000).²⁹

Reducing perceptual filters and blind spots (Scharmer, 2007; 2008) and enhancing our perspective on what *is* requires mindfulness and reflexivity (Hays, 2013a).³⁰ These two capabilities are of paramount importance to individual and team learning and performance (Hays, 2013a; 2014). Yet, they remain peripheral to mainstream professional development and education programmes. Two obvious reasons for their exclusion, lack of emphasis, and

²⁸ Equanimity figures in much of the literature on wisdom, as identified in Hays (2008a). It is discussed more thoroughly in Cullen (2011) and Kraus and Shears (2009).

²⁹ Biases, beliefs, and assumptions were held to be so important in learning and change that they were included as a key element in the dynamics of organisational wisdom (Hays, 2008a).

³⁰ See, also, my discussion on emancipation in Hays (undated).



opposition is their (a) ineffable nature and marginal connotations and (b) the belief that they cannot easily be taught and developed. Including them as legitimate learning objectives and building them meaningfully into learning strategies and activities can be challenging, and some resistance from learners and fellow educators might be expected.

This is all to say that professional practice demands much of us. Here, we have considered only one situation in our glimpse into a day-in-the-life of a practitioner. As seen, there are multiple and entangled problems, and manifold sophisticated capabilities called upon. Not once were specific disciplinary skills and knowledge areas mentioned as required, nor would they suffice in assisting our practitioner to consciously and objectively enter her vicious cycle and intervene effectively. This is not to say that discipline-related skills and knowledge are unimportant. They are necessary, but insufficient.

Clearly, meta-capabilities such as critical reflection, mindfulness, detachment, and systemic thinking would help our practitioner better understand the complexity of, and act more effectively in, the situation. Amplifying the potency of these meta-abilities, generic skills such as critical thinking, complex problem-solving, reasoning, judgement, and ethical deliberation would help in this instance, not to mention leadership, communication, and teamwork and collaboration. But, where do these capabilities come from? How do we develop them? Despite worldwide attention, these key generic skills and desired graduate attributes may not be fully developed in

university study or corporate training programmes, as has been emphasised by numerous scholars cited in this monograph.³¹

As professionals ourselves, or professionals-in-the-making, we might well ask which university units prepared or are helping us to prepare for these circumstances? My guess is that most university offerings have only skimmed the surface of such issues. Telling students that professional practice is unpredictable, stressful, and complex is unhelpful. Filling their heads with theory and abstract views on practice can only go so far. Racing through a Problem-Based Learning case is a step in the right direction, but how thorough and authentic is it? University students need real experience, ongoing inquiry into and reflection on that experience, continual dialogue seeking to explore the connections and disconnects between theory and practice, and deep, genuine deliberation on issues, behaviour, and situations that they might otherwise be inclined to neglect or dismiss, simplify (or exaggerate) and generalise, misinterpret, falsely attribute, and so on.

Few occurrences in professional practice are unworthy of examination (though, with the passing of time, most come to be seen as routine or taken as given). Critical practitioners and observant new recruits are likely to ask, "Why did this happen? Why did that not? How many ways might that be explained? What would have happened if something else had been tried?" My experience is that even one instance of a truly thorough and open-minded investigation of an issue, behaviour, or situation can reveal to learners how superficial and narrow their typical explorations are and how quickly they tend to come to closure. Yet, how many times do we really get a chance to do this, and with an expert *and* open-minded practitioner as facilitator, catalyst, and inquiry guide? To the degree that conventional Higher Education precludes critical, thorough exploration, deliberation, and creativity and rewards conventional thinking and acting we end up with skilled and knowledgeable individuals who cannot or are disinclined to think and act wisely.

If your assessment is even fractionally as pessimistic as mine, then we should pursue questions such as:

- How could our courses have been (or be) more helpful? More authentic? Wicked?
- What kind of learning would equip us for these circumstances?
- What are we teaching (and modelling) that is really irrelevant or counterproductive? That perpetuates the way things are, rather than how they could be?
- How can we better prepare university students for professional practice, and the challenges of a complex, global world?

The material in following sections should enable readers to design and revise university courses and programmes that are apposite, holistic, and practicable, and better target development of the range of Key Generic Skills and Desired Graduate Attributes, and sophisticated meta-abilities and dispositions necessary in 21st Century professional practice.

³¹ Some dependable sources include Brown and Duguid (1999), Grauerholz (2001), Kumar (2006), Marsick (1998), Madsen and Turnbull (2006), Nixon and Murr (2006), and Sice and French (2006).

Safe Haven

While surrounded by sharks and crocs, rough seas and muddled, murky waters, the well-provisioned practitioner of the 21st Century remains relatively unruffled, reassuringly steady, anchored in clear purpose and eyes trained on important objectives beyond the trials of the moment, each movement grounded in principled, ethical integrity. This is neither hero nor saint, but a human being concerned with improving self and making the world a better place, an individual who balances humility and eagerness to learn with confidence and acceptance of responsibility. This is a professional who works hard, but places sustainable practice and long-term investment before short-term ease or profit. If we are healthy, this is the kind of person we are glad to follow and keen to emulate. He or she makes us feel trusted, needed, and cared for.

Given the pace, frenzy, and competing demands and interests characterising the 21st Century global world, and this notion of leader as safe haven, part of the educative challenge facing universities is to develop curricula that produce graduates who can themselves cope in such circumstances and can serve as role models and guides to others. Such circumstances beg for more encompassing views of professionalism and more authentic and productive education programmes for professional practice.

This is no meagre challenge. We know that curricula are already packed with material held to be essential and that there is little latitude for including more. To make matters worse, the body of capabilities and dispositions required in the new millennium is itself huge. There may be many solutions to this problem, and we should turn to it openly and creatively and, perhaps, courageously. One thing is for certain: a dramatic re-interpretation of the qualities expected of graduates and how they are fashioned is called for. At the minimum, greater integration and coherence across curricula are necessary to permit leverages, synergies, and efficiencies.

Requisite Qualities and Capabilities of New Millennial University Graduates

As suggested throughout this monograph and enumerated in many sources, contemporary university graduates should possess and demonstrate a wide range of capabilities and capacities often referred to as generic skills and / or graduate attributes. While there is some variation in number and emphasis, there appears to be general agreement with respect to a common core of Key Generic Skills and Desired Graduate Attributes. These are distinct from, though possibly contextualised within, a student's discipline, major, or course of study. All graduates from a given institution are meant to develop a designated set of skills and attributes. Rather than merely listing an indicative common core, the cube diagram at Figure 3 attempts to depict an intersection of capabilities, dispositions, and discipline-specific competences.

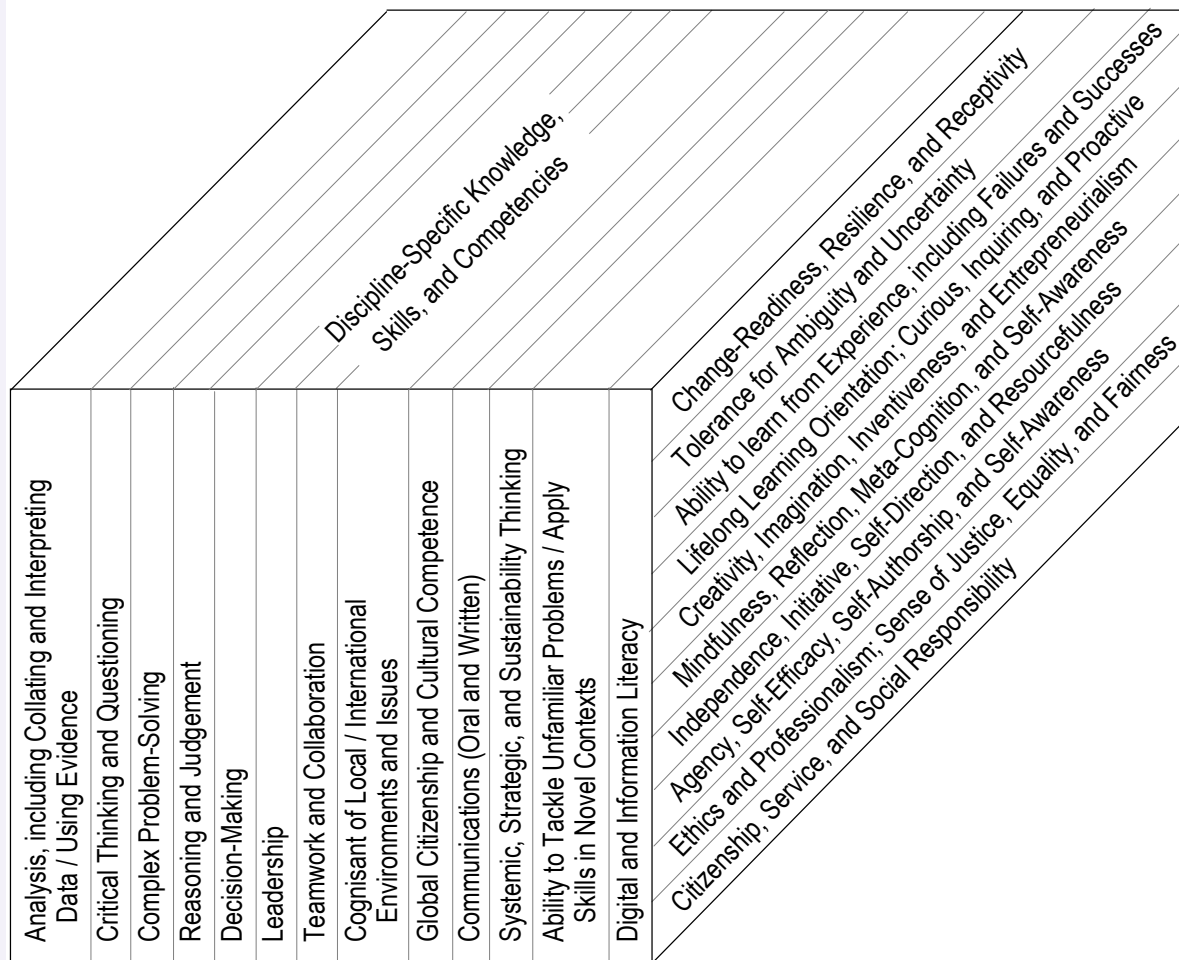


Figure 3.
Requisite 21st Century capabilities, capacities, competencies, and dispositions.

This portrayal is important conceptually, providing a framework for unit and programme design or revision. It is not meant to be prescriptive or exhaustive, nor is it a detailed "how to" guide. It is, however, complex and comprehensive, revealing something of the challenge facing course designers in truly incorporating generic skills and dispositions into curricula *and* maintaining a focus on discipline-specific content. The intersecting framework forms a three-dimensional matrix strongly suggesting how design or revision might be addressed. An example of its use is provided below.

My observation, having worked across several different institutions during the 2007-2015 period, is that generic skills and graduate attributes are often articulated and touted, but seldom genuinely and demonstrably developed. They appear, for example, in unit outlines and course syllabi as learning objectives and may figure in assessment rubrics. In delivery, however, discipline-specific content is emphasised and assessed, while generic skills and graduate attributes are neglected. One problem is that it is assumed that the intended skills and attributes

are developed automatically. A prime example is the assumption that students learn teamwork and collaboration skills and develop healthy orientations towards teamwork and collaboration by the requirement of one or more group projects to be completed in a unit. It is further assumed that multiple exposures across semesters of study will be sufficient for students to build and refine these skills and dispositions.^{xiii}

There are numerous problems with these assumptions, amongst them: (1) teamwork and collaboration are not tackled directly as other instructional content would be; (2) what students learn from a teamwork and collaboration perspective may be trivial or counterproductive; (3) teamwork and collaboration are not authentically assessed; (4) group projects usually come at the end of a term or semester, leaving little opportunity for formative assessment; and (5) repetitions of mediocre experiences ultimately produce modest results at best, and, in fact, may instil bad habits. Additionally, students often fail to appreciate and are unable to articulate what and how they have learned, which may be of significance at interviews or when completing destination (post-graduation) surveys.

The same type of case can be made for other Key Generic Skills and Desired Graduate Attributes, conditions amplified as the subtlety, sophistication, subjectivity, and, indeed, the intersection of qualities and dispositions increase. Consider resilience, for example, or agency, service orientation, professionalism, or even leadership. Each of these and the other capabilities and dispositions can be developed and sufficiently and authentically assessed. That building and measuring generic skills, graduate attributes, and meta-abilities poses a challenge is no valid reason to neglect them. This is especially true for universities that have publicised their set of desired qualities as many have done.

Using the Cube Framework: An Example

The following example has been developed to illustrate the utility of the cube framework and the possibility of multiple intersections of discipline-specific competencies, capabilities, and dispositions in a single unit (university course). This example is based on actual course delivery. Versions have been run with undergraduate and postgraduate classes, and, here, I draw primarily on an undergraduate business school unit: Management, People, and Organisations. The unit was originally run as a conventional survey course, relying on a standard textbook and associated resources to schedule and guide delivery. Typical topics covered in such a survey course include strategy and strategic planning; decision-making; policy; organising and organisation; leading organisational change; ethics and Corporate Social Responsibility; and Human Resource Management.

The unit was initially redesigned when I realised that students weren't really learning much about management that they could use in a practical way. Or better put, they were learning *about* management, but not how to manage. They were certainly not *becoming* managers. Most could repeat what the textbook or I said, but few could apply the theory, principles, and key concepts outside of the classroom or in non-standard assessments. Few could meaningfully see or make connections amongst the topics we were covering, not to mention relate theories,

principles, and concepts to real life experiences or examples from current news. I judged the cause to be the conventional approach taken in my and other units in the management programme. My attempt over a number of years to improve student learning outcomes eventuated in *The Community Project*.

In Management, People, and Organisation: *The Community Project* students as a group have to design and implement one or more large-scale projects as a class. Projects are meant to build or somehow contribute to campus community, including relationships between the university and surrounding neighbourhoods. Through proposing (and selling), developing, implementing, and evaluating their project(s), students learn management in practical and meaningful ways, and develop and demonstrate a range of meta-abilities and dispositions.

One of the first tasks required of students is to develop the criteria as a group that will be used to assess project proposals. It is a relatively simple step, then, to move to developing project success indicators to be used later in evaluation. This activity builds a shared sense of community purpose and a vision of what we are trying to achieve, frames the nature and parameters of the project and unit, links project performance to course assessment, and provides first-hand experience of constructing meaningful measures of performance and, for many students, their first exposure to self- and peer-assessment (Liu and Carless, 2006; Topping, 2007).

Following development of proposal assessment criteria, students then develop their proposals singly or in groups, and present them to the class, attempting to influence popular opinion towards their respective ideas. In addition to being first important communication, collaboration, and community-building activities, this early work reveals the diversity of the class cohort, including student values, perspectives, and skills.

It is easy to see from this introduction that students *might* develop knowledge and appreciation for service, community, and development; but this is not left to chance. From Day One, we dialogue and debate issues of community, citizenship, and quality of life. The class is run as a community, and development of and as a community is emphasised. While community and service are not addressed in the text we use, social responsibility and organisational citizenship are, so we frame what service and citizenship mean within that context and students come to see their legitimate place in the curriculum.

The projects are completely student-run. Students must feel genuine responsibility and exercise their resourcefulness and talents if they are ever to develop agency, autonomy, and self-direction. This represents, for many, a significant threshold circumstance (Hays, 2008b), and watershed moments are as powerful as they are predictable. My job as unit convenor is to structure class activities around the unfolding project(s), ensure essential course content is linked to project phases and emerging requirements, and continually emphasise, model, and support elements I believe most relevant and significant, prime examples being vision and mission.



To succeed fully, students must create and come to mutually believe in a focusing purpose and vision of success toward which they can apply their complementary aptitudes, inclinations, and energies.³²

A continuing challenge for both instructor and students is the sharing of power, authority, and responsibility. If students are not entrusted and empowered to manage their own affairs, including solving technical and interpersonal problems, making decisions, planning and implementing their own way, the major lesson remains that only the teacher (boss) really has “the answer” and will retain authority and responsibility. While there is some reflection of real life in this, students do not truly experience real-life pressures and dilemmas or the fulfilment of working through such circumstances to a successful outcome. Detailing the dynamics of such instruction could comprise its own monograph. But, as one example, imagine how the typical teacher would respond to a team’s looming failure due to seeming lack of skill, initiative, or leadership, and the unintended consequences of providing more direction or asserting more control.

Projects have included design and a project plan for building a cultural centre; various events on the environment and sustainability; fund-raising for charities; creating a peer mentoring programme; and establishing a student trading centre for books, clothing, and household items. Two of the bigger successes were the *Civitas Carnival* held in Kuching, Malaysia, and Pangaea

³² See Kellett's (1999) article on dialogue and dialectics in organisational change for a related focus on vision and mission.

Day in Canberra, Australia. In the *Civitas Carnival*, students involved many campus and local community organisations, ran a series of events and activities over a two-week period culminating in a day-long carnival, and raised thousands of dollars for charity. While such events are exhilarating and the feeling of accomplishment well-deserved upon completion, students learn much in the process. Making what and how they are learning explicit throughout the process serves to remind students why they are engaged in projects and what they are meant to be learning through their various aspects.

Two techniques used to increase conscious awareness (mindfulness and meta-cognition / meta-learning) are reflection and a learning tracking sheet. For reflection, students keep and submit learning journals periodically, and we conduct reflective dialogues (see below) as a group concerning project, process, and topical matters. Teams also must include team reflections in presentations to the class as part of their project progress and After Action Reports. Pre- and post-semester inventories and learning tracking sheets bring to the forefront key learning objectives, and help students focus on key unit skills and knowledge areas and become cognisant of what they are learning and have learned.

With respect to reflection, students are not expected at the outset to know how, possess the discipline, or value it. Many come into the class with little to no experience with reflective practice. Others begin the semester with pejorative views, having been required to reflect in previous units, but never really having been taught how to do it, why, or supported through the process. Much time is spent discussing, modelling, and coaching reflection, with readings, exercises, and tools devoted to the becoming of critical reflective practitioners. As indicated in Figure 3, reflection is a key disposition. Reflective practice is instrumental in developing mindful awareness of self, others, the environment, and their dynamic interaction (Hays, 2004; 2013a). It serves to help learners connect thought and action, and link theory and practice.³³ Thus, reflective practice enhances learning and effective professional conduct. It is a meta-ability and disposition of value across one's lifespan, hence, deserving of considerable attention during university study.³⁴

I use the expression "reflective dialogue" to describe a kind of conversation we strive to promote in the class-community. It implies shared reflection, which draws on, while encouraging and enhancing, individual reflection. Pedagogically, reflective dialogue is to facilitate and reinforce connection-making across concepts and close the theory-practice divide, to enhance collective mindfulness, and illuminate group skills, behaviours, and practices for evaluation. My belief—and experience seems to bear this out—is that shared reflection multiplies learning: individuals are exposed to multiple perspectives, interpretations, and possibilities, thus providing more fuel for learning. As they hone their dialogue skills, students become increasingly open to honest, meaningful, and appreciative conversations and open inquiry, which are necessary for learning

³³ There exists compelling support in the literature for the value of reflection and reflective practice. Many references cited in this monograph cover them in helpful detail, including Blatner (2004), Boström and Lassen (2006), Doel (2009), Grauerholz (2001), Harris et al (2008), Kuiper and Pesut (2004), Larrivee (2000), Meuser and Lapp (2006), Schwandt (2005), Taylor (2008), and van Woerkom et al (2002).

³⁴ Useful sources on dialogue cited elsewhere in this monograph include Calton and Payne (2003), Hays (2013a), Kellett (1999), and Metcalf and Game (2008)

and change.^{xiv} Shared reflection contributes to improvements in team and organisational performance (Hays, 2014). Just as importantly, reflective dialogues build shared understanding and a sense of community, which, in the case of *The Community Project*, is the context for management and projects. This context serves, it is hoped, to remind students that management work is not conducted in isolation. It proceeds with real people, serving and impacting a wider set of stakeholders than one might consider initially. Its purpose should benefit (or at least not undermine) the community, local and global.

In terms of intersection, reflection is not only taught, itself, but is used to contextualise subject matter within the community project and to focus on and reveal the development of other Key Generic Skills and Desired Graduate Attributes. To elaborate, design and successful implementation of a large community project requires project management thinking, skills, and tools. Further, such work demands considerable teamwork and collaboration skills and supportive attitudes, along with leading, communicating, influencing, organising, and so on. Few students have any deep understanding of group process or how their behaviour impacts others. Reflection brings to the surface interpersonal dynamics, and focusing on big picture elements of the unit and project legitimates attending to them.

As one recent example, one of my students assumed de facto leadership early in the semester. We'll call him Paul. Naturally assertive and confident, he set about organising and planning. Having been in the military previously, his leadership style was, at least at first, somewhat authoritarian and directive. At the same time, another dozen or so of the more active students formed a leadership coalition, mostly aligned with Paul. Left to their own oblivious devices, the project probably would have been a success as judged from outside the class. The leadership team either would have coerced classmates to do their designated tasks, or would have done everything themselves (which happens sometimes in real organisational and community work, does it not?). However, we would have failed miserably in that the project would have been completed for the most part by our baker's dozen.

Recall that a major objective in the unit is building community, and developing the skills and orientations of citizenship, agency, and service. Paul and the other more assertive students had to learn that their commanding, proactive, high-ownership, and "just do it" behaviour (normally relied upon, encouraged, and rewarded in the management classroom) unintentionally limited the involvement of others, disenfranchised them from full membership in the community and as citizens, and undermined the development of skills and knowledge that contributing to the project would otherwise permit.

Both the assertive and engaged students and those more reserved had to come to understand and counter these dynamics so that we could fully succeed as a class—a difficult but important lesson for everyone. In addition to reflection and individual effectiveness, these behavioural dynamics can be framed in terms of course content. Applicable topic areas span leadership and followership, teamwork and collaboration, communication and interpersonal skills, and performance management. A specific area I focus on a lot in the unit that is particularly relevant

here is complexity and systems thinking. As part of a meta-lesson, I teach students the nature of reinforcement loops and use of Causal Loop Diagrams (Hays, 2010a) to map and try to understand behaviour and determine how and where to intervene. In so doing, students acquire skills in complex problem solving, habits in multiple perspective taking, and develop the big-picture thinking so essential to strategy and sustainability.³⁵

With respect to Paul, the leadership team, the rest of the class, and what we all could learn from this process, I facilitated several classroom conversations regarding behaviour (sometimes well-intentioned, often unwitting) and its unintended consequences. Using myself as the perpetrator to establish a sense of safety, I would pose a series of “what ifs” and “then whats” to get students thinking about behaviour and habits, likely consequences, and possible alternative courses of action. A typical classroom example would be the teacher who asserts that student voice, interaction, or self-direction is important and then proceeds to dominate “air time” with his or her own voice or presence, charismatic, purposeful, or instructive as it might be. Worse would be the case where a student does assert a view or suggest an answer only to have it rejected, dismissed, or corrected by the teacher. When students start to see that they do that to each other they begin to mature and become more effective in terms of their contribution of healthy teamwork and community-building.

While every class cohort is different and each project offers its own unique challenges and opportunities, allowing latitude and intentionally building generic skills, graduate attributes, and meta-capabilities into learning objectives, strategies, and assessment will produce greater results than leaving their development to chance. I purposely permit (and often create) conditions of ambiguity, paradox, uncertainty, tension, and dilemma.³⁶ These conditions arise any time that students’ needs for predictability and certainty are not immediately met. Within such conditions transformational learning is born. But, I also teach students about the nature of uncertainty and its relationship to knowledge and learning. We consider human and organisational response to uncertainty, and the counterproductive and frustrating effects of attempting to control it. An especially useful contextual framing for the unit comes from the world of organisational learning and change (Huy, 1999; Kellett, 1999). Many employees find change disorienting and some experience anxiety when confronted with the uncertainty of where change might lead.

Management, People, and Organisation: *The Community Project* likewise presents students with a new way of educating, requiring different skills and strategies. While a minority of students immediately step up to the challenge and embrace leadership, self-direction, and the chance to be creative, many more find the new approach perplexing and annoying. Accustomed to being told what to do and how to do it, they are sceptical about the approach taken, somewhat doubtful of their own capabilities to perform, and reluctant to take advantage of what's on offer. To guide them through this process, I use techniques such as *The Journey Metaphor*.

³⁵ Warburton's (2003) article on education for sustainability and Sterling's (2001) book on sustainable education are useful references here.

³⁶ See Hays (2008b) or (2013c).



The Journey Metaphor is an exercise introducing participants to organisational change by likening it to a journey of discovery and exploration, travel to a place no one has before been.³⁷ Understandably, not everyone is tantalised by the unknown and may be uncertain if not reluctant travellers. Having a trusted and experienced guide and being as equipped for unknown challenges and environments as possible are reassuring. So, the exercise becomes one of preparing for the unknown, including identifying and valuing the talents and tools we possess that may increase our chances of success. This exercise places students in a state of mind that is more receptive and resilient. It helps them see that they are not alone in their reservations, and that we are all on the trip together, collectively strong, versatile, and resourceful. Finally, and perhaps most importantly, it provides them with principles, concepts, tools, and an approach that they can use for life *outside the relative safety of tertiary study*.

While there is more to the case and the design and delivery of Management, People, and Organisation: *The Community Project* than can be detailed here, it should be clear that addressing the intersect amongst discipline-specific competencies, generic skills and graduate attributes, and meta-abilities and dispositions is possible. It is assuredly not a matter of cramming more content into already-crowded units. What is required is a reconceiving of design and delivery in ways that permit greater integration, synergy, and authenticity, that is,

³⁷ Detail on the process and content of *The Journey Metaphor* may be found at: <http://jayhays.weebly.com/the-journey-metaphor.html>.

more complete and holistic.³⁸ Replete with imagery, music, drama, and costume, *The Journey Metaphor* is a rich example of a strategy to promote holistic learning.

The cube intersecting framework (Figure 3) can help faculty members to consider the range of skill, knowledge, and dispositional areas needing inclusion. It won't tell you how to structure learning, but many cases, projects, and other learning strategies already in use offer more potential than is currently being exploited. *The Community Project* is particularly accommodating. From the above discussion, *The Community Project* exercises and demonstrates decision-making; communication, influence, and interpersonal skills; tolerance for ambiguity and uncertainty; change management; performance management and measurement; leadership; creativity; autonomy and self-direction; agency and self-authorship; and application of learning to unfamiliar problems and novel contexts. It is heavily experiential³⁹.

The Paradoxical Role of Unlearning and its Relationship to Threshold Concepts

Earlier in this piece I alluded to the significance of unlearning (see references at Footnote 6). Unlearning, as used here, is a deliberate strategy for exposing and challenging existing thinking and the generally-unwitting biases, beliefs, assumptions, expectations, values, and habits that underlie it and impede effective problem-solving, decision-making, creativity, and interaction with others. Unlearning is necessary in conditions where incremental learning is insufficient and previous patterns of behaviour have become untenable. Deep, substantive, and transformational learning (Hays, 2013b) is required when encountering problems in novel contexts or confronting challenges not before seen (Sterling, 2001). The need for such learning becomes evident when tried-and-true, expected measures fail to solve new problems or no longer suffice in resolving familiar issues.

When Paul and the other members of the leadership team came to realise that their behaviours were actually undermining what we were trying to achieve in Management, People, and Organisation they were forced to unlearn ingrained behaviour and supplant it with a leadership style that was more closely aligned with our ideals of citizenship, democracy, equality, and service. They experienced a threshold event, unlearnt, and transformed. Significantly, their transformation also served as catalyst and inspiration for others in the course to transform. Many students had to unlearn embedded beliefs about leadership and who leads and their own patterns of response (which might have been passive-aggressive, deferential-subservient, and the like). They had to unlearn their self-beliefs that they were not and could not be leaders, replacing these beliefs with more agentic, empowered, and proactive ones. Unlearning is a required step to accommodate new thinking, learning, behaving, and becoming.

For these reasons, I introduce the concept of unlearning in units such as Management, People, and Organisation. Unlearning is one of those concepts that is deceptively easy to understand intellectually, but much more difficult to put into practice. Consider the challenge of recognising

³⁸ See Grauerholz (2001), Hutchison and Bosacki (2000), and Warburton (2003) for treatments on holistic learning.

³⁹ Experiential learning features in Hutchison and Bosacki (2000) and Kolb and Kolb (2005).

what one knows that one should not—principles, theories, ideas, and other understandings that are getting in the way of seeing the world differently or moving on to more productive behaviour. Then there is the additional trial of actually letting go of beliefs or habits when faced with the recognition that they are insufficient or no longer valid, especially when public admission is necessary or likely. Such challenges are at the heart of reflective practice and shared dialogue (Hays, 2013a), and often central to deep, transformational learning (Hays, 2013b). At the minimum, the disciplines of reflection and unlearning are necessary facets of self-directed, lifelong learning (see references at Footnotes 22 and 23).

What's good for the goose is good for the gander. If we expect students or seminar participants to identify and supplant undermining thinking and acting patterns, then we must be prepared to do so as well. Applied to a university course, as convenors and facilitators we must recognise when something needs to be changed and be willing and able to change it. This requires the ability to listen to and incorporate feedback, suggesting responsiveness and flexibility on our parts, as well as a measure of humility. Learners should always be heard if we want to encourage engagement, commitment, and self-authorship. Any time learners question, challenge, critique, or recommend affords an opportunity to help them develop reasoning, critical thinking, and argumentation skills, in addition to fortifying their sense of agency. This does not mean that anything should change based merely on student sentiment, preference, or whim. These occasions also permit learning facilitators and others in positions of leadership to reinforce vision, purpose, objectives, core values, and principles, and to remind others why things are just as they should be.

Threshold concepts (Hays, 2008b) are principles, theories, ideas, and abilities that form the basis of more complex, sophisticated, or challenging understandings and accomplishments, and are essential to progressing further toward mastery in a particular domain or discipline. A threshold is likened to a portal, but it might best be conceived of as a crucial milestone. Attaining a given threshold is difficult for many individuals, as obtaining a black belt in martial arts might be. But only once attained and successfully passed through the threshold may the individual go on to bigger and better things.

This notion of threshold concept relates to the case presented above. Any educational approach that places students at the centre of learning, assigns unconventional roles to and expects more of them, and requires substantively new thinking, behaviour, and strategies of learners in order for them to take advantage of the unique learning environment and succeed within it poses threshold conditions. Until students have undergone a fundamental shift in their thinking, they will fail to exact the full potential from deep, transformative education strategies (Hays, 2008b). It may be that deep, transformational learning often includes threshold conditions, if seldom so conceived. This process involves the learner transcending his or her previous limits, somehow being ushered to the edge and "graduating" to a higher level of consciousness, competence, or other capacity.⁴⁰

⁴⁰ See Hutchison and Bosacki's (2000) paper on holistic learning "over the edge".



As Elias (1997) observed, 'Transformative learning is the expansion of consciousness through the transformation of basic worldview and specific capacities of the self' (p. 3).

Deep, transformative, threshold learning must involve pushing the boundaries. My basic conclusion, here, is that conventional, *more-of-the-same* education will seldom be transformational and is unlikely to prepare learners for the complex, problem-rife world beckoning from their future professional roles.

Further, unlearning and threshold concepts are closely related, at least as understood here. To actually transcend current limitations and pass through a threshold into greater states of being and becoming requires one to leave something of him- or herself behind. The question becomes, what must one *unlearn* in order to learn something dramatically different, quantum-qualitatively superior? As Moore (2005) has noted,

Transformative learning involves reflectively transforming the beliefs, attitudes, opinions, and emotional reactions that constitute ... meaning ... to more superior ones. A superior perspective has several features: it is more inclusive, discriminating, and integrative of experience (pp. 402-403).

In the case of Management, People, and Organisations and similar units, students must unlearn years of ingrained habits, beliefs, expectations, and strategies in order to find their way. They

must, for example, unlearn study habits geared toward standard examinations. They must unlearn the belief that they will be told what they need to pass the subject. More substantively, they must unlearn their beliefs and expectations about "who teaches" and forsake their role as passive receivers of knowledge. This involves the realisation that what really matters may not even be on the test and that they are responsible for their own learning. Once they give up vestiges of past, *no-longer-productive* learning environments and embrace the new world order they will be able to accommodate new skills, perspectives, and understandings.

It is doubtful that many students will readily recognise their patterns of thinking and acting in the world that are unproductive and standing in the way of their progression to being and becoming. It is more likely they will conclude that the material is too hard, instructors inadequate, or demands unreasonable. (And, of course, being service oriented, we would likely cave in immediately and try to give students what they want, further reinforcing the status quo.) We can be reasonably assured that increasingly, and over time, reflective dialogues will awaken learners (or heighten their awareness) to their behaviour and other possibilities, which is why I think it's a productive pedagogical strategy and an investment in class time that pays dividends.

Facilitators may have to engage students in multiple dialogues and varied activities to help them see their impediments and need to change, develop more productive coping strategies, and exercise the skills required to learn and change more effectively. Here, the role of reflection and reflective practice in promoting learning should not be underestimated. Likewise, compassionate and committed observation, listening, and coaching on the part of facilitators is essential. Finally, learners need to increasingly master a core set of skills, understandings, and dispositions to best benefit from the new curriculum and prepare for their future roles as professional practitioners and global citizens. Key capabilities, capacities, competencies, and dispositions are itemised in the cube at Figure 3.

CONCLUSION

Higher Education may be conceived of as delivering education somewhere along a continuum from exclusively theoretical and abstract to exclusively practical and applied. In reality, of course, Higher Education institutions deliver a mix, weighted more toward theory or more toward practice.

It is not difficult to speculate on the disadvantages of a university education that concentrates too heavily on either theory or practice. Theory with little understanding of broader context and practical application is insufficient, probably non-transferable, and, possibly, dangerous. An entirely practical, skills- or competency-based education also has limitations. Individuals may be able to “do stuff” but not understand why. They may lack understanding concerning when and where certain skills and techniques are called-for or lack appreciation of (and the capabilities to interrogate) why they do not work or produce unanticipated consequences. They may not have the discipline, skills, or orientations toward challenging the way things are, envisaging how they might be, and architecting a change agenda and justifiable course of action. Professional education seeks to balance theory and practice and close the perceived gap between them for which universities are often rebuked.

A decided strength of university education—or at least a valid expectation and legitimate aspiration—is creating a way of thinking amongst graduates and equipping them with the complementary skills of reasoning, judgement, and critical thinking essential to the functions of complex problem-solving, strategic decision-making, ethical behaviour, reflective action-taking, and continuous learning.⁴¹ These, and the other Key Generic Skills and Desired Graduate Attributes, and the meta-abilities and dispositions presented here essentially comprise a “curriculum for the unknown”, the requisite repertoire of professionals and professional practice for the new millennium global world.

This is also a curriculum for becoming, assisting learners to understand that they, their professional practices, and the world around them are constantly and will always be in motion. Individuals, teams, and communities must be as dynamic as their environments and as resilient and adaptive as those environments demand. But people and organisations need to be more than merely reactive-responsive. They need to be anticipatory and proactive. Learning and leadership cannot be solely retrospective—learning backward—but prospective: learning forward.

That learning and changing are essential in the complex, dynamic, global world of the 21st Century is a given. No doubt this explains the contemporary emphasis on lifelong learning. Where approaches for lifelong learning have failed is in fostering an appreciation for creative, generative, and improvisational aspects of learning and equipping individuals and teams with

⁴¹ See Kuiper and Pesut (2004). Coles's (2002) article on professional judgement is particularly enlightening. I explore these topics in Hays (2013c) and with colleagues in Hays et al. (undated).

the skills, tools, and strategies for learning forward. Unless and until we reduce requirements for learners to reproduce knowledge and meet minimum standards for performance on mundane tasks, we cannot expect many to possess the courage and capability to create and construct knowledge, new ideas, and innovative approaches. We need to set the bar higher, but should not expect learners to reach it on their own. We need to create conditions wherein students can explore, experiment, and even play, and set holistic learning tasks and assessments that richly exercise a range of skills and capacities.

If my observations about the inadequacy of conventional education are at all true, then we are failing as universities and societies to produce graduates with the wherewithal to meet contemporary challenges and lead organisations and nations to healthy and sustainable futures. This is not a blame game, but a manifesto.

This in no way is to diminish the necessity and importance of discipline-specific competencies. Fundamental professional and occupational knowledge and skill will always be required. But, as I have emphasised throughout this monograph, basic training can barely cover what learners need to know right now, not to mention keeping up with the rapidity of change and the advent of new technologies. Given the extent of uncertainty, the unknown and unknowability, and complexity, contestability, and competing demands characterising the environment into which our future professionals will graduate, we have to change the way we prepare them (Hays, 2013c). It is not a matter of greater quantity of content, but of more encompassing, holistic, authentic design and delivery.

The world into which university graduates will be entering is global in reach and complex beyond imagining. It is riddled with dilemmas and tensions, and characterised by ambiguity, paradox, and uncertainty. Problems no one has previously encountered may come fast and furiously, with consequences of inaction or imprudent response dire. Likewise, the new world presents awesome opportunities to the observant, creative, and nimble; but hyper-competition and the speed of change mean that individuals and organisations that cannot quickly mobilise to take advantage of them will be left behind.

Conventional university education produces conventional thinking, and does not prepare students sufficiently to cope with complexity and uncertainty. Paradoxically, university education may undermine individuals' potential to learn and adapt in the real world. This may come about because standard, simplistic assessment and teacher-centred instruction reward surface learning and limit latitude, resourcefulness, and creativity in student approach and product. Such problems are exacerbated by teacher-learner dynamics that reinforce teacher as sole authority and undermine the development of student agency, autonomy, self-direction, and responsibility (Hays, 2013c). So, more of the same cannot be expected to add value.

Much reform is needed to redress inadequacies of conventional education and better prepare students for the chaos and confusion of the real world of the 21st Century. Universities are going to have to work much harder to facilitate relevant, authentic, and meaningful education.



That said, universities are not and can not be alone in this. All stakeholders—including students and their families, governments, and business and other employers—have roles to play. A necessary first step is acknowledging that the current state is untenable. Priorities are unintentionally undermining the education that matters most. True, we are pushing unprecedented numbers of students through university study in shorter times, which satisfies short-term financial and employment concerns. But, at what long-term cost?

Increasingly, educational scholars and other commentators recommend educational process (delivery) more in keeping with the realities of the complex, global world of the 21st Century. By definition that reality is beyond conceiving and comprehending entirely. Thus, educating for it poses a daunting task. So far as educators (and probably as a race), we have generally tried to simplify and break it down into manageable chunks, largely discrete and disciplinary. While understandable and efficient, this strategy is counterproductive, in the long run perpetuating the perception that the world and its problems are simple. This leads to casual thinking and short-sighted measures that, in turn, make matters worse, or in better cases maintain the status quo.

There are no simple solutions, and even the best recommendations must be partial.

That said, we must still go forward. What we know is that a curriculum for the unknown must be realistic—authentically represent or reside in the real world. It must be relevant in that it

addresses contemporary challenges and opportunities. It must be meaningful, linking to needs, motivations, and aspirations. But it must also be thoughtful and thought-provoking, not merely responding to immediate needs and wants, but continually challenging the way things are, promoting a vision of a better world. It must instil in individuals and groups a sense of responsibility for their own learning and development as well as the welfare of others, empowering them with agency—the desire and wherewithal to make a positive difference. This is the very heart and spirit of citizenship, professionalism, and sustainability.

The new curriculum must counteract simplistic and superficial thinking and acting. It must tackle head-on the pressing need for people who can think systemically and long-term, building the skills and appreciation for complex problem-solving necessary for sustainability. Importantly, it must also develop real skills of teamwork and collaboration, and promote belief in the necessity for coordinated, collaborative effort, abilities and orientations not served by traditional individual assignments and examinations.

Most importantly of all, the new curriculum must embody the uncertainty and unknowability of the world, conveying its wicked nature (Hays, 2013c). Educators and those who manage and fund education programmes must learn to be "okay" with imprecision, impracticality, inefficiency, and immeasurability. In other words, they must develop the capacity for ambiguity and uncertainty so essential to a genuine curriculum for unknowability. Further, we must learn to value incompleteness and the potential it offers for becoming. "Half-baked" ideas, seeming irrelevant suggestions, untested strategies, and stalls and dead-ends may lead to new discoveries and solutions in search of problems.

Clearly, university graduates need to develop these competencies, capacities, and dispositions. They comprise the requisite profile of the new millennium professional—the scientists, clinicians, leaders, and teachers of the 21st Century. But we cannot expect them to develop in these areas unless educators and programmes embody, demonstrate, and encourage them. To this end, we might all ask ourselves:

- How much latitude have we built into our curricula to permit creativity, novelty, and construction? Do they really have to be so narrowly defined and prescribed?
- Are we encouraging deep, transformative learning or repetition and reproduction?
- Are we seeking stability and predictability or are we striving for continuous renewal and becoming?
- How comfortable are we with ambiguity and uncertainty? How do we deal with them, and are we unintentionally passing along bad habits or promoting healthy, productive ones?
- What beliefs do we hold about learners and learning that may need to be reappraised and revised?

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- How often and sincerely do we reflect on our teaching? Do we effectively model the behaviours and values of reflective practitioners, and genuinely assist students to develop the discipline and capacity for a lifetime of reflective professional practice?
 - Do we want our students to remember what they've learnt or to become master learners, and how will we know if they are developing the skills and orientations necessary for unstructured learning to solve unfamiliar problems in a very unstructured and complex world?

This, as I see it, is the mandate for professional education: adding a dimension to university study that conventional education fails to provide. This cannot be limited to merely giving students real-world experience. While work experience offered by placements, internships, and practica adds an important applied dimension to university study, they do not necessarily and certainly do not automatically confer the ability or desire to think big picture, systemically and sustainably; deal with ambiguity and uncertainty and develop resilience; critically and courageously interrogate and reflect; challenge their own beliefs, assumptions, and habits; develop a sense of citizenship and its obligations, and ethics of contribution, service, and care; balance humility and confidence; and foster a healthy measure of agency and self-authorship.

Our work as educators, at whatever level and in whichever discipline, must demonstrate concern for student development across this portfolio. We can and must innovatively incorporate and integrate these topics with the discipline-specific subject matter for which we are responsible. The tighter and more harmonious the integration, and the more authentic and relevant, the more effective our teaching will be and the greater impact on learners' lives we will have. It is crucial to a university education for the 21st Century that graduates learn not just *what* and *that*, but *how* and *why*. They must also develop the capacities to think *why not* and *what if*, and develop the skills and attitudes to pursue these lines of inquiry. We must all remember that it is not jobs for which we are educating university students, but a future—theirs and ours.

ENDNOTES

ⁱ For a range of perspectives on innovative learning as used here, see Baker and Sinkula (1999), Drennan et al (2005), Fenwick (2004), Gielen et al (2003), and Paavola et al (2002). Amin and Roberts (2008) speak of "high creativity knowing" with respect to professional practice and practice communities. "Innovative learning" is a noun characterising a particular kind or quality of learning, rather than referring to innovative (new and different) learning environments or approaches. I refer to innovative learning as a capability for "sustainable learning and change" in Hays (2013a) in contrasting it to competence. It is, as used in this piece, "learning forward", as explained in the section titled The New Learning Paradigm.

ⁱⁱ Many scholars address the topic of the new world "disorder", as referenced in my book chapter "Wicked Problem: Educating for Complexity and Wisdom" (Hays, 2013c). Based on an extensive review of the literature, Chris Kim and I characterise the world of the 21st Century in "Renaissance Leaders: Global Trends and Emerging Forms of Leadership" (Kim and Hays, 2010) and in our book *Transforming Leadership for the 21st Century* (Hays and Kim, 2012).

ⁱⁱⁱ For simplicity's sake, we will use the term "conventional" to describe university education that tends toward the theoretical-abstract end of the continuum. This is not to say that theory, principles, and factual matter are at all insignificant. Conventional has more to do with process than content. As used here, conventional implies the delivery, process, and facilitation of learning more so than the content per se. Harder to explain, and beyond the scope of this monograph, is that the process of facilitated learning may be as important—if not more so—than the content itself! For the process of inquiry and learning are and will always be of utmost importance. One cannot, for example, be a self-directed learner without possessing these skills and orientations. As the old saying goes,

Give a man a fish and he has food for a day. Teach a man to fish and he has food for a lifetime.

While there are abundant and diverse exceptions, conventional here implies education content and delivery that are traditional, customary, and generally accepted (see table below). Such education embodies and perpetuates the status quo (Carson and Fisher, 2006). Writing elsewhere, I concluded:

traditional models of teaching and learning instil conventional habits of problem-solving and restrict creative thinking. Individuals subject to such education may solve standard problems efficiently, but falter when confronting unfamiliar problems or contexts. Most of us have the potential to see unexpected relationships and merge discrepant ideas, but we may have to unlearn habits that may be impeding our best thinking (Hays, 2014).

Further, colleagues and I (Hays et al, undated), citing Boyatzis et al, Cortright, Dumas, Harris et al, and others, underscored that:

conventional units fail to consistently engender higher-order capacities. Traditional coursework and teaching methods may increase subject knowledge and relevant skills, but they don't necessarily equip graduates with transferable skills they can bring to bear in novel contexts.

Some general descriptions of and assumptions concerning conventional learning environmentsⁱⁱⁱ appear in Table 2.

- Teacher dominates “talk time.”
- Teaching students what to think, rather than how to think.
- What teacher says is accorded more importance and legitimacy than what students say.
- Students learn from teacher, rather than from each other (teachers teach; students don’t).
- Didactic methods dominant, more so than facilitation, project, discovery, etc.
- Students as passive recipients of knowledge.
- Student experience and knowledge irrelevant or discounted.
- Students treated as all the same, rather than each unique.
- Students required / assessed on ability to reproduce knowledge rather than produce it.
- Teacher responsible for classroom dynamics, and for “fixing” things.
- Teachers expected to be managers (efficient, unemotional, objective, rational, and in control).
- Order, structure, predictability, clarity, and precise definition are expected. It’s the teacher’s obligation to provide them.
- Hierarchy and power assumed to characterise real, organisational life replicated: teacher at the top, students somewhere down below.
- Theory X principles, assumptions, and practices dominate: students are unmotivated, irresponsible, incapable of self-governance, likely to cheat / be dishonest, are self-serving and, thus, must be controlled, directed, watched, spoon-fed, and otherwise over-patronised.
- Content is theoretical, abstract, decontextualised. Tends to be more “about” the subject than engaging with it.

Table 2.
Attributes of conventional education

Some readers may believe that these descriptors no longer apply in the university context, if they ever did. Few, if any, of us would like to admit that our teaching manifests any of these depictions. In any event, these are probably a matter of degree, rather than either-or, yes or no. But to the extent that any are present in our learning environments, we may reasonably conclude that we are in some measure failing our students, the organisations that will employ them, and society.

^{iv} Additional sources covering higher-order capabilities and dispositions vital in a complex, evolving world and covered elsewhere in this monograph include: Buckley and Monks (2004)—ingenuity, insight, inspiration, inventiveness, vision, resourcefulness; Crossan et al (1999)—intuition, oriented to future possibility; Lee and Dunston (2011)—openness, insightfulness, and reflection + improvisation. Much is rightly made of managing or tolerance for paradox and ambiguity in the literature: Calton and Payne (2003); Day and Schoemaker (2008); De Meuse et al (2010); Gielen et al (2003); Grint (2007); Kim and Hays (2010); Nicolaides and Yorks (2008); Shelton and Darling (2003).

^v This is not directly an article on transformational learning, so I won't go into too much detail, but some background is important. Suffice it to say for the moment that transformational learning involves fundamental shifts in thinking and acting, new ways of seeing the world and one's place in it, and results in a new way of being and potential for continual becoming (Hays, 2008b; 2013b). Harris et al (2008), for example, posited that under the right conditions a fundamental shift in the learner's view of self or the world allows him or her to operate differently and more efficaciously; while Hutchison and Bosacki (2000) claimed that more than mere perspective change, transformational learning may affect the learner's being. Boström and Lassen (2006) observed that learning involves changes in being and acting, in thinking and feeling, and changes in view of self and of surroundings. For us, this might mean what it signifies to *be* a learner, to *be becoming* a professional, to *be* responsible for and capable of serving humanity in some way.

My presupposition is that preparing students for the professions and the complex problems they will confront on the global stage of the 21st Century requires not merely accretion of discipline-specific competencies but transformational learning. Covered widely in the literature, some of the sources I have found useful and relevant to this thesis are: Applebaum and Goransson (1997), Grauerholz (2001), Hong and Kuo (1999), Illeris (2003), Kempster (2006), Marsick (1998), Meuser and Lapp (2004), Mezirow (1991; 1997; 2000), Plack (2006), Taylor (2008), and van Woerkom (2006). I add to this list an author whose work has recently come to my attention: Sterling (2001), who clarifies important connections between sustainability, learning, and change, and whose neglected ideas are influencing the direction of my work in sustainable learning and education.

^{vi} See Hays (2010) for a tutorial on mapping vicious and virtuous cycles and (2013c) as they apply to education. Numerous scholars have underscored the point that a different education is needed to prepare graduates more effectively for complexity, many of whom are cited elsewhere herein, with Barnett (2004), Buckley and Monks (2004), Gonczi (2013), Rassekh (2001), and Sterling (2001) indicative.

^{vii} In linking professional and organisational learning with practice development, Clarke and Wilcockson (2000) provide excellent examples of possibilities thinking, evident in their expert but absent in their novice thinkers. More than anything, expert thinking was described as holistic, with expert thinkers seeing more of the big picture, thus, having more to go on in thinking about complex problems and alternative solutions. I conclude from my read of Clarke and Wilcockson that novice thinkers tend to simplify and exaggerate causality. Warburton (2003) would later agree, writing that, "Deep learning involves paying attention to underlying meaning" (p. 45) and "promotes and is characterised by holistic insight, the ability to see complex relationships and to 'organise and structure disparate types of information into a coherent whole'" (ibid.). See, also, Sterling's (2001) related work in sustainable education.

^{viii} Admittedly, proffering organic and holistic problem-solving as a solution brings us little closer to educating for an uncertain and frenzied future. We still need to usher learners through the threshold that leaves behind need for and belief in "one right way" already known or at least locatable and into a space offering little certainty and few guides, where only open-minded inquiry, resourcefulness, improvisation, imagination and / or intuition, and possibly a measure of faith will allow a solution to come into being. Creating such mind capacities is the challenge of a 21st Century university education, and perhaps one that should begin much earlier. It may be that an elite few so endowed were sufficient in moving society ahead throughout recorded history, given the relative pace and simplicity of the past. This is no longer the case, with failure to act prudently and acting unwisely having dire consequences.

^{ix} Readers may wish to explore further notions of will and intention; if so, see Cañibano et al (2006), Ladkin and Taylor (2010), and Senge et al (2005). Intention figures in one of Shelton and Darling's (2003) quantum skills (the ability to see intentionally). This is about seeing reality more closely as it is, leaving aside limiting perceptions, and opening up to possibilities. Tsoukas and Chia (2002) also undertake the notion of intention in their momentous article on organisational becoming.

^x See De Meuse et al (2010) and DeRue et al (2012) each covering learning agility. My interpretation of learning agility is that some individuals are not merely flexible and adaptable but that they purposefully seek (new knowledge, skill, tools, etc.), learn, and apply that learning.

^{xi} Drawing on Freire, Yelder (2004) writes: "Knowing is always becoming and is a permanent state of discovery" (p. 65). Tsoukas and Chia (2002) write on organisational becoming: change is essentially, in their view, always already underway, not stepwise moments frozen in time but a continual process of becoming... a continual dialogue between doing, making sense, and adjusting the doing and sense-making.

^{xii} Mixing metaphors here. The swamp aspect draws on Schön's (1987) oft-referenced distinction between perspective, realities, and the relative significance of high ground and the swampy lowlands where things are muddled and plagued with crocodiles (as well as on the metaphor of draining the swamp...). I won't reference "swimming with sharks" but readers might envisage practice situations where waters, metaphorically speaking, are teeming with sharks, not necessarily in terms of corporate savagery, but that practice throws up continual

challenges, coming sometimes seemingly out of nowhere, many barely understood, their intentions unclear and how best to deal with them uncertain. In infested, frenzied waters, no solution seems sufficient but something must be done; yet every possible course of action has drawbacks.

^{xiii} Another prime example of a Key Generic Skill and Desired Graduate Attribute espoused in many curricula is Critical Thinking. While it is probably the case that Critical Thinking is developed to some degree in students attending tertiary education institutions whether or not directly focused upon, development of this sophisticated higher-order capability is at best inconsistent. It remains a challenge to instruct and assess Critical Thinking, with much dispute over how to do it, where and when to do, and even who should do it, if at all. Given that Critical Thinking may be the most important capability and disposition of educated minds in the 21st Century, more needs to be done to assure tertiary institutions are producing graduates so enabled.

^{xiv} I have outlined “dialogue levels of sophistication” elsewhere (see Hays, 2010b and 2014), and the following graphic summarises the levels, which correspond to increasing maturity and effectiveness of teams or groups that employ dialogue. Further, in ongoing research, associates and I are investigating the use of reflective dialogues to promote development of teamwork and collaboration in project-based teams.

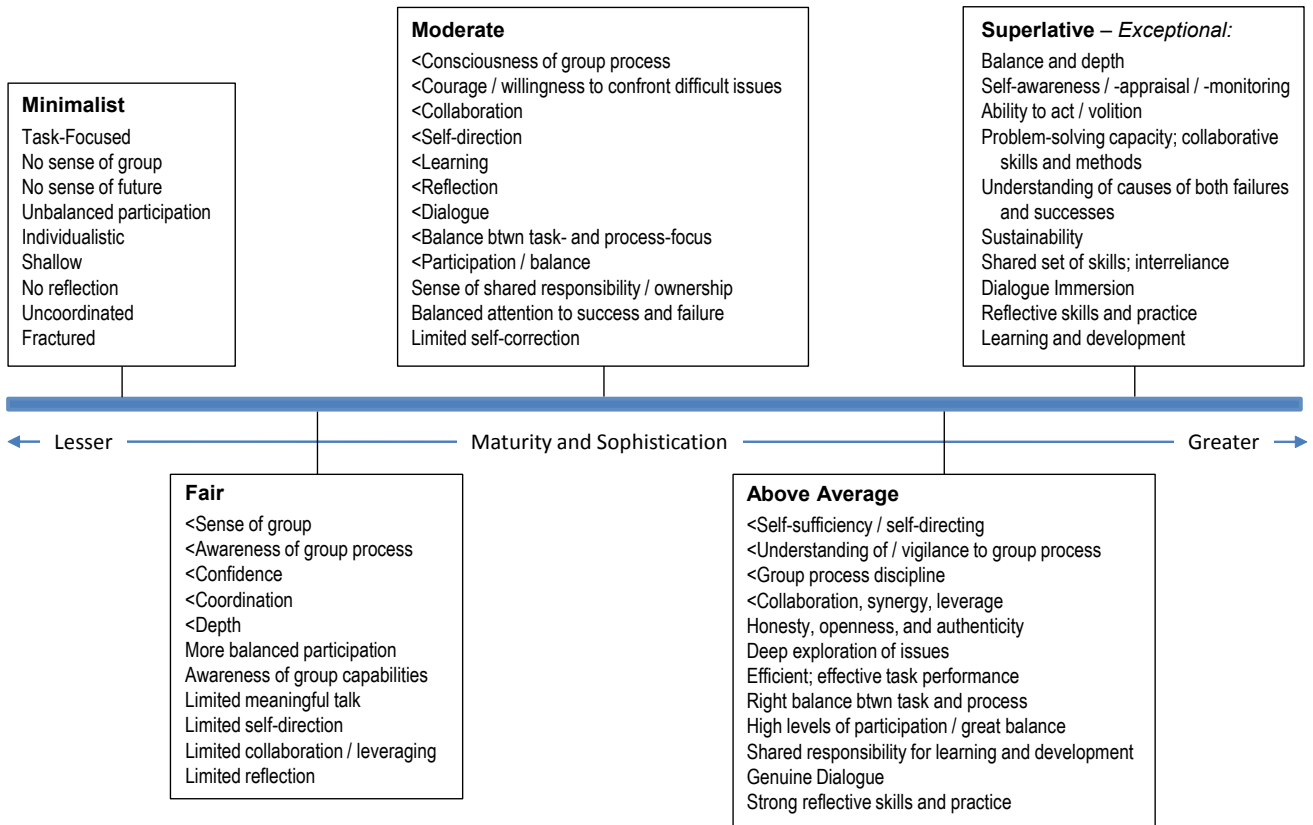


Figure 4.
The Dialogue Continuum

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